

# The Role of Citizens' Suggestions in a Policy Process - a Case Study of Long Power Outages in Finland

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## Abstract

This paper examines the role of citizens in the process of preparing an energy policy to improve security of supply in an electricity network. It describes a real-life case of the policy formulation stage of a policy cycle. This study describes citizens' suggestions on how to secure electricity networks against severe weather conditions and the role these suggestions played in policy formulation. The data was collected through a citizen survey and by interviewing civil servants. The citizens' suggestions were analysed using inductive qualitative content analysis and the interview data was summarised in detail. The results indicate that the citizens' suggestions did not provide any new answers to the technical problem of how to prevent long power outages, and they were not utilised in the policy formulation. However, the citizen survey was part of crisis management during and after the long power outages. We conclude by discussing the degree to which citizens' suggestions are useful for the authorities and distribution system operators in a wider context, as well as the lessons learned from citizen participation.

## Introduction

The transparency of policymaking and participation of different interest groups, including citizens, in administrative processes is now a standard procedure among authorities and legislators in many countries. Citizens' participation in governmental decision making has therefore been a widely studied topic in recent decades (e.g. Irvin & Stansbury, 2004; King, Feltey, & O'Neill Susel, 1998; Michels, 2012; Schooley, 2012). Differing participation methods and citizens' varying levels of knowledge in relation to different topics means that implementing citizen participation is not a straightforward task.

Even though citizens' participation in the work of administrations is a much-studied subject in general, citizens' or other interest groups' contribution to energy policy decision making has received less attention. Research in the area of energy policy is concentrated more on content questions and impact analysis of the potential choices to be made in terms of energy policy rather than on the participation of interest groups.

On a theoretical level, this research contributes to a better understanding of the policy formulation stage of a policy cycle. We study citizen participation in the policy formulation stage from the points of view of single-loop and double-loop learning. This paper understands citizen participation as Callahan (2007: 1181) defines it – “participation in the planning and administrative processes of government” – differentiating it from political participation and civic engagement.

The study is based on a real-life case, a survey for citizens and interviews with civil servants. This paper investigates what kinds of responses were

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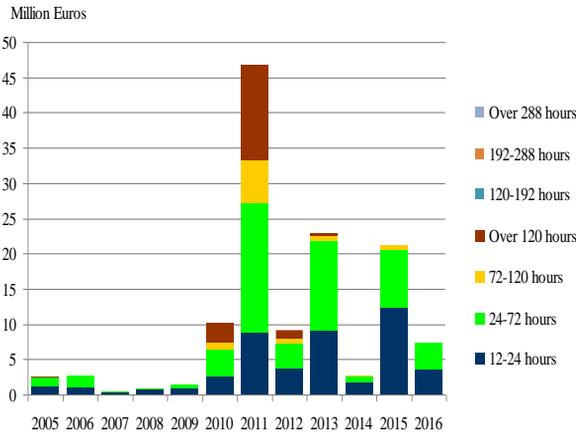
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received from the citizens regarding a subject that is technical by nature and thus beyond the everyday knowledge of a layman. The results reveal what happened to the citizens' contributions in the policy preparation process (hereafter, *policy process*) after the survey, whether the citizens' responses were useful for the Finnish Ministry of Economic Affairs and Employment<sup>1</sup> (hereafter, *MEAE*) and whether they had an effect on policy formulation. One outcome of this paper is a description of how the MEAE utilised the citizens' responses. However, electricity distribution system operators (DSOs) can also utilise the results.

### Background to the research

The origins of this paper go back to 2011 when two big storms swept over the southern and southwestern parts of Finland, causing damage to overhead power lines that led to protracted power outages for a large number of people. According to information from the Finnish Energy Industry (2012), a total of 570,000 households (around 17% of all electricity end users in Finland at that time) experienced outages. Measured in terms of standard compensation<sup>2</sup>, 2011 was an exceptional year for outages. Figure 1 shows the aggregated standard compensation payments in Finland in 2005-2016.

Figure 1. The amount of standard compensation paid in Finland in 2005-2016 (Energy Authority, 2017).



The long power outages caused problems in many areas of society, the heating of houses and mobile telephone connections, for example. In many cases, it was not only the DSOs but also the rescue services and communication companies that were kept very busy during the storms. A lack of electric power causes similar effects for society in all developed countries. Also, the reasons for power outages in countries with a lot of forests combined with overhead power lines, like Finland and Sweden, are much the same. However, these issues are not addressed further in this paper.

2011 was not the first time that heavy storms were followed by protracted and widespread power outages in Finland, with severe storms occurring in the summer of 2010 as well. Haakana, Lassila, Kaipia and Partanen (2014) provide a detailed description of the storm situations and power supply in Finland over the last 37 years. During and in the immediate aftermath of the storms and power

outages in 2011, there was extensive media activity followed by a public discussion and a massive level of contacts from citizens to the MEAE. One of the MEAE's immediate responses was to launch an online survey through which citizens could express their ideas on how security of supply (hereafter, *security of supply*) for the electricity network could be improved.

Based on the MEAE's previous experience and citizens' contacts with the MEAE, it was clear to the MEAE that the Electricity Market Act did not set clear enough rules for the socially acceptable outage level. In addition, economic regulation did not set strong enough incentives for the DSOs to improve security of supply and to avoid long power outages.<sup>3</sup> The MEAE and politicians were convinced that there was now a need for more binding legislation to make the DSOs increase their preparedness for severe weather conditions. Kinnunen (2014) describes the background situation in administration in Finland after the 2011 storms. The MEAE suggested amending the Electricity Market Act (Ministry of Employment and the Economy, 2012) and in 2013 the act was amended with one outcome, among several other improvements, being binding time limits for outages.<sup>4</sup> The amendments' drafting process is described in Kinnunen and Rajala (2013).

### DSOs and their regulation in Finland

In Finland, DSOs are companies with private or municipal ownership and that operate as natural monopolies and are regulated by the Finnish Energy Authority. Through economic rate-of-return regulation, efficient network operation and fair pricings<sup>5</sup> of network services are guaranteed. Several researchers (e.g. Church & Ware, 2000; Joskow, 2007; Scherer, 1980) have presented a traditional view of the existence of a natural monopoly and its regulation.

The Finnish regulator has included several incentive elements in the regulation (Tahvanainen et al., 2012). From 2008, there has also been a power quality incentive included in the economic regulation of the network business (Energy Market Authority, 2007, 2011). Tahvanainen et al. (2008) wrote that the [economic] risk from regulation is closely linked to the regulatory regime and that changes in it (for example new incentive schemes) change the level of risk that the DSOs are exposed to. The most important risk factor in the present regulatory regime is the occurrence of large network disturbances [power outages].

Incentives can be seen also in another way than just an extra regulatory risk for the DSOs. Incentives are regulator's tool to encourage the DSOs to develop their operation. Kinnunen, Paananen and Saajo (2009) describe how the regulator has tried to set incentives so that the steering signals would motivate the DSOs to operate in a desired and acceptable way and presented the kind of incentives the Finnish regulation model (for the years 2008–2011) provided for the DSOs. These incentives were related to the cost of capital, operational costs and outages. The new time limits for the outages in the Finnish legislation, which have been in place since 2013 (Electricity Market Act, 2013), have forced the DSOs to re-evaluate, and in most cases also to rewrite, their network planning principles. There has been intensive research going on to determine how the new reliability requirements can be met (e.g. Haakana et al., 2014; Lassila, Kaipia, Haakana, & Partanen, 2014).

## Focus and content of the paper

The focus of this paper is two-fold: it presents systematically categorised citizens' responses to the security-of-supply related open-ended question regarding a case that lies outside their everyday knowledge. Secondly, it presents the outcome of the interviews of the civil servants who were responsible for the survey, addressing both citizens' suggestions and the process of improving the legislation related to the security of supply. We also discuss the possibility of the authorities and the DSOs receiving useful information through citizens' responses when they are collected through a basic form of citizen participation. This paper also discusses the results in relation to the literature on citizen participation.

