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**PUBLIC OPINION-BUILDING IN MASS MEDIA: A MEDIA  
ANALYSIS OF ESTONIA'S NUCLEAR ENERGY DEBATE IN 2011**

Master's Thesis

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## **ABSTRACT**

The partial meltdown at Japan's Fukushima power plant in 2011 has spread more than radiation: It caused a wave of dispute in many countries about the use of nuclear energy and forced those countries to re-evaluate their national energy independence given the risks posed by a plant. The small state of Estonia finds itself in such a position, having plans to construct a nuclear power plant, which are decided upon by 2013. The subject of this research is the debate in Estonian print media surrounding these plans. From viewing 12 months of data (October 2010 –September 2011) through both a quantitative content analysis and a qualitative discourse analysis, the debate appears to be a battle of individual opinions pulling public opinion to either an understanding of a threatened energy security without the plant, or a comprehension of the commitment in risks, if the plant is built. Intertwined with these results is first and foremost Ulrich Beck's idea of a reflexive modernization: The Estonian debate is situated in the middle of the modernization process, still weighting the nationalist value of economic independence high, but beginning to integrate social rationality into the discussions – a phenomenon enhanced by the real-life event Fukushima, which caused public opinion to shift away from domination of professionals defending scientific rationality, towards a more evenly-balanced debate in terms of participation as well as represented attitudes.

Keywords: Estonia, Nuclear Energy, Media Analysis, Public Opinion, Risk Society, Securitization

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## INTRODUCTION

Japan fears a nuclear catastrophe – Postimees 15.03.2011<sup>1</sup>

According to Marshall McLuhan (1962) we live in a global village, meaning even the countries furthest away are connected to us through media. Thus, it is not surprising that on March 11<sup>th</sup>, 2011 it took no more than an hour for the news of a tsunami hitting Japan to reach TV and internet news stations around the world. Once the attention was on Japan it took even less time for the news to spread about an accident at the Fukushima nuclear power plant caused by the natural disaster. Alongside meticulous coverage of the catastrophe through chronological recreations, personal stories and press conferences, the Estonian media also made way for experts, telling citizens that they are safe, if they are safe, and how to be safe. Also, the media introduced new aspects to the currently rather quiet debate on whether Estonia should construct a nuclear power plant, invigorating the debate to a whole new level. As a final decision on the issue is to be made in 2013, a major change of the debate in 2011 may have a crucial impact on that choice.

But is the general Estonian public really that easily influenced? Did the Fukushima accident leave a deep imprint on Estonian society? Judging from the developments in German civil society in the aftermath of the catastrophe, the answers ‘yes’ and ‘yes’ may not be so far out of the question. After all, in fall 2010 the German government decided to prolong the running time of German NPPs for another 15 years, just to reduce it again to 2022 only 2.5 months after Fukushima (Sueddeutsche.de 2011). However, so far Germany is the only example of this behavior and in no way comparable to Estonia: Germany has been producing nuclear energy for decades; in Estonia the idea has been occasionally brought up for discussion, but has so far been

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<sup>1</sup> Est.: Jaapan pelgab tuumakatastroofi (Höglund 2011).

dismissed. Germany enjoys a long tradition of anti-nuclear interest groups; again, to Estonia the whole subject has been foreign.

The aim of the thesis, thus, is to present a holistic view of the Estonian debate on the possible introduction of nuclear energy in the twelve-month time frame of October 2010 to September 2011. Because of the limits of a master's thesis, the scope is further reduced, as only the six nation-wide newspapers Postimees (PM), Eesti Päevaleht (EPL), Äripäev (ÄP), Õhtuleht (ÕL), Eesti Ekspress (EE), and Maaleht (ML) can be assessed in the set frames. Therefore, the term 'holistic' needs to be directed toward the debate held in nation-wide print media. Thereby, the hypothesis is formulated that in the debate of nuclear energy, the issues of technological risks in nuclear energy production (discussed in *Risk Society*) and of threats towards national energy security (contextualized by *Securitization*) are closely related in a dichotomy, further enhanced by the Fukushima incident, and are the driving forces in the discussions.

Three leading questions examined over in the course of the thesis: (1) What degree of maturity – that is, what level of diversity in terms of participants and solutions – does the debate comprise? (2) How do real-life nuclear-related events, in particular the Fukushima incident, affect the course of the debate as well as the structures of how the opinions are presented? (3) What are the main frames, strategies, arguments, and rhetorical instruments used by the different actors in their search to persuade the audience into accepting their position?

The research questions are approached both quantitatively and qualitatively. In the quantitative content analysis, emphasis is laid on the interrelations of content as well as physical variables. For instance, the higher the variety of opinions and diversity of participants, the more developed and known is the issue in the public sphere. The qualitative approach is based on Wodak's notion of Critical Discourse Analysis (CDA), which affiliates strongly with text analysis, assists in creating an in-depths view of the debate, in particular a better comprehension on how persuasive linguistic means are used in political communication.

It is commonly believed that in a modern-day democracy, public opinion, meaning the opinions on an issue stated in the public sphere, should play an important part in the decision-making process of policy makers – meaning policy should be a reflection of public opinion (Glynn et al. 2004: 6; Kriesi 2004: 185). Thus, with the

decision to be made already in 2013 and the current high salience for the general topic of nuclear energy, this year has presented an opportunity for new impulses within public discussions that may influence public opinion dynamics, which, in turn, present new advances for policy makers to lean their decision on – a decision, which will lead to a long-term commitment. A close monitoring of the debate timely set around the event, thus, may be justified by the impact the debate could have on Estonia's long-term energy future.

On a theoretical level, media analyses in political communication science are “obsessively” centered on election and campaign studies (Neveu 2004: 344). Also, there is a lack of studies combining media and Risk Society (Cottle 1998: 5), as well as combining media discourse and public opinion (Gamson & Modigliani 1989: 1). Therefore, this thesis attempts to contribute to a niche of political communication studies and to find common, interdisciplinary grounds for theories that have not yet been often connected in research, but share several interlinking features.

The thesis is divided into four main parts: The first chapter will serve as a theoretical foundation, in which the major public opinion theories relevant for the research are introduced and the two central theories, Risk Society and Securitization, are assessed. Also it gives an empirical review on the energy situation in Estonia. Chapter Two highlights a closer examination of the research questions, the methodological steps taken during the research, and the difficulties faced in conducting the research. The analysis' results are presented in the third chapter and further discussed in the fourth with regards to both their empirical and theoretical implications.



## CHAPTER I. THEORETICAL AND EMPIRICAL FRAMEWORK

As discourse is an ambiguous term, Gamson and Modigliani assume the existence of a range of discourses on an issue in different but interrelated arenas rather than to follow the idea of one predominant public discourse. The idea is that, although the discussions held on the academic level of research forums relate to the public debate in media discourse and the informal discussion held at dinner on a particular issue, they are separate discussions, because the debaters aim to reach different audiences.

General audience media, then, are only some of the forums for public discourse on an issue. [...] [I]f one is interested in public opinion, then media discourse dominates the larger issue culture, both reflecting it and contributing to its creation. Journalists may draw their ideas and language from any or all of the other forums, frequently paraphrasing or quoting their sources. At the same time, they contribute their own frames and invent their own clever catchphrases, drawing on a popular culture that they share with their audience (Gamson & Modigliani 1987: 2-3).

‘Discourse’ is further defined as a form of “social practice” (In: Titscher, Meyer, Wodak & Vetter 2007: 26) with written and spoken statements, which mutually constitutes social reality as constructed by society. A discourse is situated around a particular issue and established in a specific language, which results in a discourse to be limited by its audience, its actors, and the place in which it is situated. Also, one discourse may be referred to in another (Gamson & Modigliani 1987: 2-3). For instance, the professor at the dinner table may mention something that was said at the conference, or connect the discussion to the discourse around another issue.

The citation broaches several concepts and theoretical approaches important to the thesis. In this chapter, answers are formulated to the questions towards the concept of public opinion, its relation to media and how the relationship interacts with media functions with special emphasis on the framing process mentioned above, followed by an examination of public opinion process dynamics. Then, two theories will be

introduced exploring the interrelations of media and energy politics. The chapter concludes with an overview of Estonia's energy sector, which serves as empirical background information.

## **1.1. Public Opinion**

The term 'public opinion' has reached prominence among public and mass communication researchers. Vincent Price refers to it as "one of the most vital and enduring concepts in the social sciences" (1992: 1). However, as much as the term is conceptualized, theorized and researched, as much has been written and debated about its very definition. The perplexity begins with its two elements, 'public' and 'opinion', both lacking clear definitions. Does 'public' include all members of a society, or just those, who participate actively? Does opinion imply a cognitive or communicative formation? Not every single issue is followed by every single citizen, so how can it be assumed that every citizen can formulate an opinion?

### **1.1.1. Public Opinion Formation**

Opinion is the verbal expression of a person's attitude or nonattitude, constructed during a mental process enhanced by social forces (Glynn *et al.* 2004: 167).

The mental formations process is formulated by the cognitive notion of psychology. An opinion, hence, is conceptualized in a web of beliefs, values and attitudes. Accordingly, beliefs and values are understood as the building blocks of attitudes and opinions. Beliefs refer to cognitive mechanisms that inhabit the information a person has about the world, or, how a person understands her/his surroundings. Several beliefs can be added to a belief system. For example, the European belief system is constituted by democracy, secularity, Christianity, and so on. *Stereotypes* are also beliefs, which help categorize people into groups, which certain attributes and beliefs are associated with. Values are ideals or how things should be, e.g. honesty or loyalty. With the background of beliefs and values a person formulates

attitudes, which refer to general feelings or emotions towards specific things, persons, and issues. Now, while all three defined components are situated at the core of a person, opinion, in contrast, is defined as the “verbal or behavioral expression of attitudes” (Ibid. 123). This implies that as long as an attitude is not *expressed*, it does not become an opinion (Ibid. 120-124).

Social forces influencing opinion formation are formulated by behaviorists researching the ability of a person to learn from society. No person lives completely isolated from any social contact. Hence, the statements a person expresses depend much on her/his socialization. People belong to social circles, such as groups, culture, nationality, family etc., which at the same time present the main groups of people a person interacts with. Thus, the information, beliefs (including stereotypes), and values exchanged in these interactions have a great impact on the person’s belief and value system, as s/he identifies herself/himself within the circles. A person is constrained in her/his expression of opinion by the norms of ‘equitable’ behavior endorsed on her/him by society. Therefore, behaviorists assume that people do not freely express their attitudes in opinions, but rather state views, which they believe to be expected of them (Ibid. 167-170), or do not say anything at all. This behavior also counts for issues that people do not have opinions about, because of insufficient knowledge. However, if the issue socially ‘requires’ a person to have an opinion, s/he states whatever s/he believes to be desired. Such a statement is called ‘nonattitude’ (Semetko 2004: 353).

### *Public Opinion Approaches*

Already in the first wave of public opinion studies there have been great discrepancies on how to understand public opinion: Whether it should be based on cognitive process or on communication, and whether it includes the mass or should be reduced to an elite understanding of the public. To this day social scientists operate at these ‘conflict lines’ when defining the term. The early conceptualization of public opinion by theorists such as Cooley (1909) and Dewey (1927) was based on the assumption that an attitude- and opinion-constructing individual forms a ‘social entity’ by social interaction. Hence, public opinion is understood as the creation of an elite-dominated ‘larger mind’ by the

individual opinions that construct the interactive public debate on a particular issue. In contrast, early researchers, such as Mann, Childs and Klein (1939), drew from their empirical inquiries the assumption that public opinion refers to the accumulation of all existing individual opinions of a society, closely relying on the behaviorist concept of opinion (In: Price & Roberts 1987: 782).

Walter Lippmann (1922) enhanced the discussion by his introduction of the 'phantom public', which refers to the phenomenon, in which it is impossible for an ordinary citizen, who has a job, family and hobbies, to keep an accurate understanding of political events up to date. Thus, many do not participate in the discussion and should therefore not be included in the public opinion. He therefore suggests that issues should be addressed as long as they are in the minds of people to attain a high resonance. His notion was soon reinforced by the systematic studies of Berelson and his team, which revealed ordinary judgment to be superficial and based on emotions (Sniderman & Theriault 2004: 134).

Herbert Blumer introduced a distinction of mass and public, in which *mass* refers to a freely structured, unspecified assembly of people and *public* is defined as a group of people, who take on a discussion over a specific issue (1946: 188). He thereby positions *communication* in the center of the public opinion concept, suggesting that there is no public until people are strained to discuss a specific issue. The issue is the key to the formation of a public (Price & Roberts 1987: 784).

To this day there is much variation in the way social scientists look at the term. In their compendium *Public Opinion*, Glynn *et al.* summarized five definition groups along the line of defining the *public* itself, which understand public opinion as (2004: 19-25):

- the totality of individual opinions,
- the beliefs of a society's majority<sup>2</sup>
- the "clash of group interests",
- the opinions expressed by media and elite, and
- as a meaningless fiction of media.

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<sup>2</sup> Scientists in favor for this majoritarian definition often base their argumentation on Noelle-Neumann's Spiral of Silence, which is discussed in section 1.1.2.

### *Public Opinion as Dynamic Totality of Individual Opinions in Media*

In the presented thesis, public opinion is understood as the sum of all opinions expressed in the public debate on a particular issue – in this case on nuclear energy – and its dynamics changing over time. The discussion room of a public can be termed ‘public debate’, whereas ‘public opinion’ refers to the content that is exchanged in the room. It is important to realize here that, as the topic does require a higher level of knowledge than most issues, for the most part public opinion will be the projection of what social leaders in media, science, economy and politics believe.

There are two dimensions attached to the definition: time and communication. Time refers to the dynamics of public opinion, which, depending on the salience given to the issue at a moment in time, leads to the sum of expressions either decreasing or increasing. Salience is influenced by both created and real-life events. Created events are press conferences, conventions, forums etc. ‘Real-life events’ refer to happenings that cannot be controlled by the actors of the debate, such as accidents that relate to the issue. Also, an issue may win or lose popularity according to the stand of its decision making process (discussed in more detail in section 1.1.3).

As an opinion is a statement and hence expressed either in words or writing, communication is the other components of ‘public opinion’. Since the definition here is based on media as arena, only those opinions expressed in media are counted to the overall public opinion. This also leads to a more distinguished understanding of ‘public’ versus ‘interested audience’, as the latter passively but closely follows the discussions of the particular issue, thus, being able to enter the debate at any time and therefore deserves attention.

#### **1.1.2. Public Opinion and Media Effects**

Even though, freedom of press is seen as one of the greatest accomplishments of modern society, the realization of this pillar of democracy has to be examined critically, for the independence is impaired by the media having to answer to several actors: Media is held accountable by its own audience as media are produced to be read, heard, and

seen, clients that pay for the products it publishes, news sources and news referents, government representatives, media owners and shareholders, media-related social institutions, groups, and the “society as a whole” (McQuail 2005: 210).

Media effect studies have been conducted since the very emergence of mass media. Nonetheless, it was not until the 1970s that political scientists examined the relationship between politics and thereby public opinion with media more closely (McDonald 2004: 192). With the linguistic turn several theories of media effect on voters emerged.

This section therefore serves as an evaluation of the theories of media effect that intersect with the theoretical apparatus of public opinion. As media are core to the understanding of public opinion as discussed in this thesis, it is crucial to examine the power and possibilities given to media representatives, such as journalists, editors etc., to direct and conduct public debates. The most influential theoretical approach to the task are *Agenda-Setting*, *Framing* and *Spiral of Silence* – the hypotheses that are not mutually exclusive, but rather create an interplay of key concepts in media influence research (Semetko 2004: 359).

### *The Agenda-Setting Theory*

The hypothesis of *Agenda-Setting* was developed in the late 1960s and early 1970s. Its most prominent ‘founders’ were McCombs and Shaw, who compared the political awareness of American voters to the political information given in mass media (1972), and formulated the assumption that media have the ability to set agendas for public debates by covering or not covering social issues (In: McDonald 2004: 193). A journalist, hence, influences what the audience thinks about, when s/he chooses which of two issues to follow. An editor influences what the audience receives as priority by bringing an issue to the title page and leaving the others for later pages.

The influential power that media carry in this *selection function* may be modified by several factors. Events, values, and customs of a person’s non-mediated environment may either reinforce or weaken the effect. Secondly, the type of issue is of value. Foreign news issues, for example, are perceived as being modest and bland. A

third factor influencing media's agenda-setting power may be the type of public agenda an issue bears. If the issue relates to a personal agenda it may gain a higher salience versus a civic agenda that does not explicitly affect a person (Semetko 2004: 361).

According to Rogers and Dearing (1987) there are three different agendas that can be set within media: One is assigned to priorities followed within the *media* apparatus and by the different agencies. Another agenda is formulated within the *public*, such as initiatives of social interest groups, NGOs or companies. The agenda can also be drawn up by *policy-makers*, for example, when the society's approval for a policy is sought. Those three agendas are in constant and complex interplay. The actors are careful to put forward their interests effectively. In this aspect, however, the media may weaken its own credibility by pushing through its own priorities too fiercely, or if its priorities contradict those of its audience. Its power is constrained by the society's framework of norms, values, and beliefs (In: McQuail 2005: 513).

All these aspects imply that there is more to the position of an article than an effective way of saving space. The order of articles is a determination of the salience of each issue in relation to the other. However, the ranking is not free of external forces. Events such as the previously discussed tsunami catastrophe can mix the agendas up and create new orders. Also, norm and customs interfere with the set agendas, as a controversial view, priority or not, may be kept away from being published (Ibid. 513).

In his summary of the hypothesis, McQuail draws up a close relationship between agenda-setting and public opinion. Accordingly, leading issues correspond to public discussions, and actors of public opinion compete for having the particular issue accentuated. Perceived public opinion, public opinion actors, and real-life events then pressure the media into the position of choosing and positioning issues. Media cannot set an agenda that does not correspond to these three factors, because it would lose credibility as an information provider. In this dynamic complexity the effects of agenda setting are therefore rather small and very temporary (Ibid. 514-515).

## *The Framing Theory*

*Framing* refers to the constructionist approach to media effect analysis developed in the 1970s and 1980s, which is built upon rhetoric elements and addresses the structuring and orientation function of media. Two main contributors are Gamson and Modigliani (1987, 1989), according to whom every public issue is debated in a ring of symbolism. So when there is an event, say a nuclear catastrophe, which may affect the policy outcome of a political issue, such as the introduction of nuclear energy production, help for the evaluation of such an event is drawn from an interpretative frame, which is transmitted through commentaries as much as news reports to the audience, and which is derived from the society's cultural catalogue. 'Social construction of meaning' serves as the key phrase of framing. That is, to every issue a specific 'language' is developed on the basis of cultural understanding, which includes reoccurring arguments, metaphors, jingles, moral appeals and other rhetoric means (1987: 143).

Gamson and Modigliani use the term 'set of packages' to describe an overall 'culture' attached to an issue. A 'package' refers to a set of ideas orbiting a *'frame'* or core story line of the package that suggests codifying standards of how to connect and interpret the events connected to an issue. In other words, these standards give implications of how to judge an issue. A frame transmits the essence of and solution to an issue that the package sells. The phrase 'set of ideas' implies that a package carries usually a handful of positions leading to the same frame or solution. The 'language' of a package is also its 'signature', whose continuous use assists to manifest a package's main ideas in the debate. Nevertheless, Gamson and Modigliani understand a package to be influenced by the temporal dynamics of the discussion. That is, a package supposedly follows a 'career' in the debate, in which it may become more prominent, weaken, or disperse entirely. This path, hence, correlates with the events of an issue. Some events will create a favorable arena for a particular frame, while others may lead to disadvantages (Ibid. 143-144).

The developers of such packages are the several debaters of the issue that seek to persuade the public of their own interpretation of how to solve it: a person is unlikely going through the trouble of expressing an attitude publicly without wanting others to agree with it. Gamson and Modigliani elegantly describe this competition as "symbolic



contest over which interpretation will prevail” (Ibid. 2). Whereas other actors of a debate need to also find a channel to distribute their ideas, media representatives *are* those channels. Hence, next to the selection function (agenda-setting), media may also introduce its own frames and packages and may have to do so, if through an unexpected event a new issue emerges, to which an interpretative frame is needed (Semetko 2004: 361-362).

However, there are several elements and factors that complicate the process of ‘media framing’. First of all, there are three interacting groups affected: the news agencies and other sources, the journalists and media, and the audiences. These groups have to be seen at a group level as well as at the individual level of a representative of the group. For example, journalists are part of the media, but are just as much receivers of their environment as senders. Thus, their framing of issues follows the ideas given to them by a media company as well as individual motives. Therefore, there are three levels of the framing process: when journalists and editors construct or use media frames, they are under a routine pressure – a frame of how to conduct their work. Then the ‘framed’ message is transmitted to the audience, of which its members evaluate the frames according to personal attitudes and behavior and either accept or decline the frames (McQuail 2005: 511).

