

Deliverable 2.4: Public protests against deployment of electricity transmission infrastructure in Europe: what are successful actions to deal with issues of public acceptance? Evaluation of best practices application, with revisions to protocol and action plans

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1. Introduction

The goals of climate security require a significant reduction of the level of CO₂ emissions to mitigate potentially catastrophic risks of climate change (Parry et al., 2007). However, the total anthropogenic GHG emissions continued to increase in the period from 2000 to 2010 with CO₂ emissions from fossil fuel combustion industrial processes making about 78% of total GHG emissions. Energy supply contributes 47% of this increase (IPCC, 2014). To achieve these goals emissions should be cut by 50%, globally, and by 80% in industrialized countries, such as in Europe, by 2050 (Solomon et al., 2007). Current estimations foresee even a higher reduction of CO₂ emissions from energy supply. To achieve the mitigation scenario of 450 ppm CO₂ by 2100, reductions of over 90% of CO₂ emissions from energy supply below the level of 2010 are needed in the period between 2040 and 2070 (IPCC, 2014).

Deployment of renewable energy sources (RES) to generate electricity is one of the possible options to decarbonize energy generation. In 2011 the European Commission published the roadmap to achieve reduction of green house gases by at least 80% by 2050 (COM, 2011). The roadmap foresees five alternative pathways, across all of them renewable energy generation plays a significantly stronger role than today. Also the goals of the European energy security policy require restructuring of the energy generation towards a greater share of low carbon energy generation (Battaglini et al., 2009; DLR, 2006). In October 2014 the EU leaders agreed on the 2030 policy framework for climate and energy, which settles the GHG reduction target of 40% compared to 1990, as well as an increase of the share of renewable energy to at least 27% of the EU's energy consumption by 2030.

The European Commission proposal on guidelines for trans-European energy infrastructure calls for urgent need of new power lines because of three reasons: to foster market integration, to maintain a high level of system security and to transport and balance electricity generated from renewable sources¹. The institutional framework for grid planning was settled at the European and national levels

• ¹ Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009

and was standardized with the ten-year-network-development plan (TYNDP) procedures. This plan is supposed to be compatible with the guidelines for trans-European energy networks (EC, 2006). To reach the targets settled in the European Commission Roadmap 2050 of 80% GHG reduction target by 2050 investment costs of €30 to €93 billion until 2050 would be necessary.

Around 42,000 km of transmission lines need to be upgraded or constructed in the European Union to secure market integration, security of supply and to accommodate the renewable expansion planned for 2020 (ENTSO-E, 2010), and the 2030 goals would require even a higher number. Only in Germany the energy law from 2009 (Energieleitungsausbaugesetz EnLAG) speaks about the need to construct or upgrade 23 lines with the overall length of 1.855 km and one project was canceled according to a new national grid development plan. The Bundesbedarfsplangesetz law from 2013 speaks about the need to construct 2.800 km of new 380kV lines and upgrading of 2.900 km of existing lines (BMW, 2013). These numbers are not mentioned in the law, these are mentioned in the approval of the grid planning (NEP). The law only states the number of needed projects, 36 projects in total². The goal to scale up electricity from renewable energies and to increase the share of renewable energies in electricity supply up to 80% by 2050 will require additional 3,600 km of high voltage transmission lines (HVDC) with 380 kV have to be constructed (Netzentwicklungsplan 2014)³.

The process of construction, extension and upgrading of electricity grids in Europe is going extremely slow and in some countries no new lines were constructed during the last decade (ENTSO, 2006). The delays in the construction of new lines are caused by several barriers, however, the most recent studies show that the slow construction process is not due to a shortage of projects or a lack of interests from the side of transmission and distribution grid operators but because of the lack of public acceptance for construction of the new grids and for upgrading of existing ones (Eclarion, 2012). This is expressed in an attitude when inhabitants in the communities, where grid infrastructure is planned to be constructed or upgraded, are recognizing the need for new electricity grid and energy transition, in general, but are reluctant to accept the development of new overhead lines in their communities (Schweizer-Ries, 2010). The inhabitants can also question the need of the project, and not only in the proximity to their community. Failing to reach agreement on deployment and siting of projects causes lengthy and costly delays in the planning process and even jeopardize the new lines project altogether

• ² <http://www.gesetze-im-internet.de/bbplg/BJNR254310013BJNE000601116.html>
• ³ www.netzausbau.de

(Kunreuther et al., 1996; RGI, 2012). As recent events in Bavaria, Germany, where inhabitants protested severely against new electricity grids and the State government of Bavaria put these plans on hold, show public is questioning the need for infrastructure projects and the citizen protests delay construction and upgrading of new grids for several years. Public also denied deliberately support to the project even though had agreed on the general decision on the need to years before.

Legislation of several European countries made it necessary to involve the public into decision-making process on infrastructure projects in a form of providing input or comment prior to decision-making process (Barthes and Mays, 1998). Public participation is also often regarded as a democratic right in realization of procedural justice (Perhac, 1998). Providing an opportunity to stakeholders for an input into different forms of environmental assessment or decision-making can improve quality and legitimacy of outcomes (National Research Council, 2008). According to the German Advisory Council on the Environment, there is an urgent need to strengthen public participation and acceptance to reach substantial share of renewable energies in electricity mix and to decarbonize energy generation (SRU, 2011). In 2009 the UK Government published the “Low Carbon Transition Plan”, which states repeatedly that “planning and persuasion” is necessary to reach renewable energy targets. In this plan “persuasion” means convincing people that climate change is a more pressing environmental concern than localised impacts of renewable energy development (Haggett, 2010). Indeed, there is a requirement in UK governmental policy that decisions have to be discussed with local communities (Rydin and Pennington, 2000).

However, the ways how public participation is currently practiced are not perceived as being sufficient. To understand if public participation is sufficient we need to understand it in interdependency of different elements. Currently, more social science research is required, as the topic of deployment of renewable energies, energy transition and extension of electricity transmission grids has been dominated by technological and economic approaches (Devine-Wright et al., 2010). Therefore, there is a need to understand such questions regarding participatory process as different individual positions and social views on how good decision-making process on infrastructure siting should look like should look like and what are the major concerns of stakeholders about this process (Tuler and Webler, 2010).

Therefore, the goal of this work is to address four research questions:

- What are the major concerns of stakeholders regarding setting of electricity transmission infrastructure?
- What are the differences in these concerns dependent on stakeholders group, such as lay people or public administration?
- How can these concerns be classified according to such principles as the need of the project, transparency about decision-making processes, engagement of stakeholders, protection of environment and human health, benefits from the project to local communities?
- If these concerns are mainly related to output justice, where the most of NIMBY concerns are, or to procedural justice, which is a universal human right for information and involvement into processes which affect some ones living place?

In the area of methodology, the goal of this work is also to address the task of evaluation of best practices and what are the necessary revisions to research protocol and recommendations to action plans on participation and environment.

The goal of this work is to identify how successful were actions implemented in cooperation by transmission systems operators, non-governmental organisations and academia to address public concerns about deployment of electricity transmission infrastructure in four pilot projects. An innovative approach contributing to public acceptance was developed in the framework of the BESTGRID project⁴. This approach was also formulated in the European Grid Declaration (EGD) on Electricity Network Development and Nature Conservation in Europe (RGI, 2011), which defines a set of principles on how to build power lines without harming nature. The Declaration was developed under the guidance of the Renewables Grid Initiative (RGI) secretariat and signed by more than 30 large institutions across Europe. In the EGD, the signatories acknowledged the need to strengthen and expand the electricity grids in Europe to enable the integration of growing volumes of renewable energy. For the first time, this document and its signatories explicitly recognized that there is no contradiction between infrastructure and nature protection. The EGD describes how to avoid, minimize and eventually compensate for the impacts on nature. It stresses the need to involve stakeholders into

• ⁴ www.bestgrid.eu

the decision-making process as early as possible and to provide clarification as to the need and purposes of new infrastructure.

While it is not always easy to agree on principles, it is usually more difficult to implement what has already been agreed upon. For this reason, the RGI took on a new challenge and applied for funds within the European Commission's "Intelligent Energy Europe" programme to implement the verbal commitments contained in the EGD in real projects on the ground. This resulted in the project BESTGRID – testing better practices. The partners consisted of five TSOs, Elia, TenneT, 50Hertz, National Grid and Terna; national NGOs Germanwatch and BirdLife International; a scientific research institute IIASA; and RGI as coordinator. Several local NGOs, such as Bond Beter Leefmilieu Vlaanderen vzw (BBL), Natagora, Fédération Inter-Environnement Wallonie (IEW), Deutsche Umwelthilfe (DUH), NABU took part in the work as subcontractors;

The approach developed in BESTGRID suggests that the joint efforts of TSOs and NGOs – backed by academia - could contribute to the development of better engagement processes with stakeholders and eventually to the understanding of concerns of public opposition or possible support for necessary transmission grids across Europe.

This deliverable includes three sets of results: 1) evaluation of stakeholders concerns according to guiding principles and the group of stakeholders, 2) evaluation of separate actions, where sufficient data were available, 3) to address these concerns and evaluation of BESTGRID as an entire process to address stakeholders concerns. The evaluation of separate actions includes: successful and unsuccessful stories from infrastructure projects in other sectors and based on them recommendations for action plans, round table discussions of 50Hertz and TenneT infomarkets, where concerns were recorded through the method of observation and could be compared for the first and the second round of discussions and we could also observe the changes in these concerns, information campaign of Elia where we could observe not only concerns about the project but also about cancellation of the project. The recommendations from other sectors on siting of controversial infrastructure are summarised in the BESTGRID best practices background document: Evidence of five guiding principles in Infrastructure projects (Komendantova, 2013). The recommendations from Germanwatch and BirdLife are summarized in the Internal Briefing Paper on Best Practices: Focus on nature conservation (BirdLife, 2013) and the Internal Briefing Paper on Best Practices: Focus on Public Participation and Transparency (Germanwatch, 2013)

2. Background

2.1 Need for further deployment of electricity grids and public opposition in Europe

In 2010 the German government adopted the energy concept, according to which around 80% of electricity should be generated from renewable energy sources. This will require extensive transition of the German energy system, including extension and restriction of existing grid architecture. After the Fukushima disaster in 2011 the decision was taken to phase out nuclear energy in Germany. To guarantee such energy changes without creating risks for energy security the law foresees the need to speed up construction of new electricity lines in Germany. The responsibility for grid extension approval processes was shifted from regional authorities to the National Federal Network Agency (BNetzA).

Belgium settled renewable energy targeted of 13% in final energy supply by 2020. Currently the country is consuming its electricity mainly from nuclear (53.8%) and fossil fuels (40.8%) with renewables making only 7.4% of its energy mix (REN 21, 2013). The share of renewables in electricity generation made 11.3% in UK in 2012. Currently UK is consuming mainly natural gas (41% in primary energy supply), coal (29%) and nuclear (18%). The UK Government goal is to produce 20% of electricity from renewables by 2020 (UK Department of Energy Statistics, 2013).

Worldwide renewable power capacity grew by 85% over the past 10 years and reached 1.700 GW in 2013, making today over 30% of all installed capacity (IRENA, 2014). But the process of transition to low carbon energy generation is faced with several challenges such as new requirements on grid architecture. One of the major challenges is how electricity transmission system can balance the variable RES, which pose numerous challenges such as reduced operating hours and profitability or the need of adequate infrastructure to integrate the varying outputs of RES. Variable RES also impose additional complexity as wind farms or photovoltaic systems generate electricity only when wind speeds are high enough and sunlight is strong and no operator has control over such factors. As long as the share of RES is low the electricity transmission system can operate as usual but as the share is increasing this has impact on stability of electricity grids. Electricity grids will need to react on demand-side changes, fluctuations in demand and generation side changes, and losses of active power. While traditional variability of demand or load always required a certain level of flexibility, the so-called power

ramps, caused the significant reduction of electricity coming from intermittent RES, can seriously affect electricity grids (EURELECTRIC, 2011).

But wind is both variable and cannot be controlled, the power generation also cannot be scheduled according to the demand and the probability is high that sometimes there will be no wind generation at all, the generation of wind is also irregular based on the hourly scale. The transmission systems operators would need to balance these irregularities to keep frequency and voltage within a stable range. Another factor affecting vulnerability of grids is situation in the area of interconnector (Battaglini et al., 2009). The cross-border connections were mostly seen to ensure grid stability and back-up to adjust transmission systems. Deployment of RES potentials in zones far from consumption centres require that grids will be able to gather and send through the output from the flexible and back-up power plants. If existing and future flexible and back-up units cannot be located close to RES generation and use the same transmission grid, the need for more lines and smarter grid management will increase. Also the International Energy Agency speaks about the need of an increased capacity of transmission lines and reduction of congestion during key period to guarantee stability of the grids (IEA, 2010). Further more, the lack of transmission capabilities may restrict choices of balancing in a certain part of the power system.

The existing European energy transmission infrastructure was designed several decades ago to satisfy the needs of energy generation based on fossil fuels with energy generation sources being located nearby energy consumption areas. The new requirements on the grid architecture are to integrate volatile and intermittent energy coming from RES located in different geographic areas, such as solar in the South of Europe and offshore wind in the North of Europe. These requirements will lead to new forms of grid architecture such as smart grids to balance intermittency of renewable energy sources, and super grids to transfer large volumes of electricity over long distances. The features of renewable energy pose question about energy security of the new electricity transmission system, which is a very complex system as it consists of four parts, including generation, transmission, distribution and storage. All components of this system are inter-connected through transmission lines arranged within a high dimensional network and including large amount of edges and nodes. The existing challenges connected with the process of energy transition in Europe will require a significant upgrading of electricity transmission infrastructure, including construction of new lines and upgrading of existing ones, to guarantee stability of the grids.

Public interest to infrastructure projects is different today, when upgrading of the existing grid architecture is taking place, comparatively to the time when the existing architecture was built. In the last century citizens of Europe believed that infrastructure projects represent technological progress, which is needed to increase the well being of society. The traditional energy system had the goal to provide energy at least possible cost and such aspects as impacts on environment, interests of separate communities and people living in vicinity of the energy generation projects had only secondary importance.

Influenced by technological accidents and changed perceptions, today there is opposition to infrastructure projects. Before the goals of traditional energy system were dominating such as „construct at least possible costs“ and „construct with high level of security“. Now the new aspects are appearing, such as impacts on environment from energy transmission projects and compatibility with goals of sustainable development. The view on the energy architecture is also changing with appearance of different concepts of decentralised energy generation and growing importance of renewable energy generation. Following the requirement on sustainable energy production, now the new requirement is appearing that energy should not be only produced in accordance with the goals of sustainable development, but also transmitted in accordance with the goals of sustainable development. The influence of non-governmental organizations (NGOs) is also growing. Today NGOs are able to organize, mobilize and articulate public opposition against infrastructure projects. For example, public opposition in Germany against EHV lines is mainly led by citizen action groups or local politicians, not by environment NGOs. Public acceptance nowadays is closely connected with public participation, which is understood as a democratic principle of inclusiveness and right of people to participate in decision-making regarding infrastructure projects, which affect their lives (Beierle and Cayford, 2002).

This opposition can be driven by different factors such as concerns about impacts on health and environment, doubts about the need of the project and economic concerns. Previous studies identified the major concerns of people regarding further development of electricity grids. These concerns are connected with externalities of the grid transmission projects such as visual, health and environmental effects as well as financial losses such with regard to property values (Cohen et al., 2014). Other concerns are connected with NIMBY behaviour (Burningham et al., 2006) or other different factors of the complex opposition to the grids such as the questioning about the need of the grid, in general,

arguments for energy efficiency or decentralized energy generation, such as “small is beautiful” (Batel and Devine-Wright, 2014; Wolsink, 2000). The recommendations were also developed on how the issues of public acceptance could be addressed through such actions as improvement of regulation for minimum distances near settlements, clear political statements and leadership, improved nature protection and environmental impact assessment of grid projects as well as introduction of common norms for electro magnetic fields, transparency of the project planning processes and involvement of stakeholders into planning processes (Battaglini et al., 2012).

2.2 Beyond Decide-Announce-Defend (DAD) Model and Not-in-my-Backyard (NIMBY) concept

Until nowadays there is no clear evidence about how much participation we really need in siting processes for infrastructure projects. The traditional view is that decisions regarding technical issues should be concentrated in hands of experts and scientists (Perhac, 1996). Others suggest that public involvement into complex decisions can be limited by capacity and adequacy of available knowledge, for example, if public understands significant concepts such as “uncertainty” and what role the science is playing in the decision-making process (Brooks and Johnson, 1991). Also other factors may limit capacities of public to contribute to complex decisions, which could be based on public attitude, beliefs and motivation (McCallum and Santos, 1997). At another side, public participation is needed as often there are also limitations in the knowledge of experts, where often different positions are represented, there are conflicts and experts often disagree among themselves (Jasanoff, 1997). It is generally recognized that more knowledge-based decisions require lower level of participation than more value-based decisions.

In order to understand what are good outcomes of public participation, it is necessary to evaluate the process, which might lead to good outcomes. Usually such process can incorporate certain elements or characteristics, which might have influence on its effectiveness (Smith et al., 1997). And most of these elements discussed in the literature are procedural rather than substantive (Middendorf and Busch, 1997). Therefore, it is easier to evaluate how effective the process is, rather than to measure efficiency of its outcomes.

The participatory process may include several methods such as focus group discussions, public opinion surveys, referenda, public hearings and inquiries, negotiated rule making, consensus conferences, citizen juries and panels, public advisory committees and several others. Each of these methods has its advantages and disadvantages. For instance, referenda, public opinion surveys or focus group discussions might have positive results in terms of output justice and provide a fair amount of credibility with public but not in terms of procedural justice.

According to Smith, Nell and Prystupa (1997) the most appropriate techniques for public participation are likely to be hybrids of traditional methods and bring combination of different methods. Also Fiorino (1990) suggests that a potentially effective approach to participation may be to complement one mechanism with another.

The integration of views of lay people and public values, and not only from “educated experts”, can lead to enhanced legitimacy of decision-making process and trust (Renn, 2008). This is a completely opposite view on the technocratic models of infrastructure siting, which are based on so-called “decide-announce-defend” (DAD) model, when results developed by “educated experts”, project developers or government are simply communicated to the public. Evidence shows that DAD often leads to social conflicts, delays and even cancellations of the project (Wolfsink, 2010).

Social movements have arisen to challenge proposals to develop increasing numbers of onshore wind farms in rural areas (e.g. the Country Guardian organization in the UK), while concepts such as ‘NIMBYism’ (‘Not in my back yard’) have had a strong influence in shaping how industry, policy-makers and media commentators think about and respond to the sometimes sceptical responses of local residents to proposals for renewable energy in their locality. The NIMBY concept is often used to address what at first seems to be a confusing ‘social gap’ (Bell et al, 2005) between high levels of public support for renewable energy and frequent local hostility towards specific project proposals. Many social scientists argue the NIMBY concept is a misleading, inaccurate and pejorative way of understanding local objections (Burningham et al, 2006; Wolsink, 2006; Devine-Wright, 2009). Often the lack of opportunity to express own view and concerns leads to public opposition (Bell et al., 2005).