In this paper, we first discuss the literature regarding citizen participation in government decision making. After that, we describe our research procedure and present a real-life case from Finland on citizen participation in policy process. Finally, we discuss the results of our case example and interviews and their relation to the literature and present lessons learned from the process.

## Literature review and research questions

Administrative decision making usually has an impact, big or small, on citizens' lives. Citizen participation is now a requirement of good governance and it is seen to have many administrative and other benefits, for example, wider sources of information, greater legitimacy of decisions and encouraging civic skills (Organization for Economic Cooperation and Development [OECD], 2001; Michels & De Graaf, 2010). In many cases, the requirement to prepare administrative acts through an open process that enables citizens and stakeholders to be heard is written into the legislation – this is the case in Finland for example (Climate Change Act, 2015; Local Government Act, 1995; Local Government Act, 2015; The Constitution of Finland, 1999).

## Different definitions of participation

Literature suggests many different definitions for participation. The common idea in many of these definitions is that participation requires the possibility for participants to have an actual effect on decisions.

Arnstein (1969) presented eight rungs of a metaphorical ladder of citizen participation and claimed that citizen participation is a categorical term for citizen power and that if the process does not transfer power, it is a token process that only manipulates public opinion. Arnstein's remark is still valid today. It is a well-known fear that administrators hear but do not actually listen. Hurlbert and Gupta (2015) have developed the idea of Arnstein's ladder further in their concept of the split ladder of stakeholder participation. In this concept, the need for participation, participation methods, and whether or not participation is likely to work at all, differ according to the nature of the policy problem and the conditions under which agreement is sought. From some viewpoints, transferring power from administrators or from politicians to citizens already occurs when citizens' points of view require administrators and politicians to re-evaluate their own opinions. On the other hand, Michels and De Graaf (2010) have discovered that, at the local level, democratic citizenship is more important than having a direct influence on decision making. Also, Michels (2012: 286) pointed out that when citizens participate through deliberative forums, the "exchange of arguments is more important than decision making".

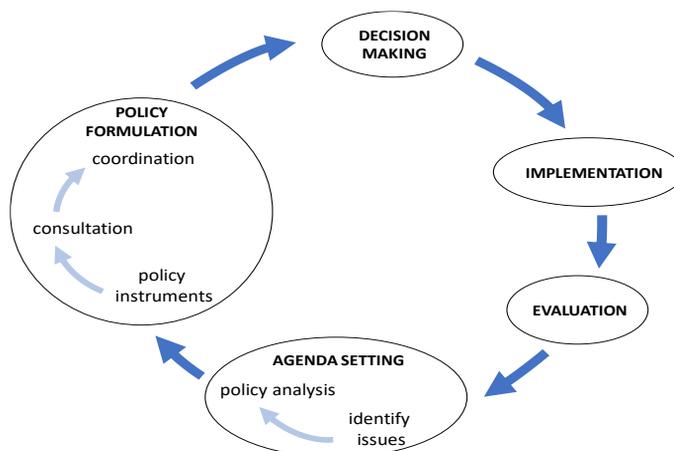
Munro-Clark (as cited in Bishop & Davis, 2002: 16) defined participation in a way that it implies an interactive process between government and citizens but does not specify the nature or bounds of the exchange. According to Bishop and Davis (2002), participation can be determined as an expectation that citizens have a voice in policy choices. Regardless of the form, the basic idea of participation is shared power between the governed and the government. Bishop and Davis (2002: 14) also pointed out that “somewhere between policy making by administrative fiat and direct democracy lies the terrain for participation”.

In addition, other kinds of views on participation have been reported. For example, Irvin and Stansbury (2004) and Callahan (2007) present the possible drawbacks of citizen participation, for example monetary costs, citizen inability and time constraints. Participation can also be seen as a meaningless ritual that is accomplished only because of a legal obligation: this is what Innes and Booher (2004) wrote about how active individuals feel about participation methods that do not seem to work.

### Participation as a part of a modern policy process

There are several different ways to describe a policy process (Hill & Hupe, 2009; Hill & Varone, 2017). A common purpose of these descriptions is to break down policy preparation into stages in order to conceptualise and analyse the phenomena related to policy preparation. Policy process is often described as a schematic framework, a stage model or a policy cycle in which each phase refers to different element of forming a new policy, and different phases chronologically follow each other. According to Jann and Weigrich (2007), the most common stages of a policy process are agenda setting, policy formulation, decision making, implementation and evaluation. Bridgman and Davis (as cited in Bridgman & Davis, 2003: 100) presented a slightly different version of the policy process in which consultation is presented as a separate stage and the process is presented in the form of a circle. Figure 2 depicts the policy cycle based on the model of Bridgman and Davis (2003).

Figure 2. The policy cycle - based on the work of Bridgman and Davis (2003: 100).



A policy process described as a policy cycle includes the idea of a process that repeats itself, if not terminated, through the feedback received in an evaluation

stage. In the policy formulation stage, proposals for policy measures are developed with the help of the consultation and participation of interest groups (Jann & Weigrich, 2007).

Although these simplified descriptions do not exactly match the complex and often somewhat “mysterious” policy preparation and decision-making process, and thus only correspond to reality to a certain degree, they can be used as a conceptual frameworks and as practical tools to focus attention on a certain part of the policy process (Jann & Weigrich, 2007). For instance, Cosmo (2005) showed that a policy cycle can be a good tool with which to educate new government staff if it is emphasised that the real world is more complex than the model.

Different participation methods are perhaps the first thing to look at, but they are only one aspect of the whole. Other relevant questions to consider in participation are what stage of the policy process participation should occur in, how the administration intends to utilise citizens’ responses and to what extent citizens’ opinions actually affect public policy.

To conduct a more profound analysis of citizens or other interest groups participation in the policy process, we can use Argyris’s (1976) concepts of single-loop and double-loop learning. As decisions are made with incomplete information, it is a necessity to evaluate their effectiveness, learn from feedback and eventually correct possible errors. In the concept of single-loop learning, the underlying fundamentals, norms and governing values are neither questioned when giving feedback nor changed when correcting the errors. In double-loop learning, they are both questioned and changed if needed. In double-loop learning, current assumptions, traditional solutions and actions are confronted. Double-loop learning requires skilled people to implement it and to recognise what part of the feedback is challenging the status quo of fundamentals.

Although Blackman et al. (2004) argued that double-loop learning can fail to find relevant solutions; ideally, the feedback loop leads to a continuous process of new actions for correcting errors (Argyris, 1976; Argyris 2002; Argyris & Schön, 1996; Blackman et al., 2004). In the end, for democracy to be realised in this process, it is not only enough for citizens to be able to express their opinions, politicians also have to be responsive to their views (Ruostetsaari, 2017).

Despite of the advanced participation methods, the question of the effectiveness of participation is still topical. According to Burstein’s (1998) literature review, public policy is affected by public opinion and, in many cases, even strongly affected (Burstein, 2003). However, the congruence between opinion and policy can vary between different policy categories (Monroe, 1998), and it is actually difficult or even impossible to distinguish what actually causes the changes in policy, public opinion or something else (Page & Shapiro, 1983).

Even if the effect of citizen participation can be uncertain, one important and worthy aspect of participation remains. Halvorsen (2003) and Adams (2004) emphasized that participation can increase citizens’ positive attitude towards the government and its performance and help citizens to understand and accept different views and, finally, also the government’s decisions. In other words, participation can increase civic efficacy, the feeling that citizens understand policy processes and can meaningfully participate in them (Ruostetsaari, 2017).