Lastly, the discussion of how frames are perceived at a cognitive level deserves assessment. The public success of a political choice very much depends on how its framing affects the citizens. A well-developed package is supposed to lift the confusion an issue may create, especially if its full comprehension requires deepened background knowledge, meaning the actor has to draw from simplification measures such as rhetoric, cultural knowledge, and stereotyping, even if that means that not every detail of an individual’s manifold position is transmitted to the public. The goal is to bring across the opinion’s core (Gamson & Modigliani 1987: 143).

Making oneself understandable does not automatically mean that the transmitted frame will be accepted. Other features take influence: The attention the frame receives through salience in the public debate is crucial in order to stand out of the line of packages, which are constantly offered to the public as the one and only solution. In the end, however, a person’s decision whether to accept a frame or not will conclude on a personal level, when the frame is checked against the person’s values and beliefs. As

discussed earlier, beliefs and values are transmitted through socialization and, hence, also carry schemata of interpretation. An issue package, in this sense, may be successfully accepted if it formulates appeals which both conform to a certain level with regards to its content (appeal to beliefs and values) and respecting the interpretative schemata shared within society (Ibid. 142).

### *The Spiral of Silence Theory*

Public Opinion is not only influenced by what is said, but also by what is not said. Elisabeth Noelle-Neumann, who understands public opinion as “pressure to conform” (1977: 144), explains through the concept ‘*spiral of silence*’ how social forces cause people to conceal their attitude. The concept suggests that mass media influence is rather small on public opinion, but does mirror the climate on an issue to the public, who, in turn, react to it (McDonald 2004: 194).

The concept builds on four assumptions (Noelle-Neumann 1977: 144):

- Individuals are social beings and therefore afraid of isolation.
- To remain popular and accepted, people tend to closely follow the opinions in their surroundings.
- There are two types of opinion: static opinions, which require conformity, and those open to change, which allow the existence of different views without the threat of isolation.
- A person gains more self-confidence if her/his own opinion is popular, but loses it, when its grounds are decreasing, which leads to the choice of remaining silent.

The spiral of silence is, hence, the process, in which a person conceals an unpopular attitude, causing that view to become even less popular, which leads to another person with the same attitude to remain silent, bringing a similar decision making process to a third person, and so on, until the attitude is not publicly expressed anymore. In this sense, Noelle-Neumann sees public opinion as those opinions that *can* be said out loud without isolation as consequence. She also emphasizes the notion of polarization, which

the spiral leads to in its consumption of various minor stands and its enhancements of popular ones (Ibid. 145). In the theory the elements of mass media, social interaction, one's phrasing of opinion, and one's observation of the 'climate of opinion' in one's social circles and immediate surroundings interact with each other (In: McQuail 2005: 519). Isolation being the sole criterion in a person's motivation to speak up is the aspect, which earned the most critique: Opponents to the concept believe that there are other facets of culture that may take a motivational influence (Glynn *et al.* 2004: 247).

Noelle-Neumann also supposes that social interactions are more crucial to a person than defending one's own opinion. In her/his process of deciding whether to express a controversial view, a person has to consider several aspects: How do I feel about the issue (cognitive process)? What does the majority think (perception)? What opinion will be likely to withstand time (assessment)? And most importantly: Am I willing to openly and decisively show my support of my opinion (commitment) (In: Ibid. 245)?

To fully understand this individual decision-making process, Scheufele and Moy add three dimensions in their reevaluation of Noelle-Neumann's theory: morality, time, and media. As morality generally refers to a person's behavioral codes acquired during socialization, the dimension is directed towards the essence of social forces to a social being. Time attaches a dynamic perspective to public opinion, in which opinions appear, grow, weaken, and disappear – a process mainly influenced by the individual decision to speak up. Thirdly, there is the role of media as center of the conflict. A person, thus, may base her/his opinion on the views expressed in her/his immediate environment, but her/his assessment of the current and future public opinion is drawn from the statements made in the identifiable and freely observable public arena that media creates (Scheufele & Moy 2000: 10-11).

Many critics deny the possibility of media affecting public opinion. McQuail summarizes aspects of why media could not affect opinion or attitudes: The media's effect on attitudes cannot be found, because their foundation lies in the personal situation and socialization of an individual. Further, a person is more influenced by social forces in the immediate environment than by media. It is more likely that people read and pay attention to a message that they already agree with. For instance, non-

smokers will be more receptive towards health reports on smoking than smokers. Also related to this point is the assumption that the motive behind a person determines her/his degree of attention towards a particular issue. Conflicting ideas in media lead to reciprocal disempowerments. And lastly, persuasive means may not succeed due to a resistant public (McQuail 2005: 516). In the author's view media effect is rather small and restricted, but McQuail ignores that people rely on media is a vital part in a person's socialization as transmitter of a society's values and norms, thus, affecting a person's attitudes after all. The points he makes are therefore understood as mere constraints to the effect.

### **1.1.3. Public Opinion and Collective Decision Making**

The previous subchapters elaborated that a public opinion can be formed and formatted via different elements of social and cognitive processes and persuading factors of mediated positions. Vincent Price's research follows the temporal dimension of how public opinion is subject to the dynamics of a public's decision making process (Price & Roberts 1987, Price 1992, Price & Neijens 1997).

The ultimate goal of holding any kind of debate is to conclude in a decision about how to deal with the discussed issue. During the decision making process public opinion first emerges when the issue is introduced, then grows or decreases according to how much attention is given to the issue, and shrinks once a decision is reached (Price & Neijens 1997: 338-339). Public opinion can, thus, be understood as the "ongoing product of discursive activity" (Price & Roberts 1987: 792).

In regards to the creation of a public, Price and Roberts stress that it is important to examine the communicative mutual relationship between the institutionalized collectives on one side and individual citizens on the other side. As much as a public is formed by its issue, so is the issue defined by its public (Ibid. 784-785). What they mean is that the constellation of a public serves as an indicator of how well the public opinion in a particular debate mirrors the overall sentiment of a society towards an issue. If there are just a few high-level and specialized collectives contributing to a public debate, one can assume that the issue is neither well presented in public (low

salience), nor received as an important issue. However, the spectrum of contributors may also indicate at what stage of the decision making process a public debate is situated (Price & Neijens 1997: 338-339).

Price and Neijens define five process stages (Ibid. 340-341):

1. *Defining the issue*: A problem cannot be solved without first being recognized as such. Therefore, in the first stage of the process the issue and its implications must be clearly defined.
2. *Crystallization of options*: After the essence of the issue is clarified, possible resolution methods are proposed.
3. *Consolidation of consequences*: Next, the different approaches have to be evaluated on the prospects they carry, their positive and negative consequences. In many cases this requires the scientific knowledge of technical experts.
4. *Polarization of options*: This step is the true contest of ideas, as now the supporters of the different options have to persuade the public towards their ideas. At this point the range of audience is also widened as the issue's salience grows. Framing becomes vital.
5. *Decision making*: There are two levels, at which choices are made. At the individual level and at a collective level. In case of a policy, a policy-maker would be the individual and the collective the policy-making institutions. The nature of public opinion cannot be ignored completely. Thus, policy-makers have to lean on the general public's notion in an issue. The decision may lead to follow-up decisions of the path of implementation.
6. (Feedback): In the description of the fifth stage Price and Neijens mention the possibility of a sixth step, at which the decision is evaluated on ground of its implementation. The step, however, is not elaborated as distinct and an idea of what happens to a public opinion after the decision is lacking.

In the attempt to cross-reference the stages with the categories of actors, Price and Neijens developed a schematic view (Table 1) to capture every potential contribution in the complexity of a collective decision making process. The authors introduce two approaches on how to identify the quality of a public opinion alongside a decision making process: by the means of outcome and of process (Ibid. 344-345). As the thesis

is written before the fifth stage of the researched issue is completed, only the second dimension is further elaborated.

	Defining the issue	Crystallization of options	Consolidation of consequences	Polarization of options	Decision
Political leaders					
Technical experts					
Interest groups					
Reporters and editors					
Attentive publics					
Mass audiences					

Table 1: Matrix of phases and participants adapted from Price & Neijens (1997: 342)

In the ideal case, in each of the phases each group finds means of contribution, which would suggest the public opinion of the issue to be quality-rich. However, on top of that, the contributions should be examined in respect to content on two levels: the individual opinion and public opinion formation. At both levels there are several criteria that imply a high quality, like the amount of information collection, the use of thought, the level of engagement, and the distance from social control and pressures (Ibid. 348-350).

## 1.2 Public Discourse and Nuclear Energy

Having established a theoretical comprehension of the interplay between public opinion, media, and time, this thesis will now elaborate on the connection between public discourse and its second topic: nuclear energy. There are assumed to be two core approaches to framing the issue of nuclear energy: risk and threat. Nuclear energy is a delicate topic – the probability of a disastrous event is close to insignificant, but if there is an accident against all odds the consequences last for centuries. Even if small, the risk does exist. Nevertheless, there are indisputable advantages to nuclear energy production, first and foremost related to reducing possible threats to secure energy. ‘Threats’ refer to the possible shortcoming of energy due to conflicts in supply, in

particular import, or price stability. Two theories are thus introduced: one looking at framing risk, the other at contextualization of threat in a debate. For the sake of the researcher's approach and the reduction of any confusion to a minimum<sup>3</sup>, in the thesis the terms 'risk' and 'threat' will be understood as explained: risk referring to the potential of consequences from human progress, threat applying to the potential of energy shortcomings in a state.

### 1.2.1. Risk Society

For over 25 years now, Ulrich Beck's theoretical approaches to a new modernization process have shaped modern comprehension of social analysis (Heins 2007). His work has a high prominence in the European scholarly world of social analysis, best comparable with Jürgen Habermas' (Lash & Wynne 1992: 1).

In a nutshell, the sociologist claims the emergence of a new *reflexive* modernity that leads away from the static social and national borders of industrial societies and is shaped by the universality of risks of the technological age: "Just as modernization dissolved the structure of feudal society in the nineteenth century and produced the industrial society, modernization today is dissolving industrial society and another modernity is coming into being" (Beck 1992: 12). He lays out a foundation to critically revise Habermas' take on modernization as an "Enlightenment project". Essentially, Beck disagrees with the bright 'utopian' future of evolved mankind as predicted by the 'simple' modernization theories such as conceptualized by Habermas or Parson, but projects a process towards catastrophic societies (Lash & Wynne 1992: 2).

Thus being the process of an industrial, wealth-producing society evolving into a society, in which the 'logic' of risk production becomes the dominant constituting factor, *reflexive modernization* is based on three theoretical concepts: risk society, individualization, and cosmopolitanism. Risks are anticipations of future catastrophes caused by technological progress and the rise of such risks will dissolve the institutional

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<sup>3</sup> In general use both terms apply a much wider spectrum, being even contextualized in parts of the theories. Also, threat and risk can be seen differently by each person. Thus, a clear distinction is essential for both the theoretical and empirical part, because without it the data cannot be examined categorically and thereby scientifically.

and political foundations of modern society. Parallel, individualization<sup>4</sup> induces a macro-social process, in which life forms (nuclear family, one-job life, classes) known to industrial societies are resolved through institutions forcing individuals to replace them with individualized biographies. The modernization process is enhanced by globalization through internal channels (Cosmopolitanism), in which risks create a need for global cooperation to survive (Beck 2008).

The societal transitions manifest themselves in a constant clash of continuity and discontinuity, in risk society most strikingly when it comes down to skepticism towards scientific progress: in the industrial society methodical skepticism has already been well institutionalized, however the foundations and consequences of scientific work were neither touched nor challenged. In this “culture of scientism” (Lash & Wynne 1992: 3) professionals of science and law enjoyed a considerably high political position within their institutions when considering the existence or non-existence of a risk. Their evaluations are based on scientific rationality, in which the mathematical probabilities of risks rather than the consequences they carry are estimated. Thereby, a risk does not exist if it does not have a mathematically significant likelihood. *Reflexive modernization* brings an extension of skepticism to the core premises of technological progress, which results in both the generalization and ‘demystification’ of science to the general public. Within that process the agents of science and law have to detach themselves from the structures imposed on them by the institutions in an *individualization* process. At the same time, the rest of society must emerge as new actors and critical audience to establish a social rationality, in which a moral dimension is added to the agenda. Thereby, the current wave of modernization critically re-evaluates the classical settings that once pushed the original modernization wave forward (Beck 1992: 14).

The *issue of risk* describes how ecological and high-tech risks of scientific progress are no longer limited to one location or a time, but endanger all earthly life forms and therefore make concrete accountability and compensation efforts impossible. Further, such risks remain invisible as long as they are not defined within society (Ibid. 22). Evidently, as the examples of Chernobyl and Fukushima show, released radioactivity cannot be limited to a location and crosses borders of every kind: national just as social. Wealth and nationality are no protection, eliminating the significance of

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<sup>4</sup> Not to be confused with the term ‘individualism’. *Individualization*, next to *Risk Society*, is Beck’s main work (Beck & Beck-Gernsheim 2002).



social class and international wealth distribution. Further, radioactivity, depending on the element in question, lasts for centuries, even tens of millennia: The Fukushima catastrophe will have consequences for an indefinable number of generations to come. Although, there have been attempts to point fingers at the Japanese government as well as Tepco, in the end it was a tsunami of proportions considered close to non-existent, defying the possibility of holding a person or group of people accountable for the accident. Also, the range of the accident over space and time makes compensation calculation unattainable.

In many of his elaborations Beck discusses the risk of radioactivity coming from nuclear energy as one of the major risks of our time. Scientists often proclaim nuclear energy to be the safest and cleanest of all energy sources. The probability of a nuclear meltdown is so low that it is virtually non-existent and therefore no issue for rigorous debates. This way of argumentation is referred to as *scientific rationality*. *Social rationality*, however, does not look at the low probability as important, but the fact that there is a probability – and consequences. This *catastrophic potential* presents the vital core of a nuclear energy debate in a reflexive modern society: scientists *versus* public, safety *versus* risk (Ibid. 29-30).

Public consciousness of risks, though, is not a given. Risks may be *trivialized* by the absolutist claim of scientific infallibility, leading to a “systematically conditioned blindness of risk”. The claim of infallibility may become extremely dangerous, leaving a society inattentive towards managing potential consequences (Ibid. 60, 71-75, 177-178). On the issue of nuclear energy France may be described as an example of such a ‘scapegoat society’: The country is the biggest nuclear energy producer in Europe and on second position worldwide with 58 reactors up and running. However, a debate about the risks posed by the plants is virtually non-existent in French society. Instead, when French look at German debates, their reactions fall between incredulity and mockery (Hughes 2011). The question remains whether, without the pressure of social control, companies and the state would formulate sufficient emergency managing plans or whether a decision maker would evaluate all sides to nuclear energy without having a diversified public debate as guidance.

According to Beck, risks are based on “causal interpretation”, meaning that they are subject to discussions, in which they can “be changed, magnified, dramatized or

minimized within knowledge” (Beck 1992: 23). Risks are socially defined and constructed within their publics – if not publicly proclaimed, they do not exist. When socially identifying risks, nonpolitical issues may become political. For instance, whereas in the classical industrial society wealth production presented the highest goal and companies enjoyed few restrictions, the negative public opinion of pollution rising in the seventies resulted in a high amount of policies regulating environmental aspects in the economic sector (Ibid. 23-25).

Simon Cottle summarizes Beck’s implications of the media’s role in a *reflexive society* into three functions (Cottle 1998: 8-9):

- The social *construction* function, in which risks are subject to the media’s way of making them socially visible,
- The social *contestation* function, in which media serve as the key arena for antagonisms of the public debate,
- And the social *criticism* function, in which media critically monitors risk knowledge.

For his brisk evaluation of current modernization trends, Beck has earned as much critique as praise. Criticism mainly addresses the underdeveloped concepts of his thesis, which he neglects to elaborate in greater detail. This includes the lack of adequate evidence for many of his hypotheses (Atkinson 2007: 355-356), but also contradictions, such as conflicting ideas on the relationship between ‘*social rationality*’ and ‘*scientific rationality*’ in the context of public discourse. Even though, Beck stresses the importance of mass media and public debate in his concept of modernity, a clear description of the media’s functions as well as the involvement of politics and culture in the society defining risks is missing, which has left him partly ignorant to everyday risks covered by the media (Cottle 1998: 24-25). Lastly, there are voices against the concept of new risks emerging as a whole, alleging that risks have always been around (Gardner 2008), even though, Beck clarifies that he is referring to risks induced by technological progress – technology introduced by the industrialization.

### 1.2.2. Securitization Theory

Also in the mid-1980s a development was noted in security studies pointing to non-military issues ascending to security threats. Thus, a wider understanding of the concept of security was anticipated. The problematic issue was that with a definition too wide *anything* ‘politically desirable’ could be understood as a threat. Also, while the term ‘security’ in the political sense automatically indicates ‘of state’ to researchers, political actors, and citizens alike, there is no concept of individual or international security<sup>5</sup> (Waever 1995: 46-48).

The Copenhagen School of Security Studies, hence, developed a concept of the term that respects its notion towards the state, while attempting to do the modern globalized and individual world justice (Fig. 1). Ole Waever proposes to look at ‘security’ “through the lens of *national* security”<sup>6</sup> (Ibid. 49). In other words, security researchers should analyze a state’s sovereignty in the frame of international dynamics and influences from the individual members of state (Ibid: 49-50).

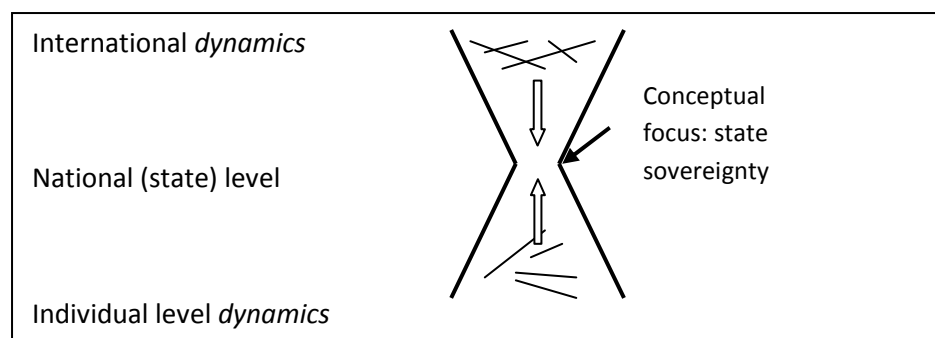


Figure 1: Hourglass model of security (Waever 1995: 50)

Still the question remains as to where to draw the thematic borders to the term, as a clear limitation of what new topics to include and which to exclude remained fuzzy. The word of solution, according to Waever, is ‘*survival*’, meaning that issues threatening the very existence of a state are to be interpreted as threats to security. When considering whether an issue qualifies as a security agenda, one has to answer one simple question: “Do the challenges determine whether the state is to be or not to be?” (Ibid. 53)

<sup>5</sup> This does not apply to the everyday meaning of ‘being secure/safe’ (Waever 1995: 49).

<sup>6</sup> “National” was put into italics in original source.

So how does a security problem emerge? Waever suggests that in *naming* an issue a ‘security problem’ an actor of the elite simply *claims* that there is a threat to the existence of some referent object (*securitizing move*). In this process the state attempts to gain the control over the issue, usually in order to enforce rules to eliminate the threat. On these language-based grounds Waever defines ‘security’ as “speech act” (Ibid. 55). In his words, “By uttering “security,” a state-representative moves a particular development into a specific area, and thereby claims a special right to use whatever means are necessary to block it” (Ibid. 55). The reverse is possible in a *desecuritization* process, in which an issue is declared irrelevant to security. Although this implicitly illustrates the simplicity of abusing power, Waever stresses that if an elite-representative does *not* state the issue, (much like ‘risk’) it does not *exist* in social reality (Ibid. 55-57).

With Buzan, Waever and de Wilde’s contribution (1998), the Copenhagen School added new steps to the securitization process. It became clear that the simple utterance of the word by a state-elite does not create a security issue. Rather, to be fully securitized, an issue has to be *accepted* or *rejected* as a security threat by the target audience. Thus, the School argues that there are certain circumstances that make a securitization attempt successful: the statement has to be correctly formulated linguistic-grammatically speaking, the speaker has to withhold a proper authoritarian position in society, and there has to be a relevant context, to which the actor must relate (Buzan, Waever & de Wilde 1998: 33).