It is also necessary to bear in mind that the NIMBY concept was already questioned by science (Wolfsink, 2000). Even though, the classical understanding of NIMBY is when environmental advantages of RES projects are perceived at global or national levels, at the same time as

environmental impacts of such projects affect only mainly local population (Kaldellis et al., 2013). There is also a great difference between accepting deployment of RES, in general, or acceptance of a concrete RES generation or electricity transmission project on the ground (Krohn, 1999). Often also attitude of inhabitants towards RES projects can be influenced by others, than NIMBY, factors. For example, it can rise out of the scepticism of inhabitants towards the private company or authority that wants to install the project. There is scientific evidence that several inhabitants who were protesting against the project did so because of their entire opposition against the company or energy policy of the way the project was planned and implemented rather than opposing infrastructure itself (Ek, 2005). Also inhabitants' scepticism may be also considered as a place-protective action, which results as a reaction to developments, which might disrupt existing emotional attachments and threaten place-related identity processes (Devine-Wright, 2009). Also public opposition against the project often focuses on environmental impacts during installation and construction phases of the project (Kaldellis et al., 2013).

2.3 Theoretical framework to understand concerns from stakeholders

One of the most famous tools to understand public participation was developed by Arnstein in 1969, extended by Rau in 2012 and is called „ladder of participation“. According to the ladder of Arnstein there are eight elements of participation, which are classified into three levels (figure 1).

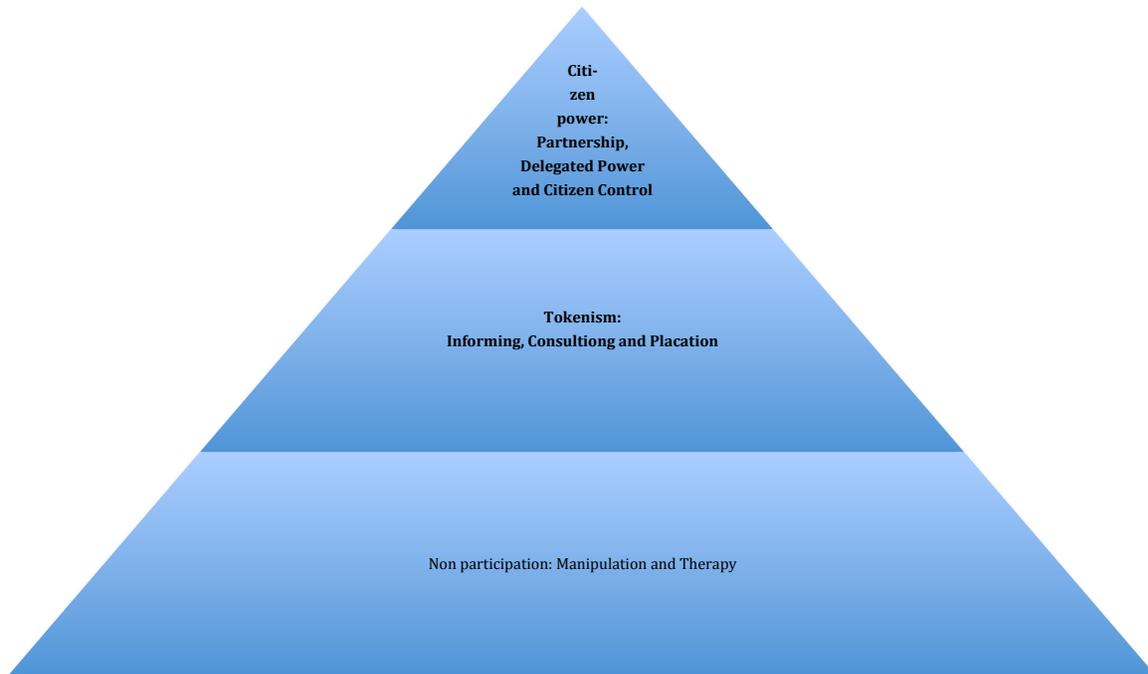


Figure 1: Ladder of participation.

Source: Arnstein, 1969, Rau, 2012

Here we are describing these levels in detail. The level of non-participation includes manipulation and therapy. Manipulation is non-participation by less powerful, such as disadvantaged groups of population. Often they are used by more powerful to achieve their goals. Therapy is applied to cure the issue or to educate the participants. This is a sort of “Decide-Announce-Defend” model when a proposed plan is put forwards and the major role is to achieve public support largely through public relations.

The second level of tokenism includes informing, consultation and placation. Informing is necessary to legitimate the process, but very often it only includes one-way flow of information and there is no channel for feedback for the participants. This level does not actually provide the opportunity for public participation at all, but rather provides the public with the information they need to understand the decision-making process. At this level there is no opportunity for public to influence decision-making process and public is informed about a certain project or activity but it enables people to form an opinion and to seek for further engagement. This level is different then therapy as it does not aim to

influence public but information is provided in transparent way that inhabitants can understand the need of the project and to reach their own conclusions about the adequacy of the decision to realize such project. Consultation is the basic minimum opportunity for public to provide their input to decisions. Inhabitants are often asked for their concerns, for which later on projects developers take consideration. The promise at the consultation level is to consider public inputs and to provide a feedback how these inputs influenced the decision. Consultation includes application of tools to collect concerns from stakeholders through application of such data collection tools as surveys, neighbourhood meetings and public enquiries. Placation allows certain cooperation with stakeholders, mainly with representatives of organized stakeholders, through advisory role but the project developers retain the right to judge the legitimacy or feasibility of the advice. At this level stakeholders are invited into the process, from the beginning. They are provided with multiple opportunities to influence decision-making.

The third level speaks about citizen power and includes partnership, delegated power and citizen control. In partnerships the power is redistributed through negotiation between citizens and power holders with sharing of the planning and decision-making responsibilities. The have-not, poor or unpowered citizen can negotiate and engage in trade-offs with power holders, for example, through joint committees. The delegated power happens when citizens hold a clear majority of seats on committees and have delegated powers to make decisions. The citizen control is when the citizen handle the entire job of planning, policymaking and managing of the project with no intermediaries between it. The citizen also have majority of decision-making seats in the committees or full managerial power.

The theory of Arnstein has also drawbacks. Namely, it juxtaposes the powerless citizen with the powerful in order to highlight fundamental divisions between them. However, neither the power-holders nor the challengers of this situation are homogenous. Each of these groups has different points of views, concerns and interests.

The general agreement on siting of infrastructure is that it should include following elements: widespread agreement that facility is needed, early discourse and involvement of public, recognition that facility will not impose unacceptable health and safety risk and a view that the siting process and outcome are fair (Kunreuther et al., 1993). However it is less clear how the siting process should be

structured in terms of involving conflicting views, interests and concerns. These conflicts go beyond NIMBY syndrome and involve a clash of social views about fairness and legitimacy of the process.

Scientific evidence shows that these conflicting interests can be mostly classified into four groups according to the views of the process and outcomes, such as hierarchical, market, egalitarian and anarchical (Thompson et al., 1990). In other words, perception of a good outcome of the process depends often on the social view of a person being asked (Tuler and Webler, 2010). Positional authority, inequality and procedural rationality characterize the hierarchical view. The followers of this view accept ranking, inequality, tightly administered rules and procedures. The fairness and distribution issues are settled by administrative determination according to the ranking, needs and contributions of stakeholders (Rayner, 1994). Personal rights, freedoms and more substantive form of rationality, characterize the market position. The fairness and distribution issues are settled according to individual initiatives, negotiation, competition and market interactions. Egalitarians reject both unequal social relations of hierarchy and competitive outcomes of the markets. They are motivated by shared morality and perceptions of social inequality.

In the majority of the European countries the role to impose a new infrastructure project remains with the government, when central or local government and public representatives acts as trustees for interests of larger society. However, here a conflict of views between local and central government might appear as the responsibilities of local government is that safety standards in terms of impacts on human health and environment are met, at the same time as the responsibilities of central government are to enhance public welfare and to set new infrastructure somewhere. The central government is often in support of regulatory siting procedures and the utilitarian view of fairness channelled through expert-government dominated siting process (Linnerooth-Bayer and Fitzgerald, 1996).

The study of social views of stakeholders and their concerns can help to understand and to provide legitimacy to decision-making processes about infrastructure. Under legitimacy we understand “a generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within socially constructed system of norms, values, beliefs and definitions” (Hurd, 1999). There are two forms of acceptance; one is for final decision about how and where the project should be realized and another one of the process, which led to this decision. The procedural justice is a perception of the process as being fair, transparent and inclusive. The outcome justice is perception of the results of this process as being fair and acceptance. Due to diversity of views and positions, it is more likely that

acceptance of the process is achieved, rather than acceptance of the outcome, by the bigger number of stakeholders. Even if the final decision is not accepted, if the process of how this decision was achieved is accepted then legitimacy is achieved.

Public response to the infrastructure projects is not developed in vacuum but as a result of interactions between different stakeholders, who are promoting or opposing the projects (Futrell, 2003). These interactions shape expectations of people regarding the project and possibilities for engagement. Their expectations also depend on the extent to which people are searching for information about the project in different sources such as media reports, talks with other stakeholders, participation at meetings and exhibitions. This process has several stages. According to Devine-Wright (2009), these are:

- Awareness about the project
- Interpretation of its results and impacts
- Evaluation of the project such as threat or opportunity
- Responding in different ways such as supporting, ignoring or opposing

There are many factors, which impact these interactions. One of them is a characteristic of place and community, which includes sense and attachment to the place as well as attachment to the landscape. Usually, the more people feel being attached to the place, the more they oppose projects, which have visible impacts on environment (Devine-Wright and Howes, 2010). Other characteristics are nature of community, socio-demographic development, level of prosperity, social capital, income per capita and its distribution among population.

Another factor is policy context at both regional and local levels as well as at national and international levels. This context shapes discourse around the project, defines legitimation and engagement strategies and sets boundaries for decision-making, such as land-use under Nature 2000.

The views of stakeholders regarding siting of infrastructure were also studied in frames of the concept of strategic action fields, developed by Fligstein and McAdam (2011). The strategic action fields are regarded as fundamental units of collective action in society at a meso-level. At this level of society actors interact with each other based on their understanding of the knowledge of another actor and a

set of common understandings about the purposes of the field, the relationships and distribution of powers within this field.

Participatory governance requires involvement of different views and perceptions of stakeholders into decision-making. There are several reasons for this. First, if people have an opportunity to express their opinion they are less likely to oppose decisions. Some scientists argue that involvement of public leads to better and more competent decisions. Second, ethically, public may engage to establish a fair process. Perception of procedural fairness may increase trust in authorities and institutions (Healey, 1996). The fairness of the process is as important as consensus about decision as it provided people with feeling that they have an opportunity to speak and be heard (Gross, 2007). Also involvement of affected inhabitants can also help to base decisions on local factors, values and issues and not to impose them from outside what can be impossible or unacceptable (Owen et al., 2004).

Detailed analysis of conflicts among different stakeholders regarding construction of energy transition infrastructure was conducted in frames of the “Adaptive Capacity, Path Creation and Variants of Sectoral Change” study, which identified positions of different groups of stakeholders regarding the goals of the German government to construct new electricity lines to transport electricity from energy generation centres in the North of Germany to the energy consumption centres in the South of Germany to address unequal balance between energy generation and consumption as well as for the European energy trade and connection of new power stations. This study is based on six case studies where conflicts and protests around construction of energy transmission infrastructure were especially strong. The study used such methods as analysis of media reports, documents, homepages of local stakeholder organisations and interviews. The major question was to understand position of stakeholders and their concerns as well as if there are dependencies between different stakeholders, what is the level of their influence up to the organisation of the new social movement. The study finds out that the major point of conflict is the requirement from the side of local communities for underground cable, which creates conflict between civil society and TSOs. Another point is the permitting procedure and framework for construction of new lines, which creates conflict between civil society and public stakeholders at the national level (Neukirch, 2014).

Neukirch also conducts stakeholders mapping and identifies three groups of stakeholders. The first one is energy generation companies and transmission systems operators. The second is NGOs and civil society organisations, local communities and other protesting stakeholders. The third one is

politicians and state actors at the national level, who provide framework for expansion of electricity grids. He also divides all stakeholders to “incumbents” and “challengers”. According to McAdam (2011), the incumbents or established stakeholders are actors with disproportionate influence in the field and those interests and views are dominating the decision-making processes, which legitimize their privileged position within the field. In contrary, the challengers occupy less privileged positions within the field and have less influence. As the challengers are recognising dominating positions in the field, most of time they conform to the privileging order, however they do not miss opportunities when the system is giving them a chance to challenge the structure and logic of existing roles distribution. Additionally to these two groups, there is also a third one, the internal governance units, which is settled to guarantee stability and functionality of the field. Even though such groups are enjoying legitimacy as being arbiters in solving conflicts between incumbents and challengers, usually their primary goal is to reinforce the existing status quo.

Looking closer to the group of challengers, Neukirch distinguishes three types of challengers: topic-challengers, concept-challengers and acceptance-challengers. The topic-challengers are people who are directly affected by infrastructure project. This type of challengers includes inhabitants of affected communities, municipalities, and regional environmental organisations. Usually their protests are around one or couple of topics, which are important for communities, such as impacts on a nature reserve in the vicinity, impacts on human health, or prices of real estate. Neukirch comes to a conclusion that the most of concerns of this type of challengers could be solved with construction of underground cable.

Concept-challengers are those who criticise the entire concept of further deployment of grids but must not be affected directly by a power line in vicinity. This type of challengers is interested to influence energy policy, in general. Their actions often include participation in podium discussions, publication of opinion letters, publication of studies and reports, public information actions.

The acceptance-challengers are mostly looking to the questions of procedural justice and think that the grids constructions could be realized with the help of compromises and involvement of stakeholders. This type of challengers includes NGOs, politicians at regional and national level as well as scientists. They are criticizing mainly the planning process and the transparency of it, as they suppose that power lines are constructed not only for renewable energy electricity but also to transmit

electricity from coal and energy trade with nuclear. They are also criticising public participation process as being too short and not involving all relevant stakeholders.

2.4 Guiding principles, BESTGRID approach and pilot projects

Evidence on implementation of infrastructure projects shows that certain principles applied during infrastructure siting ensured a greater degree of public acceptance. However, we would like also to point here out that the terminology “public acceptance” should be used cautiously. As Devine – Wright and Batel point out in their work “public acceptance” means more passively accepting something, which is inevitable. It does not reflect active support of the project. Also such terminology does not include all factors of human reasoning such as resistance, support, apathy etc.

These principles identified from practice and also recorded in the proposal of the BESTGRID project are:

- “Need”, which implies clear understanding and accepting of the need by stakeholders. It also includes linking of the need for new infrastructure to problems, which this infrastructure can address. The need of the project is also discussed in light of the measures on energy efficiency or other options such as decentralised energy generation as well as discussion on the corridor alternatives.
- “Transparency” concerning all aspects of the project as well as planning procedures, including information about, which technology will be used and why and who will be carrying costs and benefits of the project, what stakeholders are involved, what will be economic, environmental and health impacts. It also includes concerns about how transparent the decision-making process is, if information is available, clear and understandable on risks and benefits of the project, on regulatory procedures, on stakeholders involved and possibilities for engagement.
- “Engagement” which implies involvement of stakeholders into decision-making processes about infrastructure which will affect their community as well as all other relevant stakeholders whose knowledge might be beneficial for implementation of the project with least possible impacts on human health and environment. It also implies concerns about optimum time for engagement, not too late and not too early, how feedback from stakeholders was implemented

in decision-making about the project, if there were alternatives to discuss and feedback changed anything, about voices being heard,

- “Environment” which foresees implementation of actions to minimize impacts of infrastructure on human health, such as EMFs, on landscape, such as visibility effects, or on environment, such as biodiversity.
- “Benefit” which not only includes sharing of benefits of infrastructure with those who had to make compromises and carried the costs of infrastructure, such as visibility impacts, but also going beyond compensation for sacrifices but also making the entire community a more attractive and better place to live.

An innovative approach to contribute to greater public acceptance of deployment of high voltage electricity transmission grids was developed in frames of the BESTGRID project and we call this approach here as a “BESTGRID approach”. This approach is based on the principles of the European Grid Declaration⁵, which speaks that electricity grids can be deployed with possible minimum impacts on the nature and possible compensations for these impacts. This is however only possible while involving additional stakeholders, such as environmental NGOs, into decision-making processes about infrastructure deployment. Therefore, BESTGRID approach foresees cooperation between NGOs and TSOs on development of plans for public acceptance and environment protection as well as on joint implementation of these plans⁶.

The BESTGRID approach brings together five TSOs (National Grid, Elia, TenneT, 50Hertz and Terna) and non-governmental organisations (BirdLife Europe, Germanwatch, IEW, BBL, NABU, DUN, Natagora and others). The BestGrid project foresees implementation of four pilot projects, which have additional components to address issues of public acceptance, going beyond legal requirements.

● ⁵ This approach was also formulated in the European Grid Declaration (EGD) on Electricity Network Development and Nature Conservation in Europe (RGI, 2011), which defines a set of principles on how to build power lines without harming nature. The Declaration was developed under the guidance of the Renewables Grid Initiative (RGI) secretariat and signed by more than 30 large institutions across Europe.

● ⁶ In 2013 RGI was granted funds within the European Commission’s “Intelligent Energy Europe” programme to implement the verbal commitments contained in the EGD in real projects on the ground. This resulted in the project BESTGRID – testing better practices. The consortium consists of five TSOs, Elia, TenneT, 50Hertz, National Grid and Terna; national NGOs Germanwatch and BirdLife International; a scientific research institute IIASA; and RGI as coordinator plus several subcontracted local NGOs, such as Bond Beter Leefmilieu Vlaanderen vzw (BBL), Natagora, Fédération Inter-Environnement Wallonie (IEW), DUH, NABU.

Further on, results of BestGrid will be disseminated in countries with „projects of common interest“, as it is identified by the European Commission.

The implementation of BestGrid approach in pilot projects had several steps. First, TSOs developed action plans, where they stated which measures they are planning to implement to address issues of public acceptance. Then NGOs and IIASA were commenting on these plans, providing additional ideas and recommendations. These recommendations included comments on the framework for the specification and design of the action plans that allows for monitoring and scientific analysis of ‘what works’, suggestions and guidance to the TSOs in designing their action plans in line with five guiding principles (‘need’, ‘accountability’, ‘engagement’, ‘environment’ and ‘benefits’, described below) towards higher levels of environmental protection and public acceptability, and inputs towards the final ‘guide books’ on environmental protection and stakeholder engagement to be delivered at the end of the project. During the course of implementation of the plans NGOs, such as Germanwatch and BirdLife as well as IIASA and RGI were observing this implementation providing further comments and recommendations.

In frames of this deliverable we are discussing how plans on public acceptance and protection of environment were implemented in four pilot projects. Further on, we are evaluating the actions to address public acceptance according to five guiding principles. By observation of changes in concerns of stakeholders in communities before and after implementation of actions foreseen by BESTGRID we derive conclusions if these actions were successful to address stakeholders concerns. Here below we are describing pilot projects in more details.