### Demand for more profound participation

Despite of the legislative requirements for participation and the on-going practices to involve interest groups and citizens in government decision making, there seems to be a continuous demand for the more direct and profound forms of participation of citizens as well as various interest groups. For example, Innes and Booher (2004) have brought up the importance of the closer co-operation between citizens and government, and proposed that participation should be understood as interplay between different actors (including citizens), undertaken to produce an outcome.

Despite citizens' requests for their participation to be more influential, it is not a self-evident matter to carry out this. Planners and administrators may have a lack of information on local-level issues, and likewise citizens are not always aware of all the aspects and limitations related to politics, economy and resources (Innes & Booher, 2004). King et al. (1998) suggested that to improve public participation requires that administrative processes and the old roles of citizens and administrator are changed. In authentic participation, enabling administrative processes, administrators should involve people from the beginning of the process and make sure that the project moves smoothly. This requires that citizens are educated as to how to work both within and with the system. Above all, administration must allocate resources for improved participation efforts. Overall, many different kinds of citizen participation methods have been developed, see for example Schooley (2012).

The demand for more influential citizen participation is also challenged. King et al. (1998: 317) summed up that public participation in public decisions is not effective and may not work because "administrative systems are based upon expertise and this professionalism leaves little room for participatory processes". A competent single authority can reach the same decision that a community group would make and do so with greater ease, taking less time (Irvin & Stansbury, 2004).

Even if we include citizens in solving administrative problems, the input does not necessarily satisfy administrative needs. Our society has become more and more global and complex, which also causes many administrative issues to have no obvious or definitive solutions. Trying to involve citizens to solve these new, more complex and partly insolvable problems is challenging and it is not certain that citizen participation will provide any help and may even create other problems (Fisher, 1993; King et al., 1998). Also, Bishop and Davis (2002: 18) noticed that "it is easy to consult [citizens] over a new road proposal, but more difficult to open general discussion on complex medical procedures". Citizens do not always have the required expertise to fully participate in decision making (Michels & De Graaf, 2010). Nevertheless, citizens can participate but participation without facilitation is not successful (D'Agostino, 2009).

Participation, at least if conducted in conventional ways, such as through public hearings and comment procedures, does not necessarily work well within more complex decision-making cases. Conventional participation methods may lag behind modern ones, such as collaborative participation, and their benefits (Innes & Booher, 2004). Irvin and Stansbury (2004) present both ideal and non-ideal conditions for citizens' participation and indicators for them. For example, if complex technical knowledge is required it indicates that the case is non-ideal for citizen participation.

To conclude, we can say that even if there is a request for more influential citizen participation, it is not effective in every case and may not work well with complex problems. This is why participation methods should be chosen according to the problem considering the ideal and non-ideal conditions for citizens' participation.

## Research questions

Our research questions will address the policy formulation stage of a policy cycle. They are related to citizen participation in a policy process and, more precisely, to the input that administration can receive via a survey with an open-ended question. The research goal is to understand better the role of citizens' participation in the policy formulation stage of an energy policy preparation process. Based on our case example, we explain what happened to the citizens' responses in a policy formulation and what the output of this stage was.

The research questions are:

- 1) *What are Finnish citizens' perceptions of how to improve the resilience of electricity networks against severe weather conditions?*
- 2) *How citizens' perceptions were utilised in a policy process?*

In addition to these questions, we also discuss how the authorities and the DSOs can benefit from citizens' responses to an open-ended question on a matter that can be difficult for a layman to master. We also address the question: To what extent was the amended legislation in line with the citizens' responses to the survey?

## Methodology and data

### Survey data collection process and research data

To answer Research Question 1, we used the data from an online survey. The minister ordered civil servants to ask specifically for the citizens' opinions. MEAE's Media and Communications Unit alone formulated the question asked and specified the data collection method. For detailed description of the survey and its organization, see Kinnunen (2014).

The survey (hereafter also *basic survey*) had only one open-ended question – “*Do you have any ideas on how the electricity networks could be secured from storms?*” – enabling many different answers. The length of the responses was limited to 700 characters.

As the survey was launched within the first few days right after the storms, the issue was topical and citizens actively answered the survey. Altogether, 446 responses from 383 people were received. In many cases, an individual response contained more than one idea or suggestion. The most eager respondents answered several times in order to be able to report everything they wanted to say.

Before the actual analysis phase, any duplicate suggestions from an individual respondent were removed, leaving 901 suggestions available for analysis. Compared to the number of electricity connection points in Finland (around 3.2 million at the time of data collection) or the households that were out of power during the storms (17% of electricity end users) the number of the responses (446) is low. However, considering the use of the responses, the

quality is more important than the quantity. Also, the 901 suggestions seem to give a fairly good picture of citizens' conception of electricity delivery. For further information on the data collection process and the research data, see Kinnunen (2014).

### Data analysis process

The analysis method is inductive qualitative content analysis, which is a systematic method with which to analyse any kind of text form data (Mayring, 2000). Krippendorff (2004: 18) writes, "Content analysis is research technique for making replicable and valid inferences from texts to the context of their use.". Berelson (as cited in Yi-Fan Su et al., 2016: 2) wrote that content analysis presents a unique methodology for describing major trends in public opinion as revealed in communication content, and identifying the intentions of communicators. With this method, a large number of raw data, e.g. citizens' suggestions, is categorised into a small number of categories, which describe the main content of the suggestions at a more abstract level. Based on the analysed data, the emerging categories may form relations, for example hierarchical tree structures. Inductive content analysis is a useful method especially in cases where there is not much previous research done on the topic of citizens' perceptions.

As there were no previous categories available, at least not in the Finnish context, it limited the possibilities to conduct deductive content analysis.<sup>7</sup> We applied an inductive content analysis, which requires the determination and construction of the categories during the analysis process (Mayring, 2000) and clear definitions of coding rules, according to which the choices between different categories are made. The strength of inductive content analysis is that it is a systematic analysis method that is not based on present categorisation rules but is open to themes that emerge from the data. We were interested in these data driven themes in our case-based approach. Without the help of previously used categories, categorisation was a multistage, iterative process in which we had to find a balance between the number and informativeness of the chosen categories. The first categorisation round produced 193 categories. After a few iterations, by combining categories with similar content and at the same time raising the abstract level of the categories, the number of categories was reduced to 20. The names of the categories describe the mutual content of the responses that are placed into these categories.

The coding was done in Excel and a latent content analysis as described in several references by Yi-Fan Su et al. (2016: 4) was applied. Yi-Fan Su et al. (2016: 4) explained that the difference between latent and manifest content analysis is that in latent content analysis the important matter is the "underlying meanings in content" whereas in manifest content analysis the key issue is, for example, "simple keyword counts". Latent content analysis is better suited to analyse raw data and this allowed us to catch the contextual nuances and meanings embedded in the respondents' sentiments. In fact, with simple keyword counting, the results of the analysis would have been quite different and not necessarily useful at all in the sense of providing information about the measures that the citizens suggested.

Although content analysis has been widely used in communication research and in social sciences, it can also be a valuable tool in other disciplines. Content analysis is an efficient alternative to public opinion research (Krippendorff,

2004). To apply the method to energy and policy related issues see for example Herbes and Ramme (2014) and Leiserowitz (2006).

### Interviews of civil servants

To answer Research Question 2, we collected data by interviewing civil servants. In the MEAE, the case of long power outages after storms was given for the preparation of a team of three civil servants. One is now retired and one is a lawyer who was responsible for drafting the relevant changes to the Electricity Market Act. The third one is the author of this paper. In addition to these three persons, one communications specialist was responsible for organising the survey. Only two persons were interviewed: the communications specialist and the lawyer.