Several critics of the Copenhagen School lined up discussing its insufficient analysis of the speaker-audience relationship, when the entire securitization theory is built upon it. The aspect of acceptance conditions is especially underdeveloped, disregarding the social-constructive dimension of securitization (In: Salter 2008: 323-327). Thierry Balzacq sees the fundamental problem in the strong focus on the formality of securitizing an issue: The School’s ‘code of practice’ is too predetermined, too fixed on some kind of normative convention of how an issue can be securitized. Balzacq, therefore, suggests taking the process as ‘strategic practice’, in whose interplay both speaker and audience are endued with power. Where the ‘speech act’ is in the search for universal principles that are followed in the securitization process, his approach

examines the process on a more linguistic level and the use of rhetorical instruments of persuasion (including lies) (Balzacq 2005: 172-173).

With the concept of strategic practice, Balzacq does not intend to overthrow the securitization theory of the Copenhagen School, but rather to add a new perspective. The advance examines security pronouncements as discursive techniques used to create or strengthen the public's attention towards the intended issue. He proposes to combine both approaches, in order to add the reality of the social context, in which an actor has to compete with other securitizing actors on an issue for the audience's attention and support towards her/his frame of action, to the normative dimension of speech act (Ibid. 173).

Balzacq extracts from these considerations three basic assumptions set on three dimensions arguing that securitization may be effective, if:

- the *audience* is set in a context, willing to be convinced considering the actor's social position, and has the ability to effectively support or reject the proposition,
- the (external) *context* puts the audience a position to interpret the statement, and
- the *securitizing agent* knows how to use persuading rhetoric instruments as well as frames appropriately (Ibid. 192).

For the purpose of this thesis, in which the actor and her/his intentions present the core of analysis rather than the actual effect on the audience, the matter of acceptance/rejection is less vital to the discussion. Rather, it is more prudent to consider the interplay of competing authoritative elites, power metrics, and discourses (see Salter 2008: 332), alongside Balzacq's elaboration of the parameters of rhetorics and context.

Nuclear energy in particular connects both theories with each other: On the one hand, the possibility of a nuclear accident establishes a high risk factor, and, on the other, the particular energy source may create a higher degree of energy security for a state. Both theoretical notions further imply a centrality of public opinion and social constructions through media: whether 'risk' or 'threat', both have to be publicly announced and heard by a large, significant audience in order to have impact.

Nevertheless, there are significant differences between risk society and securitization theory, as well as aspects of public opinion that may cause one to think that the approaches cannot be combined. In short, this thesis will elaborate as to how the dissimilarities may also be integrated: Beck's approach creates a conflict with both the definition of public opinion and the spiral of silence: In the presented research public opinion is defined as the sum of opinions expressed via media over time. Risk Society, however, presumes that there can only be diversity (Beck 2008: 308). Therefore, one could think that public opinion in media does not differ from the sum of *all* opinions and, as diversity is omnipresent, that a debate does not 'mature' as claimed in the thesis' first question. Therefore, it is important to note the difference between diversity and *mediated* diversity. Beck may be right for all of society – this is not the thesis' topic, but when looking at the results in the next chapters it becomes clear that the degree of diversity changes over time and opinions are not expressed by all groups of a society. Mediated diversity has to be viewed differently – thus the specified definition of public opinion. When looking at Noelle-Neumann's isolation concept and Beck's idea of individualization, one could assume that the concepts are in conflict. However, the threat of isolation stands: Even an individualized person is part of several social circles (e.g. social networks; Beck 2008: 316), of which s/he could be excluded from.

The understanding that reflexive modernization is by definition a *process* (Beck 1992: 12) is pivotal to integrate the dissimilarities between Beck and Securitization. Essentially, the differences lie within the positioning of a nation state: To Beck the nation state makes way to more international communities, especially when looking at risks, which are not bound by borders. To Securitization scholars the state is central in society, although embedded in intra- and supranational dynamics. Therefore, the theories may be seen as descriptions of two different stages of modernization: The concept of security presents notions of the former modernization, in which the survival of the state presents the highest goal. Risk society, which re-evaluates those notions against supranational risks, is reached with the full extent of the second modernization. Thus, within the nuclear energy topic both theoretical notions create an overall phenomenon of 'old *versus* new'.

### 1.3. Estonia's Energy Sector Development

Like most European countries, Estonia is highly dependent on fossil fuels, accounting for about 80% of all national energy consumption. A peculiarity of the country is its vast resources in oil shale (Fig. 2), which Estonia exploits in an industrial manner and uses for about 90% of electricity production, resulting in an import dependency of fossil fuels, namely crude oil and natural gas from Russia (Vahtra 2008). Since oil shale brings the country a great advantage in terms of independence, it is intensively processed and has been on full-scale production since 1921. Although after having peaked in the early 1980s, it has been on a slow decline ever since, at the moment 14.8 Mt of oil shale are mined yearly, standing for four percent of the country's GDP (EASAC 2007: 14). While oil shale has a high level of price competitiveness, it also produces a high level of greenhouse gases and ash as a bi-product that forms huge waste hills at the mining sites, thereby creating a conflict with EU environmental ambitions (Maigre 2010: 2).

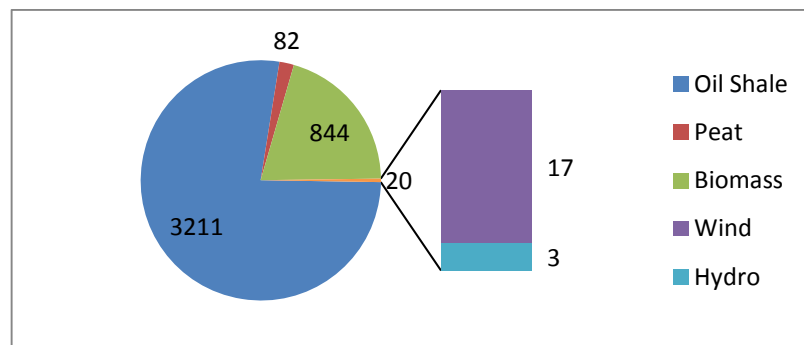


Figure 2: Total Primary Energy Production 2009 (in 1000 toe) (Eurostat 2011: 316-321)

Within the energy sector there are relatively few actors: On the legislative side the Ministries of Economic Affairs and Communication as well as of Environment have departments dealing with energy issues. On the production and supply side there are the state-owned energy company Eesti Energia with subsidiaries of power plants as well as the national grid company Elering, Eesti Gaas as the only company engaged in natural gas (also with subsidiaries), and smaller energy companies. The three big energy-related non-governmental organizations (NGOs) in Estonia are the Estonian Power and Heat Association, the Estonian Oil Association and the Estonian Gas Association – active participants in energy policy negotiations (Mäe 2009: 268-274). In 2008 academic

Raukas and others founded the issue-related NGO Estonian Nuclear Powerplant Association (Tressum 2008).

Due to EU-membership there are two major changes in energy regulations Estonia is to face in the near future, impairing the country's energy security: the introduction of an open EU-wide electricity market in 2013 and the shutting down of the old units of the oil-shale processing Narva Power Plant in 2016. The common market will experience two immediate effects: Within the Northern Pool, Estonian prices will be in competition with Scandinavian prices, which are much higher. Therefore, a price hike is to be expected, possibly constraining electricity affordability for the common Estonian citizen. Also, Eesti Energia has to give up its monopoly over the electricity grid, as other companies may buy into the grid in the liberalization process. The shut-down of the old units in Narva may endorse a short-termed energy shortage (EASAC 2007: 14-15).

Consequently, the Estonian state has developed the aim of diversifying its energy sources in both the *Development Plan of the Estonian Electricity Sector* (2008) and the *National Development Plan of the Energy Sector until 2018* (2009). While, on the one side, the Ministry of Economic Affairs and Communications stresses the importance of renewable energy sources in its energy scenarios, on the other side, both plans mention the country's anticipation to draw electricity from nuclear energy as solution towards cheap and independent energy production. The aim is either to import from Finland, to step into cooperation with Lithuania, which is currently at the verge of enacting the construction of a nuclear power plant near the site of the Ignalina NPP (shut down in 2009), or to construct an own plant in Estonia, possibly on the island of Suur-Pakri, by 2023. The Development Plan of the Estonian Electricity Sector further schedules a final decision on the construction by 2013 (Ministry of Economic Affairs and Communications 2008), which puts the year 2011 in the very center of its public debate.



## **CHAPTER II. METHODOLOGICAL FRAMEWORK**

The idea for the thesis' topic emerged from a personal interest in the debate. Therefore, I approached the formulation of research design from an empirical stand and built up the theoretical framework as well as the methodological approach around the subject. In reflection of these steps, the chapter begins with a closer elaboration of the research questions, followed by an overview of the empirical data and a description of the research design implemented, in which two methodological approaches are applied: a quantitative content analysis of the data collected and a qualitative discourse analysis of a selected sample of ten articles.

### **2.1. Research Questions**

The aim of my research is to formulate a holistic analysis of the current nuclear energy debate in Estonian national print media, with special emphasis on the impact of real-life events, in particular the Fukushima incident in March 2011, but also the remembrance around the 25<sup>th</sup> anniversary of Chernobyl on April 26<sup>th</sup> and the decision of Germany to be the first state exiting nuclear energy production, which was officially passed on June 30<sup>th</sup>, 2011. Accordingly, the time frame is built around these events. To create a holistic view, there are several dimensions to encounter, which are described in greater detail under the following research questions.

*1. What degree of maturity does the nuclear energy debate in Estonian print media comprise?*

The term 'maturity' is derived from Price and Neijens' understanding of collective decision making (see section 1.1.3). The question is directed towards

identifying the stage, which the nuclear energy debate is situated in. In order to analyze development, I assume that a debate matures as it becomes more diverse. This evolution implicates a higher resonance of the issue in public, which implies a better understanding, which, in turn, qualifies to make a collective decision. Diversity can be seen in several variables: distribution of participants, the set of packages' size, and the variety in discourses it combines. Further, maturity will also be assessed at how well the argumentations are developed in terms of their formulations.

*2. How do real-life events related to nuclear energy affect the course of the debate as well as the structures of how the opinions are presented?*

This question puts an emphasis to the relationship between real-life event and public debate, more specifically at the way that the events become embedded in the debate. Logically, it is expected that Fukushima will have most impact on the debate's course and that the commemoration of Chernobyl as well as Germany's exit will only lead to references in argumentation, rather than change or introduce entire packages. Also, I assume that the conflict line of energy security versus the risk of nuclear energy will be reinforced by the Fukushima incident and that this dichotomy will dictate the debate. Next to the development of appeals, there may be not only a rise in the number of participants, but also a shift towards actors more opposed to the idea of nuclear energy and the introduction of new actors from the group of the interested audience. Here, then, I will look at the argumentative reasoning applied and how well one develops an argument on rational ground, contrary to emotional stands.

*3. What are the main frames, strategies, arguments, and rhetorical instruments used in the debate?*

The last question is directed towards assessing how the actors of the debate assume to best represent and push forward their personal frame of issue. Thus, the arguments, metaphors, jingles, moral appeals and other rhetorical means are analyzed for their use, purpose, and frequency.

## 2.2. Empirical Data

The focus of the research is laid upon the nuclear energy debate as presented in Estonian print media in the course of a year from October 2010 to September 2011. The time frame was chosen for the following reasons: Firstly, special emphasis is laid on real-life events most drastically influencing the debate<sup>7</sup>, namely the tsunami catastrophe in Japan resulting in a partial meltdown of reactors One and Two of the Fukushima Daiichi Nuclear Power Plant, which hence was covered by international media for several weeks, the 25<sup>th</sup> anniversary of the Chernobyl catastrophe on April 26<sup>th</sup>, and the German debate as well as decision to exit nuclear energy production completely by 2022. Secondly, as those events are clustered into the months March – June, the reason for including some months before and after the events lies within the attempt to observe changes in the debate with the rise and fall of public attention, although the weight is laid upon the time frame of the previously mentioned events.

As data sources I chose Estonian print media, more specifically the newspapers Postimees, Eesti Päevaleht, Äripäev, Õhtuleht, Eesti Ekspress, and Maaleht. Again, several considerations lie behind the selection. Print media was picked versus other media forms, because it enjoys a relatively high status in Estonian society. Print media has already received much attention as an integral tool from the Estonian nation since the national awakening in the mid-19<sup>th</sup> century, when the first newspapers and magazines were published in Estonian. The medium continued to unite the nation under Soviet rule. Therefore, it is little surprising that, despite the global trend towards electronic media reaching Estonia (Vihalemm 2008), in 2008 74.3 percent of the population consumed print media on a regular basis<sup>8</sup> (Loit 2010). In addition, articles in print media have been edited and revised at a day's time, whereas electronic media publishes news more frequently, giving their editors less time for revision. Newspapers are thus in the position of producing quality-richer news reports and commentaries.

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<sup>7</sup> In the second half of 2011 no more significant events of that half were noted.

<sup>8</sup> Regular means reading at least one of the last six published issues.

The choice of the specific newspapers is based on their regional reach as well as within society<sup>9</sup> (Table 2), but also because the issue of nuclear energy addresses Estonia's general public, as the state-level decision carries nationwide consequences.

	Circulation (Oct. 2011)	Issues per week
Postimees	55,200	6
Õhtuleht	52,500	6
Maaleht	43,000	1
Eesti Ekspress	31,000	1
Eesti Päevaleht	26,900	6
Äripäev	13,000	5

Table 2: Newspapers by circulation and issue/week (Eesti Ajalehtede Liit 2011)

It is necessary to mention that there are some differences in readership along the dimensions of regularity, education, place of residence and age. Postimees and Õhtuleht are the only nationwide newspapers read slightly more regularly than opportunistic, followed by EPL. Eesti Ekspress, Maaleht, and Äripäev have less regular than occasional readers. The highly-educated are especially active in specialized and differentiated papers such as Äripäev and Sirp. There is also a high regard for Postimees and EPL, although people with lower-than-average education and the elite prefer the readability of Postimees to the EPL's. There are no education difference detected in the readership of ML, EE, and ÕL. In terms of region, the Tallinn residents seem to be the most active readers, whereas between the other areas no significant differences can be observed. An exception to the rule is Maaleht, which appears to be more popular in the countryside, where its more active audience resides. Further, Maaleht is read more by people with an age over 65, while ÄP, EE, and ÕL have a lower-than-average stand in this age group. Correspondingly, the youth seems less interested in Maaleht (Vihalemm 2004: 71-72).

To retrieve the relevant articles, the databases were searched using four keywords: 'tuumaenergia' (eng. nuclear energy), 'tuumajaam' (eng. nuclear plant),

<sup>9</sup> The nation-wide weekly newspaper Sirp is not included for two reasons: its circulation is well below 10,000 (Vihalemm 2004: 319) and its audience is constituted by Estonia's intellectuals, whereas the newspapers analyzed reach out to the general public (Ibid. 72). One could argue that Äripäev's readership is just as specialized, but in comparison the newspaper attempts to reach the ordinary citizen. Since Sirp addresses a specific audience, the persuasive means used and discourses broached here may distort the overall results.

‘tuumaelektrijaam’ (eng. nuclear power plant), and ‘tuumareaktor’ (eng. nuclear reactor). The terms were chosen to select articles that explicitly refer to the issue. In the examined time frame 302 articles were found in the six newspapers at hand. In a second step, the number of articles reduced to 68 by selecting those, which entail at least one paragraph with either ‘Eesti’ (eng. Estonian) or ‘oma’ (eng. our) and one of the four previous words. The condition indicates Estonia’s own ideas around constructing a NPP being a topic in the article. Thereby, the article is understood as contribution to the debate.

The number of articles will be reduced yet again for conducting the qualitative analysis. This time, a sample is drawn from the pool of articles used in the first analysis. The articles are sampled based on the degree of their contribution to the debate. Either the articles transmit the opinion of high political players, are written by prominent contributors to the debate, or the articles led to a burst of explicit responses. In either case, nuclear energy must be the main theme of the article. Ten articles fit the criteria and will be analyzed qualitatively.

### **2.3. Methodological approach**

For a holistic perspective, it is essential to retrieve as much information from the empirical data as possible. Thus, I want to create an overview over the different dimensions of the debate on the one, and establish an in-depth perspective on the actor’s strategies, frames, methods on the other hand. Hence, I will combine both quantitative and qualitative research thinking in a two-block analysis.

#### **2.3.1. Quantitative Content Analysis**

Content analysis may be seen as the oldest of text analysis methods. The approach emerged alongside the introduction of mass communication devices in the early 20<sup>th</sup> century with Harold D. Lasswell’s model of mass communication, which emphasized the political significance of content analysis by uncovering “who says what to whom

and with what effect” (In: Titscher, Meyer, Wodak & Vetter 2007: 56). Laswell’s formula opened the doors to a behaviorist-oriented examination of the asymmetrical relationship between sender, stimulus, and recipient. Shannon and Weaver (1949) enhanced the sending process with their transmission model, which claims that a message, while being transmitted via the news to some receiver, can be subject to several interferences that may deform the message before it reaches its destination. Hence, the content of a text or a speech was viewed as the outcome of that interaction. With the introduction of new theories and qualitative as well as quantitative methodological approaches, today content analysis needs to be understood as research strategy rather than as a single method. The main objectives of content analysis, according to Titscher, Meyer, Wodak, and Vetter, are content effect on audience, content control, content framing, and the use of symbols (2007: 55-58).

Content analysis is ‘nonreactive’, because in its conduction, other than with surveys or interviews, people do not react to a situation created by the researcher. The possibility of obtruding the research subject by the analyst is therefore eliminated (Glynn *et al.* 2004: 107-108). However, by this I do not mean to insinuate complete objectivity (see next subchapter).

In the *operationalization* I will concentrate on four dimensions: time, actors, discourses, and frame packages. The variable ‘time’ is codified in months. Actors are classified in the variable ‘social position’ through six categories, which are derived from the grouping used by Price and Neijens (see Table 1, p. 20): An actor is classified as ‘political leaders’, when s/he is a member of the parties represented in the Estonian parliament, which are the Estonian Reform Party (Reformierakond), the Pro Patria and Res Publica Union (IRL), the Estonian Central Party (Keskerakond), the Estonian Social Democratic Party (Sotsiaaldemokraatlik Erakond), and until March 6<sup>th</sup> the Green Party (Rohelised). Members of other parties are grouped together with NGOs, companies, and other ‘interest groups’. The category ‘interested audience’ includes freelancing journalists and columnists, because they have to go *through* media just as any other ‘ordinary’ person. The sixth category of ‘non-Estonian-residents’ was generated to correctly include the few external actors.

The variable complex ‘frame package’ contains three content variables: attitude, argument, and appeal. ‘Attitude’ refers to the actor’s attitude towards the idea of nuclear

energy in Estonia, thereby the codes are ‘in favor’, ‘positive attitude’, ‘neutral’, ‘negative attitude’, and ‘against’. By both ‘positive’ and ‘negative attitude’ is meant that the person does not explicitly mentions her/his opinion, but the overall notion of argumentation leans towards pro or contra and therefore cannot be labeled as ‘neutral’. In ‘argument’ the different approaches to reasoning are classified into ‘societal/moral’ (e.g. the commitment of future generations, social conflicts), ‘scientific/technological’ (e.g. nuclear safety, energy production data), ‘political’ (e.g. EU politics, the questions of referenda), ‘economic’ (e.g. price calculations), and ‘environmental’ (e.g. CO<sub>2</sub>-production). And thirdly, in the variable ‘appeal’ the dichotomy of risk and energy security comes into play. Again, the codes distinguish between explicit and implicit messages. For instance, if an actor speaks of “nuclear energy risks” the category will be ‘risk of nuclear energy’; but if s/he does not explicitly phrase the term “risk” and only gives a notion towards it, for example by thematizing possible consequences of a meltdown for Estonians, the article is codified as ‘risk theme’. The same distinction is drawn between ‘threat of energy security’ and ‘threat theme’. A fifth category ‘neither’ is created to include those opinions, in whose argumentation none of the two themes are broached, which includes those statements that do not entail any kind of argumentation.

The last dimensional variable is ‘topic’. Included are Estonia’s secondary nuclear energy options (cooperation with Lithuania and Finnish import), because, as they these solutions do not result in nuclear energy being produced *in* Estonia, they are understood as separate but issues interconnected to Estonian NPP plans. Further categories are based on real-life events (e.g. references made to the Fukushima incident, Chernobyl), the possibilities of energy production based on other sources (e.g. oil shale), politics (e.g. the Estonian parliament election), NPPs in Estonia’s immediate neighborhood (e.g. Sosnovy Bor)<sup>10</sup>.