Elia is a Belgian Transmission System Operator, which has over 8,000 km of lines, ranging from 30 kV to 380 kV, as well as underground cables. Elia not only transmits electricity from generators to distribution systems but also supplies power directly to major companies connected to the grid. Until June 2014 Elia was planning to construct 150kV onshore underground cable between two regions Braine-l’Alleud and Waterloo, which are south of Brussels in Wallonia. The overall length of the planned cable was 5831m, from which 2517m were agricultural zone, 2682m urban settlements, 150m green spaces, 287m zone of mixed economic activities and 195m zones of community use. The first contacts and presentation of the corridor were done in 2012 as well as identification of the need for the project. During the same year Elia published the report about the needs for this project. The needs were to guarantee reliable power supply, in general, and to address the issue of insufficient energy

supply, which was projected for Waterloo starting from the year 2018 as well as to integrate electricity generated by renewable energies. In the middle of the year 2013 the line between Braine-l'Alleud and Waterloo was selected as a pilot project in frames of BESTGRID. It was chosen for such reasons as timing of the project comparable with timing of BESTGRID, combination of urban and green zones, complementary character to other projects in frames of BESTGRID. In 2016 Elia was planning to present the project to authorities to receive necessary authorisations, to start construction in 2017 and to finalise construction by 2019. However, all actions from the side of Elia were cancelled in June 2014 because of the cancellation or postponement for several years of the entire project. One of the reasons for this situation is publication of new data and forecasts from the distribution system operator regarding the Waterloo zone. The forecasts show that the growth of electricity consumption is stabilizing in the region and that the number of requests for connections was cancelled.

Braine-l'Alleud is located in the Belgian province of Brabant on the border to Flanders and is situated only 20 km away south of Brussels. It covers the surface of 52.12 km², has 39,250 inhabitants and in 2013 had in average 753 people per km². The community is proud of its historical past as a part of the famous Battle of Waterloo in 1815 occurred on the territory of Braine- l'Alleud. The Lion Monument in memory of this battle attracts thousands of visitors every year.

Waterloo is located in the Belgian province of Brabant 15 km away south from Brussels. It is also well connected to Brussels via highway and the international airport can be reached in half an hour. Its territory covers 21.41 km² and is at the border of the French-Dutch language groups. In 2013 the community had 29,541 people with average 1,405 people per km². Because of its geographical proximity to Brussels Waterloo became a favorable community for wealthy inhabitants from Brussels. It also has a significant share of foreign migrants, mainly from US, UK and Scandinavia, which are mainly employees of European institutions situated in Brussels and NATO. Also because of its geographical location community attracted several private companies, such as headquarters of MasterCard, which settled their bureaus and established an industrial complex. The community is also hosting three foreign schools, one of which is the oldest and most famous school of Belgium and two other ones offer innovative teaching methods like Montessori. Currently the community is experiencing extension of existing infrastructure, such as in 2012 constructed RER train and extension of existing number of train ways from two to four.

Elia is also realizing another project, the Stevin pilot project, which was the biggest grid project in Belgium since many years. The Stevin project foresees construction of 380 kV electricity lines between Zeebrugge and Zomergem, which is near Ghent. From 47 km of transmission lines, 10 km should be underground. The major aims of the project are to deliver electricity from offshore wind farms, to provide interconnection between UK and Belgium with NEMO link, to contribute to on-shore decentralised energy and to harbour development. The project with cross eight communities and two provinces, partly going through very densely populated areas and nature and landscape protected areas. The major challenge is that it crossed the area of several single family houses which are geographically dispersed and several of urban settlements are below existing lines or the planned Stevin grid.

TenneT in cooperation with TransnetBW is currently realizing the largest energy transmission infrastructure project in Germany, the SUED.LINK. The power transmission line of around 800 km with a transmission capacity of 4GW will allow delivering electricity generated from wind energy in the North Sea to consumers in the middle and the South of Germany, providing connection between Wilster in Schleswig-Holstein to Grafenrheinfeld in Bavaria.

The challenge of SUED.LINK is not only that it is the largest infrastructure project in terms of its length but also that it foresees construction of the high voltage direct current (HVDC) lines to enable very large volumes of electricity energy to be transported with maximum efficiency. Infrastructure is planned to go through densely populated regions with on average 235 people living on each km² (DSTATIS, 2009). Another challenge is the new permitting procedure, which was introduced in Germany in 2012, which shifted authority for permitting on electricity transmission projects, which affect more than one federal state, to a new permitting authority the Federal Network Agency. The agency is currently in process to establish expertise on how to deal with permitting procedures. The SUED.LINK will be one of the first projects for this authority and TenneT is currently developing its experience of collaboration with this authority. The third challenge is that official permitting procedures on the project did not start yet and the need for basic information among inhabitants of potentially affected communities is very high. However, as the corridor was not decided yet, there are still a lot of questions about how the new line should be constructed.

It is planned that the project will be realized during six phases: national grid expansion planning process, preparation and communication, examination of possible transmission corridors, planning approval procedures, request for proposal, construction and realization, activation and operation.

50Hertz is managing 220kV and 380kV electricity grids in the North and East of Germany with the overall length of 10.000 km. This grid integrates around 40% of all wind energy generated in Germany and provides electricity to 18 million people. 50Hertz is planning to construct a 380 kV overhead line between two communities: Bertikow in Brandenburg and Pasewalk in Mecklenburg-Vorpommern. The project shall replace the existing 220kV line to integrate growing volumes of electricity from renewable energy sources generated in Uckermark region and Western Pommerania. Currently wind energy capacities in Bertikow are generating 330MW and there is also one biomass installation generating 20MW. It is planned to increase volumes of energy generated from wind parks up to 800MW by 2020.

Currently there are 13 alternatives for the corridor, each around 1 km wide, making together 11 km. The length of corridor is 29 km between communities of Bertikow and Pasewalk. It is planned that the new lines will be, to a bigger extent, constructed along the existing 220kV and 110kV lines from 1950, which should be partly replaced or coupled with the new 380kV line. The new pylons in the distance of 30 km between two communities have to be constructed. The need for the new line was legally fixed in the year 2013; the line should become operational from the year 2019. Several communities will be affected by the project. One of the cities on the way, Dreesch, which is a part of the community Grünow, will be strongly affected by the project. This community has already 220kV line, which goes through the community. Currently there are three alternatives in discussion: the 380kV line will surround the community on its eastern side, the line will surround the community on its western side and the line will go through the community following the 220kV line.

The **National Grid** pilot provides a retrospective evaluation as the consultation and permitting phases for the project are completed. The National Grid is the only one pilot within BESTGRID project where the issues of public acceptance were addressed retrospectively, namely, at a Project which was already advanced through permitting and engagement phase. The focus of the pilot project is on the NemoLink project, which is a 130 km interconnector between the UK and Belgium. The subsea cable will run from Pegwell Bay in the UK to Zeebrugge in Belgium and will pass through English, French and Belgian waters. The project is also a joint venture between National Grid and the Elia group. The unique feature of the project is on its land-sea interface.

3. Methodology

3.1 Methods

Methodologies in science to evaluate how successful the certain type of action was to address issues of public acceptance include different methods. For example, in medical sciences the successfulness of interventions to address issues of public health is evaluated against a certain number of criteria. In this case the action or intervention is understood as “a set of actions with a coherent objective to bring about change or produce identifiable outcomes” (Rychetnik et al., 2002).

Significant number of scientific works was written about how to evaluate successfulness of actions on community and public participation or community-based initiatives. This works also argue that such evaluation can play a significant role to start further discussion among stakeholders. In this case evaluations are based on the developed in advance models of public acceptance and how certain criteria of the models were addressed in the process of implementation of an action. The evaluation can be also based on the mapping of community development and identification of different steps, such as identification of issues of conflict, mapping of stakeholders, their influence and interests, collection of data through public statistics, administrative data or surveys, generate results by applying different tools, such as Geographic Information System or methods of statistical analysis (Weiss, 2003).

In analysis of infrastructure projects often the case study methodology is applied. The case study methodology, which is frequently used in social sciences as a research method of in-depth examination of a subject of study and its related contextual conditions. The case can be defined as follow, “case studies are analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more method. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame — an object — within which the study is conducted and which the case illuminates and explicates” (Thomas, 2011). As opposed to random sampling, which is also often used in social sciences, cases are selected based on information-oriented sampling, in our case these are participants of public information events and focus group discussions.

In recent decades the method gained its popularity in testing hypotheses. One of the examples of application of the method for the decision-making process could be the analysis of rationality and power in urban policy and planning. Another example of application of the method is analysis of large-scale infrastructure projects like the Channel tunnel, which links Great Britain and France. It allowed answering the research questions such as costs overrun, which were not possible to answer with the existing statistical methods. In science the case study method helped to identify biases in the decision-making process regarding large-scale infrastructure projects (Flyvbjerg et al., 2003). Among other strengths of the method are depth of analysis, high conceptual validity, understanding of context and process as well as of what causes a phenomenon, linking causes and outcomes and fostering new hypotheses and new research questions. Besides, the method has the value of phenomenological insights, which are gleaned by closely examining contextual expert knowledge (Flyvbjerg, 2011).

The majority of existing studies on public acceptance and willingness to pay or use renewable energy apply quantitative methods of research, using random sampling and large-scale surveys of public opinion. The research methods included the hedonic analysis of actual price premiums charged for green electricity in deregulated markets (Roe et al., 2001), the elicitation method to develop survey design (Bollino and Polinori, 2007), contingent valuation and double bound dichotomous choice format to collect people's elicitation (Zografakis et al., 2010) and other methods based on large-scale surveys of stakeholders opinions and views. However, we also argue that the case study approach can create additional benefits through a more detailed and more in-depth evaluation of the case. The cases can include both, historical events with ex-ante evaluation or real world test sites. In our research we include both, the historical cases of setting of different types of infrastructure projects and the real-world test sites of concrete pilot projects.

For analysis of data collected in frames of case studies we are also applying following methodology:

- historical case studies for identification of successful and not successful actions,
- mapping of concerns from stakeholders according to five guiding principles,
- evaluation of concerns and identification of most frequent concerns by using content analysis,
- identification of positions of stakeholders, views and concerns according to social groups by using discourse analysis and methodology of stakeholders mapping developed by Neukirch,

- evaluation of successfulness of actions by analyzing stakeholders concerns before and after implementation of the action (where data available),
- evaluation of the BESTGRID process based on feedback received on the side of round table discussions and public information events,
- evaluation of BESTGRID according to the ladder of Arnstein

3.2 Data

The data in different pilot projects were collected jointly by BESTGRID partners. IIASA developed data collection protocol, provided inputs on different data collection methods, such as methodological guidance, questionnaires, surveys and feedback forms, and analysed the results. IIASA, Germanwatch and RGI provided records of public information events and round table discussions for all three pilot projects. Local NGOs, like IEW, BBL and NABU recorded separate pilot projects. NABU and IEW provided feedback forms about the BESTGRID project. IEW and BBL conducted extensive interviews with local stakeholders. The data collection included different methods such as stakeholders mapping, in-depth interviews with key stakeholders, observations and recording on side of the workshop with local and regional authorities as well as round table discussions between NGOs and environmental authorities. Further activities, such as observations on side of public information events and survey to collect feedback from stakeholders on-site about public information events were also conducted.

Table 1: Data collection and actions of BESTGRID partners in five pilot projects

Elia, Waterloo-Braine l'Alleud	Stakeholders mapping conducted by IEW in cooperation with Elia and IIASA to identify already active in the region stakeholders and stakeholders who would likely mobilize to create support or opposition to the project
	Observations during stakeholders workshops and round table discussions carried out by IEW, RGI and IIASA
	Feedback forms distributed on the side of the roundtable discussions and developed

project	by IEW and IIASA
	In-depth stakeholders interviews conducted by IEW with inputs from IIASA
TenneT, SUED.LINK	Observations during public information markets conducted by RGI, Germanwatch and IIASA
	Survey of public opinion and perceptions about the project distributed on the side of public information markets
50Hertz	Observations during round table discussions conducted by RGI, Germanwatch, IIASA, private consultancy companies
	Feedback forms distributed on the side of round table discussions developed by NABU
Elia, Stevin project	In-depth interviews realised by BBL with inputs from IIASA
	Observations during round table discussions realised by IIASA, RGI and Germanwatch
National Grid	Interviews with stakeholders from Government and public bodies realised by NG in consultation with IIASA
	Observations during the workshops by RGI and Germanwatch

In the case of Elia the in-depth stakeholders interviews with selected stakeholders from civil society and local government⁷ to identify concerns about the project were on-going through out through the year 2014 until May 2014. The interviews lasted in average between one and two hours. The interviews were based on the questionnaire with open questions providing sufficient opportunity to identify additional concerns. It was developed by IEW in cooperation with IIASA. The first element

⁷ ADESA, committee of the quarter of Chenois, committee of inter-quarter Waterloo, la Creche "les sonaines", communal administration of Waterloo, communal administration of Braine-; Alleud, environmental organisations of Waterloo and Brain-l'Alleud

contained questions to understand concerns from key stakeholders (it did not address lay people) regarding environmental, land planning and energy topics for both overhead line and underground cable. The second set of questions was about existing stakeholders, their influence and concerns as perceived by key stakeholders. The third element was about participatory processes, knowledge and personal opinion about the BESTGRID project. The special section of the questionnaire for interviews addressed the issue of political landscape, competition and influence of two majors from communities of Waterloo and Brain l' Alleud. The results from these interviews were presented by IEW during the first BESTGRID workshop on "The Future of Social Acceptance" hosted by TenneT, which was organised on 21 May 2014 in Hamburg. In summer 2014 IEW provided to IIASA the scripts of all interviews written in French language for evaluation of results. Following communication process realised by Elia to inform stakeholders about postponement of the project, IEW conducted a number of phone interviews and emails to understand concerns from key stakeholders about postponement of the project. IEW mainly contacted public authorities and environmental stakeholders⁸ and provided the scripts of interviews to IIASA.

The data collection activities in the second pilot of Elia, in Stevin project, included ten in-depth interviews, conducted by the Flemish environmental umbrella organisation (BBL), which brings together 150 local and regional NGOs and has significant experience with public acceptance issues of onshore wind. IIASA contributed to development of the questionnaire as well as to evaluation and analysis of results. The data collection also included observations by IIASA, RGI and Germanwatch on the site of two workshops with NGOs, farmers, local authorities and concerned lay people about such questions as how to improve stakeholders engagement. The observation was also conducted on the side of two focus group discussions with local government, administration and consultancy officers on such questions as how to improve procedures for engagement.

In the pilot of TenneT the data collection activities took place mainly during public information markets and included mainly observations when RGI, Germanwatch and IIASA were present at the event and recorded comments, concerns and ideas expressed by participants as well as provided reports about the event, including impressions about organisation, discussions and presentations and answers given to stakeholders concerns. More detailed observation was conducted in communities of Lehrte,

⁸ Town councils, regional authorities, environmental advisor of Baine – L'Alleud, ADESA, Natagora, Chenois Neighbourhood Committee, Cercle des naturalists de Belgique

Kirchlinteln, Wasserlosen, Elfershausen, Petersberg and Bad Brückenau. IIASA in cooperation with RGI and Germanwatch also realised a large-scale survey, which was conducted on the site of public information events. The results from this survey as well as methodology are described in the deliverable 2.5.

The data collection activities in the pilot of 50Hertz included mainly observation when RGI, Germanwatch and IIASA were present at the information events and recorded comments, concerns and ideas expressed by participants as well as provided reports about the event, including impressions about organisation, discussions and presentations and answers given to stakeholders concerns. It also included the following up analysis of the protocols about information events and collected concerns developed by members of the BESTGRID team⁹, NGOs¹⁰ as well as by private consultancy companies.

The data collection in the pilot of National Grid included interviews with stakeholders from government and public bodies based on the questionnaire developed by NG in consultation with IIASA, which were conducted over a 2-week period by telephone. Additionally feedback from stakeholders was collected by observation method by RGI and Germanwatch on the side of stakeholders' workshops.

4. Results on concerns of stakeholders

4.1 Concerns from stakeholders according to guiding principles

Need

Concerns about the need of the project were most frequently expressed across all five pilot projects. In the case of **Elia underground Waterloo-Brain d'Alleud** cable connection the need of the project was unclear to inhabitants taken into reference that no significant population growth in Waterloo was

⁹ Sanders, A., (2014). Report about information event of 50Hertz on the 11th of March 2014 in Prenzlau

¹⁰ Becker, L., (2014). Report about information event on project Bertikow-Pasewalk on the 18th of September in Pasewalk

foreseen, several industries consuming electricity were disappearing and the number of commercial consumers in the region was not planned to increase. This need was also questioned in light of on-going effects to decrease energy use and to implement energy efficiency measures. As in the affected communities only 20% of all stakeholders were aware about the needs for deployment of electricity infrastructure to reach goals of climate mitigation policy at global scale and the risks of climate change, explanations about the need for the project at both, global and local levels, are required to make the need for the project more catchy and easy to grasp.

Inhabitants were also concerned about security of electricity transmission network and how well the TSO can guarantee reliable supply of electricity, as the cable is a relatively new technology. Security of energy supply should be guaranteed not only during the construction works but also after these works. There are also concerns that in order to guarantee security of the project Elia should place the cable deep enough and provide other measures in places where deep placing of the cable might be problematic.

After the news about the postponement of the underground cable project concerns from stakeholders were mainly about how postponement of the project will affect the need for similar projects in the future and their perceptions by stakeholders. These included such concerns as poor assessment of priorities for the project and development of the region, impacts on public acceptance in the future, impacts on prioritization of similar projects in the future, potentials for disappointment of stakeholders at local level, cancellation of the part affecting BESTGRID activities towards better understanding of public acceptance issues.

In the case of the ***Elia Stevin project*** people were questioning the need of interconnection with UK as there are already connections with France, Netherlands, Germany and Scandinavia. People were also questioning if energy demand is really growing and if there is really a shortage of supply, which would argue for the new line. Even the staff from planning authorities did not fully understand the meaning of the Belgian national grid plan. Stakeholders were also questioning why this new infrastructure is needed and why it cannot be bundled with other infrastructure projects such as NEMO projects, railways or Leopold canal. The discussion also included not only the need of the project but also for its location, for instance in the port of Ghent instead of Zomergem.

Concerns of stakeholders about priority corridor for **SUED.LINK** and its alternatives included doubts about the need for the project, in general, and the arguments for a more decentralised energy system. These doubts were also supported by fears that new electricity lines will be constructed to transmit electricity generated from coal from a recently constructed coal power plant in Moorburg or Hamburg. Also the need for a new line was not clear especially in light of further deployment of renewable energies for decentralised generation in the South of Germany. People were not happy that electricity will be consumed in another federal state would be transmitted through their territory. Here traditional sentiments between Northern and Southern Bavaria played their role. The recommendations were mainly to the National Government, who is responsible for transmission systems planning in Germany, to provide more background information about the need of energy transition (Energiewende) and the need for new power lines. Further on, this information could be provided not only at the national level but also would be supported by governments of federal states. The representatives from municipalities were asking if an overall assessment of the citizens' opinion and view was conducted. The discussion about alternative options included possibilities for bundling with existing lines, for different technologies, such as overhead lines versus underground and pylon types. The recommendation was to provide additional information in a clear and concise manner about different technological options as well as their advantages and disadvantages. However, several inhabitants stated that they do not want any line at all, does not matter of technology or information, which TenneT is providing.