Considering the nature of the civil servants' policy preparation process, it was not possible for these three experts to end up with anything else but one unanimous proposition for politicians for measures to prevent long outages in the future. Therefore, even the small number of interviewees was enough to offer sufficient information about what happened after the survey. The interviews took place in autumn 2018, when the measures to improve the security of supply had already been in force for some time and the consequences of these measures were noticeable. In the interviews, the following questions were asked: What was the purpose of the survey? Were citizens' responses analysed and were they communicated back to the respondents? Did the data from the survey feed back into the government's process and what was the outcome of the government process? What were the lessons learned from the survey and would the procedure be the same if this were to happen again today or in the future?

### Trustworthiness of the research

#### *Survey*

Even though the survey was open for everybody and was advertised on a MEAE's website, the respondents were likely biased to those citizens who experienced power outages and felt at ease to communicate through a computer. However, we have done our best to increase the reliability of the analysis process and so the reliability of the outcome of the research. Firstly, as the respondents were able to send an anonymous answer to the survey, there was no need for them to embellish the answers. Secondly, the analysis process has been described in detail in our earlier work by explaining and showing examples of the categorisation rules, see Kinnunen (2014). Thirdly, author's expertise in administration and in electricity delivery enhanced the trustworthiness and was in an essential role in the analysis process when categories and abstractions were created that were relevant to understand the phenomenon at hand. We continued the analysis process until we had a clear categorization rules so that another researcher could reproduce the coding results.

Had we had the opportunity to influence the content of the survey, another kind of survey could also have been possible. For example, a survey with closed-ended questions and prepared statements to which respondents could answer. There could have been a comparison between the suggested measures.<sup>9</sup> The minister's wish to have citizens' sentiments and the tight timetable to launch the survey were the clear reasons why the survey was conducted as it was.

A shortcoming of this study is that for research purposes our data collection process was not an ideal one. The survey for citizens was not designed for

research purposes and so we were a little short on the respondents' background information.<sup>10</sup> However, the received data was valuable and therefore it was used.

### Interviews

Three aspects affect the trustworthiness of the interview data: Who were interviewed? What were the interview questions? How was the interview data analysed? We only interviewed civil servants who had first-hand knowledge of what had happened. The interviewees were able to answer the questions in their own words without any leading questions. We reported the results of the interviews as they were without adding anything or leaving anything out.

## Results

Finnish citizens' perceptions of how to improve the resilience of electricity networks against severe weather conditions

The categorisation structure and the frequencies of the categories in Table 1 give an overall answer to the question what kind of responses were received in the survey. The main division between the different suggestions is provided by categories A, "Precautionary measures", and B, "Measures that are taken during or right after storms". These two main categories were further divided into several subcategories and altogether 20 categories were introduced.

Table 1. The categorisation structure of citizens' responses and the respective frequencies of the suggestions in each category.

Categories	Frequencies			
	IIA, B	IIA1-A4 B3	IIA1.1- A2.2	IIA1.1.1- A2.2.4
<b>A: PRECAUTIONARY MEASURES</b>	<b>829</b>			
<b>A1: Responses related to the authorities</b>		<b>239</b>		
<i>A1.1: Responses of a functional nature</i>			63	
A1.1.1: Functioning of the DSOs				18
A1.1.2: Functioning of the society				27
A1.1.3: Co-operation				18
<i>A1.2: Legislation</i>			81	
A1.2.1: Regulation of the DSOs				36
A1.2.2: Other legislation				54
<i>A1.3: The corporate structure of the DSOs</i>			17	
<i>A1.4: Economic steering of the DSOs</i>			78	
<b>A2: Responses related to DSOs</b>		<b>472</b>		
<i>A2.1: Responses of a technical nature</i>			367	
A2.1.1: Right of ways and forests near by				120
A2.1.2: Location of the power line				44
A2.1.3: Structure of the power line				161
A2.1.4: Property of an electricity network				42
<i>A2.2: Responses of a functional nature</i>			107	
A2.2.1: Workforce				43
A2.2.2: Organizing the repair of the network				19
A2.2.3: Mapping the possible fault locations in advance				22
A2.2.4: Maintenance of the network				23
<b>A3: General suggestions</b>		<b>108</b>		
<b>A4: Related to other parties than DSOs and authorities</b>		<b>8</b>		
<b>B: MEASURES DURING OR AFTER STORMS</b>	<b>72</b>			
<b>B1: Reporting</b>		<b>15</b>		
<b>B2: Organising the repair activities</b>		<b>53</b>		
<b>B3: Other activities</b>		<b>4</b>		

The first thing to notice from Table 1 is that there were over ten times more suggestions (829 suggestions) for actions to be taken before the storms than there were for during or right after the storms (72 suggestions). This is understandable as in case of a power outage caused by a storm, there is not much to do during or right after the storms except to try to repair the network as quickly as possible and it is mainly the DSOs whose activities are essential when the outage situation is on-going. However, there are a large variety of measures that can be done beforehand to prevent power outages and many parties can be involved in these measures. Another explanation, provided by Kinnunen (2014), with some conjecture in it, is that the respondents wanted the security of supply taken care of before the storms, not when the power has already gone out. In other words, the citizens do not want to experience outages, however short they might be.

The two main categories under category A (*“Precautionary measures”*) include suggestions that are related to the authorities (category A1) and to DSOs (category A2). Beyond these, there were also general suggestions (category A3) and suggestions that were related to other parties than DSOs or the authorities (category A4). Categories A1 (*“Responses related to the authorities”*) and A2 (*“Responses related to DSOs”*) were further divided into subcategories as the suggestions under these categories were manifold.

The categories placed under category B (*“Measures that are taken during or right after storms”*) include suggestions that are related to customer reporting or communication (category B1), organising the repair activities during the storms (category B2) and other activities during storms (category B3). No subcategories were used under these categories.

*Category A1: “Responses related to the authorities”*

Category A1 includes citizens’ ideas on how the authorities can improve security of supply. In most cases, the contribution of the authorities is achieved through legislation, regulation and guidance. The messages of category A1 have already been discussed in Kinnunen (2014) and therefore only a brief summary of its most important outcomes is presented in Appendix in Table 2.

*Category A2: “Responses related to DSOs”*

Responses placed in category A2.1 described various technology-oriented measures related to power lines and electricity networks. Responses in category A2.2 described different functions for reducing outages caused by storms, targeted towards electricity networks. The examples of the measures in the different subcategories under subcategories A2.1 and A2.2 are presented in Appendix in Tables 3 and 4 respectively.

*The main messages in categories A3, A4, B1, B2 and B3*

A short summary of the content of categories A3, A4, B1, B2 and B3 is presented in Appendix in Table 5. Categories B1, B2 and B3 present the respondents’ suggestions for measures that should take place during or right after the storm, when repair of the network is still on-going. Categories B1 and B2 describe measures related mostly to DSOs’ activities and category B3 only includes four responses. This is why we did not choose to use the same kind of categorisation structure under category B that we used under category A.

### How were the citizens' perceptions utilised in the policy process?

Based on the two interviews, the purpose of the survey was not primarily to collect citizens' propositions for measures to prevent power outages but to channel citizens' participation into the public discussion in a constructive way and to reduce the number of citizens' phone calls to the MEAE at a busy time (as citizens could be asked to write down their propositions via the survey). The purpose was also to involve citizens in a matter that is important to them and to show that the MEAE is up to date regarding this crisis and is actively taking actions.

The citizens' responses were not analysed systematically but civil servants in the MEAE did read them. The view was that the legislative process progressed so quickly that a more detailed analysis of the citizens' responses would not have been cost-effective. There was also a lack of personnel for a proper analysis. The responses were sent to the DSOs' branch organisation for possible further use.

The citizens' responses were not directly and immediately communicated back to the respondents. However, reporters were told about the progress with the survey and its web address if they asked about it. The amendment of the legislation over a year after the storms could be seen as a kind of indirect and late communication back to the respondents. From then on, the legislative changes, along with other changes, definitely improved the citizens' situation after storms as the level of power outages has now turned into a declining trend (Partanen, 2018).