### **2.3.2. Qualitative Discourse Analysis**

Qualitative discourse analysis is a fairly new approach in social sciences and was introduced through various theoretical understandings and methodological concepts

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<sup>10</sup> For the coding system see App. Table 1, p. 81.

during the linguistic turn of the 1970s. As one of the early schools of discourse analysis, the Critical Linguistics introduced the concept of linguistic constructivism, which derives its theoretical comprehension from Saussure's arbitrary sign<sup>11</sup> and the assumption that words are 'mental grids'. Thereby, the approach concentrates on linguistic indicators in text analysis, but, contrary to content analysis, critical linguistics introduces the dimension of connotation (Schröder 2007: 104-106).

Critical Discourse Analysis (CDA) may be labeled as the 'next generation' of critical linguistics. Its main theoretical assumptions are related to Discourse Theory, mainly Michel Foucault's genealogy of discourse, and the post-structuralist Critical Theory, whose main contributors are Adorno, Habermas, and Horkheimer. Like content analysis, CDA should not be understood as one method with one unitary theoretical framework, but rather as an approach with a range of general principles, such as the thematization of social problems and power relations. Also, it is assumed that society and culture both create and are created by discourses, which are historical and therefore full of context, in which every contribution is part of a series of interconnected texts (Kristeva's concept of intertextuality). Ideology may be transmitted through language. And since discourse is seen as a type of "social behavior", CDA adherents classify the approach as a discipline of the social sciences (Titscher, Meyer, Wodak & Vetter 2007: 144-146).

The method conducted here is built upon the ideas of the Discourse Historical Method, predominantly developed by Ruth Wodak in the 1990s. In addition to the foundations in CDA, Wodak integrates elements from the Cognitive Linguistics and the cognitive models of text planning. Also, a strong emphasis is laid on the use of rhetorical means and other elements of Hermeneutics (Ibid. 156-157).

In her conceptualization of method, Wodak underlines the importance of accuracy and precision through the complete analysis, in order to ensure professionalism regardless of the interpretative notion of CDA. Further, the concept of intertextuality and the idea of interdisciplinarity play a vital role in the suggested three-dimensional analytical apparatus, in which the units 'text', 'sentence', and 'word' are carefully examined. The dimension of 'we-you-discourse' entails the concept of 'interdiscursivity', which refers to the categorization and evaluation of discourses into

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<sup>11</sup> A sign has two elements: the physical appearance (signifier) and the connotation it carries (signified) (In: Laclau 1991: 431-432)



‘we-‘ and ‘you-discourses’, through which the ‘we’ is constituted and put into positive light (In: Ibid. 158-159). For instance, when statements of other actors are analyzed and devalued, or a ‘we’-group is constructed through the text.

Secondly, ‘argumentation strategies/techniques’ refer to the dimension of justifying one’s position. Here, the different strategies used to persuade the audience are examined: Does the actor address an emotional level; that is, does the actor implement fear, guilt, etc. in her/his argument<sup>12</sup>? Does s/he play down the risk argument by rationally assessing nuclear energy science? The main aim in the second dimension is to put one’s point about the competing ones, either by highlighting one’s own, or by devaluating the opposed position (In: Ibid. 159).

The third dimension sheds light on the ‘forms of linguistic realization’. Those can be any linguistic mean from elaborating unreal scenarios, generalizations, and quotations, over metaphors, allusions, or rhetorical questions, to using a personal or abstract perspective (In: Ibid. 159).

## **2.4. Problems with the Research Design**

Every research design has its flaws, and elaborating those is of important value in order to ensure that they are not overlooked and empirical data is not over-interpreted. Hence, what follows is a short explanation of shortcomings in this thesis in terms of empirical data and methodological approach.

The frame of empirical data encloses only six newspapers, which results in several constraints: First of all, the research includes neither broadcasted nor internet media, which may have rich debates about the issue due to the provision of short reaction phases. Secondly, magazines and local newspapers are ignored as well as Russian nation-wide newspapers. Therefore, it is crucial to acknowledge that the data is allegedly drawn from the public opinion in nation-wide Estonian newspapers, but is not assumed to include the opinion of Estonia’s Russian minority. The limitation of the data arises from the narrow scope of a master’s thesis.

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<sup>12</sup> For instance, threat and risk both institute fear for survival. Thus, by inducing this fear through describing possible worst-case scenarios, an actor plays at the emotion within the addressee.

Other shortcomings concerning the empirical data are the means of retrieving the data as well as the author's incomplete knowledge of the Estonian language. While working through digital databases, in order to extract each article containing one or more keywords, I have encountered access problems as well as incoherent archive systems. For instance, PM provides an extended search engine through the print newspaper issues of the last couple of years, whereas the EE database only includes the last four to five months. For the other months, therefore, the DIGAR database on the Estonian National Library's webpage was pulled up, which has a collection of all Estonian newspapers of approximately the last two years, although it seems to be fully updated only every couple of weeks and gives only restricted access to PM through special inquiry. To ensure the most complete list of articles possible, the results were cross-referenced on the different databases and partially with the printed version of the Tartu University Library. However, the possibility of having overlooked an article fitting the criteria stays. Another factor is the author's Estonian knowledge skills based on only two and a half years of university courses and living in Estonia. Thus, the level of comprehending the language is equal to the B2-level<sup>13</sup>, but mistakes cannot be assumed absent.

In terms of method, both content analysis and CDA have shortcomings: In quantitative content analysis there is a risk of oversampling one source over another and thereby distorting the results. The same consequence can be produced by biases of the researcher, which reflect in the coding system. Therefore, the researcher's complete objectivity cannot be ensured, but by critically reflecting on the coding scheme from time to time distance can be brought between data and researcher (Glynn et al., 2004, p 113). Nonetheless, the coding system presented itself as the biggest challenge of the analysis, mainly in the categorization of content. One difficulty was to distinguish between 'attitude' and solutions to the issue. One can be pro-nuclear, but prefer a cooperation with Lithuania to building an own plant. In the attempt to categorize those statements, the 'positive attitude' was noted, because the notion is there but nuclear energy *in* Estonia is not explicitly supported. And secondly, the Lithuanian solution is mirrored in the 'topic' variable. Of course, this solution is not ideal. However, its

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<sup>13</sup> See Common European Framework of Reference for Languages on europe.eu-webpage for description of levels.

distortion does not take immediate effect on the overall results, as the main issue is not Lithuania, but a NPP in Estonia.

In CDA falling for idealism on the one or nihilistic relativism on the other side can be possibilities, as the approach relies on the critical interpretation of the researcher. Thus, the scientist's self-reflection as well as the continuous evaluation of the research are crucial elements of a successful analysis (Torfing 2005: 18-20). Practical problems lay in finding a common structure for all articles, as Wodak's three-dimensional system does not formulate much concrete analytical steps. To overcome that barrier, each text was approached with a clarified comprehension of the research questions, in particular the elements in the third question, as to retrieve only information important for the research.

### CHAPTER III. ANALYSIS OF EMPIRICAL DATA

At the initial step of retrieving the empirical data, the key words ‘tuumaenergia’, ‘tuumajaam’, ‘tuumaelektrijaam’, and ‘tuumareaktor’ were applied to all articles published between October 2010 and September 2011. In total, at least one of the words was used in 302 articles. About half of the articles are news reports, followed by commentaries, and few were found in the sections economy, culture, and science, respectively. The data shows an uneven distribution in terms of publishers (App. Fig. 1, p. 94): Whereas the significant difference between Eesti Ekspress and Maaleht as weeklies and Estonia’s daily newspapers are expected, as the dailies are published five to six times more often, there is also an unequal division among the daily newspapers. With a mean value of 68 articles among the four, EPL is over 60% above average, PM and ÕL meet at around 65, and ÄP’s contribution reaches about half of the mean. However, through its relatively lengthy pieces PM matches up to EPL, which publishes rather short but many articles, in respects to sum of columns.

Further, in the course of the twelve months, the topic of nuclear energy rises and falls in close relation to the real-life events (App. Fig. 2, p. 94). For instance, the trend of every single newspaper, except for Eesti Ekspress, broaching the topic of nuclear energy during February 2011 is due to the parliamentary election being set at the beginning of March. After a sudden increase of articles with the Fukushima incident in March, which entails almost half of all data as well as peaks in April (Chernobyl anniversary) and June (Germany’s nuclear exit), the monthly number steadily decreases again, until it reaches a pre-Fukushima level in September 2011. The fact that the data trails along real-life events is easily explained: neutral news coverage is included. To view the debate, therefore, in the following only explicit contributions to the debate of nuclear energy in Estonia are examined using quantitative means, accompanied by the qualitative analysis of a sample of outstanding articles.

### 3.1 Results of Quantitative Content Analysis

Out of the 302 articles, 68 were selected according to the criteria mentioned in the previous chapter. The overwhelming majority of those are situated in the opinion sections. The reason behind the findings is quite natural: The issue of an own NPP has not been resolved yet. Thus, there is no news to report beside the discussions. The actors, paragraphs, sentences, and words in the 68 pieces of the Estonian debate on introducing nuclear energy have been codified through the six variables introduced in the last chapter<sup>14</sup>. In the following elaborations, the variables are correlated with each other in the purpose of finding answers to the early stated research questions: Firstly, the analysis is aimed towards assessing the debate's maturity. Thus, the diversity of participants (A) and the distribution of notion towards the idea of having nuclear energy (B) produce the most valuable information on the matter. In addition, the degree to how well the discourse of constructing a nuclear power plant is embedded in the pool of related topics (E) circulating in the Estonian public reflects the level of general resonance to the issue: If a discourse is isolated, so is its public. In order to monitor the impact of real-life events, the same variables (A, B, E) are correlated with the variable of time. In addition, the conflict line of nuclear risks versus energy security threat (D) will be assessed in correlation to time and actor groupings. By measuring arguments (C) against actors (A) and attitudes (B), the last section will give a first impression for the third research question, which will be answered more detailed by the CDA.

In the search for signs of diversity, first in line is the dimension of participants, categorized in social groupings. It is important to stress that there are actors who contributed more than once to the debate in the examined time frame, and are counted by contribution, because of the prevalent slight shift in content variables between those contributions. For instance, the Minister of Economic Affairs Juhan Parts presents his viewpoint on four occasions over the four daily newspapers, sometimes stressing the importance of nuclear energy for Estonia's future, sometimes only leaning towards the idea. Thus, in order to include all variations Parts is counted four times. Other debaters, who publish several statements, are, naturally, media representatives that monitor the subject most carefully (e.g. Suurkask and the EPL-editors), but also Lembit Hiiop,

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<sup>14</sup> See Appendix A for complete code system and list of results by article, p. 81ff.

whom it was not possible to find background information on and who appears three times through reader's letters (A5) in EPL. An interesting case is Anto Raukas, a well-known academic, who contributes five times to the discussion, but carries out three different functions: three times Raukas is introduced as the academic/geologist (A3), once he represents the *Oil Shale* newsletter (A3), and once he makes a statement as private person (A5).<sup>15</sup>

In the 68 articles a total 58 different actors participated. Thus, the reoccurring people do not constitute a dominating force. Also, the various participant categories are distributed fairly evenly (Fig. 3), suggesting a high level of diversity and, thus, a rather mature debate. An exception are non-Estonian residents, but this group may be ignored for the most part, as its two members are only 'bystanders' to the Estonian debate.

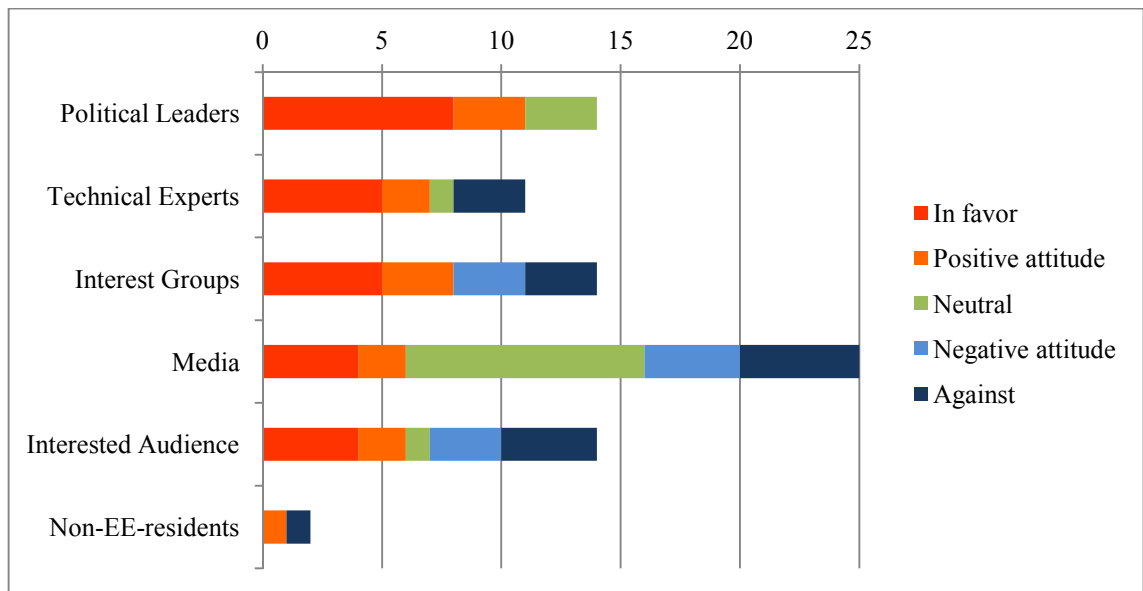


Figure 3: Distribution of actors by social position and attitude

Judging from the above-average amount of statements, media play a dominating role in the debate. Even though, there are negative as well as positive opinions, expressed by journalists rather than editors, for the most part, media exercises its function as the neutral informant that keeps an update of the themes, frames, and discourses raised in the nuclear energy debate. In contrast, representatives of interest groups see no purpose in contributing to the discussions on neutral grounds. However, that information is partially self-explanatory, as the essence of any interest group, company, NGO, or oppositional party, is to pursue a certain goal. Their representatives join political leaders

<sup>15</sup> The case of Anto Raukas is picked up again in subchapter 3.2.

and active individuals on an equal participatory level. Although we know politicians to keep loose positions and indistinct policy forecasts, on the issue of nuclear energy production the Estonian members of parliament (MPs) and government leaders stay consistent in their positive attitude, despite a few neutral and rather vaguely formulated statements. Like the interest groups, individuals entering the debate tend to position themselves on either one side of the issue. The neutral piece by an active reader is written by columnist Mihkel Mutt<sup>16</sup>, who analyzes the debate itself rather than the issue.

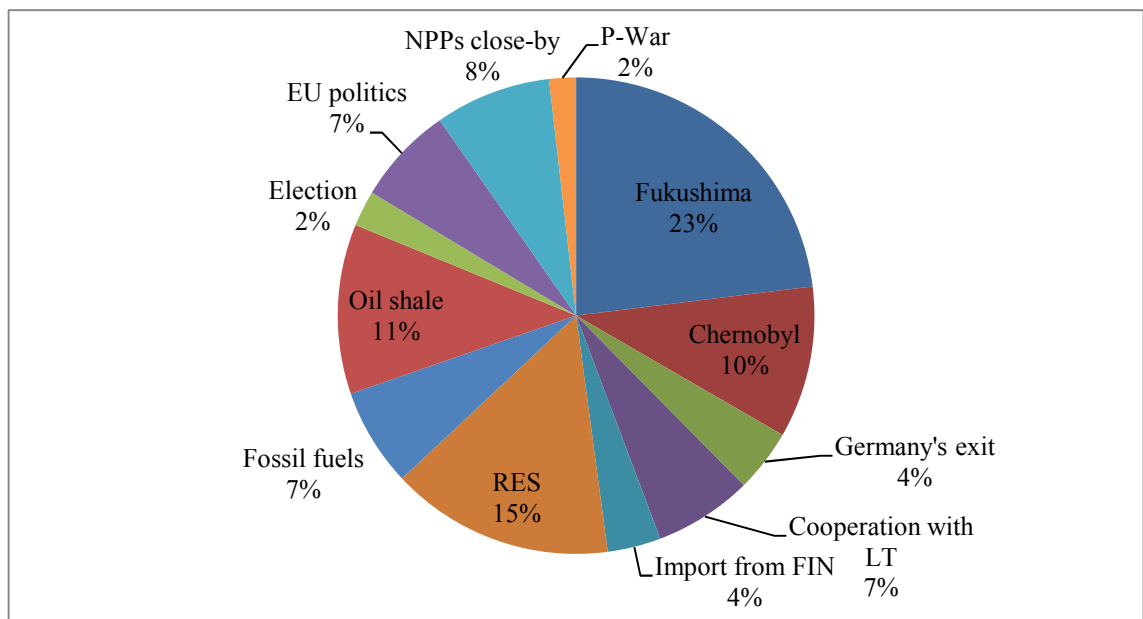


Figure 4: Topics and their numbers of references

As the degree of variety of intersected discourses is assumed to reflect a debate's maturity in terms of integration, a total of 162 references made to related topics demonstrate that the discussions at hand are rather diversified (Fig. 4). On a closer look, seven of the twelve topics are directly related to the question of energy. Also, references made to 'EU politics' stay mostly energy-related, and the three major events also carry a connotation of nuclear energy. The only two non-energy-related topic categories, the parliamentary election and Estonia's 'Phosphor War' of the late 1980s, carry the impeccable resonance of three mentions, respectively. However, nuclear energy is a very specific topic and not open to the interest and comprehension of all members of society, because it requires a deep understanding of energy issues. On this basis, the fact

<sup>16</sup> As explained in the previous chapter, columnists and writers are seen as active individuals, if they are freelancing, because contrary to employed journalists there are not part of the media apparatus.

that references were made in almost all contributions constitutes a high degree of maturity after all.

When adding the temporal dimension to the data, the impact of the Fukushima incident on the Estonian debate becomes indisputable, as the amount of contributions skyrockets in March 2011 (App. Fig. 2, p. 94). It is difficult, however, to distinguish the ‘Chernobyl’ commemoration from the aftermath of Fukushima temporally, and topically, because as soon as the Japanese nuclear accident surfaced, the Ukrainian equivalent was immediately drawn up for comparison. Also, the question of whether the event of ‘German’ legislators voting for exiting domestic nuclear energy production influenced the examined discussions cannot be answered through the temporal variable. The reason for the insignificant results in the timeline is that the final legislative act was preceded by a long row of discussions and demonstrations, starting as soon as March 2011. The influence of German developments, hence, may be seen only in the referencing of the topic. The pre-Fukushima election event, on the other hand, is visible with an increase of articles in February that also correlate strongly with the ‘election’ topic, in particular discussing the political parties’ campaign programs (App. Table 2, p. 95).

With the distribution of articles, an analyses-related discrepancy arises with unequal numbers of articles prior to and after Fukushima (10:58). One could argue that for the justification of comparison the post-Fukushima set of data should be sampled to be numerically equal to the previous set despite the equivalent timeframe. However, this would only risk a distortion of results. Therefore, pie diagrams were chosen to show the relationship between the categories, in order to move away from absolute numbers when comparing the two sets.

Following the acknowledgement of the Japanese accident being by far the most influential event, a comparison of the participants’ group distribution prior to and after the first report of the incident shows significant changes<sup>17</sup> (Fig.5). In the months before political leaders dominated the discussion, mostly due to the media pushing forward election-relevant information on the candidates’ positions (articles containing this social group are either interviews or reports), while media representatives, technocrats, and interest groups shared the other half of discussions. With news of the Fukushima

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<sup>17</sup> One EPL-article in March was released a few days before the tsunami and is therefore considered pre-Fukushima (App. A, EPL 04.03.2011)



accident reaching the Estonian general public, the political leaders lost their dominance over the debate to a more diverse spectrum of group participants. With a share of 35 percent however, media become the biggest player. Worth mentioning is that individual citizens entered the debate solely in the months March - April when the issue received more overall salience.