In the pilot of 50Hertz **Bertikow-Pasewalk connection** stakeholders were arguing for better arguments about the real need of the project and not only arguments about existing laws, more data about concrete needs for this project in affected communities and not at the level of regional planning. Inhabitants were also concerned with information about the need for construction of such line to deliver electricity to Poland and what economic criteria were considered by taken the decision to construct the line between Bertikow-Pasewalk. Inhabitants were questioning the need to construct overhead lines versus underground cable.

Transparency

In the Elia pilot for **underground Waterloo-Braine D'Alleud** cable inhabitants requested a more transparent presentation of the planned corridor with detailed maps about potentials suppliers of

electricity, which will be transmitted by the planned project, to understand if it will be really electricity generated by renewable energy sources or if it also will include electricity generated from other sources, such as fossil fuels and nuclear. People were also asking for more transparent information about estimations on future energy demand in the region. Inhabitants also requested more clarity in communication about details and objectives of the project as well as impacts of construction works, their length, possible restrictions on mobility and the process of realisation of the project. There were concerns about no transparent information about which areas ought to be supplied by the project, why the project was needed and why it was cancelled. There were also concerns regarding clear and transparent information about the future of the project after the news for postponement, such as new timeframe, and unclear reasons why the project was not needed, especially as it was already featured in Elia's development plan.

In the **Stevin pilot** inhabitants were concerned about the lack of information on public events, especially in the local and social media, involving visualization such as maps, 3D visualization, pictures and drawings, and the availability of information on EIA only in the town hall during public hearings but not online, also using clear and simple language. People were requesting more information about Federal Development Plan, about procedures and how permission for the project was issued as well as about the influence of such stakeholders as the board authority of the port on decision-making process about the routing. It was also unclear how government addressed objections, remarks of public were not published on Internet and the commission which was settled to deal with objections does not exist any longer. Stakeholders were also requiring simple and clear information about compensation rules and explanation of technical matters and safety concerns.

In the pilot of TenneT **SUED.LINK** several concerns were expressed regarding criteria for selection of priority corridor. These criteria were mainly connected with the issue of transparency of the planning process. The recommendation here was to both, BNetzA and TenneT, to provide additional information about overall planning for grid extension projects in Germany and in the EU. This could be done in a form of a map showing all planned transmission grids projects approved by BNetzA or foreseen by law as well as further power grid projects in the area, which will be affected by the SUED.LINK project. The requests for additional information included materials on grid extension projects in Germany, in general, and in the same area as SUED.LINK, in particular. This could include maps showing projects according to the German law, maps of the German and European 380kV

power grids as well as any further TenneT 380 KV projects in the area of SUED.LINK. Regarding the SUED.LINK planning procedures the level of understanding of participants differed, some planning stages were more clear than other ones and concerns were raised why information on certain topics cannot be provided yet. The concerns about selection of a priority corridor for the SUED.LINK also included terminology of “priority corridor” which is leading to misunderstandings. In Germany, it is required by law to present the “priority corridor” and its alternatives to explain their impacts. Such terminology makes it difficult to communicate that this “priority corridor” has not been fixed yet and that it is still a subject to change. The better terminology would be a “proposed route” or a “draft route”. The right terminology will not raise an impression that all relevant decisions on corridor were already taken, which demotivates stakeholders from affected communities to get involved into the planning procedure. Another argument is that given huge dimension of the SUED.LINK project, additional information events along two or more route alternatives will be connected with significantly higher expenses.

In the pilot of 50Hertz ***Bertikow-Pasewalk connection*** concerns were raised about transparency of information about decision-making process and how decisions were addressed in the regional need development plan (Bundesbedarfsplan) to construct lines between two communities. More information is required about planning procedures within 50Hertz and how they go together with legal framework. Information is required about the source of electricity, which will be transmitted through the lines and if it will also include electricity generated from coal. Development of maps to show who will feed electricity into the grid. Information is required about which type of data will be used for development of scenarios on renewable energy generation, which will be deployed in the region. Impacts from construction of new lines on levelized costs of electricity. Several concerns were expressed about transparent calculation of compensations volumes. Transparent information was also required about the planned type of pylons or from science about impacts of EMFs and why possible EMF values are different for different groups of population.

Engagement

Stakeholders in the region where Elia planned the ***underground Waterloo- Braine D’Alleud*** cable had already experience of participation in discussions about infrastructure projects, such as gas or

water pipelines. However, this experience was mostly limited to providing feedback about the project. Some inhabitants also participated in the 150kV transmission project but they expressed concerns that participation in this project might be different as it was realized by other company than Elia and was much smaller. Stakeholders were concerned that for underground cable local communities were not involved into discussion about planning of the corridor and no participatory mechanisms for the project were developed on the ground. They were concerned about right time for participation. Even though information events took place early enough, they were not followed by reaction from the side of communities. Stakeholders were also concerned that it might be too early to organise such events as people are not really aware of the project and do not know much about it. That is why they might be also not interested to participate in the discussions or joint information events. Another reason is that inhabitants also did not believe that their participation could change anything and that their voices would be heard. They had doubts if their participation would change something as there was no real opportunity to make choices from alternatives. There was no clear opinion about time for involving stakeholders. Some recommended involvement of environmental stakeholders right from the beginning, in a form of a meeting to discuss the needs for the project. Also some stakeholders recommended that NGOs and civil society organisations should be involved early enough for their inputs to be taken into consideration. At another side, other stakeholders mentioned that participatory process was launched at too early stage; it would be better to start it at a later stage with greater certainty around the project. There were also concerns about impacts from the decision to postpone the project on volunteers who committed their time by participating in meetings and discussions and their willingness to participate in such meetings in the future. There was no homogenous opinion about consultation and involvement of stakeholders in case if the project will be active again. Some stakeholders thought that if the project will be continued in several years the entire participatory process should be started again from the beginning. Others said that the right people were consulted and participatory process was good so there is no need to reconvene the same environmental stakeholders again if the project will be resurrected in the future.

In **Stevin pilot** inhabitants perceived public information sessions as “one-way street” where their comments were not addressed and promises were not kept. They were also requesting why politicians were absent during information sessions and that discussions about the project started too late when

all decisions were already taken. Inhabitants were recommending early involvement of stakeholders into SEA as well as local commissions on spatial planning. They also thought that local government shall lead the stakeholders' engagement process and all inhabitants in direct vicinity to power lines should be contacted to express their opinion. Participating public authorities were concerned that a number of organisations were not involved such as "Regional Landscape" or local governments and that concerns of local communities were not taken seriously by national government. They were also recommending early involvement of public into discussion of alternatives and engagement of people who would be independent from politics and the project to lead the stakeholders' engagement process.

In the pilot of 50Hertz **Bertikow-Pasewalk** connection stakeholders were requiring information about which stakeholders will be involved into development of renewable energy scenarios in the region. They also were concerned about possibilities for involvement of all citizens into information events and not only organized stakeholders, which would require provision of information about events and possibilities for participation through official journals. Inhabitants mentioned the need for involvement of technical committees in local parliaments and local politicians as multipliers of information. Inhabitants were concerned about not convenient time for participation, meaning opening times during the day, 10 a.m to 6 p.m., in activities of mobile citizen bureau as several communities are inhabited by working population, who will return to communities only after work. Information about mobile citizen office should be not only in local newspapers but also in other media, also including pictures.

Environment

In the Elia pilot for underground **Waterloo-Braine D'Alleud** cable the majority of stakeholders expressed concerns regarding construction works and connected with them restrictions of mobility and noise. There are concerns about possible impacts on concrete community buildings in proximity to the project, such as accessibility to the nursing house during construction works, which is situated behind a hospital in Braine-l'Alleud. Also concerns were expressed on impacts from construction works on environment, especially regarding nature protection areas on the site of the planned corridor. Concerns were expressed about regulatory framework on environment protection and how it will be applied in the case of this project, such as relationship between the schemes of regional development,

the need to preserve green areas and the proximity to the urban centres. Inhabitants believed that environmental concerns should be also taken into consideration regarding impacts of other types of infrastructure needed for electricity generation and socio-economic development. These impacts include rapid urbanisation, land-use issues, diversification of habitat etc. From the point of view of impacts on people concerns were expressed about impacts of the cable on human health in terms of EMFs.

In the **Stevin pilot** inhabitants were concerned with visibility of electricity transmission infrastructure as well as negative impacts on biodiversity and noise. They were requesting independent studies on SEA for several alternatives and EMFs as well as evaluation of cumulative effects from all infrastructure projects on human activities and environment. Public stakeholders were recommending that values and standards used in SEA should be defined through public participation and that mitigation measures from one infrastructure project could be also used for another infrastructure project.

In the pilot **SUED.LINK** of TenneT several concerns were raised about visibility of transmission infrastructure. Inhabitants also proposed alternative forms to provide information such as format, which would be suitable also for children or suggestions for 3D visualisation that could help to understand better impacts on the landscape. Such type of visualisation could also make different phases of the planning process more tangible and to show decision-making in each phase and how it relates to official planning and permitting. Also visualisation could provide information about actual models of pylons and how they are changing the landscape. The lack of visual material about design of pylons and alternatives was frequently mentioned as a point for improvement. Interestingly, those communities with strong opposition to SUED.LINK, such as Elfershausen and Bad Brückenau, had already experience with renewable energy infrastructure, which was visible and affecting landscape. But this infrastructure was mainly for decentralized small-scale energy generation, such as solar PV.

In the pilot **Bertikow-Pasewalk** of 50Hertz stakeholders were discussing possibilities for coupling of a new line with an existing 110 kV line to decrease impacts on environment. At the same time they were discussing alternatives to the corridor of 110 kV, which was constructed in GDR times and did not pay much attention to impacts on environment and human settlements, too small distance of lines to the ground, impacts on agriculture and landscape, impacts on wind farm areas, impacts from pylon on environment, implementation of measures to protect birds. Stakeholders were requiring consideration

of other existing infrastructure projects such as gas pipelines and construction of lines along these projects to minimize impacts on environment and the consideration of the fact that this infrastructure has already impact on environment and human activities around it. Impacts from electro magnetic fields on human health. People were also concerned about suspected impacts on bats, impacts of high temperature around the lines of birds. Availability of data about nature protection and the population of birds. Indirect impacts on big animals through better possibilities for hunters provided by open spaces needed for the grid. Impacts on the local forest Kirchenforst, which has high recreational value for local community. Period of construction as short-term construction period will have a bigger impact on Kirchforst, better in phases during the longer period.

Benefit

In the underground ***Waterloo-Braine l'Alleud*** cable pilot inhabitants, mainly organised stakeholders, were concerned about compensation for local communities, which will be affected by the project, for the deployment of infrastructure itself and for impacts on everyday life from construction works, such as limitation to mobility. Organised stakeholders requested more information about possible benefits for local communities in terms of impulses for socio-economic development and creation of jobs. Stakeholders saw an opportunity in the project to provide benefits to local communities such as, for example, modernisation of transport routes during the construction period.

In the ***Stevin pilot*** inhabitants were requesting more fair distribution of costs and benefits and routing alternatives with least possible impacts rather than cheapest options. Another question was unfair distribution of burden, which would lay mostly on the shoulders of local communities, and benefits, which would profit mainly energy companies. They were also requiring equal treatment on expropriation of properties underneath new lines and existing lines in terms of compensations and generation of added value from the project for affected communities. Inhabitants were suggesting equal treatment of everybody in terms of compensation and introduction of expropriation rules similar to Netherlands. Due to dense population no routing was possible without spanning several properties. Existing compensation rules and additional Elia offers were perceived to be unfair by several local residents, i.e. by those living nearby an existing line and thus not getting compensation. Public authorities were recommending providing alternative forms of compensation such as funding of local

projects, taxes on pylons or fees based on the number of kilometers as well as further development of legal framework for compensation.

In the case **Bertikow-Pasewalk** of 50Hertz the expressed concerns included compensations to peasants unions for impacts of two lines, volumes of compensation and compensation in cases of impacts from several infrastructure projects or in case when landowners already received compensation for other infrastructure projects. Other concerns included costs of the project and their possible distribution across the country instead of to be a major burden for the region and possibilities for compensation measures regarding legally established protection areas.

To understand how frequently concerns were mentioned, we apply content analysis and data mining to understand which concerns were expressed most frequently. The material for analysis came from reports about public information events developed by TSOs and NGOs as well as from interviews conducted by NGOs and observations on the site of public information events. Content analysis is often used for interpretation of documents, which are provided in frames of communication process. This method is used to identify evidence from texts such as frequency of most used words (Hodder, 1994).

Content analysis of reports, protocols and interviews, containing concerns of both organized stakeholders and lay people, showed that the guiding principle “need” was one of the most questioned principles in all three pilots and was mentioned 235 times. “Environment” was also strongly discussed (mentioned 149 times) as well as transparency (mentioned 125). The guiding principles “benefit” and “engagement” raised significantly lower number of concerns (mentioned 45 and 53 times).

Evaluation of concerns showed that the guiding principle “need” was one of the most questionable principles in all three pilot projects (figure 2). It was questioned in all four projects (including two pilots of Elia) and the need for each concrete pilot project was not clear due to different reasons such as unclear evaluations about future energy demand in the region, taken into reference population dynamics, migration of industries and energy efficiency measures, or unclear need for the project because of possibilities for decentralised energy generation options and existing questions if long-distance high voltage lines are really needed.

The guiding principle “benefit” was least frequently discussed. The major topics addressed were co-benefits, like modernisation of roads in the region during construction works, or compensation to separate groups of stakeholders, such as land-owners, or to community and environment in general.

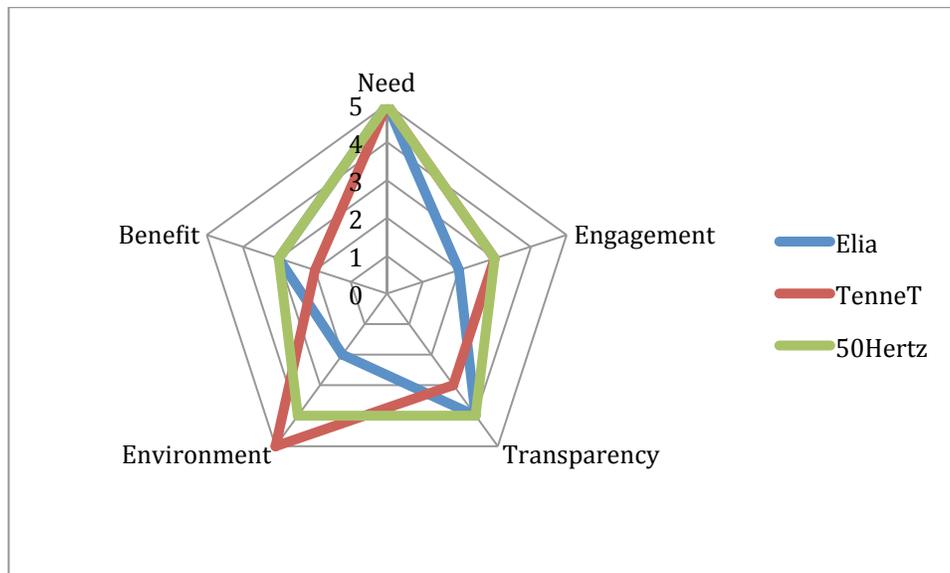


Figure 2: Concerns according to five guiding principles

The principle engagement was discussed less emotionally and raised a lower number of concerns, mainly because stakeholders did not believe in opportunities of engagement due to previous experience with participation in decision-making about infrastructure in their region, may be because they had perceptions that their voices will not be heard anyways or that they did not have information about possibilities for participation.

The guiding principle “environment” was the second most heatedly discussed principle, which raised a lot of concerns. However, concerns about it were different in three pilots. For instance concerns in case of Elia pilot project were not significant and mainly addressed impacts from construction works. At the same time as in the pilot of TenneT impacts on environment were fiercely debated, mainly because of visibility effects of overhead lines but also because of impacts on human health such as EMFs. The visibility impacts are also closely connected with such emotional issues as place

attachment and landscape effects, when the landscape is getting changed and affected by electricity transmission infrastructure.

The principle „transparency“ was also as significant as the principle „environment“ in some cases. Stakeholders had doubts about transparency of information, especially regarding sources of electricity, which will be fed into the grid. In all three cases they requested more information about preferred corridor, criteria for its selection, details of the planning process. NEMO project in the UK is not mentioned here because of few existing data. Also transparency was required about risks from the pilots, where little information exists, such as impacts from EMFs on human health (table 2).

Table 2: Concerns according guiding principles

Guiding principle	Elia (under-ground cable)	Elia (Stevin project)	TenneT	50 Hertz
Need	Unclear need as it is not clear if energy consumption in the region will be growing	Need of the project location and communication about the need of the project	Unclear need because of decentralized generation options	Need for transmission of electricity to Poland
Engagement	Optimum time for engagement, perception that the voices will not be heard	Early involvement of local authorities, guided process of engagement, feedback from local stakeholders on routing	Place of public information events, where everybody could pass by and not only already informed stakeholders	Information about who will be involved into discussions about the project
Transparency	Planned corridor, sources of	Details of the project and how	Criteria of selecting priority	Planning procedures,

	electricity	it will affect everyday life, criteria for decision making, clear information, trusted communication channels	corridor, sources of electricity	source of electricity, EMFs
Environment	Impacts of construction works, visibility effects	Noise from cooling systems and cables, need for independent SEA and EIA, coherent approach for several infrastructure projects	Visibility impacts, security of transmission system, impacts from EMFs	Impacts on environment, visibility impacts, impacts from EMFs
Benefit	Modernization of routs during construction period, jobs and impulses for socio-economic development	Fair compensation between inhabitants, clear rules of compensation, regulatory framework, compensation to environment		Compensation to land-owners, compensation to environment

4.2 Concerns of stakeholders according to their social group

Evaluation of concerns showed clearly that such concerns as the need of the project was among the most frequently expressed concerned at the same time as concerns about benefits were expressed less frequently. However, these concerns were not homogenous across different groups of stakeholders. In this section we look at differences in views of stakeholders from civil society, such as NGOs, and public stakeholders, mainly represented by local governments from different communities. We focus only on two pilot projects, both of Elia, the Waterloo-Braine l'Alleud underground cable and Stevin project due to availability of data. As evaluation of concerns and their attribution to social groups requires extensive empirical material, these data were collected only in the pilot of Elia with the help of indepth interviews, which were conducted by IEW and BBL.

4.2.1 Elia Stevin project

In the Stevin pilot general public questioned the need of the project and its location, at the same time as public administration questioned more the efficiency of communication process about the need of the project. Originally Elia planned to build an overhead line, but due to concerns from local stakeholders and environmental group policy makers it was decided for 10 km underground cable.

In terms of “transparency” public requires more details about alternatives, where the project will be constructed and how it will affect everyday life. Public authorities are requiring more information about criteria for decision-making, namely in power distribution between national and local government as well as providing clear and transparent information which might influence public perceptions, such as information about costs of alternatives or not constructing the project, or how information about decision-making on the project could reach the biggest number of inhabitants, through social media, for example.