The data from the citizens' responses did not directly affect government procedures nor the measures that the government introduced. However, it is fair to say that the media activity combined with citizens' contacts with the MEAE, for their part, convinced the minister to start the process of amending the legislation and set the goal for it: less and shorter power outages in the future. Before the 2011 storms, there had been many investigations related to power outages. Therefore, before the survey civil servants already knew what the problems were and how to improve the situation. The main principle in amending the Electricity Market Act was that the legislation should define the overall goals for the security of the supply level and the goals for the DSOs preparation for the storms rather than that it should determine the specific measures with which to prevent power outages. The DSOs can themselves choose suitable measures to fulfil these goals. Table 6 presents the overall goals and requirements that were added into the Electricity Market Act.<sup>11</sup>

The citizens and the media were surprisingly positive and constructive towards the survey. The survey process may have improved the overall atmosphere and citizens' attitude towards the MEAE. Thus, surveys should be used more frequently in situations that arouse high public interest. It has to be clear whether the survey is launched just for the sake of citizens' involvement or if the goal is to also receive relevant information; it also has to be clear how the responses are going to be analysed and utilised. Designing and implementing a survey, and analysing and informing people about its results requires resources.

Should severe outages happen today, social media channels and more visual means of providing information would be used by the MEAE. The role of social media would be to add value to traditional communication and offer continuous visibility. Twitter would be the main social media channel for the MEAE. Social media content would be shared with stakeholders and they would be encouraged

to share the information about the survey. In addition, the implementation of the survey and reporting its results would be planned better; the results would be connected to the policy process more than was the case in 2012.

## Discussion and conclusions

Our aim was to understand better energy policy preparation and the role of citizens in a policy formulation stage of a policy cycle.

### Finnish citizens' perceptions of how to improve the security of supply

Citizens' ideas are summarised in Table 1. In Appendix, some examples of the actual citizens' answers are presented. The question presented for citizens is a large-scale and, in many aspects, a rather technical question by nature. Category A2.1.3 in Table 1 provides evidence that in the technical sense, the problems at hand might be too difficult for laymen to solve. King et al. (1998) and Fisher (1993) have made similar observation about the "wicked" nature of the administrative problems. Also, D'Agostino (2009: 675) has noticed, "Citizens may not be knowledgeable about certain topics.". Most likely experts can provide more useful responses than laymen.

The need for complex technical knowledge is one of the indicators for non-ideal conditions for citizen participation (Irvin & Stansbury, 2004). In that case, the participation process just requires more effort from the authorities' side and participation method must be chosen accordingly (Bishop & Davis, 2002; Michels, 2012).

We noticed also, based on categories A2.2 and B2 in Table 1, that when answering the survey, it is difficult for laymen to have a holistic understanding, including all the technical, social, economic, legislative and regulatory aspects that must be considered when making administrative decisions. Also, Innes and Booher (2004) have noticed citizens' difficulty in having a holistic understanding of political and economic realities. As citizens clearly have a need of extra information in difficult matters in order to be able to fully participate in administrative processes (in this case an energy policy related process) it raises questions about who should provide that information, through what process and about how much and what kind of information is needed?

When dealing with a subject that requires expertise beyond that of a layman, the administrator faces the problem of how to fully utilise citizen participation. One way is empowering and educating citizens, as King et al. (1998) have described. They suggest, for example, teaching citizens how to work within the system, although their consideration is more about recognizing and utilising administrative processes than actual technical difficulties.

### Utilisation of the citizens' responses in the policy process

The survey revealed no unprecedented technical ideas about how to improve the resilience of electricity networks against severe weather conditions. The citizens' responses were not directly used in the policy process. This means that the survey was conducted mainly for crisis management, which was also confirmed by the interviewees.

The fact that the citizens' responses were not directly used in the policy process could be interpreted to mean that not even single-loop learning, not to mention double-loop learning, took place. On the other hand, the MEAE did notice the citizens' activity and react to the citizens' basic concern about power

outages. The content of the responses indicated that the legislation concerning the DSOs' obligations and regulation was not at an adequate level, and that it needed to be amended.<sup>12</sup> In some responses, this viewpoint was indeed clearly brought up. The reasoning of the MEAE after reading the responses and considering also other, previously obtained information, was that 1) the security of supply was not at an acceptable level, 2) in general, DSOs had not voluntarily taken sufficient measures to improve the security of supply, 3) economic regulation, even if it included security of supply incentives, was not effective enough, 4) the only way to improve the current situation seems to be through the legislation, and 5) the Electricity Market Act must be amended.

Almost all the new goals and requirements for the DSOs included in the amended Electricity Market Act were targeted at the underlying problems that led to power outages. These requirements did change the fundamentals that had caused the power outages. It is fair to say that the government's underlying values in respect to how fundamental changes are required in order to prevent long power outages were changed. Because of this, the process, at least from the perspective of administrations, fulfils the characteristics of double-loop learning. Table 6 shows the extent to which the measures introduced in the amended Electricity Market Act, aiming to increase the security of supply, corresponded to the citizens' responses presented in Table 1.

*Table 6. The measures used to increase the security of supply and the respective categories of the citizens' responses.*

<b>Measure to increase the electricity network security of supply (Electricity Market Act, 2013)</b>	<b>The respective categories of citizens' responses in Table 1</b>
1) Requirements for electricity network security of supply for the DSOs The distribution network shall be designed, constructed and maintained in such a way that its failure due to storm or snow load shall not cause interruptions that are longer than six hours for the detailed planned areas and 36 hours for all the other areas.	A1.1.1, A2.1.1, A2.1.2, A2.1.3, A2.2.1, A2.2.2, A2.2.3, A2.2.4
2) DSOs have to draft a development plan whose implementation will lead to the achievement of the security of supply requirement of six and/or 36 hours	A1.1.1, A1.2.1
3) A general obligation for electricity network operators to be prepared for disturbances to normal conditions and for exceptional conditions. Electricity network operators have to draft a preparedness plan	A1.1.1
- An obligation to provide sufficient information for customers about disturbances to normal conditions and exceptional conditions	A1.1.1, B1
- An obligation to provide a functioning communication link with rescue authorities, other network operators, telecommunications operators and other infrastructure operators in all conditions	A1.1.1, A1.1.2, A1.1.3

TABLE 6 CONTINUED

Measure to increase the electricity network security of supply (Electricity Market Act, 2013)	The respective categories of citizens' responses in Table 1
- An obligation to draft in advance plans for how to use repair personnel, plans for their standby and plans for the persons in charge in the case of disturbances	A.1.1.1, A2.2.1, A2.2.2
- An obligation to draft a plan for how and in what order the electricity will be reconnected in the case of disturbances	A1.1.1, A2.2.2, B2
4) An obligation to provide customers with information on the duration of electricity interruptions and the reconnection of electricity	A1.1.1, B1
5) Raising the monetary ceiling for the standard compensations paid to distribution customers after long interruptions and the introduction of two new payment stages	A1.4
6) The operation of the transmission network or the high voltage distribution network (110 kV) must not be disturbed by trees falling on electrical wires or by trees growing in right of ways	A2.1.1, A2.1.3
7) The DSO may, without the permission of the landowner, cut down and remove trees near the distribution network if it is necessary for preventing interruptions	A2.1.1, A2.2.4
8) The owner of the electricity network must provide information on the location of the electric cables; the information must be provided to those who need it, in digital format and free of charge	-

According to the interviews, the measures introduced in the Electricity Market Act did not come from the citizens' responses to the survey. Yet, it seems that many categories in Table 1 are also addressed in the amended Electricity Market Act. One explanation for this is that the most common reasons for power outages and the possible measures to decrease them were at some extent known to citizens. In addition, a rather extensive discussion about storms, power outages and what the DSOs could and should do about outages had been going on in the media since before the storms of 2011. When answering the survey, the citizens suggested many measures which had been discussed in the media and which were therefore already public knowledge. In fact, for the civil servants in the MEAE, the question before the 2011 storms had been: When should these well-known measures be implemented and how much will they cost?<sup>13</sup>

For crisis management, the survey was an excellent tool. The citizens eagerly communicated through the survey and that saved civil servants' time (especially when it was most precious) as the citizens had a clear channel through which to contact the MEAE and this contact did not require an immediate response.