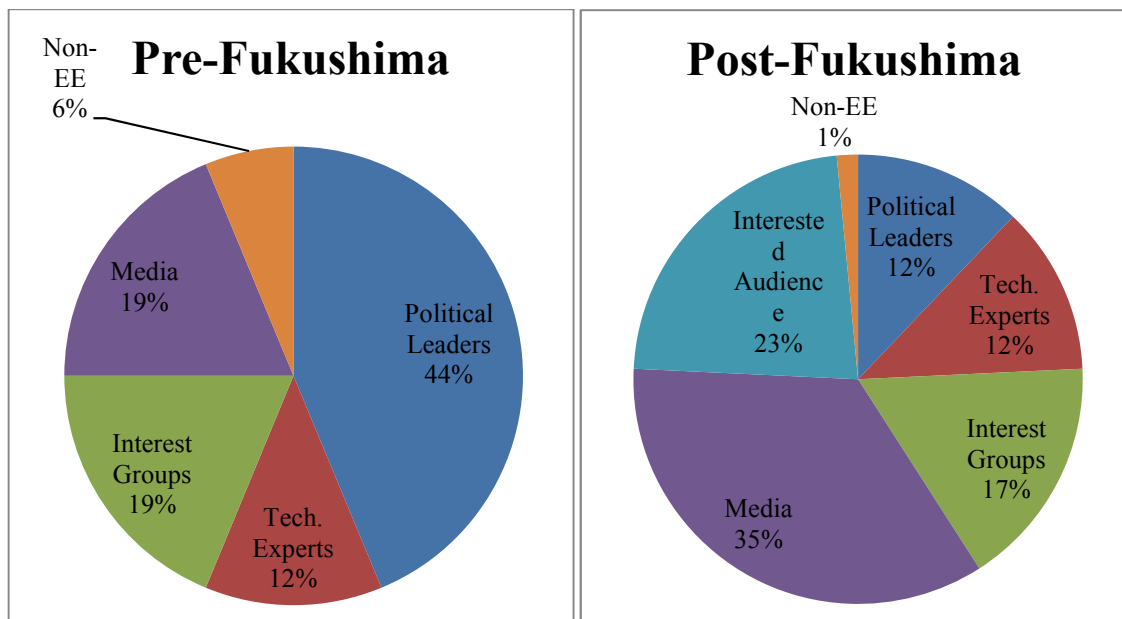


Figure 5: Participation by social groups before and after the first report on Fukushima

As for changes in attitude with the event (Fig. 6), a shift can be recognized going from a one-sided domination of pro-nuclear statements in numerically limited discussions to a very well balanced set of attitudes. Both the diversity of participants and the variety of opinions have changed. Nevertheless, the concentration of articles lies in March-April as a direct reaction to the event. Clues of how permanent those shifts are can be found in the later months. The change in the attitude spectrum is evidently of enduring nature, as during May to September two positive, negative, and neutral voices, respectively, have been raised. The same cannot be said about the changes in participants: The domination of political leaders has been broken and appears to remain broken, but as quickly as the interested audience entered the active part of the debate, just as fast did they leave again. A striking result is, also, the lack of articles fitting the criteria in the months December, August, and September, suggesting that outside event-frames the issue is not necessarily perceived as ‘pressing’ enough.

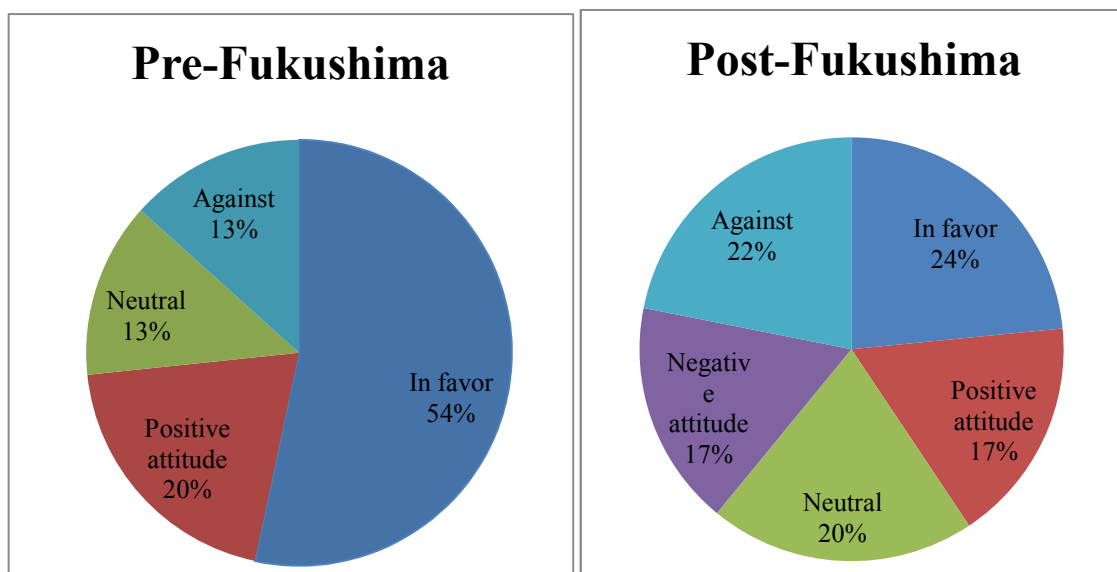


Figure 5: Distribution of attitude pre- and post-Fukushima

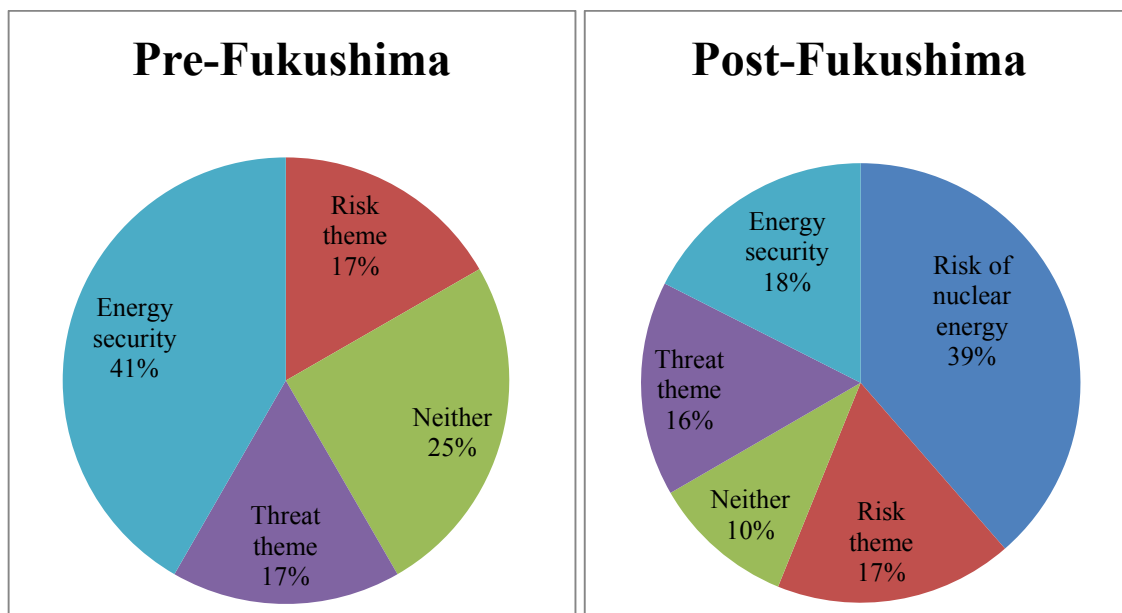


Figure 7: Distribution of risk- vs. threat theme pre- and post-Fukushima

The thematization of nuclear energy risk and energy security threat has also experienced a considerable shift by March 2011 (Fig. 7; App. Fig. 3, p. 95). The topic of risk has only been breached by 18 percent in the pre-Fukushima articles. That is, before the accident there has not been a clear naming of risks related to nuclear energy. With over 50 percent the topic of ensuring energy security for Estonia has clearly dominated. With the first-hand demonstration of risks in one of the most advanced countries in the world in terms of nuclear energy technology, the dichotomy tilted. However, the energy

security threat as theme was not suppressed considerably, but remains at a high stand in the discussions. In this case the development seems to be lasting as well, indicated by the months May - September.

The overall custom of embedding one's own viewpoint in the standing set of related topics has grown as well (Table 3). Although the number of contributions decreases after March, the same cannot be said entirely about the diversity of referenced discussions. Thus, the debate seems to have reached a better integration in the overall set of publicly discussed issues.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Fukushima						27	7	2	2				38
Chernobyl						11	5	1					17
Germany's exit						4		1	1	1			7
Cooperation with LT		1		1	2	3	2	2					11
Import from FIN					1	1	2	2					6
RES	1				2	8	9	2	2	1			25
Fossil fuel	1				3	3	2		1	1			11
Oil Shale				2	4	4	7		2				13
Election				1	1	2							4
EU politics	1			2	1	3	1	1	2				11
NPPs close-by					3	7	1	1	1				13
Phosphor War						2	1						3

Table 3: Discourse references by month

Moving on to the third research block, the main question here is how the social groups defend their positions. Eliminated from the next data analyses are three politicians and one representative of an interest group, who did not put an argument behind their position, and neutral statements without arguments. Neutral statements with arguments are included, even though, usually neutrality does not need argumentation and in these specific cases the pieces were rather reflecting the course of the debate than actively contributing to it. Nevertheless, these arguments seem to play prominent roles in the debates, if they are used by those actors, who do not attempt to persuade their audience.

	Political Leaders	Technical Experts	Interest Groups	Media	Interested Audience	Non-EE
Societal/moral	0	1	0	9	8	0
Scientific/tech.	5	5	3	10	4	1
Political	2	0	3	2	1	2
Economic	7	7	9	13	7	2
Environmental	1	1	4	7	6	1

Table 4: Correlation of participant groups and arguments

The data demonstrate that within the issue of nuclear energy economics plays a role equally important for all participatory groups (Table 4). Economic argumentation is correspondingly found in all five attitude categories with most in ‘against’ and ‘in favor’ (Table 5), although in relation to the other options are more favored slightly more by nuclear energy supporters. Societal and moral arguments are avoided by political leaders and interested groups and frequently used by media and the interested audience. Politicians most likely keep away from morality, because the commitment to a “code of conduct” (Stanford Encyclopedia of Philosophy 2011) cannot easily be changed without losing one’s face. Media and interested individuals induce by the use of societal arguments a social rationality to the debate to stand against the scientific rationality endorsed by scientists and politicians. Environmental issues are important to all groups and in all attitude categories, although most used in statements against the NPP. The same can be said for scientific argumentation, though its usage peaks in the ‘in favor’ category. Overall, the categories used by all groups as well as attitudes, which shows that the debaters attempt to reach a wide spectrum of readers by addressing to a wide spectrum of concerns. Also, a more diverse argumentation both demonstrates the well-nourished knowledge of the actor as well as transmits a better comprehension of the frame.

	In favor	Pos. attitude	Neutral	Neg. attitude	Against
Societal/moral	1	1	6	3	6
Scientific/tech.	14	4	2	3	5
Political	5	1	2	1	1
Economic	18	8	4	3	12
Environmental	3	2	3	3	9

Table 5: Correlation of attitude and arguments

In sum, the quantitative data has shown that the Fukushima incident was the main real-life event in 2011 that took a significant impact on the course of Estonia’s debate of introducing nuclear energy production. The event did not only influence the discussions

quantity-wise with a higher number of contributions, but also quality-wise, as participants not traditionally belonging to the debate emerged to the public sphere of print media and introduced new attitudes and frames to the issue.

### **3.2 Results of Qualitative Discourse Analysis**

In the qualitative analysis ten articles were chosen according to their significance to the discourse. The significance was measured according to social position of the actor and concrete references made to the articles. Selected were four commentaries and one interview. The authors of the four commentaries are a columnist, a writer, a scientist, and a journalist. The interview is held with the head of the Reform Party. Except for the interview, all of the articles are explicitly embedded in the discourse, meaning all take reference to other contributions and are referenced to. The interview, although not mentioned by others, was chosen for the high social position of the interviewee. A second set of articles are the five contributions by scientist Anto Raukas, who takes an active and vital part in the discussions as both actor and re-actor throughout the temporal scope. Thus, comparing each of his five contributions will give some insight about external influences over time, such as the Fukushima event. Another curiosity with Raukas is that he takes on different social functions: academic, editor, and private person. Thereby, an analysis of his articles may also demonstrate in greater detail differences across social functions. Of those ten texts only one is dated before the Japanese incident, caused by the criteria of choice. None of the prior articles earned references or were explicitly embedded in the course of the debate otherwise. The sampled piece was chosen because of Raukas. This fact is already a result in itself: The debate became an interconnected discourse only with the real-life event, confirming the flatness of the prior-event debate, which has already been contextualized in the previous analysis. In the following I will work through all ten articles chronologically, while it is important to keep their intertextuality, meaning the previous article may take effect on the next, in mind.

The first sampled article<sup>18</sup> *Does Estonia need more Electrical Plants in Future?* was written in form of a report by journalist Urmas Vahe in January 2011 as part of a series of pro-nuclear articles across newspapers over the months before the parliamentary election. It is also one of the very few long articles, which Õhtuleht contributed to the overall debate. Main referee in the article is Anto Raukas in his academic role, whose opinion is stated mainly in citations throughout the article and embedded in a story-frame constructed by Vahe, meaning that both Vahe and Raukas' opinions are stated. The article covers most of pages 4-5 in the news section and is accompanied by a large light bulb picture in the background, two small one-paragraph background information boxes, and a small picture of Raukas with the highlighted statement "Rather, it is necessary to impose the construction of an own nuclear plant fast"<sup>19</sup>. Thus, the article and Raukas' positive attitude towards nuclear energy are given high salience.

Vahe uses the introductory to explain the censoring features for the energy sector arriving in 2013 and 2016, forecasting a time in which people may be restricted in their daily electricity consumption and energy security is threatened. A comparison to "Soviet times" already set a 'doomsday' tone, in which Vahe introduces the main theme of the article, affordability of energy. He underlines this notion with posing the rhetorical question "What should be done when there is no electricity and no money?"<sup>20</sup>.

In the second part Vahe undermines Estlink-2 and other EU projects as solutions to the energy security problem, because the rise of electricity prices is not avoided. He then turns to the previously held discourse of nuclear energy, classifying it as small and half-hearted by taking the example of Eesti Energia digging "some holes" on their preferred NPP-site on the Suur-Pakri Island. He then turns to Raukas' idea of building the plant in Tallinn's immediate surroundings for better energy usage and immediately classifies it for the reader with the sentence "Now a new, assumingly brilliant solution is found"<sup>21</sup>.

Raukas is also taken as proving factor in the discussion of Estonia's oil shale situation in the third part. Vahe introduces the topic in the frame of EU-CO<sub>2</sub>-regulations, which constrain the CO<sub>2</sub>-rich electricity production out of oil shale. Raukas

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<sup>18</sup> All sampled articles are fully referenced in Appendix B, p. 93ff.

<sup>19</sup> Est.: Pigem tuleb kiiresti panustada oma tuumajaama ehitusse.

<sup>20</sup> Est.: Mida teha siis, kui elektrit lihtsalt ei ole, mitte mingi raha eest?

<sup>21</sup> Est.: Nüüd on leitud uus, näiliselt hiilgav lahendus.

states Estonia's difficulties in operating new oil shale plants price-competitively within EU regulations, although the source is the main reason for the country's strong energy security. He, then, comes back to nuclear energy as the solution using the highlighted statement and suggests passing on Lithuania's plans of constructing a new plant, as he sees no immediate future for the implementation. The article closes with an appeal to politicians to discuss Estonia's energy situation in Raukas' words: "But as long as there is no political will [for that], we have to prepare to live without electricity"<sup>22</sup>, ultimately proposing that if change does not come soon, it will be too late.

As there are two authors to the article, Vahe and Raukas, there are also two separate sets of argumentation technique. Vahe bases his arguments first and foremost on numbers: the expected price raise, energy production numbers, significant years and time periods. However, for the average reader they are not sufficiently explained. For instance, he does not name the exact changes in energy production in the years 2013 and 2016, but puts them in negative connotation. Further, Vahe uses a series of black-white painting when describing the current situation like comparing it to the Soviet Union and saying "that in 2013 there may occur instances in which an average person will not eager to turn the switch on in every necessary moment because of the high prices"<sup>23</sup>, suggesting nuclear energy to be the only 'savior' and thus standing in a position that is little negotiable. Raukas, on the other hand, apart from his last statement on politics, handles the topic more rationally. His explanation of the proposed NPP site, for instance, is based on infrastructure, which he enhances further by examples. The same approach is set when reasoning why Lithuania should be avoided. In general, Raukas' course of argumentation is easier to follow by the average reader, although a general knowledge of energy politics is needed. Both actors ultimately challenge Estonia's policy-makers to take action, and most possibly address voters to pay attention to the energy propositions made in the election programs.

A week after the initial Japanese catastrophe EPL-journalist Kristel Vilbaste publishes one of the first reactions on the first opinion-section page, covering almost one third of it. The main statement highlighted from her article "I saw at the 1976-year earthquake

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<sup>22</sup> Est.: Kuid seni, kuni selleks puudub poliitiline tahe, valmistugem elektrita elamiseks.

<sup>23</sup> Est.: juba 2013. aastal võib tulla olukord, et igal vajalikul hetkel tavaline inimene lülitile vajutada ei tihkagi, sest elekter on tarbimiseks liiga kallis.

in Keila-Joa how the walls cracked”<sup>24</sup> and the title *The Nuclear Era has passed* set the tone for a risk-related evaluation of the issue. In short, the author states that society’s pressing need has partly caused the catastrophe, because economics are put over risk aversion when a NPP is build at the shore in an earthquake-rich area. The same may be seen in Virumaa, where nature carries scars of oil shale drivage. Further, the main guilt is assigned to industry, which keeps producing more and low-quality products. She closes her commentary with calling out for a more eco-friendly way of living. In her article she also attempts to discredit Anto Raukas by pointing out his hypocrisy, when he interchanges between supporting oil shale and supporting nuclear energy, which also refers to the interchanging social positions he takes in the debate. In the we-you-discourse she therefore does not try to disprove pro-nuclear debaters, but devaluates the statements made by the main actor.

The most striking linguistic feature of the text is the introductory citation of a song lyric by the Fix Ensemble about the cost of energy, stating that it is like a mountain with an unreachable peak<sup>25</sup>, with which a comparison is drawn to nowadays Estonia and its rising energy production. Vilbaste uses the reference to a well-known and long manifested rock ensemble in her appeal to the general Estonian society. Another way of showing that she is a full member of society and therefore speaks in its best interest is sharing her personal experience during the 1976 earthquake, which is manifested in Estonians’ memory.

Her appeal is addressed to society’s common sense of morality. For instance, she takes Nokia as a metaphor for Estonia’s electronic-based way of living and intensive use of energy. She uses the same metaphor to describe low quality standards in industrial production, which leads to more excessive energy production as products have to be renewed more often. Another metaphor of “shiny stones” for oil shale ridicules Raukas in an attempt to present the energy source as a less reasonable choice. The metaphor of “worm holes” as a description of the general landscape Virumaa further demonstrates a low opinion on oil shale. Also, “mending socks” as general policy in energy production implies insufficient work on securing future energy. The other linguistic feature that dominates the article is the rhetorical question, with which Vilbaste questions the excessive use and production of energy and the industry’s

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<sup>24</sup> Est.: Nägin 1976 aasta maavärina ajal Keila-Joal, kuidas seintesse tekkisid praod.

<sup>25</sup> Est.: On neetult raske mäkketõus..., vaev on liiga suur, surub ligi maad, jõudu liialt nõuab.



obsession of productivity, while taking Japan as example: “Could the catastrophe have been avoided or taken course with less severity, if it has not been for the pressing need for cheap energy?”<sup>26</sup>.

Overall, Vilbaste backs her position with moral appeals towards a more environmental-friendly way of living through metaphors that show the negative sides of building up everything on the basic need of energy and through rhetorical questions that challenge the society’s morality in energy production and consumption. Due to the provocative elements the commentary was responded to by Raukas (EPL 21.03.2011) and referenced by Mikk Salu (PM 30.03.2011).

The next day a half-page commentary *Eesti Energia thinks about to many big projects* by Anto Raukas was published on the second page of EPL’s opinion section. The highlighted statement and Raukas being introduced as the head editor of the Oil Shale newsletter imply oil shale to be the main issue, although the main theme is the operation strategy of Eesti Energia. Raukas discusses the various international projects that company is part of and how this neglects domestic projects. He also states that Eesti Energia has to acknowledge the differences in oil shale from region to region and that Estonia cannot be taken as blue print for other countries. Nuclear energy is mentioned in the frame of Estonia’s forecasted energy shortage: a NPP would be the quickest solution to the problem.

Again, Raukas works primarily with numbers in his argumentation, using them comparatively, and again those numbers primarily constitute an overall energy security threat theme, as they are price hikes and electricity demand changes. The prognosis of rising prices is founded on Estonia’s integration to the EU-energy market by 2013, in which Estonia will mainly compete with the Nordic countries, whose energy prices are much higher. Electricity demand changes are again expected due to an expected energy production shortage. With both arguments Raukas guides the reader to nuclear energy being the most effective solution, while he briefly states his reasons why neither oil shale nor renewable energy (here represented by wind energy) cannot fill the gap.