Speaking about “engagement” inhabitants require involvement into SEA or organization of such involvement by local government, that inhabitants will have an opportunity to say and that their voices will be heard. They also want to have clear information about possibilities for engagement. Public stakeholders are concerned more about the lack of early involvement of local authorities into

decisions, which are taken at the national level or how the decision-making process is influenced by industrial stakeholders. They were also concerned about how feedback from citizen could be implemented in discussion about routing and alternatives, the local authorities also wished to be involved into discussion about technical installations such as pylons, buffering zones etc.

Concerns about “environment” from NGOs and inhabitants mainly included concerns about impacts on human health, such as noise from cooling systems or cables, and the realization of EIA and SEA, which should be realized by independent experts. Local authorities were more concerned by the lack of coherent and integrated approach from the site of national government and several impacts from already existing infrastructures.

Concerns about “benefits” mainly included concerns about fair distribution of compensation between inhabitants who are already living under existing lines or under new lines, possibilities for expropriation and fair schemes of compensation, involving alternatives such as purchase schemes. The local authorities were concerned about the lack of communication about benefits of the project, especially at global level, as well as unfair distribution of burden and benefits between local municipalities and energy companies, as well as with the lack of clear regulatory framework providing rules for compensation and how this compensation can be distributed in the affected community.

In this pilot project we also had a chance to compare concerns of inhabitants and public administration in two communities. The results here are based on observations on the site of four focus group discussions. Two discussions were organised with inhabitants and with local authorities in December 2014 in Bruges. One discussion was organised and conducted by BBL during the day time with representatives from local authorities. The second discussion was organised and conducted by BBL during the evening time with citizens from Zeebrugge, Bruges, Damme and Vivenkapelle as well as with representatives from local environmental organisations. And two discussions were organised in January 2015 in Zomergem. Both round tables were also organised by BBL. The first round table was organised during the day time with local authorities, which involved Flemish administration for health and care, Agency for nature and forestry, Spatial Planning, Housing and Architectural Heritage, Complex Projects, Arcadis. The second discussion was organised at the evening with citizens from Maldegem, Lembeke, Zomergem, Boekhoute, Eeklo as well as representatives of local environmental organisations.

Here we look at the concerns from inhabitants and local authorities, which we classify according to guiding principles.

Inhabitants of Bruges and Zeebrugge

Need: inhabitants of Bruges had a more active discussion than inhabitants of Zeebrugge. They were questioning the need of interconnection with UK, as there are already connections with France, Netherlands, Germany and Scandinavia. They did not believe that the new lines are needed because they did not believe that energy demand will be growing and there will be a shortage of energy supply. They were also asking why new infrastructure is actually needed and why the line cannot be bundled with NEMO project, railways or Leopold canal.

Inhabitants of Zeebrugge were more concerned about the location of the project rather than about the need for it, for instance in the port of Ghent instead of Zomergem.

Transparency: inhabitants of Bruges were unhappy about the absence of information about public events, especially in the local and social media. Information about the Federal Development Plan and about planning procedures was, according to the perceptions of stakeholders, lacking completely. Also in case when information was available it was published in a very unclear way, inhabitants were especially criticizing information brochures. Information about EIA was only available in the town hall during hearings and was not available online. However, Elia was taken a lot of effort to provide good materials and to organise several information events. It was also unclear how government addressed objections, remarks of public were not published on the Internet. There was a special commission settled to deal with the objections but it stopped existing shortly after the start of its activity. This made people feel that their voices were not heard and concerns were not taken seriously. There was also uncertainty about the content of rulings and financial commitments, which created atmosphere of mistrust and suspicion in bribery. The lack of transparency also resulted in uncertainty about how projects were evaluated and impacts from projects were measured and how permissions were granted. In particular, inhabitants were requesting information about influence of the governing board on the port on the decision-making processes, resulting that the corridor was planned through human settlements and not through the territory of the port.

Inhabitants of Zeebrugge required transparent information about where the project is planned as well as regular information about the progress of the project in the form of a newsletters and brochures. This was connected with the requirement on transparent information about the realisation of the project such as construction works, machineries and work sites. There was also a requirement on clear and easy language on SEA and Land Use Plan.

Engagement: inhabitants were criticising that public information sessions were only „one-way street“ and their comments were not addressed and promises were not realised. Inhabitants were also requiring participation of politicians during information sessions, who were absent until now. People also felt that it was too late to start the discussion about the need of the project, that they were not included into this discussion and that the entire stakeholders engagement process started when all decisions were already taken.

Environment: inhabitants of Bruges worried about the noise from cooling systems and too generous regulations for calculation of the noise (100 m instead of 1 km as in other countries). They were requesting an independent study on EMFs and on SEA as well as evaluation of negative impacts from certain types of pylons on birds. People were also worried about visibility impacts of infrastructure on the landscape.

Benefit: inhabitants of Bruges thought that more expensive alternative routes could ensure a better distribution of costs and benefits and that it would be a better solution than going for a cheapest option. They were also interested in the advantages of purchase schemes versus expropriation of adjacent proprietors as well as equal treatment on expropriation of properties underneath new lines and the existing lines. People were also requiring that the planned project will generate added value for their community.

Authorities of Bruges and Zeebrugge

Need: speaking about the need of the project local authorities of Bruges were more concerned about communication of the need to inhabitants and that similar mistakes were done in the communication campaign for other infrastructure projects.

Authorities of Zeebrugge were concerned about communication on the need for new energy generation capacities such as wind turbines as well as the need for an independent research about costs of different energy generation options. They were concerned about efficiency of communication campaign, which should be also based on the results from scientific research about impacts and benefits of the project. Such research can also support communication on the need of the project and economic impacts from not implementing electricity transmission project.

Transparency: as well as inhabitants, authorities of Bruges mentioned the lack of information about the Federal Development Plan as well as the lack of simple and clear information and explanation of technical matters and safety concerns. They were also concerned about the lack of answers in the information brochure to the most burning questions and a wrong location to announce about the permitting procedures.

Also as other stakeholders, authorities of Zeebrugge were concerned about the lack of information on Federal Development Plan. However, stakeholders did not elaborate about whose responsibility should it be to provide such information. There is also the need for transparent information about alternative routing and their costs, such information should be followed by public discussion. Transparent information is needed on how decisions were taken and by which authorities. Also information about the project should be distributed through social media and supported by visual materials, like maps, pictures, drawings and 3D visualisation. All information should be published in clear and easy to read format and also contain answers to concerns of citizen. This was opinion of some stakeholders but the recommendation could be for planning stakeholders to provide more detailed information for experts, at one hand, and easy-to-read information for lay people, at the other hand.

Engagement: authorities of Bruges were thinking that organisations like the Regional Landscape should be involved to inform about major public concerns. There was also perception of local governments that their concerns were not taken seriously by national government and TSOs as well as that national government did not really care about local concerns. There was some resentment that Elia started permitting procedure before juridical procedure on the Land Use Plan. Local authorities were also perceiving that it is unfair to engage manufacturers of off shore wind turbines to lobby local government and to interrupt protests. Local government stakeholders felt that they were involved too

late into planning procedures. There was also a wish to involve local government into choice of location of power lines, pylons and buffering zones.

Authorities of Zeebrugge required engagement of public info discussion about alternative routings at the early stage of planning. Engagement should include citizen feedback on routing as well as provide local insight. It should be independent from politics and project persons to guide the process of stakeholders participation. Involvement of local government and mayors is also required to guide the process of interactions with stakeholders.

Environment: local authorities of Bruges were worried that there are already too many impacts on inhabitants and environment from new infrastructure such as extension of port, extra railways with new stations, new companies with extra traffic. These cumulative effects are not taken into consideration by national government. Local authorities also expressed their wish on adjustments to certain projects to take these cumulative effects into consideration. This could be also connected with a need for more coherent and integrated approach of Flemish Government towards infrastructure development. Like inhabitants, authorities were requiring an independent EMFs studies. Stakeholders also expressed concerns that SEA was written only for one alternative route and that this route was decided already in advance.

Authorities of Zeebrugge required that SEA includes also analysis of remarks from inhabitants, even if these remarks were not correct. Values and standards used in SEA have to be defined through public participation. Mitigation measures from one project can be also used for another project and contain also environmental cost-benefit analysis.

Benefit: local authorities of Bruges were concerned about the lack of communication on the benefits of the project at global scale, such as climate change mitigation. They were also concerned about unfair distribution of burden, which would fall mostly on the shoulders of local communities, and benefits, which would mostly go to energy companies. The authorities also thought that there is a need for compensation fund for affected local government as well as an agreement on possible compensations, including financial but also environment compensation.

Authorities of Zeebrugge spoke about possible alternatives for compensation such as funding of local projects, taxes on pylons or fees based on the number of kilometers. Further development of legal

framework for compensation is necessary to avoid accusations in intransparency as well as to address feelings of injustice.

4.2.2 Elia underground cable project

In the case of Elia underground cable pilot the concerns from public stakeholders were mainly about how postponement of the project will affect the need for similar projects in the future and their perceptions by stakeholders. These included such concerns as poor assessment of priorities for the project and development of the region, impacts on public acceptance in the future, impacts on prioritization of similar projects in the future, potentials for disappointment of stakeholders at local level, cancellation of the part affecting BESTGRID activities towards better understanding of public acceptance issues.

By addressing the principle “need” before the cancellation the major concerns from the authorities of Braine-l’Alleud were about the need of the project and its justification as it was planned to transmit electricity for consumption in Waterloo but the cable was planned to go mainly through the territory of Brain-l’Alleud. Authorities suggested moving the corridor closer to the industrial zone and away from the inhabited places in the community of Brain-l’Alleud. The authorities of Waterloo were concerned about the need for the project, especially in light that the number of inhabitants of Waterloo is stabilising, several industries are disappearing in the region and the number of commercial enterprises should not increase. There are some thoughts that the cable is needed to provide electricity to new real estate projects being constructed in the Waterloo region but, at another side, calculations for the need of the project should also include measures on energy efficiency, especially in housing. There were also concerns about the routing of the cable in vicinity to the strongly urbanised zones and that this routing was chosen mainly for economic reasons. The authority of Waterloo was concerned about interdependencies between the scheme of development of the rural area, the project of Elia, the need to protect green areas and the proximity of the project to urban areas.

Regarding “transparency” NGOs were concerned about transparency of information about the project and recommended to develop detailed maps to show: a) who will be feeding into the grid, and b) current status of the project and the preferable option by Elia as well as decision-making criteria.

Regarding “engagement” the communal authorities were concerned about questions and views of inhabitants living in the vicinity of the project and expressed their concern that the communication process about the project should have started much earlier. The authorities requested information about communication process on the project and possibilities for local stakeholders to engage into decision-making. The authorities of Brain-l’Alleud mentioned that there is already history of opposition to infrastructure projects; especially population is critical regarding plans to deploy wind energy in the region. The lobby groups actively protesting against wind energy were already established in Brain – l’Alleud. Construction of cable by Elia can lead to confusion that inhabitants will perceive that this cable is needed to transmit energy from wind farms and will lead to deployment of further wind parks. This can increase opposition against the cable. NGOs were concerned that there are no strong expectations about possibilities for participation and influencing the project planning, mainly due to historical reasons, as both communities did not experience strong culture of participation.

Regarding impacts on environment the mayors from both communities, Waterloo and Braine l’Alleud were concerned about approaching elections in October 2018 and that it would be preferable not to have any construction works during this period. Representatives of federal authorities were concerned about sufficient communication with managers of roads and infrastructure. From the point of view of environmental impacts, NGOs were concerned about the use of chemicals such as herbicide along the communal roads as well as impacts of construction works on traffic and following to this enlargement of roads. However, NGOs were also recommending actions, which could create benefits from the project to local communities such as synergies with already existing infrastructure.

Authorities of Braine-l’Alleud

Need: The major concerns from the authorities of Braine-l’Alleud were about the need of the project and its justification as it was planned to transmit electricity for consumption in Waterloo but the cable was planned to go mainly through the territory of Brain-l’Alleud. Authorities suggested moving the corridor closer to the industrial zone and away from the inhabited places in the community of Brain-l’Alleud. The project will certainly create problems with transport, especially during the construction works. It will be crucial to explain to people why such project is needed. Information shall be clear and transparent on the length and area of construction works as well as about the areas of deviation and

mobility. This shows again the paradoxon of participation. At an early stage of the planning, it is impossible to present the detailed planning. There will be critic for the project, as perceptions exist that the project is needed for the community of Waterloo and Braine-l-Alleud will carry all negative consequences. But authorities have a perception that they do not have a choice and have to realise the plan of the authorities from the national level.

Engagement: Also the communal authorities were concerned about questions and views of inhabitants living in the vicinity of the project and expressed their concern that the communication process about the project should have started much earlier. The authorities requested information about communication process on the project and possibilities for local stakeholders to engage into decision-making. The authorities of Brain-l'Alleud mentioned that there is already history of opposition to infrastructure projects; especially population is critical regarding plans to deploy wind energy in the region. The lobby groups actively protesting against wind energy were already established in Brain – l'Alleud. Construction of cable by Elia can lead to confusion that inhabitants will perceive that this cable is needed to transmit energy from wind parks and will lead to deployment of further wind parks. This can increase opposition against the cable. Every project for urbanisation attracts attention of stakeholders, especially of people living in the vicinity of the project. Other infrastructure projects, such as protection against floods, were facing critics from stakeholders. To discuss concerns of inhabitants, public information events are organised, the municipality also has a special communication service to explain the need for infrastructure projects. The advantage of the project is in possible compensation, which can be asked from the transmission system operation for impacts of the construction works. BestGrid approach will give a greater credibility to the project. BestGrid can also provide an argument that if some one was not present at the public information meetings when it is on his own responsibility to be not well informed about the project. Cooperation with community of Waterloo exists only on the questions of mobility such as common mobility plan.

Environment: The major disadvantage during construction works will be the level of noise, restriction of mobility, cutting of trees. The city regards itself as a green city and the issue of environmental protection attracts a lot of attention.

Authorities of Waterloo

Need: The authorities of Waterloo were concerned about the need for the project, especially in light that the number of inhabitants of Waterloo is stabilising, several industries are disappearing in the region and the number of commercial enterprises should not increase. There are some thoughts that the cable is needed to provide electricity to new real estate projects being constructed in the Waterloo region but, at another side, calculations for the need of the project should also include measures on energy efficiency, especially in housing. There were also concerns about the routing of the cable in vicinity to the strongly urbanised zones and that this routing was chosen mainly for economic reasons. The authority of Waterloo was concerned about interdependencies between the scheme of development of the rural area, the project of Elia, the need to protect green areas and the proximity of the project to urban areas. However, the authorities did not see the project as especially problematic to their community as the cable is not planned to go through strongly urbanised or heavily populated territories and probably impacts from the project on communities will be limited.

Engagement: the major concern was the absence of cooperation with authorities of Braine-l'Alleud, which is limited. There is already experience of cooperation on infrastructure projects, such as the new line for the train RER and construction of a common platform to be used by passengers from both communities. Another project is an allotment on the territory of Braine with the goal to redevelop the floor of Bara and to deflect the traffic. However, there is no frequent contacts between two communities, only in the case projects situated on the borders of the communities need to be discussed. There are also no permanent structures or committees for joint projects. Such cooperation could be also called as “non-cooperation”. For example, a plan was developed for common mobility as the transportation need is growing and was recorded at the level of the national ministry. However, on the ground in two communities no real steps were taken and no common structure was created for realisation of this plan.

There was also experience with participatory processes involving inhabitants into the refurbishment of the centre of Waterloo with creation of public spaces as well as commercial centres and parking. The participatory process included 40 persons from local economic activities. Four stakeholders meetings were organised and this was a first experience of participatory process. However, it was not really

positive as stakeholders were not satisfied that several questions were decided prior to participatory process and for a broader group of stakeholders it was not clear how participants for the stakeholders meetings were selected. The major aim of the participatory process was to provide information and to answer to the questions. Another experience was direct communication with inhabitants in different parts of the city where their opinion was asked and they also had chance to ask questions and to become answers. The BESTGRID approach is a best case of participatory approach especially as it can provide also lessons learned for other infrastructure projects. It will also allow taking sufficient time to think about impacts of the project and its alternatives. Regarding already existing opposition to infrastructure projects, there are not many organisations but some environmental organisations exist. However, these groups are driven strongly by political interests.

Environment: the major impact of the project is that it leads to social conflicts around construction works among inhabitants. However, the deployment of cable responds to the changing needs of society and inhabitants should understand it that society is changing which also requires improvements of the common territories and lead to an increase of energy use. Advantages of the underground cable versus overhead lines are not really clear. The first what comes to mind are disturbances during the construction works. Also population does not really distinguish among different transmission systems operators and put all responsibility on public authorities. From one side, of course it is positive that there are no visibility effects from overhead lines. From another side, impacts of the cable are not yet clear. Importance of environmental issues versus possible additional costs for Elia, probably there will be limited impact of the project on environment after the construction works are finished. And this is typical for the underground cable project that there will be no impacts on visibility or landscape.

Environmental NGOs

Need: the need for the project is still not clear, especially regarding projections for electricity consumption. There are concerns if it makes more sense to work on energy efficiency rather than laying a new cable for an increase of energy supply. Energy efficiency should be promoted, especially

regarding heating with electricity, which requires a lot of energy. Also there are concerns that new electricity line is needed to provide energy to new real estate projects and that authorities are more interested in real estate development than in conservation of the nature. Also authorities are not ready to discuss development of the community with other stakeholders, there is no scheme of community structure and several requires from inhabitants to comment on the territory plan remained unanswered.

Transparency: NGOs were concerned about transparency of information about the project and recommended to develop detailed maps to show: a) who will be feeding into the grid, and b) current status of the project and the preferable option by Elia as well as decision-making criteria.

Engagement: NGOs were concerned that there are no strong expectations about possibilities for participation and influencing the project planning, mainly due to historical reasons, as both communities did not experience strong culture of participation. In both communities there is no culture of participation established yet. Some experience exists on the projects for urbanisation and improvement of the city centres. It is also not easy to mobilize population in the cities like Waterloo. Living in this city is regarded as a status symbol and many people are individualistic and are not interested in the questions of environment. They also prefer not to react if they are not affected directly. Another reason why people prefer not to mobilise is that they do not see problems, which might affect their lives. There are no participatory structures on place and environmental organisations are involved only into discussion about small projects such as construction of a swimming pool.

Regarding large-scale projects, NGOs are involved at the time point when decisions are taken already and they do not have a possibility to change anything. The organisations of civil society in the region were structured before with delegates from the city quartiers. However it was not evident to mobilise the public. The political opposition is divided, not organised and is in the minority. BESTGRID project is a best case for such approach. However, attention is needed to create too many expectations, which cannot be fulfilled and not to reopen old wounds caused by other infrastructure projects. There is also an advice to start public information events with discussions about electro-magnetic fields. Lesson learnt from Bertikow-Pasewalk said that EMF is one among other important issues and you should address the topics which people in the region are interested in. It would be good to provide

transparent information and to avoid public protests. BESTGRID also provides a good opportunity to discuss the project with people directly that they will not have an impression that something is going on behind their back. However, collected concerns from population should be also answered, otherwise people might have an impression that this was a green washing activity from the side of TSO.