The survey not only offered a feedback channel for citizens, but expressing their ideas through the survey increased their efficacy (Bowler & Donovan, 2002). The citizens most likely got a feeling that the government was taking

their problem with long power outages seriously as civic efficacy can increase even if citizens' responses are not directly utilised (Bowler & Donovan, 2002).

### Survey as a participation method

The survey fulfilled a prerequisite for a good governance, that of citizen participation. Even though the citizens' opinions were not used in the law-amending process, the survey made it possible for everybody to express their opinion during the policy process and, in this case, this was possible at an early stage. The open-ended question made it possible for citizens to express all their opinions that they felt were relevant to the issue.

Successful participation, especially in complex decision-making cases, is not always a certain thing as Innes and Booher (2004) report. It is uncertain that in this case some other participation method – for example, a public hearing or advisory board as discussed by Bishop and Davis (2002) or empowering and educating citizens and involving them in a “dialectical exchange” as described in King et al. (1998) – would have worked better than a basic survey with an open-ended question. Other participation methods would have required more time and resources from the MEAE. For example, Weeks (2000) have noticed that deliberative dialogue (representing a dialectical exchange) is not fast, easy or inexpensive.

One outcome of this paper is to find out the extent to which useful information for authorities and DSOs can be obtained through a basic form of citizen participation, in this case a basic survey. A basic survey does not match the requirements of the more sophisticated participation methods, such as collaborative or deliberative participation with an exchange of views and public reasoning (e.g. D'Agostino, 2009; Michels & De Graaf, 2010).

A general remark about the citizens' responses to the survey is that many different answers to the question were presented.<sup>14</sup> Many respondents tried to address the problem with a holistic perspective. For example, how the presented means should be implemented and financed; which organisations should be involved in implementation process, and in what ways and on what terms they should be involved; and also, what kind of legislation, regulation or other instructions should be introduced to boost the implementation.

Citizens seemed to try to answer the question to the best of their ability. It would seem that the unconventional suggestions, in category A2.1.3 in Table 1, were really made in good faith and not to make fun of the survey. Some respondents, while presenting these unconventional but actually very innovative suggestions, were also aware that in reality they might be too difficult or expensive to implement.

### To what degree are citizens' responses useful for the authorities and the DSOs?

The citizens' responses, even though they did not provide new answers to the Research Question 1, included also other valuable feedback and views on the DSOs' and authorities' activities. The respondents have pointed out the exact matters that have not functioned well from their perspective. Based on this information, DSOs can screen their own activity and improve it in the future. The problems that citizens indicate may be something that the DSOs are already aware of, something that they are already working on or something that they cannot directly influence. In many cases, the respondents also gave their views

on the reasons for the DSOs unsatisfactory performance and possible ways to improve it. The DSOs can utilise the responses in reviewing their own practices in developing the network and repairing the network after the storms.

Citizens’ responses can also give DSOs a lot of information about the knowledge level of their customers. DSOs can learn, for example, how the respondents actually comprehend the techniques of electricity delivery, the different rights, obligations, possibilities and limitations that the DSOs have and the respondents’ general attitude towards the DSOs. This information will help the DSOs to understand citizens’ reactions and they can utilise it, for example, in improving their public image.

The results in categories A2.1.3, A2.1.4 and A2.2.1 in Table 1 indicate, generally speaking, that citizens do not have a very good understanding of the DSOs’ business environment. This is clearly also a communication problem between the DSOs and their customers.

The information in citizens’ responses helps also the authorities (in this case especially the MEAE) to get an overview of how respondents perceive authorities’ role and possibilities to affect matters on a larger scale.

For the MEAE, the feedback on its own activities is naturally important. Equally important is the feedback on other parties e.g. DSOs’, regulator’s or forest owners’ activities.<sup>15</sup> Especially if these activities seem to require improvement and if the MEAE can have an influence on them.

Both the DSOs and the authorities can utilise the information of the respondents’ knowledge level in designing future surveys. For example, it can be used in designing more concise open-ended questions or in introducing close-ended questions that provide answers that are easier to interpret. Rather than using the information from open-ended questions, it might be easier to design close-ended questions that are specifically designed to match the knowledge level of the target group. In addition, the authorities in general can use the responses as a starting point when developing more effective ways to involve citizens in decision making of demanding policy areas, such as energy policy.

The responses to an open-ended question can also include other information than that which the question specifically asked for. This additional and sometimes off-target information can be related to the original question or it can cover quite some other aspects of the subject at hand or even have nothing to do with the original question.<sup>16</sup>

Table 7 presents a summary on how the DSOs and the authorities can utilise the citizens’ responses to the survey.

*Table 7. A Summary on how the DSOs and the authorities can utilise the citizens’ responses to the survey.*

<b>Benefit from the survey</b>	<b>DSOs</b>	<b>Authorities</b>
Implementing citizen participation	-	X
Technical solutions	-	-
Organising repair activities	(X)	-
Feedback from own activities	X	X
Feedback from other parties’ activities	-	X
Designing customer relations and public image	X	-

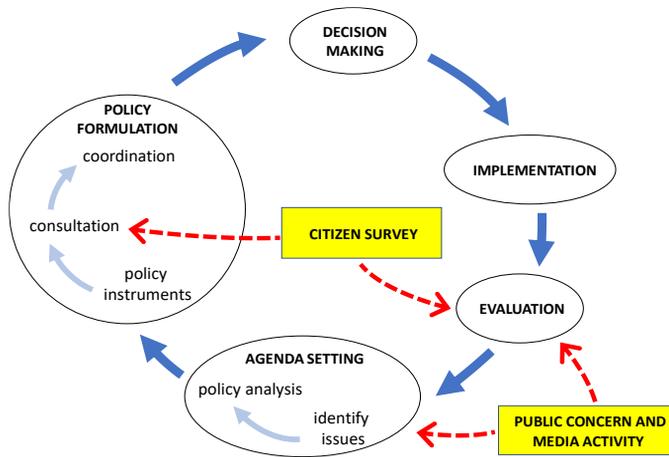
### Summary of the theoretical and practical findings and lessons learned

One strength of this study is that it is based on a real-life case and contributes to both the theoretical and practical levels of a key administrative challenge, namely including citizens in a policy process.

On a formal level, we have conducted a multidisciplinary study that combines energy policy and social science theory in the day-to-day practice of citizens' contributing to a policy process. The results contribute to civil servants' administrative challenges related to citizen participation and expand our understanding of the theoretical and practical side of preparing an energy policy.

On a theoretical level, this study contributes to our understanding of the policy formulation stage of a policy cycle and shows how a real-life case can differ from the basic concept of a policy cycle. Even though we use a policy cycle to structure our understanding of the case at hand, at the same time, we must be flexible when fitting the theoretical framework of a policy cycle to describe our real-life case. Figure 3 shows how our case differs from the basic concept of a policy cycle. On a practical level, our result is a description of what kind of advice it is possible to receive from citizens through an open-ended question and what happened to these contributions in a policy process.