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<sup>26</sup> Est.: Kas kogetud katastroof võinuks ka olemata olla või mingil leebemal moel kulgeda, kui poleks olnud nii tungiv vajadus soodsa hinnaga energia järele?

On March 21<sup>st</sup>, EPL published a response to Vilbaste's article by Raukas, the geologist, in which he discredits her witness report of walls cracking during the 1976 earthquake by referring to Estonia-wide inspection of houses, which were conducted immediately after the incident, and an eye-witness testimony 'proving' that the earthquake did not cause the cracks. In the last sentence he asserts the eminent need for nuclear energy, by the predication that "humanity cannot, at least for now, exist without nuclear energy"<sup>27</sup>. By phrasing the statement as an 'ultimate truth', Raukas does not leave room for discussion.

On the same day, the academics Endel Lippmaa and Anto Raukas publish one of the first post-Fukushima pro-nuclear commentaries *Academics: Today's Nuclear Plants are Safe* in Postimees, which is in the late course of the debate most frequently discussed. Marked on the title page, it covers the entire first page of the opinion section and is accompanied by an editorial introduction<sup>28</sup> and a picture of Finland's Olkiluoto NPP construction site. The core proposal of the article is that while other states put their nuclear energy development plans on hold, Estonia should seize the opportunity of low demand and therefore low prices of a plant construction.

The article is divided into three parts thematizing nuclear energy's future in a world of threatened energy supply and is interconnected thematically by the Japanese accident as red line. First, the academics present recent calculations of the future world energy need and state that the massive demand can only be satisfied through nuclear plants. The second part is led over by stating that despite Fukushima Japan does not shut down its other NPPs, and contains a list of nuclear energy "myths", which are disproven: the dangers of nuclear energy, the rarity of uranium, the production of rigorous nuclear waste. Over recapturing the tsunami's unforeseeable height and the age of the Fukushima NPP, which do not mirror the safety of new NPPs, the actors turn to the third part, Estonia's need for nuclear energy and the opportunity at hand, in which they stress the importance to act now in the face of an expected "energy crisis" and in

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<sup>27</sup> Est.: Inimkond ei saa , vähemalt praegu, eksisteerida ilma tuumaenergiata.

<sup>28</sup> "Nuclear energy, cheap and using the best technology also a safe energy type, is essential for the world. Academics Endel Lippmaa and Anto Raukas are convinced that Estonia also needs a nuclear plant." Est.: Tuumaenergia, odav ja parimaid tehnoloogiad kasutades ka ohutu energialiik, on maailmale hädavajalik. Ka Eesti vajab tuumajaama, on akadeemikud Endel Lippmaa ja Anto Raukas veendunud.

the small low-demand low-cost window enacted by Germany and other states that have put their plans on hold.

Also in this contribution Raukas' hand is very well noticeable. Almost all arguments are backed up by statistical calculations and examples for a more visual understanding. In the first part the rising need of energy in the world is exemplified by the rise of the amount of owned cars in China to the US level. This example, however, shows another more problematic technique: generalization. The United States are stereotyped as average most-developed country, even though the motorized-vehicle-per-capita ratio is second highest (World Bank 2011). Such generalized predictions together with the use of words with strong emphasizing connotation are to sell the message as the one truth to someone, who has little background knowledge and cannot challenge the statements easily. This scheme can also be detected in the core sentences around nuclear energy, such as the following statements: "Such human mass needs for energy can *only* be covered by the implementation of large-scale nuclear power"; "It is *obvious* that Estonia *needs* a nuclear plant"; "A country that does not produce *anything* is not sustainable."<sup>29</sup>

Further word choices downplay the 'you-discourse'. The word "myth" is labeled to the anti-nuclear arguments as an attempt to put off any of the opponents' statements as mere storytelling. Any approaches towards renewable energy sources are countered by the advantages of nuclear energy against the "expensive", "unstable", and "accident-richer" sources. Further, the authors carefully avoid any moral perspective to nuclear energy by intense economic and technological arguments. For instance, risk is addressed, but immediately annihilated by the age of the Fukushima NPP, the security systems of modern nuclear plants, and calling the incomparability of Chernobyl and Fukushima by the mere factor of human versus natural cause. The consequences of the "slight emission of radioactive substances" or "less than one kilogram of nuclear waste" per French citizen are not thematized.

The article is the first in the examined time frame, which acknowledges the interplay of nuclear energy risk and energy security threat as driving issues in the debate. Lippmaa and Raukas specifically name both issues and weight them against each other throughout the argumentation. All linguistic techniques are used to downplay

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<sup>29</sup> Est.: Sellise inimmassi energiavajadust saab katta vaid tuumaenergia ulatusliku rakendamise teel; On ilmselge, et Eesti vajab tuumajaama; Riik, kes midagi ei tooda, pole jätkusuutlik. Italicized by author

the issue of risk and accentuate the threat issue. The open devaluation of any opposing argument as well as the clearly articulated appeal for the construction of a nuclear plant in Estonia caused the most references (three) in the examined time, two of which are analyzed in the following.

Another significant contribution to the discourse is made by science editor Tiit Kändler with the word-play title *Nuclear plant or nuclear mess*<sup>30</sup>, covering one third of the first opinion-page in EPL two days later. The journalist thematizes the overall notion in the Estonian nuclear energy debate in the frame of the Fukushima accident. In the first part Kändler morally challenges the trend of national nuclear energy debates pushing the actual catastrophe into the background, because Japan's victims are not top-notch priority. However, since the discussion is there, he welcomes ordinary people to think about the issue, especially because now it is proven that human negligence did play a role in the accident and because the debate is dominated by economic interest groups. These elaborations pave the way to the second part and Kändler's core proposal: To challenge the superiority of scientists and economists by adding a moral dimension to the question.

In a way this piece serves as a response to Lippmaa and Raukas, in which "Raukas and his disciples" are put at the top of a metaphorical religious group of economic interest groups. The labels "preacher", "prophet", and "disciples" ridicule the prominent debaters of the pre-Fukushima debate, disempowering their viewpoints. The metaphor is followed through most of the article until the very end with the term "mammon<sup>31</sup> world", whose negative connotation is intended to further demoralize their stands. Implicitly addressed are also Lippmaa and Raukas' statements on the comparability of Chernobyl and Fukushima, by pointing out the human mistake made in Fukushima, and on the relatively low level of radioactivity released by the incident by the response that "To what extent is not important – whether it is five or 30 times more than natural. It is certain that it is happening."<sup>32</sup>

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<sup>30</sup> Est.: Tuumaenergia või tuumajaama. The title is closely leaned on the Õhtuleht article Tuumajaama versus tuumajama (14.03.2011).

<sup>31</sup> Mammon is a biblical figure that stands for greed for wealth.

<sup>32</sup> Est.: Kui suures ulatuses, ei ole tähtis – olgu siis viis või 30 korda looduslikust enam. Kindel on, et jõudis.

Kändler's solution to the issue, hence, is to move away from economic and scientific argumentation and take nuclear energy as "mental, even spiritual" question, which should rely on "how well people feel in countries, in which there is a nuclear plant or not."<sup>33</sup> Ultimately, he hereby addresses each ordinary citizen to pose the question for her-/himself.

Raukas, as private person, immediately replied via the EPL-internet platform and was published the next day along two other (anti-nuclear, pro-morality) comments to Kändler's article in the opinion section. He counters with the previous argument of the unavoidable energy shortage in Estonia 2025 at current energy plans. The attack on him as a person Raukas addresses by *asking* Kändler to keep from "calling people names" and assuming that if he calculated himself, Kändler would see how expensive renewable energy sources are. Although in addressing a more scientific argumentation Raukas wants to weaken Kändler's viewpoint by calling him unprofessional. However, with the phrase "calling people names" Raukas enters the personal level of debate, which Kändler initiated. It would be interesting to see how this personal match further developed, but unfortunately it was either taken to another medium, the private sphere or was not discussed further, for neither has since contributed to the print-media debate.

The next piece – an interview with the "author of the coalition contract" Kristen Michal – needs to be analyzed on a slightly different path: One needs to keep in mind that, while the agenda is set by the interviewing journalist, the answers are not only reactive but also constrained by Michal's role as the head chairman of the ruling Reform Party, meaning that he has obligations to represent the party according to its norms and values. As the topics are not chosen by the politician, I will only analyze the energy-related section.

The interview titled *Kristen Michal: I applaud the Estonians' Calmness* was published March 25<sup>th</sup> on the second page of EPL's opinion section and covers about one third of it. The overall theme is the results of the post-election coalition talks. Consequently, taxes cover the first half of the article, followed by two energy-related questions and a couple of questions about education policies, before turning back to the

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<sup>33</sup> Est.: kui hästi tunnevad inimesed ennast riigis, kus on või pole tuumajaama?

topic of taxes. The first energy question is directed towards the Reform Party's election program point of building a nuclear plant by 2022 and whether it was not transferred to the coalition contract because of Fukushima, which is not answered directly, but rather with an appeal for a diverse and rich public debate. Secondly, Michal is asked to share his personal attitude towards the plan. He again avoids a clear answer, but his notion towards nuclear energy appears positive.

With the opinion-directed questions the interviewer clearly attempts to extract attitude-rich answers versus mere information. However, each time Michal steps in as the typical politicians and avoids any binding comments, starting his answers with "so and so" and "I can neither say 'no' or 'yes' without previous consideration"<sup>34</sup>. The first question he addresses as representative of the party, sharing its beliefs that nuclear energy can bring more energy security, more diversity into the energy mix and less pollution. By mentioning the importance of debate, he stays away from giving an absolute opinion. However, in the last sentence he warns people to "make decisions based on emotions". In the second response Michal answers as individual, but without any concrete opinion or even attitude and just rephrases the energy security and risk side of nuclear energy, which have both by that time dominated the debate. However, it is peculiar that he chooses to put the "no" before the "yes", which may be an indication towards a more positive attitude, since the sentence appeals to staying away from rash decision based on insufficient knowledge, which would correlate with his appeal in the first response to keep emotions out of the equation.

Columnist Ahto Lobjakas' large article *Like the Saddle on a Pig's Back* is published in Postimees' *AK*-supplement a day later, covering the entire fourth page, including a thermo-picture of the German NPP *Biblis*, which was taken offline for risk assessments as response to Fukushima. At the title page of the supplement his article is announced with "Estonia's incomprehensible nuclear enthusiasm"<sup>35</sup>, which introduces the main theme straightforwardly and the author's general attitude, as does the introductory paragraph provided by PM. After shortly exemplifying the worldwide trend of reconsidering nuclear energy, Lobjakas presents Estonia as only country, in which the opposite can be seen. He lines up Lippmaa and Raukas' pro-nuclear article with the pro-

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<sup>34</sup> Est.: ma ei saa enne kaalumist öelda „ei” või „jah”.

<sup>35</sup> Est.: Eesti arusaamatu tuumaentusiam

nuclear attitudes of elected parties and criticizes the lack of well-informed opposing views in the public debate. Lobjakas believes that the nuclear energy debate perfectly illustrates the gap between technocrats and general public in Estonia and exemplifies the problem by philosopher Heidegger, who essentially describes the trend of an ordinary person developing from an all-understanding generalist to someone, who uses technology without being able to grasp its working process. Following the philosophical notion, he explains Estonians' connectedness to the particular landscape and thereby survival commitment based on a semiotic examination of the Estonian language. He reasons that because of this defensive nature the idea of building a nuclear power plant in Estonia should not even find grounds, because all Estonian land is already occupied by locally rooted people, in other words "Estonia is not a place for a nuclear plant"<sup>36</sup>. Following that argumentation he concludes that wherever the plant is to be build there will be a strong local resistance. He, thus, brings up the idea of conducting a referendum.

Lobjakas follows no specific argumentation techniques. Rather, the article appears to be a stream of philosophical ideas. While some examples and theoretical notions are well-introduced, at other points he just throws in names and terms such as the U.S. environment activist Al Gore, when explaining Heidegger's idea, Donald Rumsfeld, when talking about the proposed site on Suur Pakri, or discourse-theorist Foucault, without giving further explanation. He also lists Estonian terms and names such as the Phosphor War in the same nature, but those are usually known and understood through socialization. And although he starts by saying that more profound discussions are needed on the issue, he most likely loses the average reader merely by constantly switching through social scientific disciplines on a level that assumes a discipline-specific knowledge. His argumentation in favor of weighing risk over energy security, therefore, gets lost during the article's main part. The solution to the issue is only hinted towards in the sentence "The last weapon, if nothing else helps, is a referendum"<sup>37</sup>, which also is left unelaborated.

On April 4<sup>th</sup> writer Kadri Kõusaar publishes *Green Priests and Nuclear Energy* in the opinion section of EPL, which has earned a prompt accusation of 'cold-heartedness'

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<sup>36</sup> Est.: Eesti pole koht tuumajaama jaoks.

<sup>37</sup> Est.: Viimaseks relvaks, kui muu ei aita, on referendum.

(Arro EPL 06.04.2011), with her main statement being that no one will give up energy consumption for the sake of others. In the introductory part the writer compares electricity with alcohol (no one will stop before it is too much), underlined by examples of global consumption, before turning to the “green priests” – a metaphor she uses to refer to those green activists, who preach one thing and do another. In the second part, Kõusaar brings the example of Finnish activist Pentti Linkola, who lives “truly green” and illuminates how pressing everyone to live the same would endorse a “Gulag-like life”. An example of an Estonian family follows, in which the father “preaches” green, while the mother is overworked because technical appliances are missing. Thirdly, Kõusaar turns to the Fukushima-topic, explaining that even with human negligence the main cause was the tsunami and that a better construction close to the site withheld the tsunami. She further downplays the incident by mentioning leukemia-rates being back to normal in Hiroshima and Nagasaki. “Panic” is analyzed to be a European attitude, although only exemplified by German nuclear development of the past 20 years, and the “priests” are accused of a “not in my backyard attitude”, with which they hinder any kind of energy independence. In the last part Kõusaar fulminates against overreacting to the accident: nature causes far more deaths and yet people continue to live in danger-zones. Therefore, as long as there is no climate-adequate solution to the energy problem, green activists should “ease off”.

Looking at the we-you-discourse the article appears to be an attack on anti-nuclear activists in general. Kõusaar takes care to demonstrate in great detail her low regard for people that stress the issue of risk in the debate (“green priests”), calling them “hypocrites”. She further ridicules these activists for not seeing the double standard in what they say and what they do (“green lifestyle trumpet-promoter is nothing more than a music critic, who does not have play the instrument himself”<sup>38</sup>), as well as for their ‘infant-mindedness’ (“In the end green priest step back to the anal stage of development”<sup>39</sup>). Finally, she challenges them to a biking competition, emphasizing her view that they do not live green, but just preach it sitting at home.

The general argumentation technique in the article is difficult to summarize as Kõusaar does not work with a clear argumentative structure with explaining one

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<sup>38</sup> Est.: Rohelise eluviisi pasun-promootor [pole] midagi muud kui muusikakriitik, kes ei peagi ise pilli mängima.

<sup>39</sup> Est.: Lõpuks tõmbub rohepapp anaalsesse arengufaasi.



argument and going to the next. Rather, she attempts to broach as much fields as possible to why an over-evaluation of risk should be avoided in the debate, as “energy security” should be the main goal (“Long live independence, but not energy independence”<sup>40</sup>): To emphasize the hindering of technological progress, she spends most of the article on the “fanatics”, who take the opportunity to “preach” and induce “panic”. The other arguments are based on the suggestion that even if there are risks, nobody is willing to reduce one’s comfort (examples of alcohol, global trading, residing at dangerous sites).

The main rhetorical device in the article is cynicism: the metaphors of “alcohol” for energy, of “green priests” for green activists, of a “losing chess player possessing the power to avoid checkmate<sup>41</sup>” for humanity are all directed towards ridiculing these phenomena and people. Small outcries, such as “oh horror” and “help!”, are further attempts to downplay risk-related statements of the debate.

All in all, the article addresses general public and anti-nuclear activists alike, persuading the former towards thinking about energy independence and attacking the latter. Her personal attitude towards the construction of a NPP in Estonia, however, is not clarified.

The qualitative analysis shows that certain techniques are affiliated with certain social positions or backgrounds: Politicians care to not formulate any commitments. Technocrats both base their arguments on science and act upon scientific rationality. For instance, Raukas keeps his pro-nuclear attitude throughout the year, despite changing social position. The roles, however, enable him to pursue his goal with different degrees of pressure. Especially, the article together with Lippmaa demonstrates an argumentation line that is build upon pressuring the audience with ultimatum-like statements of scientific absolutism (see Beck, 1992, p. 60), always reasoned by with scientific ‘proof’. Even when attacked personally by Kändler, his response is underlined by calculations, but nevertheless the private person Raukas also engages Kändler’s statements on a personal level, accusing him of name-calling. Interest groups use a

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<sup>40</sup> Est.: Elagu iseseisvus, aga mitte energeetiline iseseisvus.

<sup>41</sup> Complete sentence “Humanity Is like a chess player who is beaten, but whose power is to still have some time by avoiding checkmate”; in Est.: Inimkond on nagu malemängija, kes on kaotusseisus, aga kelle võimuses on veel mõnda aega vältida matti.

business-like argumentation-line, *inter alia* endorsed by Raukas' behavior, whereas representatives of the interested audience prefer a more philosophical approach. Also, there is a personal note to some of the articles attacking single persons or groups, indicating that the debate is quite heated-up.

## **CHAPTER IV. DISCUSSIONS**

In the following elaborations room is given for the embedment of the empirical results into the theories and the deduction of empirical aspects as well as theoretical impulses. The outline of the chapter will be orientated according to the theories, first discussing media effects, specifically the issue of framing, followed by public opinion dynamics and concluded with the interrelations of securitization and risk society.

### **4.1. The Role of Media, Agenda-Setting, and Framing**

In quantitative measures, the participatory category ‘media’ is shown to be the most active actor in Estonia’s debate. Inferentially, media poses as the dominant player. One could argue that before the Japanese catastrophe politicians were evidently the leading participatory group, but those contributions all went through interview-channels with a media representative on the other side. Therefore, media should be analyzed more closely towards a distinguished understanding of editors and journalists, interviews and commentaries. Firstly, there is a tiny flaw in the coding system, which cannot be avoided for reasons explained earlier: interviewers are not counted as participants during empirical processing. This differentiation is important for the quantitative analysis, because the interviewer generally do not incorporate an own opinion. Nevertheless, it distorts the reception of how much media representative directly influence the debate: Whether interview or its report, the journalist asking and/or reporting decides, which topics are breached and which are avoided – s/he acts as agenda-setter (McQuail 2005: 513). So, in the assessed interviews, which were mainly conducted in the months before the parliamentary election, the topic of nuclear energy is brought up not only because it is mentioned in the election programs of the parties, but

more importantly because the journalist has picked it out as one of the most significant points. Since only the politicians' answers were codified for analysis, the *agenda-setting* role of journalists is to some extent neglected in the previous chapter.

Secondly, opposite to their neutral role as interviewers, journalists write commentaries, as it is done in many cases in the discussed debate mainly after the Fukushima incident. These articles entail to the most part distinct framed attitudes either against or for nuclear energy and can thereby be understood as contributions of active debate members. Here, a journalist plays the role of an *active player*, no longer staying in the background.

However, there are also commentaries without a clear attitude, in which the main problem is not seen in nuclear energy itself, but in the way the issue is discussed. The points of lacking diversity and flat arguments within the debate, in particular, reoccur frequently. The commentaries do not serve the purpose of framing once own opinion, but to enhance the debate. A third function of the journalists, hence, is to *monitor* the nuclear energy debate and to *guide* the general debate towards better developed options.

Within the nuclear energy debate editors serve in several similar functions: Whereas journalists serve as the guiding hands in interviews, the editors' *selection* function spreads over the entire newspaper, as it is their decision to either publish a piece or leave it, and to either prioritize it or put it on less significant pages, as the issue was prioritized with the discussion being placed in large on the first opinion-pages. Alongside agenda-setting comes the role as *informant* shared by editors and journalists, as the former requests it and the latter delivers in form either from background reports or from information embedded in the commentaries, for the most part in those discussing the general state of the debate. In this aspect, a shortage can be noted, as background articles were published on Japan, Germany, Lithuania, and so on, but no article explaining Estonia's energy situation and as to why there are nuclear energy plans could be found in the given timeframe.