Another concern is interactions between two communities, which almost do not exist even though mayors of both communities belong to the same political party. Communities are also different, with Braine-l'Alleud being a rural community and Waterloo being a commercial centre. At the same time the centre in Braine-l'Alleud is much better developed than suburbs which are more abandoned.

Environment: From the point of view of environmental impacts, NGOs were concerned about the use of chemicals such as herbicide along the communal roads as well as impacts of construction works on traffic and following to this enlargement of roads. Impacts during construction works on mobility can be mitigated by work in sections, which will not block traffic too much, good logistics of construction works, such as not too open another section before the previous one is not closed, mitigation of noise with no construction works before 6.00 in the morning and on weekends, alternatives for traffic and deviations, cleaning of streets after construction works. It is also necessary to plan construction works in terms of impacts on other infrastructure such as gas or electricity. From the point of view of impacts on human health, current project has almost no risks.

There were no concerns about impacts on environment or human health as the cable is sufficiently far away from human settlements. However, there are concerns about impacts from construction works.

Benefits: The project could also have certain advantages such as providing opportunity for refurbishment and renovation of territories around the cable. Underground cable is also very positively regarded in comparison to the overhead line as there will be no impacts on landscape and influence of electro-magnetic fields is mitigated as the cable is under the ground. The project can help to upgrade previously constructed electricity infrastructure, which did not invest for the last 20 and 30 years into maintenance of electricity lines. The project can be also a good chance to discuss future development of the agricultural zone, which will be affected by the project and to guarantee that there is no risk that

this beautiful area will be a subject of construction and change in the future. The existing in the area transport infrastructure could be also changed and replaced by ways for bicycle drivers etc. However, NGOs were also recommending actions, which could create benefits from the project to local communities such as synergies with already existing infrastructure (RER train).

4.3 Concerns of stakeholders according to their views

If we follow further the logic developed by Neukirch, which is described in the background, and classify all stakeholders according to their concerns to topic-challengers, concept-challengers and acceptance-challengers, we could see that five guiding principles, according to which we evaluated concerns, could fit to one of three types of challengers (figure 3). For instance, topic-challengers would express concerns according to the guiding principle „environment“, „benefit“ and partly „need“ when it relates to the discussion about corridors and its alternatives. Concept-challengers would express concerns according to the guiding principle „need“ of the project, in general, and its benefit to society, and not only to local communities. Acceptance-challengers would raise concerns according to the guiding principles „transparency“ and „engagement“.

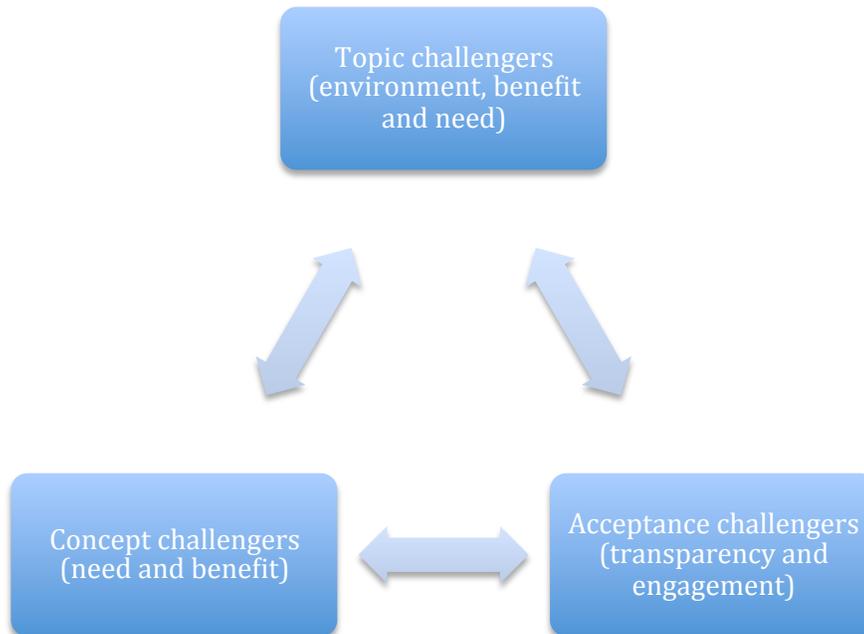


Figure 3: Challengers of the project and their concerns according to five guiding principles

If we would draw a very rough portrait of these three groups we will have the following results. Topic challengers are concerned with so-called NIMBY effects. They request fair distribution of burden and benefits of the project across different communities, requesting mainly the routing of the project. They are concerned with impacts on their community in terms of visibility influence on landscape, impacts on human health and environment. They also recognize that letting infrastructure going through their community would require certain sacrifices of people at local level to reach benefits at national or global scale therefore they are interested in compensation for this sacrifice but also in actions of TSOs to provide additional benefits from the project to their community for improvement of the quality of life.

Concept challengers are more questioning the need of the project in general. They might believe more in decentralized energy generation or the need to reduce energy consumption as a climate mitigation effort. Therefore, they are questioning if large-scale electricity transmission infrastructure going through several communities is really needed. In this regard they are questioning the benefit of the project to global community, in general.

Acceptance challengers are more unhappy with the organization of participatory process than with its outcomes. They require more transparent information about decision-making processes, regulation, criteria for selection of alternatives. According to them, information in general should be more transparent and easy to find, as well different channels of communication should be applied and this information should be “translated” to easy to understand and clear format. They were also requiring information about possibilities for participation and early involvement of different stakeholders to discuss alternatives.

Speaking in terms of justice, we could say that acceptance challengers are more concerned with procedural justice at the same time as topic challengers are concerned with output justice. The concept challengers are more following discussion on energy transition in general, involving different options such as large-scale deployment of renewable energy sources, involving electricity transmission over long distances, decentralized generation nearby consumption centers or increased energy efficiency.

5. Results on successfulness of separate actions to address stakeholders concerns

5.1 Evaluation of historical cases

For our research we selected a sampling of 17 infrastructure projects, which faced severe public protests. To address potential biases in our sample selection of historical cases we discuss here three categories of cases: infrastructure siting for renewable energy, infrastructure siting for non-renewable energy and transport infrastructure. By analyzing reports about the projects we tried to understand major reasons for public opposition, which we also mapped according to five guiding principles. Further on, we analyzed which actions were taken by project developers and how these actions influence the existing public opposition. Under “successful action” we mean if not a certain level of support then at least turning of active opposition into passive acceptance and that infrastructure was finally constructed without major protests. It was provided by the authors of case studies if the actions were successful (table 3).

Table 3: Concerns of stakeholders in three types of infrastructure projects (renewable energy, non-renewable energy and transport)

Name of the case	Year	Journal reference	Successful or not	Guiding principle
Micro-generation	2007	Sauter and Watson	Yes	Need
Waste to energy	2011	Achillas et al.,	No	Need, Environment
Wind energy development in Wales	2011	Cowell et al.,	Yes	Benefit
Wind park in Welshpool	2012	Pidgeon		Benefits
Large wind turbines in Greece	2005	Kaldellis	No	Need
Hydrogen vehicles	2008 2012	Heinz and Erdmann; Tarigan and Bayer	No	Need
Transmission grids	2006	Vajjhala and Fischbeck	Yes	Benefits
Oil pipelines	2008	Benalcazar	Yes	Accountability, Environment, Benefits
Carbon Capture and Storage	2010	Ashworth	Yes	Need, Accountability, Engagement
High-speed rail Lyon-Turin	2009	Marincioni and Appiotti	No	Need, Environment
Wilmington Bypass in North Carolina	1998	Lane et al.	Yes	Environment

Youngmann highway	1988	Cohn	Yes	Environment
Nashville highway	1999	Gifford	Yes	Environment
Runway at Örebro Airport	2003	Soneryd and Weldon	No	Environment
Palm Beach airport	1988	Cohn	No	Environment
Port of Rotterdam	2006	Palerm	Yes	Engagement
Runway at Manchester Airport	2006	Soneryd and Weldon	No	Environment

The meta-study of existing cases for infrastructure siting show that even though there are similarities among concerns of stakeholders regarding different types of siting of infrastructure, still a common pattern and differences between three groups, - renewable energy infrastructure, non-renewable energy and transport, - can be identified. For instance, renewable energy projects are much more often questioned about their need and distribution of benefits. At the same time transport infrastructure is more frequently questioned regarding impacts on environment and human health. New technologies, like CCS, or controversial technologies, like oil pipelines are questioned about accountability of decision-making processes and possibilities for participation.

In successful cases the most frequent actions were to deal with impacts of the projects on environment and human health. This was followed by providing benefits to local communities and perceptions of fair distribution of benefits from infrastructure projects. The actions required by procedural justice, such as accountability or engagement, were successful in combination with other actions of output justice, such as benefits for local communities and addressing impacts on environment and human health. In one case, such as micro-generation, explanation of the need of the project was necessary.

However, it is not really possible to say that addressing impacts on environment and human health would necessarily lead to reduction of protests. Two cases, both of them are deployment of airport

infrastructure, were not successful by implementing the actions on environment. Also in the most of cases providing information about the need of the project alone did not lead to reduction of intensity of public protests (table 4).

Table 4: Successful and not successful cases to address issues of public acceptance (renewable energy, non-renewable energy and transport)

Successful cases	Guiding principle	Not-successful cases	Guiding principle
Micro-generation	Need	Large wind turbines	Need
Wind to energy	Benefit	Hydrogen vehicles	Need
Wind park	Benefit	Waste to energy	Need
Transmission grids	Benefit	High speed rail Lyon-Turin	Need, environment
Oil pipelines	Accountability, environment and benefit	Runway at Orebro Airport	Environment
CCS	Need, accountability and engagement	Palm Beach Airport	
Wilmington Bypass in North Carolina	Environment		
Youngmann highway	Environment		
Nashville highway	Environment		
Port of Rotterdam	Engagement		

The review of these cases allowed us to make following conclusions:

- In the majority of cases where actions were taken to address issues of public acceptance, these actions were successful.
- There is no certainty that implementation of actions to address such concerns as impacts on environment and human health will reduce protests.

- Addressing NIMBY by providing benefits to local communities led to success, however, only in cases of renewable energy infrastructure. In this research we cannot really say if providing benefits would be also successful for contradictory infrastructure, which is perceived with a higher degree of dreaded risk.
- Principles of procedural justice, such as accountability and engagement into decision-making processes, were implemented less frequently but in cases, where they were implemented, these actions helped to address issues of public protests.

5.2 Public information markets of TenneT

The major focus of TenneT information markets was on communication of the need of the project, alternatives for corridors and possible impacts on human health and environment. The major goals of these markets were to increase awareness about the project and the need for the project, to create trust, to facilitate the progress of planning process through dialogue with stakeholders, to establish reputation of TenneT as a reliable partner.

The information markets were organised in spring and autumn 2014 in several communities on the way of the planned 380kV electricity transmission line. Approximately 300 inhabitants in each community, including lay people, politicians, and environmental groups, visited each market. The events were realised by employees of TenneT and different consultancy companies. They provided information for dialogue as well as detailed maps of the planned corridors.

IIASA developed a questionnaire, which was developed in cooperation with RGI and Germanwatch and distributed on the site of public information events in 33 communities. The questionnaire contained both multiple choice questions and open questions. The detailed description of the questionnaire is in the results section. Altogether we collected 307 completed questionnaires. The answers were evaluated with the help of statistical programs such as SPSS, STATA and Excel. The results of this evaluation are described in details in a separate deliverable D 2.5.

Information events took place in friendly atmosphere, to a large extent. However in some communities, such as Wasserlosen, Elfershausen and Bad Brückenau, members of local actions

groups were demonstrating outside the hall, where information event took place, and were protesting against the project. Majority of these groups were supporting energy transition in Germany towards low carbon economy however they claimed that SUED.LINK is not needed for the energy transition. The people participating in demonstration's were mainly interested in such questions as impacts from SUED.LINK on human health and environment as well as decision-making process regarding routing planning, alternative solutions and why their community was selected.

The feedback from stakeholders received during the public information event shows that inhabitants were mostly satisfied by provided opportunity for direct dialogue with employees with TenneT about important for community questions (57% of all stakeholders completely agree with this). Also the public information events were successful by providing information about the need of the SUED.LINK project, 42% of stakeholders completely agree with this statement. And 38% completely agree that public information events provided them with opportunity to express their views and feedback. These three results show that public information events of TenneT were successful in providing two-ways communication with inhabitants of communities where the SUED.LINK project is planned.

Less optimistic were stakeholders about how successful the public information event was in terms to make the planning of the project more clear and transparent, 33% completely agree and 32% agree that the public information event reached this goal. Also medium optimistic were stakeholders about that TenneT takes their concerns seriously, only 32% completely agree with this statement.

Stakeholders were mostly critical about the provided opportunity to engage and to influence the planning of the project. Only 19% of stakeholders completely agree that they had such opportunity, at the same time as 22% completely disagree with this statement. The most critical were stakeholders about the quality of information materials provided on place. Only 7% of all stakeholders agree that information materials were useful, at the same time as 24% completely disagree and 42% disagree with this statement.

These data allow us to make following conclusions on three guiding principles, “need”, “transparency” and “engagement”. The lack of data did not allow us to develop results on guiding principles “environment” and “benefit”:

- Public information events were successful to address guiding principle “need”. This may be true for the participants of the events, but against the background of the Bavarian policy debate

on the need, it is less so. Participants appreciated a lot the possibility for dialogue with employees of TenneT on important for them questions. However, participants did not like the quality of information materials, which was however improved during the second round. These results also show that inhabitants appreciate possibilities for personal communication rather than distribution of printed materials.

- Public information events were only partly successful to address the guiding principle “transparency”. They requested more information about alternative corridors and criteria for their evaluation as well as about costs and benefits of different options and details of the project, such as pylons, planning and impact of construction works.
- Public information events were not successful to address the guiding principle “engagement”. Participants were proposing other forms of events, which would allow them to express their feedback, such as round table discussions with local politicians and NGOs as well as inhabitants from other affected communities.

5.3 Round-table discussions of 50Hertz

In case when quantitative data such as feedback forms, surveys or multiple choice questionnaires are not available, efficiency of action to address concerns from stakeholders could be evaluated analytically, namely, how these concerns changed after the implementation of an action to address concerns.

The pilot project of 50Hertz provided us with such opportunity as it included two rounds of focus group discussions. One round was organized in March 2014 and the second round in September 2014. The discussions addressed the same topics across five guiding principles and were organized in the same communities. Therefore, we had an opportunity to compare how these concerns changed after the first round table discussion. We are describing discussions and their organization in details in the next paragraph.

Two information events were organized in March 2014. The first information event in Prenzlau was organized on the 11th of March 2014 and the second information event was organised on the 13th of March 2014 in Pasewalk. Both events had similar goals: to inform citizen of affected communities about the project and the planning procedures, to provide information about possibilities of dialogue and to collect feedback about the project including critical voices. The information event at Bertikow

was visited by 36 stakeholders and the information event at Pasewalk was visited by 48 stakeholders. The stakeholders were from public sector¹¹, private sector¹² and civil society¹³. Information event at Bertikow was organised in the Youth Guest House and the information event at Pasewalk was organised at the building of municipality.

The major aim of the events was to provide information to inhabitants of affected communities about the project, actual planning state and further steps as well as to collect questions and concerns stakeholders, to react on their questions and to create dialogue. The discussion was moderated by a private consultancy company. Further goals were to take care of the expressed concerns during the following planning of the project, to understand early enough “critical voices” and to present the company and project team to local associations.

The second round of information events was conducted in September 2014. It had the form of a round table discussion where about 15 people from regional authorities, state ministry Mecklenburg-Western-Pomerania, a representative from Pasewalk municipality, staff from utilities of Pasewalk and staff from planning authorities Bundesnetzagentur as well as RGI, Germanwatch and IIASA took part. The discussion was moderated by an NGO, Deutsche Umwelthilfe. It included presentations from 50Hertz about actual state of planning of the grid, regulations, Bertikow-Pasewalk pilot project as well as from local NGO NABU on environmental issues and Technical University of Berlin on process of risk communication to stakeholders and the University of Duisburg on electro-magnetic fields.

• ¹¹ *Amt Brüssow-Uckermark, Amt Gramzow Brandenburgisches Amt für Denkmalpflege und Archäologisches Landesmuseum, Bundesnetzagentur (BNetzA), FDP-Landtagsfraktion im Landtag Brandenburg, Landesamt für Umwelt, Gesundheit und Verbraucherschutz Mecklenburg-Vorpommern, Landesbetrieb Forst Brandenburg Betriebszentrale, Landkreis- und Naturschutzbehörde Landkreis Uckermark, Stadt Prenzlau, Wahlkreisbüro Jens Koeppen, MdB, Wahlkreisbüro Stefan Zierke, MdB, Amt für Raumordnung und Landesplanung Vorpommern, Amt UeckerßRadowßTal, Bundesnetzagentur, Landesforst Mecklenburg-Vorpommern, Staatliches Amt für Landwirtschaft und Umwelt Mecklenburg-Vorpommern, Staatskanzlei des Landes Mecklenburg-Vorpommern, Stadt Koblenz, Gemeinde Papendorf, BUND Mecklenburg-Vorpommern, Stadt Pasewalk*

• ¹² *Agrarproduktion Grünow GmbH & Co. KG, Bundesverband WindEnergie e.V., BW Agrargesellschaft Bertikow-Weselitz mbH, ENERTRAG Aktiengesellschaft, GASCADE Gastransport GmbH, IHK Ostbrandenburg, IST – Intelligenz Service Transfer GbR, Landwirtschaftsbetrieb GUTbietikow, PCK Raffinerie GmbH, Planungsgesellschaft Erdkabel, Stadtwerke Prenzlau GmbH, Castus GmbH, Energiewerke Nord GmbH, IST ß Intelligenz System Transfer GbR*

• ¹³ *Buergerinitiative Biosphaere unter Strom, NABU Mecklenburg-Vorpommern, NABU Bundesgeschäftsstelle, Evangelische Kirchengemeinde Pasewalk, Germanwatch e.V., IIASA, Bauernverband Uecker-Randow e.V., Deutsche Umwelthilfe e.V.,*

All concerns expressed during the round table discussions were collected by IIASA, RGI and Germanwatch as well as by 50Hertz and a number of private consultancy companies. Our results are based on evaluation of all reports developed for these two rounds of information events.

Our results show that round table discussions organized by 50Hertz were successful to address guiding principle “need” as in a half-year period almost no concerns were raised during the second rounds of information events about the need of the project. They were medium successful to address the guiding principle “transparency” and “environment”, as concerns expressed during the first round of information events were not raised again but the new concerns appeared. The round tables were not successful to address the guiding principle “engagement” and “benefit” as it was still not clear to stakeholders how they can receive information about possibilities of engagement and what would be the right time for this engagement. During the second round the same questions appeared on the principle “benefit”, mainly about possibilities for compensation (table 5).