*Figure 3. The policy cycle (Bridgman & Davis, 2003:100), adapted according to our study.*



In our case, without being specifically requested, public concern and media activity contributed to the evaluation phase and the agenda-setting phase of a policy cycle. The citizen survey provided input not only into the consultation stage of a policy cycle, as was expected, but also unexpectedly into the evaluation phase. In answering the open-ended question, some respondents evaluated the policy as it was before the 2011 storms without civil servants requesting it. In our case, the survey not only fitted into the policy formulation stage of a policy cycle model as a part of a chronologically progressive process, it also contributed to the former stage of the model. We also noticed that public concern and media activity, even if they would not be part of the formal consultation process, should be interpreted and accepted as an input to policy preparation.

One finding of this study is that in a government's policy process, in respect to the double-loop type of learning in which the governing values of the government are challenged and the government's policy measures are changed respectively, the changes in policy can happen without formal feedback from citizens. However, the fundamental policy changes require that the government has somehow received feedback that challenges its current policy. This is exactly what happened in our case study. Citizens' growing concern, partly presented through the survey, was one reason why the law amendment process was started and the protracted problems with the power outages after the previous storms was another reason. These two reasons also served to motivation for changing the governing values of the government.

For methodological learnings, we have found out that to uncover and analyse the mixed messages from the responses requires a professional processing of the responses and a carefully conducted analysis. A holistic understanding of the issue under review is also needed. Sometimes responses indicate clearly what seems to be the problem and what needs to be done, but this information can also be hidden between the lines or the responses indicate the problem but not how to fix it. Categories A2.1.2, A2.2.4 and B1 in Table 1 show examples of this. Therefore, the analyser must be able to place the mixed responses containing different tones and messages into a wider context, e.g. the policy process that is under discussion, and find out the underlying issues and contextual nuances that the respondents are trying to report.

Perhaps the most important practical lesson from this study is that when involving citizens in a policy process with a complex matter, unfamiliar to the respondents or outside their common knowledge, one must choose carefully the means by which to effectively involve respondents.<sup>17</sup> Firstly, it has to be clear do civil servants want some real information from citizens or is citizens' involvement organised only for example for crisis management purposes? Secondly, are the open-ended questions a right tool for every problem or perhaps could closed-ended questions that are easier to answer and easier to interpret be used? For example, to receive either single-loop or double-loop learning type of feedback the questions presented must differ from each other. Thirdly, timing of participation is essential. Unexpected events or crises are opportune moments to collect citizens' feedback. The analysis of this feedback can be conducted after the active crisis phase.

To conclude, a basic survey with an open-ended question can work well as a tool for crisis management and/or participation that involves citizens in policy preparation by increasing the legitimacy of a policy process and citizens' efficacy, and by offering valuable information for the authorities.

Developing further policy related participation methods based on citizens' responses after or during unexpected events could be an interesting topic for future work. In addition, developing further methods for gathering and utilising the unexpected or "silent" information that an open-ended question reveals is also a subject that requires further research.

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## Appendix

*Table 2. Measures that are related to the authorities.*

Category	Main measures proposed
<b>A1:</b> Responses related to the authorities	<ul style="list-style-type: none"> <li>• A better control by the authority of DSOs development, investment and repair plans.</li> <li>• Authorities should make sure that the DSOs organise adequate repair activities. The spirit of the responses was that these suggestions are not going to happen without some kind of enforcement by the authority.</li> <li>• More clear rules for cutting down (risky) trees near the power lines and a contribution from the authorities to make the co-operation between different authorities and between DSOs more fluent.</li> <li>• Use of human resources and machinery should be made more flexible.</li> <li>• Regulation of the DSOs and especially the rules of standard compensation after long interruptions were brought up.</li> <li>• Change the corporate structure of the DSOs to less profit seeking one.</li> <li>• Suggestions for the various compensation schemes to help the DSOs to improve the electricity network security of supply.</li> </ul>

*Table 3. Measures that are related to the DSOs and are technical by nature.*

Subcategory A2.1: Responses of a technical nature	Main measures proposed
<b>A2.1.1:</b> Right aways and forests near by	<ul style="list-style-type: none"> <li>• Wide enough right aways.</li> <li>• Sufficient logging of the possible risky trees near the right aways <sup>a)</sup>.</li> </ul>
<b>A2.1.2:</b> Location of the power line	<ul style="list-style-type: none"> <li>• Move the over-head power lines away from forest into a more open space, for example into fields and especially on the side of the roads.</li> <li>• Allow placing power cables on the side of the roads <sup>b)</sup>.</li> </ul>
<b>A2.1.3:</b> Structure of the power line	<ul style="list-style-type: none"> <li>• Over 50 % of the suggestions in this category were about using underground cables.</li> <li>• Bigger number of coted overhead conductors or air cables should be used.</li> <li>• Around 30 % of the responses in this category suggested using higher poles or poles with possibility to adjust height so that the power lines could be placed out of the reach of the falling trees.</li> <li>• Use an extra wire (for example an earthing conductor or some extra metal rope) that is placed above or on the side of the actual phase conductors to take the load of falling trees.</li> </ul>
<b>A2.1.4:</b> Property of an electricity network	<ul style="list-style-type: none"> <li>• Increase the network automation including also the concept of intelligent network.</li> <li>• Arrange alternative routes to feed electricity to the network. Also, the ring networks and connection to the neighbour network company was mentioned.</li> <li>• Possibility to operate the (distribution) network without connection to the national grid.</li> </ul>

<sup>a)</sup> Responses included also various other considerations related to questions on who should be the responsible party to hew down the presumably risky trees and should this obligation be based on voluntary agreements between the DSO and the forest owner, law or other regulation and should there be any extra compensation for forest owners for these trees and if so, who should be responsible for financing it.

<sup>b)</sup> At that time, for safety reasons, it was difficult to get a permit to place underground cables into inner strip of the roads. Nowadays the legislation has been amended and cabling process is more straightforward.

Table 4. Measures that are related to the DSOs and are functional by nature.

Subcategory A2.2: Responses of a functional nature	Main measures proposed
A2.2.1: Workforce	<ul style="list-style-type: none"> <li>• Network companies should/must make co-operation with other practitioners, in most cases the data operators, when placing cables in trenches. Use the same trench for power and data transmission cable.</li> <li>• Take the outsourced electricians back to work. They supposed to know the features of the network better than the new ones who do the repair work nowadays.</li> <li>• Almost 25 % of the respondents in this category suggested that the DSOs should have more co-operations with the voluntary organisations <sup>a)</sup>. The DSOs should be ready to accept voluntary help from the loggers, local farmers, hunting clubs, etc.</li> </ul>
A2.2.2: Organizing the repair of the network	<ul style="list-style-type: none"> <li>• DSOs should have a plan for crisis and the actions during the storm situation should be practiced.</li> <li>• Every DSO should have a person who is responsible for keeping a real time database of the human resources (other than DSO's personnel) who can for example clear the trees from the power lines and also in other ways be involved in repair work. This same person should, if needed, also call this labour (loggers) to work and supervise their work.</li> <li>• A pool organization for forestry machines, from where the DSOs could get the machinery that they need.</li> <li>• Agreements between the DSOs and the local forestry machine owners and between the DSOs and the armed forces for readiness to help in storm situation.</li> </ul>
A2.2.3: Mapping the possible fault locations in advance	<ul style="list-style-type: none"> <li>• Better scanning of the network and the forest near the power lines in order to better notice the possible risky trees and future fault locations.</li> <li>• Scanning of the possible fault locations should be an obligation to the DSOs. Also the local people and unemployed people were seen as a good resource for network scanning work. Also information of the tree growth, information from satellite scanning and laser scanning could be used.</li> <li>• A hotline through which citizens can inform in advance the risky trees those are in danger to fall on the power lines.</li> <li>• A web-based service in where the DSOs share the information when the overhead lines have last been checked out. Electricity users could themselves also check out parts of the network and inform the DSOs through the same web-based application about the risky trees.</li> </ul>
A2.2.4: Maintenance of the network	<ul style="list-style-type: none"> <li>• DSOs should regularly check forests near the right of ways and if necessary, also clear the trees.</li> <li>• DSOs, municipalities and government should have permission and also an obligation to hew, if necessary, the trees near the power lines and for that no compensation for forest owners should be paid.</li> <li>• Overall, the electricity networks should be maintained better than at the moment and the maintenance should be regular.</li> <li>• More money, for example a bigger part of the DSOs financial result that at the moment should be used in developing the electricity networks. To finance the network development, DSOs could, for example, increase network tariffs or take a loan from a bank.</li> </ul>

<sup>a)</sup> There were no considerations of the people or voluntary organisation having a willingness to provide help in general or especially without any compensation.