Thirdly, editors step onto the stage of the debate through neutral editorials. Of 68 articles ten were put forward by editors, all but two of them dated in the critical weeks directly after the tsunami, the two remaining in April and June. In all newspapers but one (EE) editors were the first or second to formulate reactions to the event, enacting an

active role, in which impulses were given rather than separate opinions. Those impulses correspond with the assumption that unexpected events may lead to the need of *new interpretative frames* (Semetko 2004: 361-362). The Fukushima-event created such a need, as the possibility of a worst-case-scenario had not been issued in the debate yet. Also, the impulses given serve together with the high-salient coverage of the event as *catalysts* to an outburst of contributions to the debate.

The agenda-setting function of media becomes vital again within the debate in the selection of external actors' contributions to publish. As the pre-Fukushima discussions could be described meager at best, it can be concluded that in those months there was hardly any competition between actors in regards to publishing space. That situation changed considerably in March, when more than one contribution were printed in a day, sometimes in the same newspaper (e.g. EPL 17.03.2011). Nevertheless, the data shows a rather well-balanced distribution of attitudes, suggesting that Estonian newspapers did not exploit their position, but acted somewhat as *negotiators*, opening the doors for both pro-nuclear and anti-nuclear debaters.

Media-external debaters also enact a *framing* effect, because they too create packages of how to interpret the issue-related developments. However, as the qualitative analysis shows, neither of the actors is free from the society's norms and expectations: The commentaries entail generalizations and stereotypes embedded in metaphors, examples, and other rhetorical means. Nevertheless, the analysis shows an elite-attentiveness as well, since most actors assume their audience to have a sophisticated knowledge of the issue as well as other science disciplines (e.g. the abbreviation TW, EU regulations, theorists). Here, one of the main shortcomings of Estonia's nuclear energy debate is seen: through the lack of sufficient background information given by media and debaters, the audience able to follow the discussions is restrained to a small portion of the general public.

#### **4.2. Public Opinion Dynamics in Estonia's Debate**

One of the main results of the analysis is the confirmation that the Japanese catastrophe played a vital part to the dynamics of public opinion on nuclear energy both in terms of

quantity and content. With appliance of Price and Neijens' understanding of quality (1997: 348-350) Estonia's print media debate can certainly be characterized quality-richer with the real-life event: the level of engagement has risen in regards to the overall number of contributions as well as to the participatory groups. Although the former appears to only have a temporal effect, since in July-September the numbers went back to a pre-Fukushima level, the latter change seems to remain intact. Social control of the debate, namely by the political and academic elite, has been reduced by the event too, which is also exemplified by the grown diversity of participation. Speaking of content, inter-referencing has only been detected from March on, showing a higher level of engagement between the debaters and more coherent discussions. Also, starting at the same time more secondary topics were included in the argumentations, transmitting more information as well as better illustrated thoughts.

When adapting Price and Neijens' five-stage matrix (1997: 340-341) to the results, however, difficulties arise at categorizing the debate in clear stages at all time. As just explained, after Fukushima the debate has been quality-richer than before. Nevertheless, in the pre-Fukushima months the general notion suggests a debate at the verge of the final stage (decision-making), with clear, mildly polarized understandings of the influencing factors (goal: energy independence). With emerging newcomers and the promotion of the 'risk'-issue, the quality enhanced, bringing more options to the discussions. However, concerning reaching a decision the debate has suffered a set-back with the Fukushima event: while some commentaries step right into a competition of options (stage 4), others – especially those thematizing the debate's status – are clearly situated at lower levels, in which options are still in the process of crystallization (stage 2), whereas still others take the opportunity to reconsolidate the consequences. Thus, the matrix does not apply very well, as the data at one point of the time cannot be summarized and categorized into a single stage.

Two inter-causal aspects are found to explain the matrix's failure: the influence of the real-life event and the rise of salience. The Japanese disaster with no doubt is an exception to the rule in the nuclear energy topic, since so far there have been only a total of three major incidents in NPPs (Chernobyl, Three Mile Island, and Fukushima). In addition, the other topic-related events in the researched timeframe were discussed themes, but had no significant impact on the course of the debate in regards to quantity.

However, the event does not cause a major shift in the debate alone. The other pivotal half of the equation is the salience given to the event. Without an immense coverage of the event and putting it up high on the agenda, as well as with editorials and commentaries framing the event within the Estonian debate enacted by the media, Fukushima would not have affected the discussions so strongly. The functions entailed to media together with the real-life event have generated a great disturbance, accompanied by a higher attention to Estonia's NPP-plans and thereby also by the appearance of new partakers.

The emergence of participants effectively evoked the shift of the debate into several stages in the decision making process at the same time: old participants either hold to their position (e.g. political leaders, Raukas), although needing to defend it more fiercely, or step back a stage and reconsider on the basis of the new developments (only case: Strandberg). New participants either jump in at the second, evaluating the issue and debate, or third stage, assessing the consequences. Thus, the matrix cannot be applied empirically in this specific case. The development in participation combined with the lack of changing individual attitudes shows also that the domination of the debate has shifted and thus the public opinion: The accident appears to have induced a short-termed social crisis, which was taken as opportunity by the one side to strengthen socially rational opinions, whereas the other side in particular politicians did not change their views, but kept in the background. The reason behind the politicians' behavior may be the realization that stating a positive attitude too often, while news were covering the consequences of nuclear energy risks, may become damaging to the entire plan and the politicians for defending it.

### **4.3. The Dichotomy of Risk and Threat in Nuclear Energy**

While discussing the theoretical framework, the theories of *Risk Society* and *Securitization* were held up against each other for common formalities: both are social constructivist approaches, both concentrate on communication effects, and in both the naming of 'risk'/'threat' undergoes a process of competition with opposing ideas. It was also assumed that the two theories, if combined, show a conflict line between a

nationalist perspective of the industrial modernization and ‘world-at-risk’ perspective of the reflexive modernization.

The quantitative analysis of the empirical data has shown that both the themes of risk posed by the technology of nuclear energy and energy security received by the construction of an own plant dictate the debate’s argumentations. There is, however, a segment of articles, in which neither is mentioned. In general, this is due to the shortness or lack of argumentation in those contributions and not because other considerations are appealed to instead. Consequently, it is safe to say that there is a dichotomy of the two themes (as one excludes the other), which forms a conflict line through the course of the debate. Also, it appears that the event of Fukushima has caused a rise of the ‘risk’ issue in the debate, which resulted in a more balanced competition of the two aspects. Even so, the two analyses show how ‘risk’ and ‘threat’ are manifested in the debate in the constantly rephrased dilemma of either taking the risk in nuclear energy production and thus enhancing the country’s energy independence, or finding another solution resulting in a short-termed increase in energy security threats.

Both themes insinuate a society’s ultimate goal of ‘survival’: a meltdown would radiate the entire country, whereas an energy shortage will lead to reduced productivity and life standard. Thus, in framing the issue of nuclear energy production in Estonia emotions play a distinct role, as the fear of a disaster is put against the fear of lacking electricity by the different debaters to persuade the audience towards either avoiding the risk or eliminating the threat. Good examples of such an underlining notion of framing are the qualitatively analyzed commentaries of Vilbaste (EPL 17.03.2011) and Raukas & Lippmaa (PM 21.03.2011): Vilbaste scrutinizes the negligence of risk calculations in energy production and brings forward examples of realized risks, whereas Raukas and Lippmaa stress the importance of energy independence by creating a picture of the world being at the edge of an energy crisis that cannot be stopped elsewhere.

Fukushima also influences the dichotomy, as in the months before the issuing of ‘risk’ was rather marginalized – a process coherent with Noelle-Neumann’s idea of silence: the debate was dominated by security issues and possible negative consequences of a NPP were only broached by few actors, who took care as deal with the risks explicitly. The lacking of the risk-idea, thus, may be explained by is perceived



unpopularity. This phenomenon is further indicated by the change that the event introduced: Right after the Fukushima incident became known there was a burst of anti-nuclear statements in the press, which were mainly put into a risk-themed frame. The reactions came quickly and were rather well connected to other topics, implying that the thought of risk has occurred to people before, but has not been expressed in public. The event, hence, was used as opportunity to fully introduce and dramatize the concept of risk. Without the accident, thus, the dichotomy would have stayed underdeveloped and ‘threat’-dominated.

The dichotomy also shows that neither of the two themes has yet been accepted by the audience, since they are both equally presented in the debate: Securitization, hence, is not completed and the reflexive modernization process has been only partially successful. When applying Balzcaq’s three-dimensional concept to the issue of threat, before Fukushima the audience was small but significant for the topic as well as willing to accept, the context (the upcoming changes in 2013 and 2016) fit, and the debaters enacted their social position. With the incident the first two dimensions changed considerably away from the acceptance. Both appeals are set in a competition: ‘risk’ *versus* ‘threat’, world *versus* state, reflexive modernity *versus* industrial modernity. Key to the comprehension of this clash is that each person weights the two factors differently having different social biographies – after all, public opinion is the sum of mediated *individual* opinions, which need to be directed towards finding a compromise.

Coming back to the comparison in the introduction, the analysis has given a clue of why reactions in Germany immediately were drawn towards the notion of ‘risk’, while in Estonia the ‘risk’-issue increased, but stands in competitions with ‘threat’: In the countries these issues are weighted differently against each other. Beck calls such a difference in implementing the ‘risk’-issue in debates as ‘clash of risk cultures’ (Beck 2011). In Beck’ian terms in Germany social rationality would be more active than in Estonia, putting the former on a higher stage of the reflexive modernization process than the latter. Of course, this assumption is not verified by the data and would need another comparative analysis.

## CONCLUSIONS

In the year of 2011 Estonia's print media debate as to whether to construct an own NPP or not has experienced a considerable shift. In answer to the research questions, the discussions comprise a high level of diversity in terms of participation as well as use of arguments and expressed attitudes, which shows that the issue is discussed within a wide range of options and topics as well as open to a wide range of the public, demonstrating a high degree of *maturity*. However, on a temporal scope, the maturity traverses through lows and highs, related to *real-life events* affecting the debate: the Japanese nuclear accident impacted public discussions in Estonia most, while the impact of other energy-related events can only be noted content-wise, but not quantity-wise. With the 'help' of Fukushima the nuclear energy debate has progressed to a new level of maturity, in which the public opinion has grown more diverse and balanced. Public opinion has moved from a one-sided and poorly discussed consolidation of consequences towards the quality-rich and balanced polarization of options, due to the emergence of new participants and new factors. All in all, Price and Neijens' five-stage concept cannot be applied to the data, if one leaves the stages strictly separate. Thus, it should be further analyzed, whether the temporal scope can be somewhat neglected. Also, the impact of real-life events on public opinion deserves closer elaborations, as in theoretical concepts the factor has been neglected by most public opinion scientists.

Looking at the *main frames, strategies, arguments, and rhetorical instruments* used, a dichotomy was discovered of the issues of 'risk' and 'threat' dominating the discussions and can be understood as conflict line through the course of the debate. Thus, the persuasive techniques used in the debate often rely on either of the two issues. The code of framing is further defined by the debater's social position, meaning an academic argued with scientific calculations and a columnist took a more philosophical approach, although both are enacting generalizations such as stereotypes to get their

points across. Other media effects took impact, such as the framing and agenda-setting enacted by the media, who play the roles of informant, negotiator, and guide, as well as debater from time to time. Also in this area Fukushima changed many aspects: For instance, before the incident the debate was characterized by a dominating ‘threat’, whereas the other side remained silent. As the accident became known, the other side began speaking up, bringing ‘risk’-related arguments to the discussions, whereas the formerly dominant side was pushed to the back.

The dichotomy is underlined by the superficially conflicting ideas in Risk Society and Securitization. The differences, however, are the core reason for combining them: one explains the reasons behind the rising issue of ‘risk’, while the other illuminates the ‘threat’-factor; one demonstrates a higher level of reflexive modernization, while the other holds on to industrial societal values. The rich results of theoretical interconnections call for further studies incorporating a combination of media concepts and the two social-constructivist theories. Especially the connection of those two specifically in the topic of nuclear energy should be further compared with debates in other states.

In regards to the debate, many shortcomings were noticed before and after the event: Insufficient background information is incorporated in most commentaries, which automatically reduces the circle of readers secluding a large portion of the general public. Excluding the months March-April, the discussions are held low quantitatively as well as qualitatively. For the most part, the discourse is characterized by an apposition of articles rather than an interconnected process of action and reaction. Fukushima has thrown back the debate on the path towards a solution, but has simultaneously given the reflexive modernization process in Estonia new opportunities to proceed, causing a shift from a dominance of pro-nuclear views to a more balanced representation of attitudes, which has lasted until the end of the examined temporal scope and leaves a prognosis about the final decision in 2013 unformulated. Further enhancing the uncertainty is a new state guideline for EU policies (October 2011) mentioning the plan to engage with nuclear energy in near future in one way or the other (Riigiskantselei 2011: 13) despite the high amount of negative views stated over the course of the previous months.

## ABBREVIATIONS

ÄP	Äripäev
CDA	Critical Discourse Analysis
EE	Eesti Ekspress
Eng.	English
EPL	Eesti Päevaleht
Est.	Estonian
EU	European Union
Fig.	Figure
FIN	Finland
GDP	Gross domestic product
LT	Lithuania
ML	Maaleht
Mt	Megatons
Non-EE	Non-residents of Estonia
NPP	Nuclear power plant
ÕL	Õhtuleht
PM	Postimees
P-War	Phosphor War
RES	Renewable energy sources
Toe	Tons of oil equivalent

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## APPENDICES

### APPENDIX A. Quantitative Content Analysis by Article

<b>(0) Time</b>	Month
<b>(A) Social Position</b>	<ul style="list-style-type: none"> <li>(1) Political leaders</li> <li>(2) Technical experts</li> <li>(3) Interest groups</li> <li>(4) Media</li> <li>(5) Interested Audience (incl. freelancing journalists)</li> <li>(6) Non-EE-residents</li> </ul>
<b>(B) Attitude</b>	<ul style="list-style-type: none"> <li>(1) In favor</li> <li>(2) Positive attitude</li> <li>(3) Neutral</li> <li>(4) Negative attitude</li> <li>(5) Against</li> </ul>
<b>(C) Argument</b>	<ul style="list-style-type: none"> <li>(1) Societal/moral</li> <li>(2) Scientific/technological</li> <li>(3) Political</li> <li>(4) Economic</li> <li>(5) Environmental</li> </ul>
<b>(D) Appeal</b>	<ul style="list-style-type: none"> <li>(1) Risk of nuclear energy</li> <li>(2) Risk theme</li> <li>(3) Neither risk nor energy security</li> <li>(4) Energy security theme</li> <li>(5) Threat of energy security</li> </ul>
<b>(E) Topic</b>	<ul style="list-style-type: none"> <li>(1) Fukushima</li> <li>(2) Chernobyl</li> <li>(3) Germany's exit</li> <li>(4) Cooperation with Lithuania</li> <li>(5) Import from Finland</li> <li>(6) Renewable energy</li> <li>(7) Fossil fuels</li> <li>(8) Oil shale</li> <li>(9) Parliamentary election</li> <li>(10) EU politics</li> <li>(11) NPPs in close environment</li> <li>(12) Phosphor War</li> </ul>

Appendix Table 1: Code key of the quantitative content analysis

### **Pattern:**

Date (month). *Title* [Translation]. Section. Article type.

Author. Social position. Attitude. Argument. Appeal. Discourse.

Other actors. Social position. Attitude. Argument. Appeal. Discourse.

References

### **Postimees**

20.10.2010 (Oct): *Energeetika ei ole kasiinomäng* [Energetics are not a casino game].

Opinion. Commentary.

Jüri Laurson (commissioned electric engineer). A2. B1. C4. D5. E4+5.

References to Marek Strandberg (PM 22.08.2010; EE 7.12.1990).

12.11.2010 (Nov.): *Liive: Tuumajaam sobiks Suur-Pakrile* [Liive: The Nuclear Plant would be good for Suur-Pakri]. Estonia. Report.

ERR. A4.

Sandor Liive (Eesti Energia CEO). A3. B1. C2+3. D5. E4.

16.02.2011 (Feb.): *Poliitikute ühisosa - põlevkivita pole tulevikku* [Politicians' intersection – Without Oil Shale No Future]. Opinion. Commentary.

Andrus Karnau (journalist). A4. B5. C3. D5. E4+5+7+8.

16.02.2011 (Feb.): *Vestlusring: elektri börsihinna tõusu vastu aitab energiasääst* [Discussion Board: The Rise of Electricity's Stock Market Price helps Energy Savings].

Opinion. Interview.

Andrus Karnau (interviewer). A4.

Valdur Lahtvee (MP of the Green Party). A1. B2. D3.

Juhan Parts (Minister of Economic Affairs, IRL). A1. B1. C3+4. D5. E4+6+7+8.

Kristen Michal (chairman of the Reform Party). A1. B1. C4. D5.

Lembit Kaljuvee (MP of the Central Party). A1. B2. D3

Rene Tammist (MEP of the Social Democrats). A1. B3. C2+4+5. D3. E6+7+8+11.

16.03.2011 (Mar.): *Erik Puura: Eesti elab nagu vanajumala selja taga* [Erik Puura: Estonia Lives as if Behind the Old God's Back]. Estonia. Interview.

Mikk Salu (interviewer). A4.

Erik Puura (Tartu University Institute of Technology Director, geologist). A2. B3. D2. E1+2+11.

17.03.2011 (Mar.): *Eesti rahvusvahelises tuumapaanikas* [Estonia in the Midst of an International Nuclear Panic]. Opinion. Editorial.

PM. A4. B3, D1+5. E1+2+10+11.

17.03.2011 (Mar.): *Tuumajaama vastu* [Against a Nuclear Plant]. Opinion. Reader's letter.

Merit Burenkov. A5. B5, C1+5, D1, E1+2+6.

21.03.2011 (Mar.): *Akadeemikud: Nüüdistuumajaamad on ohutud* [Academics: Today's Nuclear Plants are Safe]. Opinion. Commentary.

Endel Lippmaa, Anto Raukas. A2. B1. C2+4. D5. E1+2+3+9. (counted twice: one frame package per actor)

Referenced by EPL (EPL 24.03.2011), Lobjakas (PM 26.03.2011), Raik (PM 14.04.2011).

23.03.2011 (Mar.): *Tuumaenergeetika ja moraal* [Nuclear Energetics and Morality]. Opinion. Commentary

Mihkel Mutt (columnist, writer). A5. B3. C1+4+5. D1+5. E1+3+4+7.

23.03.2011 (Mar.): *Võimulepe* [Government's Agreement]. Estonia. Coalition program. Reform Party and IRL. A1. B1. C2+3+4. D5.

26.03.2011 (Mar.): *Nagu sea selga sadul* [Like the Saddle on a Pig's Back]. Opinion and culture. Commentary.

Ahto Lobjakas (columnist). A5. B5. C1+2+4+5. D1. E1+3+10+12

Reference to Lippmaa and Raukas (PM 21.03.2011). Referenced by Raik (PM 14.04.2011).

30.03.2011 (Mar.): *Tuumaõnnetuse tegelikud ohvrid* [The Real Dangers of the Nuclear Accident]. Opinion. Commentary.

Mikk Salu (journalist). A4. B3. C2. D3. E1+10.

Reference to Vilbaste (EPL 17.03.2011).

31.03.2011 (Mar.): *Tuumajaam on tõhus lahendus* [A nuclear plant is an efficient solution]. Opinion. Repercussion.

Jaan Järvik (professor at electrical engineering institute at Tallinn Technical University). A2. B1. C2+3. D3.

05.04.2011 (Apr.). *Keit Pentus: Tuumajaama küsimust tuleb kaaluda rahulikult* [Keit Pentus: The Question of a Nuclear Plant has to be weighted calmly]. Estonia. Interview. Argo Ideon (interviewer). A4.

Keit Pentus (Minister of Environment). A1. B3. C2. D3. E1+6+8.

06.04.2011 (Apr.): *Tuumajaam pole kitsa ringi teema* [A Nuclear Plant is not a Topic of a Narrow Circle]. Opinion. Commentary.

Irina Tokareva (journalist). A4. B3. C3+4. D1. E1+8.

14.04.2011 (Apr.): *Tuumajaamadebatis tuleb riskidest rääkida* [In the Nuclear Plant Debate the Risk need to be discussed]. Opinion. Commentary.

Jaan Raik (Professor at the Tallinn Technical University). A2. B5, C1+2+4, D1, E1+10.

References to Anto Raukas and Ahto Lobjaka.

21.04.2011 (Apr.): *Ei tuumajaamale, aga kas on alternatiivi?* [Against a Nuclear Plant, but what is the Alternative]. Opinion. Reader's letter.

Taavi Simson. A5. B1. C3+4. D5. E6+8+11.