Table 5: Concerns of stakeholders during first and second round of information events

Concerns	First round of information events	Second round of information events	If concerns were addressed
Need	Strong concerns, especially regarding the need of the project to deliver electricity to Poland and overhead versus underground cable	Much less questions about the need	ì Concerns addressed
Transparency	Strong concerns about criteria of decision-making, source of electricity, project planning and volumes of	Medium concerns about clear information about type of pylons and EMFs	è

	compensation		Existing concerns addressed but new appeared
Engagement	Medium concerns about engagement of lay people and not only organized stakeholders as well as information about possibilities for engagement	Medium concerns about more convenient time for participation and publication of information about participation in local media	<p style="text-align: center;">↑</p> <p>Not successful in addressing concerns</p>
Environment	Strong concerns about impacts from all infrastructure projects in the region on nature and human health	Medium concerns about impacts on recreation areas and visibility of new lines	<p style="text-align: center;">è</p> <p>Existing concerns addressed but new appeared</p>
Benefit	Low concerns about compensation, costs of the project and their distribution	Low concerns about compensation	<p style="text-align: center;">↑</p> <p>Not successful in addressing concerns</p>

Here we are describing in details concerns raised during two rounds of discussions.

Need: concerns expressed during the first round included the need for better arguments about the real need of the project and not only arguments about existing laws, the need for more data about concrete

needs for this project in affected communities and not at the level of regional planning. Inhabitants were also concerned with information about the need for construction of such line to deliver electricity to Poland and what economic criteria were considered by taken the decision to construct the line between Bertikow-Pasewalk. They were questioning the need to construct overhead lines versus underground cable. During the second round no concerns on the need of the project were expressed.

To answer concerns expressed during the first round 50Hertz developed more detailed maps to show alternatives for the preferred corridor. Employees of 50Hertz were also providing more information about electricity exports to Poland and the costs of underground cable. Both actions were positively perceived by participants and it seems that concerns about the need of the project and preferable corridor could be addressed with more information, development of detailed maps and personal dialogue between employees of 50Hertz and inhabitants or organized stakeholders.

Transparency: during the first round participants expressed concerns about the lack of information about decision-making process and how decisions were addressed in the regional need development plan (Bundesbedarfplan) to construct lines between two communities as well as types of data used for development of scenarios on renewable energy generation and impacts of new line on the costs of electricity. More information was required about the planning procedures within 50Hertz and how they go together with legal framework, as well as about the source of electricity, which will be transmitted through the lines and if it will also include electricity generated from coal. Participants recommended to develop the maps to show who will feed electricity into the grid. During the second round concerns included the need for transparent information about the type of planned pylons and impacts of EMFs.

To answer concerns about transparent and clear information, employees of 50Hertz were mainly arguing with legal requirements such as the legal requirement to develop scenarios with calculations of feed-ins of electricity into the grid from different capacities or the German law on calculation of costs of electricity. Regarding scenarios of renewable energy development 50Hertz conducts its own research in cooperation with scientific organisations and wind energy industries, which is based on data registered electricity generation capacities, prognosis on demographic and industrial development. As a follow up action 50Hertz developed detailed maps with information on the sources of electricity which are transported by the line. These maps were also positively perceived by participants of second round table discussions.

Engagement: during the first round participants asked about who was involved into development of renewable energy scenarios in the region. Concerns were expressed about possibilities for involvement of all citizens into information events and not only organized stakeholders. This also included provision of information about events and possibilities for participation through official journals. Inhabitants mentioned the need for involvement of technical committees in local parliaments and local politicians as multipliers of information. During the second round concerns were expressed about involvement of local NGOs into discussion of definition of preferable corridors and better time and information for participation in public information events. Participants recommended publication of information about possibilities for engagement in different sources and media and to include not only text but also pictures for illustration. As a reaction 50Hertz proposed to establish dialogue with inhabitants via email and special telephone line.

Environment: during the first round concerns were expressed about possibilities to couple the new project with existing infrastructure such as the 110kV line constructed during the DDR times when regulation on environmental protection and minimization of impacts on human health was different and did not pay much attention to impacts on environment and human settlements, too small distance of lines to the ground, impacts on agriculture and landscape. Participants also recommended to consider other existing in the region infrastructure projects, such as gas pipelines, to construct electricity line along these projects and to minimize impacts on environment and human health. During the second round table more concerns about impacts on environment were expressed, such as impacts on bats, birds and big animals as well as impacts on recreational areas, such as Kirchforst, which have high value for local communities. Concerns also included visibility impacts on the landscape.

Besides providing the arguments during the discussion about the need of coupling and the type of selected pylons, which included providing more detailed information to defend the idea of coupling and the choice of pylons, 50Hertz involved a local NGO NABU to provide information about possible impacts from the pilot project on environment and compensation measures to environment. This action was positively perceived by participants. Also involvement of trusted sources of information, such as universities or scientific organizations, to provide information about technologies, which are perceived as being risky, such as impacts from EMFs, was positively perceived by participants.

Benefit: during the first round of discussions concerns were expressed about compensations to organized stakeholders, such as peasants unions, as well as compensation for impacts from several

infrastructure projects and volumes of compensation. Other concerns included the costs of the project and distribution of costs and benefits across different communities. During the second round the same questions appeared and additionally possibilities for compensation for legally established protection areas.

Regarding compensations, 50Hertz provided more information about the size of compensation and according to which criteria it will be provided. However, several questions on compensation still remain open as the regulation framework for distribution of compensation still has to be developed.

From evaluating concerns and actions, which were taken by 50Hertz to address issues of public acceptance we draw following conclusions on all five guiding principles:

- The principle “need” could be successfully addressed by round table discussions, providing more detailed information, answering to questions of participants, providing opportunities for direct discussion with employees of 50Hertz. Also detailed maps on the preferred corridor and its alternatives were very positively perceived by participants.
- The principle “transparency” can be also addressed by detailed maps and providing information from trusted sources, such as scientific organisations. However, this information should be more clearly communicated and arguments should go beyond “legal requirements”.
- The principle “engagement” would require efforts, which would go beyond emails and telephone hotlines, however, these two measures are a good start of dialogue already.
- Involvement of local NGOs was very positively perceived to address the principle “environment”.
- Realization of the principle “benefit” would require clear and transparent information about compensation but also would require development of the regulatory framework to facilitate flows of compensations for both, community and individual compensations.

5.4 Information events of Elia and cancellation of the project

The actions of **Elia** to address public acceptance included mainly a workshop with organised stakeholders mainly from local authorities as well as a round table discussion between local authorities involved into environment protection and environmental NGOs. Other actions were to collect concerns from stakeholders about the project and are described in details in the section on data collection.

The first information event with representatives of regional and local government was organised on the 3rd of April 2014 and lasted for two hours. It took place at the premises of the Council Chamber. The workshop was organised by Elia in cooperation with IEW, where both organisations were working on the content preparation, preparing invitations, finalising minutes and other materials from the workshop. The logistical arrangements were provided by IEW and the letters of invitation were sent out by IEW to all stakeholders identified during the stakeholders mapping as well as to existing networks of IEW. The invitation letters also included flyers about BestGrid and the roles of IEW and Elia in the project. It also mentioned the new participatory approach established by BESTGRID to test different actions towards stakeholders' acceptance. The workshop was mainly targeted at local authorities stakeholders¹⁴.

During the workshop stakeholders were sitting in a circle, IEW and Elia were standing in the middle facing the audience and the Mayor of Braine- l' Alleud was sitting in the mayoral seat and was dominating the visitors. The workshop had three aims, falling into categories "need", "transparency" and "engagement". Speaking about the need for the project the workshop aimed to raise awareness about the project, to inform about the following steps and procedures in planning for the project, to provide local governments with information about the project, which could be disseminated to inhabitants of affected communities. Speaking about transparency, the workshop provided information about the further process to enhance transparency about the project. Speaking about engagement participants of the workshop had a chance to provide their input and feedback, which was planned to use to adjust the approach to planned infrastructure. IEW was introducing the objectives and the need for the pilot project in frames of BestGrid. Elia was speaking about the need for underground cable, corridor and legal procedures. The major aim of the workshop was to collect inputs for further public information event to explain better the needs of the project to inhabitants of affected communities, especially of Braine-l'Alleud. It was not planned to alter the action plan. It was foreseen that all recommendations, which were collected during this workshop, would be presented to the public at the public information workshop in on the 12th of June 2014, which was cancelled because of the cancellation of the project.

¹⁴ Participants: local government of Braine-l' Alleud, local government of Waterloo, federal government responsible for the questions of economics and energy, DGO. CSD, IEW and Elia.

The first round table discussion on permitting procedures took place on the 27th of May 2014 in Brain-l'Alleud. It was organised at the premises of the Cultural Centre. It brought together representatives from Elia, NGOs and environmental authorities¹⁵. Altogether 17 participants took part at this round table discussion. They were sitting in a circle and had a chance for information discussion during lunch following the round table. The round table was prepared in cooperation between Elia and IEW, when both organisations were involved into content preparation, conducting of the round table itself and preparing the following up materials. IEW was solely responsible for logistical arrangements and preparation of invitations. The round table was opened by IEW and included the introductory presentation from Elia on the need for the project, possible barriers and further planning steps. The round table included presentations of Elia on the proposed cable route, of an environmental NGO Natagora on conducted study about environmental impacts, and from both Elia and IEW about the BESTGRID framework, RGI and why IEW is participating. Among these reasons is history of existence of strong opposition around large-scale projects. Sometimes, according to the presentation of IEW at the round table discussion, this opposition is constructive but sometimes it has purely NIYMBY features. For IEW participation in such project is an opportunity to discuss its positions with local stakeholders, to ensure that principles of environmental protection are implemented by realisation of the projects, to test new methods of participatory governance and transparency as well as to establish new partnerships and cooperation. The presentation of IEW also addressed such issues as existing opposition to the project among authorities, environmental organisations and inhabitants, how this opposition causes delays in realisation of the project, discussion about possible solutions in working groups and connection to the BESTGRID approach.

The major objectives were to discuss how environmental concerns could be considered early into grid planning and to discuss suitable methodologies for environment assessment, to discuss possibilities to achieve public acceptance by assuring environmental concerns are taken into consideration, to start regular interactions between authorities, TSO and environmental NGOs.

To communicate the reasons for postponement of the project Elia developed a special memo setting the reasons for this situation. Elia also contacted some stakeholders via phone and some via email. The time point for contacts was different. Councillors in charge of works in Waterloo and Brain l' Alleud

¹⁵ Natagora, environmental council of Brain-l'Alleud, environmental council of Waterloo, ADESA, NGO "Cercle des Naturalistes de Belgique", committee of the quarter Chenois, committee of interquarter of Waterloo, RGI, CSD, IEW,

were contacted first via phone and confirmation email, then works-department managers, then mayors of Waterloo and Brain l’Alleud, who also received official letter from Elia saying that councillors and work-departmental managers were already contacted. Administrative stakeholders were contacted only by email, in which IEW also thanked for their commitment. IEW contacted environmental stakeholders who participated during the first round table discussion and thanked for their commitment. Local residents were informed via an announcement in local newspapers, on Brain-l’Alleud town website and postponement announcement on the door of the public meeting room.

As the decision to postpone the project was taken in June 2014, Elia offered another project, the interconnection Stevin, to be considered in frames of BESTGRID.

In the following table we are summarising concerns identified in interviews conducted by IEW with stakeholders after the news that the project was cancelled (table 6).

Table 6: Concerns of stakeholders during two rounds of interviews

Guiding principle	First round of interviews	Second round (after cancellation of the project)	How successful was the action
Need	Unclear need due to no significant indications for growing energy demand	How cancellation of the project will impact the need for similar projects in the future	 Concerns successfully addressed
Transparency	Information about planned corridor, electricity supplied and impacts of construction works.	Information about future projects and why current project was cancelled	 Existing concerns addressed but new appeared

Engagement	Lack of involvement of local communities, time for engagement	Impacts from cancellation of the project on willingness of inhabitants to participate in the future	 Not successful in addressing concerns
Environment	Impacts from construction works, EMFs, regulatory framework on environment protection	The same concerns but expressed even more emotional due to cancellation of the project	 Existing concerns addressed but new appeared
Benefit	No concerns expressed	No concerns expressed	Unclear as public actions did not target this principle

Evaluation of actions in two different pilot projects of Elia and of 50Hertz show similar results which allow us to draw conclusions that actions to address issues of public acceptance in frames of BESTGRID project were especially successful to address concerns about the need of the project. Indeed, as a communication process BESTGRID provided several possibilities to receive more information about the project, routing alternatives and planning procedures. It also included several alternative formats of providing information, from round table discussions, which were organized by TSOs in cooperation with NGOs, to public information events, such as information markets of TenneT. These actions provided opportunities for dialogue with employees from TSOs as well as for focus group discussions. Especially successful were workshops which were moderated and prepared by local NGOs, explaining the need of the project and possible impacts on nature and human health.

The actions to address the guiding principle “transparency” were less successful. Indeed, they provided sufficient opportunity to receive clear and transparent information not only during public

information event, where inhabitants especially appreciated an opportunity for dialogue, but also through improved quality of public information materials. For instance, in a number of pilot projects the quality of information materials, such as information brochures, was improved significantly after a feedback provided by NGOs or IIASA as well as after the feedback provided by inhabitants during public information events. Especially positively were perceived actions to provide visual presentation of the project, such as details maps of the routing. However, by addressing some concerns on transparency, other concerns appeared during the second round. For instance, inhabitants and organized stakeholders were mentioning the absence of a web-site where they could find information about regional development plans. Also the need for more transparent information about EMFs appeared. Therefore, we conclude that addressing concerns on guiding principle “transparency” requires constant efforts and establishment of a process in frames of which clear and transparent information will be provided as soon as additional questions appear.

The same implies for the guiding principle “environment” as the major actions of BESTGRID were focused on addressing concerns about impacts of the projects on environment. The participants of workshops and round table discussions, which were mainly representatives of NGOs, local government or environmental protection organizations, very positively perceived efforts of BESTGRID as well as involvement of local NGOs to organize and moderate such discussions. However, the concerns about impacts of the project on human health were addressed less extensively, mainly through mobile information office of 50Hertz or presentations during workshops on EMFs. However, several issues require additional research in this regard, such as impacts of EMFs. Therefore, these actions were only medium successful, not due to the lack of effort from the side of the BESTGRID team but due to the lack of available scientific evidence in this area.

We could say that actions to address two guiding principles such as “engagement” and “benefit” were least successful for several reasons. First, concerns about possibilities for engagement were expressed mainly by inhabitants which did not see an opportunity to provide a feedback or had an experience that their voices will not be heard. Also stakeholders from local government were not satisfied about the timing for engagement. This was also largely perceived to the fact that people did not receive personalised feedback but could only find their concerns in a generalised form in official documentation. Indeed, the BESTGRID process was a participatory project in itself as it involved cooperation between such stakeholders as TSOs and NGOs, however, it was out of the scope of

BESTGRID to establish mechanisms for engagement with inhabitants of affected communities or local government. One of the major findings in all four pilot projects was that participation should have started much earlier, before the the beginning of the formal procedures. However, SuedLink and Bertikow-Pasewalk started long before the beginning of the formal planning procedure. Also in several cases activities to collect feedback from stakeholders took place when decisions about alternatives were already taken, thus, being in the frame of “Decide-Argue-Defend” model. Also the wish was expressed by several stakeholders that politicians should be stronger involved into organization of participatory activities and that participation process should be organized by the local government or by an independent body.

The number of concerns expressed about the guiding principle “benefit” was the lowest and they were quiet similar through all pilot projects, namely, about fair distribution of burden and benefits among communities sand different stakeholders, such as local government and energy companies, about compensations and the absence of regulatory framework and about creation of measures to make communities a better living place. However, it was out of the scope of BESTGRID to develop actions to address concerns about “benefits”. These concerns were target to an extent by providing additional information about benefits of the project to local communities and to society in general.

6. Evaluation of BESTGRID as an approach to address stakeholders concerns

6.1 Feedback from participants of round table discussions on the BESTGRID project

The feedback on the usefulness of the BESTGRID process from the point of view of participants of round table discussions was collected on the side of round table discussions organized by Elia and 50Hertz. The feedback form was developed and distributed by local NGOs IEW and NABU.

Elia: Evaluation of results from the feedback form showed that the workshop helped to inform about the BESTGRID project. 87% of stakeholders mentioned that their level of knowledge about BESTGRID was good after this event and 13% mentioned that it was medium. For the majority of stakeholders (87%) the roundtable increased further interest in BESTGRID. Also the feedback about

the roundtable itself, its content and organisation was positive. 45% of participants found it very good and 55% rated it as good. However, additional information about the project would be desirable. 65% of participants mentioned that they would like to have additional information and 35% were satisfied with information provided during the workshop. According to stakeholders, the missing elements where they would like to have more information were information provided by communal authorities, more information about the details of planned corridor and its alternative, any information about participatory process for the project and possibilities for engagement, more details about the project planning, additional and more detailed information about the need of this project for two affected communities and the “surprise” elements which might appear during its realization.

50Hertz: the evaluation of the efficiency of round table to deal with issues of public acceptance was based on the feedback form distributed by NABU to participants, who were mainly from authorities and NGOs. The results show that 80% of all participants found the round table discussion interesting, which provided important information and suggestions. Also 80% of participants think that the experts, who provided presentations, were chosen properly and provided valuable inputs to the discussions and 75% of all participants, will definitely consider participation in the follow-up events. However, participants had doubts about involvement of regional stakeholders and if all relevant stakeholders were reached. There was also criticism about dissemination of information about this round table discussion, which would allow interested stakeholders to join.

This feedback allows us to make following conclusions on three guiding principles, “need”, “transparency” and “engagement”. The lack of data did not allow to develop results on guiding principles “environment” and “benefit”:

- BESTGRID process was successful to address guiding principle “need” in terms of discussion the need of the project and selected corridors
- BESTGRID was only partially successful to address the guiding principle “transparency” and there were requests for additional information, mainly about details of planned corridor and alternatives, and alternative sources of information, such as communal authorities
- BESTGRID was least successful to address the guiding principle “engagement” as stakeholders were missing information about possibilities to engage as well as about possibilities to join round table discussions. Also this information did not reached all interested stakeholders. The reason for this may well be that there is not much room for real, decisive

engagement in transmission grid planning. Also this information did not reached all interested stakeholders.

6.26.2. BESTGRID as an approach to address stakeholders concerns

As a framework to map the interactions between NGOs and TSOs in frames of the BESTGRID project we are applying the framework on participation development by Arnstein in 1969. This framework maps and assesses different levels of participation in infrastructure projects, such as deployment of electricity transmission grids. This framework was applied to understand the role that cooperation between TSOs and NGOs can plan in fostering public acceptance and thereby in minimizing conflicts and maximizing efficiency in deployment of electricity transmission grids (table 7).