Table 5. Measures in the categories A3, A4, B1, B2 and B3.

Category	Main measures proposed
<b>A3:</b> General suggestions	<ul style="list-style-type: none"> <li>• Increase small scale decentralized energy production.</li> <li>• Introduce small and medium scale reserve or emergency power devices for individual households.</li> <li>• Four respondents suggested wireless power transmission.</li> </ul>
<b>A4:</b> Related to other parties than DSOs and authorities	<ul style="list-style-type: none"> <li>• Landowners should have the responsibility for observing, clearing and harvesting their forests near the power lines.</li> <li>• Local forest management associations should have an obligation to participate harvesting activities.</li> </ul>
<b>B1:</b> Reporting	<ul style="list-style-type: none"> <li>• Better communication between different authorities and also better informing of citizens.</li> <li>• Automatic SMS, local radio station or internet were suggested to be used as communication channels.</li> <li>• Some respondents wished to have a map on the DSOs' web pages with outage locations and also other information in it.</li> </ul>
<b>B2:</b> Organising the repair	<ul style="list-style-type: none"> <li>• Separate the actual repair activities of the electric circuits from removing the fallen trees from the right of ways. The former is a work of professional electricians and somebody else should do the latter.</li> <li>• Use temporary cables which are placed on the ground or hanging into trees.</li> <li>• It should be easier than at the moment to inform (for example with SMS) the DOSs of the outage as the problem in many cases was that it was almost impossible to contact the DSO during the storm.</li> </ul>
<b>B3:</b> Other activities	<ul style="list-style-type: none"> <li>• Deliver (either DSO or the government should do that) heating fuel without taxes.</li> <li>• Use electricity emergency power generators provided by the armed forces and batteries from electric vehicles.</li> <li>• There was even a suggestion to use the ships owned by the state as a floating power plants during the crisis situation.</li> </ul>

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## Notes

<sup>1</sup> At that time, the name was Ministry of Employment and the Economy.

<sup>2</sup> According to the Electricity Market Act (1995), with the amendments in force in 2011, the DSOs had an obligation to pay standard compensation to their customers if they experienced power outages that were over 12 hours long.

<sup>3</sup> Some economic incentives to avoid power outages in the economic regulation for the DSOs were already in force in 2011 and earlier (see e.g. Honkapuro, 2008; Kinnunen, 2008; Kinnunen, Paananen & Saajo, 2009). Tahvanainen et al. (2012) show how the Finnish electricity DSOs have responded to regulatory incentives in the rate-of-return regulation and showed that the investment, operation and pricing behaviour of the DSOs have been influenced by the regulatory incentives.

<sup>4</sup> The amended Electricity Market Act introduced time limits for the longest permissible interruptions (six hours in the city plan area and 36 hours outside the city plan area) to be progressively met over a period of 15 years (Electricity Market Act, 2013; Kinnunen & Rajala, 2013).

<sup>5</sup> A common assumption in economic theory is that without any intervention, a monopoly (natural or not) tends to have negative effects on the markets, the most common example being high pricing. This is why monopolies (including natural monopolies) are regulated in one form or another.

<sup>6</sup> "Authentic participation places the citizen next to the issue and the administrative structures and processes furthest away. However, the administrator is still the bridge between these two." (King et al., 1998: 321). In authentic participation, the interaction between the administrator and citizens is a collaborative and administrative process that is dynamic, visible and open, and the role of a citizen is as an almost equal partner to the administrator (King et al. 1998).

7 One possibility to use deductive content analysis could have been to lift up the categories from the theory of organizational learning and from different concepts of decision-making processes. We could have used for example categories for single-loop and double-loop learning type of responses in respect of the fundamental nature of the responses that were categorised.

8 It was easy to organize and manage the responses in Excel. However, no Excel functions was utilised.

9 Even if the civil servants in the MEAE already before the survey did have some ideas of the possible measures to prevent outages, they did not have any supplementary information related to these measures, for example related to their costs. Afterwards, when preparing the amendments in the Electricity Market Act, the MEAE launched an open consultation. At that time, there was a new research report available that also included the cost estimations for different measures (see Partanen, Lassila, Kaipia, & Haakana, 2012).

10 For background information, only the name, e-mail address and the telephone number of a respondent was collected. Based on this information, very few responses were sent from the e-mail address of the DSOs, transmission system operator, governmental or local administrators or the branch organisations. Obviously, these organisations had other, if fact more effective channels to discuss with the MEAE, if they wanted to. One response was received from a representative of a parliament. However, all of these responses were sent as an opinion of a private person, not as a response of the underlying organisation. Almost 90 per cent of the respondents were men.

11 In addition, also the Highways act (572/2018) was amended so that it is now possible to place power cables next to the roads. Also, some non-legislative actions were introduced. The Energy Authority amended the regulation model for the DSOs to better encourage network investments and the forest management guide concerning the recommendations for treatment of forests adjacent to electric wires was updated.

12 It was not only the citizens' responses that indicated to the MEAE the need to amend the legislation but also, they strengthened that understanding. Also, the storms and the several-days-long power outages (including those before the 2011 storms) indicated clearly that the legislation was not up to date.

13 After the amendments to the Electricity Market Act, many DSOs were forced to start heavy investments into their electricity networks and it inevitable raised distribution prices. This, in turn, triggered a public debate on rising distribution prices in general and acceptable distribution price levels in particular. Despite of the increasing security of supply, many citizens were not happy with the rising distribution prices. The discussion of the rising distribution prices has been ongoing until present days and had required politicians to take new actions to respond to citizens' new worries, look e.g. Partanen (2018). This is a classic example of a situation in where the outcome of a policy process is a subject to evaluation. Only in this case, citizens who use electricity and pay the rising prices did the "evaluation", and after that, the policy cycle begins again, as Bridgman and Davis (2003) and Jann and Weigrich (2007) have explained.

14 Regarding what were basically the same suggestions, the variety of details and additional information was large, and in many responses, several other issues – from some of which were off-target and only remotely related to the original question – were also mentioned. Blomgren Bingham, Nabatchi and O'leary (2005) also discovered (even if referring to different participating groups) that as the number of participants in decision making increases, so do the points of view.

15 For example, respondents informed that the reason for the outages is the lack of network maintenance, presumably caused by too weak regulation with too small sanctions for not properly maintaining the network, too large financial compensation for the management that does not leave money for maintenance or a lack of cooperation between different operators. These responses give valuable information to the MEAE from across different parts of the electricity delivery industry that might otherwise be difficult to receive.

16 We might speculate that in the case of an open-ended question, especially when the subject is unfamiliar to the respondents, citizens are more inclined to give answers that are not directly related to the actual questions than is the case with more familiar subjects. This may create an opportunity to receive off-target and additional information that may turn out to be valuable.

17 When citizens have power outage or some other crisis, there is no extra time to carefully plan and organise the participation process (and even less time if the aim is crisis management) or, for example, to empower or educate citizens about the situation and its background. This sets specific restrictions for the suitable participation method.