Table 7: Realization of the BESTGRID approach in four pilot projects

	Elia	TenneT	50Hertz	National Grid
Need	Stakeholders mapping Interviews to collect concerns	Stakeholders mapping Survey to collect concerns	Stakeholders mapping Survey or interviews to collect stakeholders concern	Stakeholders mapping Interviews to collect stakeholders concerns
Transparency	Workshop with inhabitants to provide information about planning	Public information events, media campaign	Two workshops in two communities to provide information about planning	Mini-workshops in two communities with organized stakeholders
Engagement	NGOs providing comments on action plans. Round table	NGOs providing comments on action plans. Providing room	NGOs providing comments on action plans. Round table	NGOs providing comments on action plans. Mini workshops

	discussion	for local suggestions to the corridor finding.	discussions	
Environment	Round-table discussion between TSO and NGOs to discuss environmental issues		Round-table discussion between TSO and NGOs to discuss environmental issues. Media-campaign about EMF, mobile information office with measurements of EMF	Mini-workshop with NGOs
Benefit	None	None	None	None

The review of actions foreseen in four pilot projects to deal with the issues of public acceptance and permitting procedures shows that all four pilots have different elements (table 8).

Table 8: Actions within four pilot projects according to the Ladder of Arnstein

	Therapy	Information	Consulta-tion	Partnership	Delega-tion	Cont-rol
Elia		Workshops with inhabi-tants	Round-table discussion	Develop-ment of action plans	No	No

				and information brochures in partnership with NGOs		
TenneT	Media campaign	Info markets	Surveys among inhabitants collecting feedback	Development of action plans and information brochures in partnership with NGOs	No	No
50Hertz	Information about EMF	Workshops with inhabitants	Round-table discussion	Development of action plans and information brochures in partnership with NGOs	No	No
NG		Workshops with inhabitants on public acceptance	Workshops on planning procedures	Development of action plans and information	No	No

				brochures in partnership with NGOs		
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We did not find the elements of manipulation in the action plans or in the following cooperation with NGOs or implementation of public acceptance measures.

We identified elements of therapy in the form of media campaigns and videos about topics of interests such as EMF. We also identified elements of information in all four pilots such as workshops in inhabitants in cases of Elia, 50Hertz and NG and info markets in the case of TenneT.

Round table discussions and workshops on planning procedures went a step further regarding participation practices and allowed NGOs to provide their input to the planning of infrastructure. This matches the level between consultation and placation when NGOs can play an advisory role but TSOs retain the right to judge the legitimacy or feasibility of the advice.

The review of the actions on public acceptance in pilot projects shows that all four pilots are at the level of placation as the highest level of participation where citizen are represented by NGOs. Existing evidence suggests that the middle level of the ladder of Arnstein is the most frequent one where public participation usually occurs in developed economies. The participation takes a form of consultation, involvement or collaboration.

However, the BestGrid approach goes beyond the existing level as it allows for collaboration between TSOs and NGOs in the frame of the project itself. This is an innovative approach when NGOs and TSOs are involved into the same project, which is managed by an independent organization. NGOs such as Germanwatch and BirdLife are actively commenting on plans of the TSOs to implement actions on public acceptance. They also provide recommendations about implementation of the environment protection principles during the project planning process.

The U.S. Environmental Protection Agency in its review of on-going infrastructure projects comes to the conclusion that public participation may include multiple levels at different stages of the project and

different stakeholders may choose to engage at different levels. Generally, higher level of participation requires more effort from both project developers and stakeholders and therefore attracts fewer stakeholders. Following to this we are mapping stakeholders and their level of engagement across four pilot projects and different levels of the ladder of Arnstein (table 9).

Table 9: Stakeholders in four pilot projects

	Therapy	Information	Consultation	Cooperation
Elia		Inhabitants	Environmental stakeholders	IEW, BBL, Germanwatch, BirdLife
50Herzt	Inhabitants	Inhabitants, NGOs	Environmental and critical stakeholders	DUH, NABU, Germanwatch, BirdLife
TenneT	Inhabitants	Inhabitants	Inhabitants	NABU, DUH, Germanwatch and BirdLife
National Grid		Inhabitants	Environmental stakeholders	Germanwatch, BirdLife

Up to nowadays there are no common agreements about efficiency of public participation methods and the necessary degree of public participation. Speaking about evaluation of the efficiency of public participation methods, a general lack of empirical consideration of the quality of participation methods arises from confusion about appropriate benchmark for evaluation. The lack of appropriate benchmark makes it difficult to compare the results from participatory process (Lowndes et al., 1998). It is often difficult to evaluate quality of public participation exercise and often the evaluation focuses more on the quality of public participation process it self. During the last decade there was a number of attempts to specify criteria against which effectiveness of participatory process can be assess.

However, there are certain limitations and these criteria have not been assessment in practical sense (Webler, 1995).

Following this, we do not evaluate here the results achieved in four different pilot projects in terms of impacts of different measures on public acceptance but rather we evaluate the quality of the entire BestGrid process, through so-called process criteria or procedural justice. The evaluation of procedural justice and organization of participatory process in four pilot projects showed that each pilot combined different methods of participation, from providing information to collaboration. However, none of the pilots really reaches the level of cooperation with public. Even though reaching high level of public participation, such as cooperation, BestGrid approach combines different methods and goes beyond traditionally existing approaches, especially regarding cooperation between NGOs and TSOs. Thus, such approach could be regarded as a good practice to address necessary challenges for further deployment and upgrading of electricity grids, such as the goals of climate change mitigation policy and protection of electricity networks from natural hazards.

6.3

7. Conclusion

What can be said as a conclusion for this deliverable? Indeed, separate actions of TSOs were successful to address issues of public acceptance. These actions targeted mainly the guiding principle “need” and included different forms of stakeholders’ information events, such as round table discussions or information markets. The following actions were perceived by stakeholders especially positively: provision of detailed maps about alternatives of corridors, possibility for dialogue with employees of TSO on important for stakeholders questions as well as involvement of local NGOs for organization and moderation of information events. The entire BESTGRID process was also successful to address the guiding principle “need”. However, this has to be seen against the background of the political circumstances in the respective countries, discussion about monster pylons, technology and serious struggles about energy policy.

However, the guiding principles “transparency” and “environment” were only partially addressed. Even though there were several public information events to provide more transparency about the pilot projects and the decision-making processes, such as information markets of TenneT, they addressed existing questions but then new questions appeared. For instance, when concerns about transparency of decision criteria about alternative routings were addressed, new questions appeared about the type of pylons or impacts of EMFs on human health. The results showed up that providing more transparent information increased the level of awareness about the pilot projects and their details but it raised more questions about additional details. The recommendations across all four pilot projects were to provide a homepage with clear, transparency and easy to read information not only about the project but also about the decision-making processes and documents, like regional development plans. Addressing the guiding principle „environment“ stakeholders provided recommendations on compensation measures to environment as well as on environment protection measures, such as protection of bio-diversity and migratory birds.

And the guiding principles “engagement” and “benefit” were not really addressed from the point of view of stakeholders. Also involvement of local NGOs in public information campaigns was perceived very positively by stakeholders.

The results also show that concerns about benefits or compensations were raised less frequently. However, the measures to address these concerns taken in frames of BESTGRID were also least successful. Actually, the public information events provided an opportunity to stakeholders to express their opinion and wishes about possible benefits and compensations from the project, such as creation of a fund, fair distribution of compensations across communities, transparent rules for compensations, it was out of the scope of BESTGRID to really implement these measures. Also if we look at the concerns about benefits and compensations, most of these concerns were rather about compensations than about benefits, and almost all of these concerns were about transparent rules for compensation and fairness, for instance, equal compensations between different communities or also compensations for inhabitants who were affected by other types of infrastructure.

If we overlay these results with results from historical cases, it was a seldom luck when actions targeting only one guiding principle were successful. And this one guiding principle was mainly “benefit” or “environment”. The historical cases show only one case when actions addressing solely guiding principle “need” turned out to be successful. It was the case of micro-generation. In other cases, such as large wind turbines, hydrogen vehicles or waste to energy, providing information about the need of the project only did not lead to reduction of intensity of public protests.

Feedbacks on the BESTGRID process, which were collected on the side of stakeholders’ events, showed very positive perceptions of BESTGRID in terms of provided information and the format of information events. Also stakeholders appreciated the opportunity for direct communication with employees of TSOs and the improved quality of information materials, for instance, maps with details information about alternative corridors and the sources of electricity. Stakeholders expressed a wish that such events, which were implemented in frames of BESTGRID, will be conducted regularly and that there will be also a follow up activities also after completion of the BESTGRID project. The feedback from stakeholders showed that BESTGRID was successful, mainly, in providing information about the need of the project. Also evaluations of concerns in first and second rounds of public information events showed that BESTGRID successfully addressed concerns about the need of the project.

The evaluation of procedural justice and the organization of the participatory process in the four pilots clearly shows that full engagement with stakeholders has not been achieved. However, we believe that the heterogeneity of public stakeholders and the complexity of the issues treated impede

comprehensive and deep engagement. Despite this, the value of the BESTGRID process has been fully acknowledged by participating consortium partners as well as by interviewed stakeholders. The value is mainly driven by the cooperation with organized stakeholders who represent different public interests and contribute different worldviews. Moreover, the cooperation with national and local NGOs stimulates project developers to go beyond standard practices and motivates them to make regular improvements to the infrastructure siting process. These reasons, as well as the observations made during the course of the BESTGRD project, lead us to consider that the cooperation between TSOs, and more generally project developers, needs to be encouraged and facilitated as it has the potential to deliver better projects and more legitimate outcomes in the decision-making process.

However, as historical examples from other infrastructure projects show that it is seldom sufficient only to implement measures to address one guiding principle, for example, providing information about the need of the project. This could be recommendations for the following up activities after the BESTGRID project to implement successful elements on providing information about the need of the project combined with other guiding principles, such as benefit, engagement, transparency or environment.

Clearly, many already established and new methods for stakeholder participation, which go beyond established practices and legal requirements were applied during BESTGRID's lifetime. However, the most appropriate techniques for public participation are likely to be hybrids of different methods (Smith et al., 1997). The BESTGRID approach is the first project to have been constructed around the active cooperation between NGOs and TSOs. It can be considered a good practice to address the many challenges that the infrastructure siting process faces today and could be a source of inspiration for future work.

It is, therefore, essential for policy makers and energy regulators to not only consider the inclusion of participatory and consultation activities in the permitting process, but also to provide measures on how these activities can be realized. In particular, we refer to the fact that capacity among NGOs is very limited and often subject to the availability of funds. In the case of BESTGRID, NGOs received funds from the Intelligent Energy Europe programme to carry out the tasks allocated to them in the BESTGRID project. Once the project is terminated, these funds will no longer be available and their expertise and time will need to be moved to different issues, where funds can be raised. While some

TSOs could be willing to invest resources into an NGO's capacity due to the value they bring to the project, this option is considered problematic for a number of reasons. First of all, the NGOs need to remain free to follow their own motivations and principles. If funded by the TSOs, they could lose credibility and weaken their position in society. Generally, energy regulators will not allow TSOs to recover the costs for financing an NGO's capacities. The ability of securing an NGO's capacity will be important for the realization of the desired grid expansion, because organized groups usually form for reasons of opposition and only very seldom to support the infrastructure siting process.

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8. ANNEXES

8.1 Interviews in the pilot project of Elia on Waterloo-Braine l' Alleud connection

The interviews were based on the questionnaire with open questions providing sufficient opportunity to identify additional concerns. It was developed by IEW in cooperation with IIASA. The first element contained questions to understand concerns from key stakeholders (it did not address lay people) regarding environmental, land planning and energy topics for both overhead line and underground cable. The second set of questions was about existing stakeholders, their influence and concerns as perceived by key stakeholders. The third element was about participatory processes, knowledge and personal opinion about the BestGrid project. The special section of the questionnaire for interviews addressed the issue of political landscape, competition and influence of two majors.

The first element on concerns contained the following questions:

1. Have you already followed a project of a power line's installation on the territory of the town?
2. Experience with other infrastructure projects in your community? This question was included to test if a strong public opposition exists already in the area and if there is already a negative experience about infrastructure sitting in communities.
3. What have been the positive and negative impacts of the project on environmental or land planning topics? What are the major barriers for the project in local communities?
4. What do you think will be the benefits of the project for the country in general?
5. What will be the benefits and the losses of the project for local communities? This question included energy future, compensations for destructions and modifications needed by the cable.
6. What do you think about the relevance of the project regarding concerns on energy supply at global scale? Would you have alternative solutions to propose instead of the use of fossil fuels and nuclear?
7. According to you, what importance should be given to environmental issues in relation to the additional costs that this might entail for Elia? This was one of the key questions on costs and

benefits and also involved the topic of costs not only for Elia but also for the country and consumers in general?

8. In your opinion, what will be the main source of energy transmitted via the electricity cable?

The second element contained the following questions:

9. Has the municipality set up specific participatory structures in the framework of development projects, mobility, and energy infrastructure?
10. Are there any groups that have already occurred in your community in connection with development projects? What are their major methods of work? Who finances these groups? What are their major concerns?
11. Which groups of inhabitants do you think will be affected by the project?
12. Which stakeholders should be involved and provide their feedback regarding the project? Why? Are they leaders and if so who are they?
13. What are the themes put forward by the opposition? What are their reasons for being against the project? Do any groups of stakeholders exist, which might be different to reach but who will be affected by the project?
14. How and when mobilization could appear? Upon announcement at the public information meeting?
15. What could be the extent of this mobilization? (e.g. number of persons present at the briefing)
16. Does geographical distance affect the mobilization?
17. Are these positions based on previous fears or on objective information? From where do people usually receive information about the project?

The third element about participatory process and view on BestGrid included the questions:

18. What do you think of the participatory process established under the BESTGRID project?
19. Do you think that the early involvement of stakeholders and the early consideration of environmental impacts can facilitate the acceptability of a project of this type?

20. Do you consider this as credible?
21. What you put in place to promote this acceptance? What do you think would be the optimum ways of stakeholders' engagement?
22. Do you think would an increase level of stakeholders' participation be connected with additional costs and if so with which one? Do you think would an increased level of participation lead to delays in the realization of the project?

The special part addressing the issues of political landscape included the following questions:

23. What was the reaction of the town council regarding the project of installation of a power line?
24. What are usually the relationships between the administration of your town and the one of the other town? This was a key question to test the issue of competition among mayors.
25. Do you know examples of similar project realized between your two cities, such as mobility plan, and how have they been prepared? Belonging to a certain political party? Or would it come from the stakeholders mapping? Perception of climate change, in general, and the need for energy transition?
26. What's your role in the town council meeting and what kind of decision can you take by yourself?
27. How long have you been working for the municipality?

Following communication process realised by Elia to inform stakeholders about postponement of the project, IEW conducted a number of phone interviews to understand concerns from key stakeholders about this situation. IEW also sent out emails to seek views from stakeholders about postponement of the project. IEW mainly contacted public authorities and environmental stakeholders¹⁶.

¹⁶ Town councils, regional authorities, environmental advisor of Baine – L'Alleud, ADESA, Natagora, Chenois Neighbourhood Committee, Cercle des naturalists de Belgique

8.28.1 Interviews in the Stevin pilot project of Elia

Interviews were conducted by BBL based on the questionnaire developed in cooperation with IIASA. Altogether 10 interviews were conducted with representatives of local government as well as civil society and environmental organizations. All interviews were transcribed in Dutch and translated to English by BBL. The scripts of all interviews were provided by BBL to IIASA.

Interviews contained following questions:

The need of the project

1. Do you believe that the Stevin project is needed?
 - a. Yes
 - b. No
 - i. Why or why not?
2. Do you think that the expansion in off shore wind parks is needed?
3. How do you rate the need for an interconnection between Belgium and the UK?
4. How do you rate the need of the Stevin project for the power supply of the port of Zeebruges and the coastal region?

Transparency

5. To what extent were you aware of the intention of the Stevin project before the formal procedures for the SEA, the spatial planning, EIA and permits started?
6. Do you believe that you were informed early enough of the Stevin project?
7. Were you aware of the preceding federal investment plan, which the Stevin project was part of?
8. Through which ways did you obtain information on Stevin? Were you actively informed about the project? What is your opinion on this?
9. Did you search for information yourself? What kind of information sources have you consulted?

10. Are you aware of the documents and information on the Elia website? How do you assess this information?
11. How do you assess the information leaflets that were made and disseminated by Elia?
12. To what extent do you trust information (objective, independent) provided by:
 - Elia
 - municipality / county council
 - Flemish government, administration
 - scientific institutions (for EMC)
 - other sources (which ones?)
13. Do you consider that the decision-making on SEA, spatial planning, EIA and permits was transparent? How do you evaluate the total duration of the decision-making process?
14. How do you assess the information that was available during the notification procedures and public inquiry's? Was the information clear, transparent and understandable? Were the (visual) maps clear and understandable?

Stakeholder engagement

15. Have you attended one or more information sessions on the Stevin project during the procedure for SEA, spatial planning, EIA or permitting? Were these information sessions useful? Did you have the impression that your questions were answered during the information event?
16. Did these events provide sufficient and clear information on the process and opportunities for public participation?
17. Do you believe that during the decision-making by the governments (Flemish and province) your concerns or objections were taken into account? Do you believe that your concerns or objections have had an impact on the decision-making?
18. Are you aware of how your concerns or objections in the various procedural steps were treated? Do you find this sufficient or insufficient?
19. How do you assess the announcement of the notification procedures and public inquiry's?
20. How do you evaluate the formal procedures for participation?

- Notification procedure SEA (30 days)
 - Public inquiry spatial plan (2 months)
 - Notification procedure EIA (30 days)
 - Public inquiry building permit and environmental permit (30 days each)
21. How do you assess the period of these procedures? Is this period long enough / too short?
22. Role of the various governments in the process: how do you assess the role of public participation and participation by:
- Elia
 - Municipality
 - Province
 - Flemish administration
 - Flemish Government
23. Do you have any suggestions for improving information, consultation and participation in similar or future projects?
24. Do you have suggestions to increase public support for such projects?

Environment

25. How do you rate the investigation of the Stevin line in the SEA and the EIA?
26. Have you gone through the SEA/EIA? The summary?
27. Do you find the SEA/EIA understandable?
28. Do you find this research sufficiently independent and objective?
29. Do you consider that there are sufficient alternative routes investigated for Stevin?
30. Do you believe that the effects are sufficiently examined for the environment, nature and health?
31. Do you believe that sufficient research has been conducted into the possible effects of Electromagnetic Fields? Are you aware of the consultation process of the Flemish Government, which was completed on EMF?
32. What are your major concerns regarding EMF?

33. Are you aware that Elia finances research on EMF? How do you evaluate this research?
34. Are you aware of the mitigating measures? How do you assess these, concerning:
- nature protection
 - landscape

Benefits

35. What are the main benefits and / or disadvantages of Stevin according to you? These benefits and / or disadvantages, impacts and costs apply:
- to you personally
 - for the local community
 - for society as a whole
36. Are you aware of the changes that were made to the project by the Flemish government, in the final approval of the spatial plan (including large part underground)? How do you assess these changes?
37. Are you aware of the countervailing measures (financial compensation housing owners, farmers)? How do you assess these?
38. Do you have suggestions for the practical implementation and building of the Stevin project? What are your expectations for the further implementation and building of the Stevin project?

Specific questions:

Town councils:

39. What was the impact of a local action committee on political decision-making? How does the interaction works between action committee and town council?
40. How do you rate the information sessions of Elia in your municipality?
- Flemish administrations:
 - How do you assess the operation of the multi-disciplinary administrative support group that was organized during the SEA procedure? Did this group help to achieve better

cooperation between administrations? Did this group had a positive impact on the duration of the proceedings?