30.04.2011 (Apr.): *Regilaulust aatomipommini* [From a Runic Song to the Nuclear Bomb]. Opinion and Culture. Commentary.

Valdur Mikita (writer, semiotic). A5. B4. C1. D1. E1+2+4+5+12.

06.06.2011 (Jun.): *Saksamaa aatom* [Germany's Atom]. Opinion. Commentary.

Rene Tammist (Estonian Renewable Energy House CEO). A3. B5. C4+5. D1. E1+3+6+7+8+10.

15.06.2011 (Jun.): *Tuumajaama vastuseta küsimused* [The Unanswered Questions of a Nuclear Plant]. Opinion. Commentary.

Edgar Karofeld (Professor of Tartu University Institute of Ecology and Geography). A2. B5. C4+5. D1. E1+2+6+8+11.

05.07.2011 (Jul.): *Roheline lobi* [The Green Lobby]. Opinion. Commentary.

Mikk Salu (journalist). A4. B1. C1+5. D5. E3+6+7.

### **Eesti Päevaleht**

09.10.2011 (Oct.): *Tuumaenergeetika on eilne päev* [Nuclear Energetics was Yesterday]. Opinion, Commentary.

Daniel Cohn-Bendit (EU Green Party Chairman). A6. B5. C4+5. D3. E6+7+10.

15.02.2011 (Feb.): *Balti peaministrid lahendaksid euroala võlakriisi Ansipi mudeliga* [The Baltic Prime Ministers would solve the EU-wide Debt Crisis with Ansip's Model].

Estonia. Interview.

Raimo Poom (interviewer). A4.

Andrus Ansip (prime minister). A1. B1. C2+4. D4. E4.

Andrius Kubilius, Valdis Dombrovskis (Lithuanian and Latvian prime ministers). A6.

28.02.2011 (Feb.): *Üks, kaks, kolm – tuumajaam!?* [One, Two, Three – Nuclear Plant!?!]. Elections. Report.

Raimo Poom (journalist). A4. B3. D4. E11.

04.03.2011 (Mar.): *Keskkonnapoliitika: palju ilusaid mõtteid* [Environmental Politics: Many Beautiful Thoughts] Opinion. Interview.

Priit Simson, Villu Zirnask, Külli-Riin Tigasson (interviewers). A4.

Rein Ratas (MP Central Party). A1. B1. C4+5. D3. E2+6.

15.03.2011 (Mar.): *Elagu tuumajaam, maha tuumajaam* [Long Live the Nuclear Plant, Down with the Nuclear Plant]. Opinion. Commentary.

Rein Sikk (journalist). A4. B3. C1+5. D2. E1+2+11.

15.03.2011 (Mar.): *Küsitlus* [Inquiry]. Opinion. Interview.

EPL (questions). A4.

Juhan Parts (Minister of Economic Affairs, IRL). A1. B1. C2+4. D2. E1.

Kristen Michal (Chairman of Reform Party). A1. B1. C2+3+4. D4.

16.03.2011 (Mar.): *Jaapani katastroof, Eesti tuumaplaanid* [Japanese Catastrophe, Estonian Plant Plans]. Opinion. Editorial.

EPL. A4. B3. C1+4+5. D1+5. E1+2+3+6.

16.03.2011 (Mar.): *Inimene kui aatomiga relvastatud parasiit* [The Human as the Nuclear Armed Parasite]. Opinion. Commentary.

Heiki Suurkask (journalist). A4. B5. C1+4+5. D2. E1+12.

17.03.2011 (Mar.): *Tuumaajastu on läbi saamas* [The Nuclear Era has passed]. Opinion. Commentary.

Kristel Vilbaste (journalist). A4. B5. C4+5. D1. E1+6+8.

Referenced by Salu (PM 30.03.2011) and Raukas (EPL 21.03.2011).

17.03.2011 (Mar.): *Paanikat pole vaja* [No Need to Panic]. Opinion. Commentary.

Kalev Timberg (Head of Estonian Rescue Board). A2. B2. C2+4. D1. E1+2+11.



17.03.2011 (Mar.): *Tuumajaamade ajastu murdepunkt – kes neid suudaks peatada?* [The Era of Nuclear Plants at a Turning Point – Who would be able to stop them?]. Estonia. Report.

Heiki Suurkask (journalist). A4. B2. C4+5. D1. E1+2.

18.03.2011 (Mar.): *Koalitsiooni tuumajaam* [The Coalition's Nuclear Plant]. Opinion. Reader's letter.

Lembit Hiiop. A5. B1. C4. D4. E9.

18.03.2011 (Mar.): *Eesti Energia mõtleb liiga palju suurele äri* [Eesti Energia thinks about too many big projects]. Opinion. Commentary.

Anto Raukas (Oil Shale editor). A3. B1. C4+5. D4. E6+8.

21.03.2011 (Mar.): *Info peab olema tõene* [Information should be veritable]. Opinion. Repercussion.

Anto Raukas (geologist). A2. B2. C4. D2. E1.

Reference to Vilbaste (EPL 17.03.2011).

23.03.2011 (Mar.): *Tuumajaam või tuumajama?* [Nuclear Plant or Nuclear Mess?]. Opinion. Commentary.

Tiit Kändler (science journalist). A4. B5. C1+2+4. D1+4. E1+6+8.

Mentions Anto Raukas. Commented on by Raukas, Jakobson, Illend (EPL 24.03.2011).

24.03.2011 (Mar.): *Keegi pole eksimatu* [No One is Infallible]. Opinion. Editorial.

EPL. A4. B4. C1. D1. E1.

Reference to Lippmaa & Raukas (PM 21.03.2011). Mentions Kalev Kallemets (Head of Estonian Nuclear Powerplant Organization).

24.03.2011 (Mar.): *Vastukaja* [Repercussion]. Opinion. Repercussion.

Anto Raukas. A5. B1. C2+4. D4. E6.

Lembit Jakobson. A5. B4. C1. D1.

Jaanus-Juhan Illend. A5. B4. C5. D3. E7+8.

Comments on Kändler (EPL 23.03.2011).

25.03.2011 (Mar.): *Kristen Michal: Kiidan eestlaste rahulikkust* [Kristen Michal: I applaud the Estonians' Calmness]. Opinion. Interview-Küllli-Riin Tigasson (interviewer). A4.

Kristen Michal (chairman of the Reform Party). A1. B2. C4. D4. E1.

30.03.2011 (Mar.): *Mõeldes mõeldamatut* [Thinking of the Unthinkable]. Opinion. Editorial.

EPL. A4. B3. C1. D1. E1+2+11.

01.04.2011 (Apr.): *Tuumajaam pole lahendus* [Nuclear plant without Solution]. Opinion. Commentary.

Andres Annuk (Estonian University of Life Sciences Department of Energetic Director). A2. B5. C2+4. D1+4. E4.

04.04.2011 (Apr.): *Rohepapid ja tuumaenergia* [Green Priests and Nuclear Energy]. Opinion. Commentary.

Kadri Kõusaar (writer). A5. B2. C1+5. D2. E1+2+6+8.

Referenced by Arro (EPL 06.04.2011).

06.04.2011 (Apr.): *Tuumajaam – surmaotsus Eestile* [Nuclear Plant –Estonia's Death Sentence]. Opinion. Repercussion.

Erik Arro. A5. B5. C1. D1. E2+6

Reference to Kõusaar's article (EPL 04.04.2011).

Commented on by Hiiop (EPL 07.04.2011).

07.04.2011 (Apr.): *Tuumaelektrit on vaja* [Nuclear Electricity is Important]. Opinion. Reader's letter.

Lembit Hiiop. A5. B1. C4. D5.

Comments on Arro (EPL 06.04.2011).

08.04.2011 (Apr.): *Tuumajaama asemele tuulejaamad* [Wind Plants instead of a Nuclear Plant]. Opinion. Reader's letter.

Vello Külvet (Tallinn). A5. B5. C4+5. D1. E6.

13.04.2011 (Apr.): *Tuumavägi ja turvaline ühiskond* [Nuclear Power and the Secure Society]. Opinion. Commentary.

Tiit Kändler (journalist) A4. B4. C4. D4. E5.

Commented on by Hiiop (EPL 14.04.2011)

14.04.2011 (Apr.): *Tuumavastaste pooltõed* [Anti-Nuclear Half-Truths]. Opinion. Reader's letter.

Lembit Hiiop. A5. B2. C2. D5. E6+7.

Comments on Kändler (EPL 13.04.2011)

## **Äripäev**

03.02.2011 (Feb.): *Valed küsimused tekitavad valesid vastuseid* [Wrong Questions lead to Wrong Answers]. Column. Commentary.

Andres Tropp (Eesti Energia Department of Nuclear Energetics CEO). A3. B2. C4. D5. E9+11.

03.02.2011 (Feb.): *Eesti rahvuslik väljakutse: Tuumajaam 2022* [Estonia's National Challenge: A Nuclear Power Plant in 2022]. Opinion. Commentary.

Kalev Kall mets (head of NGO Eesti Tuumajaam, Reform Party member). A3. B1. C3+4. D2. E8+10.

15.03.2011 Juhtkiri (Mar.): *Kas tuumaenergiale on üldse alternatiivi?* [Editorial: Is there any Alternative to Nuclear Energy?]. Opinion. Editorial.

ÄP. A4. B1. C2+4. D4. E1+6.

15.03.2011 (Mar.): *Tähelepanekuid tuumaenergeetikast* [Observations on Nuclear Energetics]. Opinion. Commentary.

Marek Strandberg (Green Party). A3. B4. C3+5. D1. E1.

23.03.2011 (Mar.): *Jaapani õnnetust Eestis juhtuda ei saaks* [The Japanese Disaster could not happen in Estonia]. News. Report/Interview.

Kadri Bank (journalist). A4.

Kaspar Kõöp (Swedish Royal Technical University). A6. B2. C2+3+4. D2 safety. E1+4.

24.03.2011 (Mar.): *Tuumapropagandale kindel EI!* [Definite NO to Nuclear Propaganda]. Opinion. Repercussion.

Villy Paimets. A4. B1. C2. D5.

Reference to Kalev Kallemets (DELFI portal).

29.03.2011 (Mar.): *Eestil poleks tark kedagi enda vaenlaseks nimetada* [Estonia does not have Anyone Wise to Call Out the Enemy Within]. Opinion. Inquiry/Debate.

Mart Laar (chairman of IRL). A1. B3. D2.

06.04.2011 (Apr.): *On selge, et Eesti vajab elektrienergiat* [It is clear that Estonia needs Electrical Power]. Opinion. Inquiry/Debate.

Taavi Veskimägi (Elering head-CEO). A3. B1. C2+4. D4. E4+5+11.

20.04.2011 (Apr.): *Üks küsimus: Kas Estisse tuleks ehitada tuumajaam?* [One Question: Is it necessary to build a Nuclear Plant in Estonia]. Edition. Inquiry.

Ain Alvela (journalist). A4.

Nikolai Rogatõh (Remko Grupp CEO). A3. B5. C4. D3. E6+7.

Oleg Ossinovski (Spacecom Tran board member). A3. B2. C4. D3. E6+8.

Stepan Zubkevitsš (Zubr head-CEO). A3. B1. C2. D2. E1.

Aleksandr Polutšen (Kodumaa owner). A3. B5, C5, D1, E1+2+8.

Jevgeni Selnihhin (Termoprint owner). A3. B4. C4. D2. E6+8.

25.05.2011 (May): *Tuumajaama arendamises puudub esialgu eesmärgikindlus* [In the Development of a Nuclear Plant there is presently no Strength of Purpose]. Edition. Report/Interview.

Ain Alvela (journalist). A4.

Andres Tropp (Eesti Energia Department of Nuclear Energetics CEO). A3. B2. C4. D2. E1+3+4+5+6+10.

## **Õhtuleht**

24.01.2011 (Jan.): *Kas Eestile ikka on tulevikus vaja mitut elektriijaama korraga?* [Does Estonia need more Electrical Plants in Future?]. Estonia. Report/Interview.

Urmas Vahe (journalist). A4. B1. C2+3+4. D5. E8+10.

Anto Raukas (academic). A2. B1. C2. D5. E4+8+10.

12.03.2011 (Mar.): *“Palju tööd jäi veel tegemata!”* [“Much Work is still not done!”]. Opinion. Commentary.

Marek Strandberg (Green Party). A3. B4. E6.

14.03.2011 (Mar.): *Tuumajaam versus tuumajama* [Nuclear Plant versus Nuclear Mess]. Opinion. Editorial.

ÕL. A4. B4. C2. D1. E1+2.

14.03.2011 (Mar.): *Ikka veel Eestisse tuumajaama vaja?* [Is a Nuclear Plant in Estonia still needed?]. Opinion. Blog/Commentary.

Marek Strandberg. A5. B4. C1+2. D1. E1+11.

15.03.2011 (Mar.): *Tuumaenergeetika koalitsioonikõnelustel* [Nuclear Energetics in Coalition Talks]. News. Report/Interview.

Teet Malsroos (journalist). A4.

Juhan Parts (Minister of Economic Affairs). A1. B1. D3. E1+4+5.

15.03.2011 (Mar.): *Tuumajaam on Eestile ohtlik* [A Nuclear Plant is dangerous for Estonia]. Opinion. Commentary.

Lauri Birkan (journalist). A4. B4. C2+4+5. D1. E1+2+11.

06.04.2011 (Apr.): *Naistrummariga poistebänd alustab* [The Boy Band begins with a Female Drum]. Opinion. Editorial.

ÕL. A4. B3. C1.

04.05.2011 (May): *Koalitsioonilepinguid tehakse nende rikkumiseks* [The Coalition Agreement is a Violation]. Opinion. Commentary.

Arved Breidaks (journalist). A4. B3. C3. D2. E1.

16.06.2011 (Jun.): *Elektri hinnatõusu vääramatü jõud* [The Electricity Price is a Force Majeure]. Opinion. Editorial.

ÕL. A4. B3. C1+4. D4. E6+10.

## **Eesti Ekspress**

16.03.2011 (Mar.): *Ylös/Alas* [In/Out]. Opinion.

EE. A4. B5. C2. D1.

## **Maaleht**

17.03.2011 (Mar.): *Eestisse ehitatav tuumareaktor peaks iseseisvalt vastu 72 tundi* [A Nuclear Reactor built in Estonia could endure 72 hours independently]. Opinion. Interview.

Alo Lõhmus (interviewer). A4, B2. C2. D2. E1. (Estonia is only mentioned in introduction)

Henri Ormus (Nuclear energetic). A2.

## APPENDIX B. List of Articles Used in Qualitative Discourse Analysis

*(chronological order)*

Vahe, Urmas (24.01.2011): *Kas Eestile ikka on tulevikus vaja mitut elektriijaama korraga?* [Does Estonia need more Electrical Plants in Future?]. ÕL (Report of Anto Raukas)

Vilbaste, Kristel (17.03.2011): *Tuumaajastu on läbi saamas* [The Nuclear Era has passed]. EPL

Raukas, Anto (18.03.2011): *Eesti Energia mõtleb liiga palju suurele äri* [Eesti Energia thinks about too many big projects]. EPL

Raukas, Anto (21.03.2011): *Info peab olema tõene* [Information should be veritable]. EPL

Lippmaa, Endel and Raukas, Anto (21.03.2011): *Akadeemikud: Nüüdistuumajaamad on ohutud* [Academics: Today's Nuclear Plants are Safe]. PM.

Kändler, Tiit (23.03.2011): *Tuumajaam või tuumajama?* [Nuclear Plant or Nuclear Mess?]. EPL

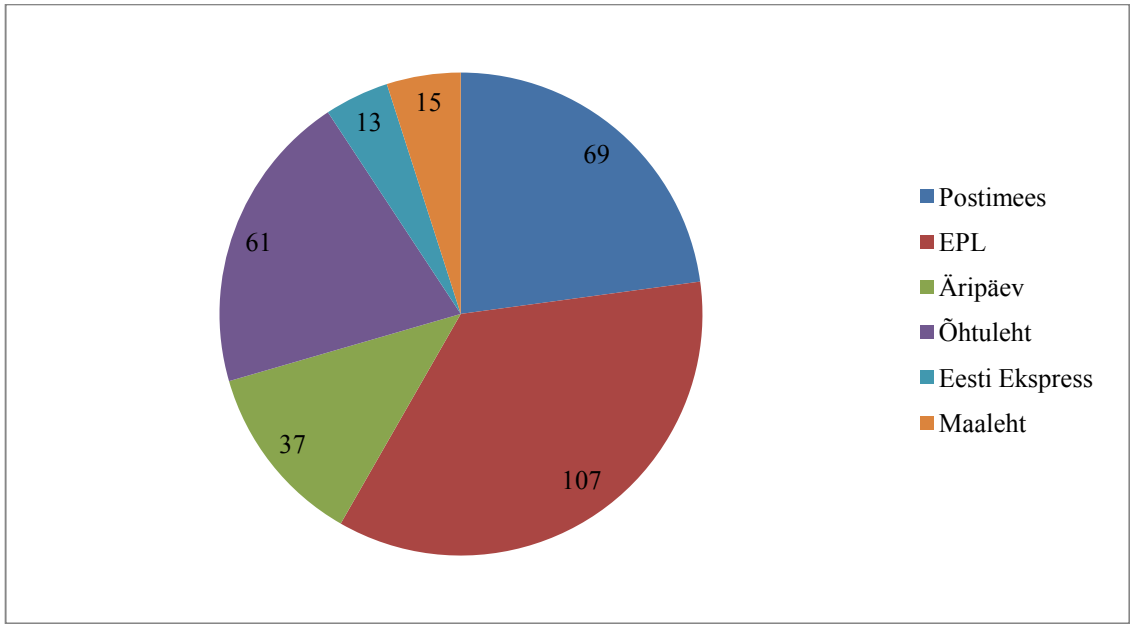
Raukas, Anto (24.03.2011): *Vastukaja* [Repercussion]. EPL

Tigasson Külli-Riin (25.03.2011): *Kristen Michal: Kiidan eestlaste rahulikkust* [Kristen Michal: I applaud the Estonians' Calmness]. EPL (Interview with Kristen Michal)

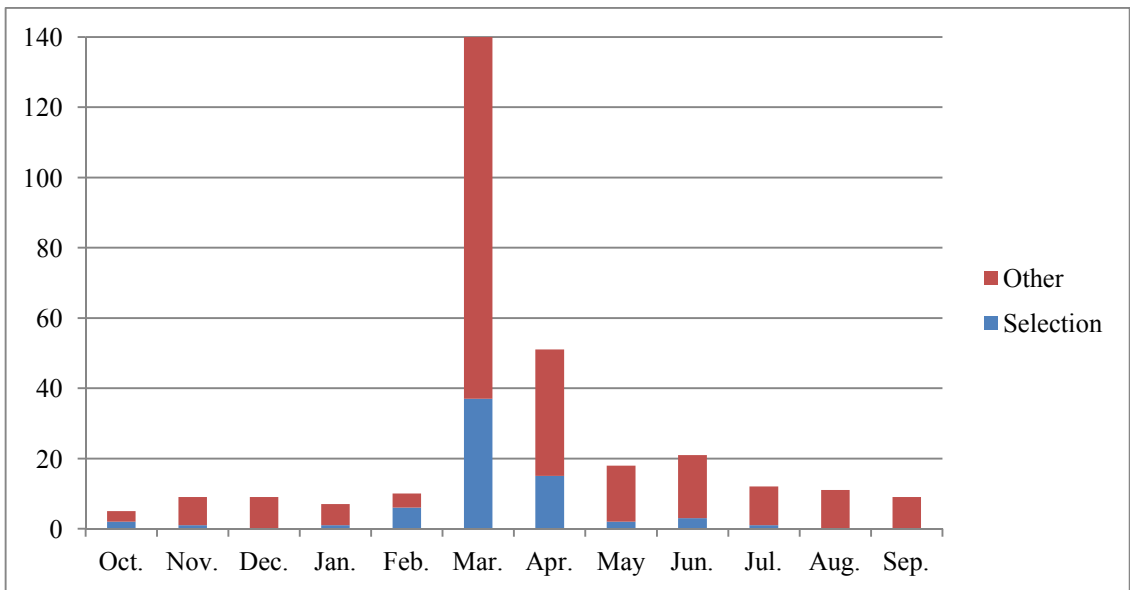
Lobjakas, Ahto (26.03.2011): *Nagu sea selga sadul* [Like the Saddle on a Pig's Back]. PM

Kõusaar, Kadri (04.04.2011): *Rohepapid ja tuumaenergia* [Green Priests and Nuclear Energy]. EPL

**APPENDIX C. Additional Illustrations**



Appendix Figure 1: Distribution of articles with at least one keyword by newspapers

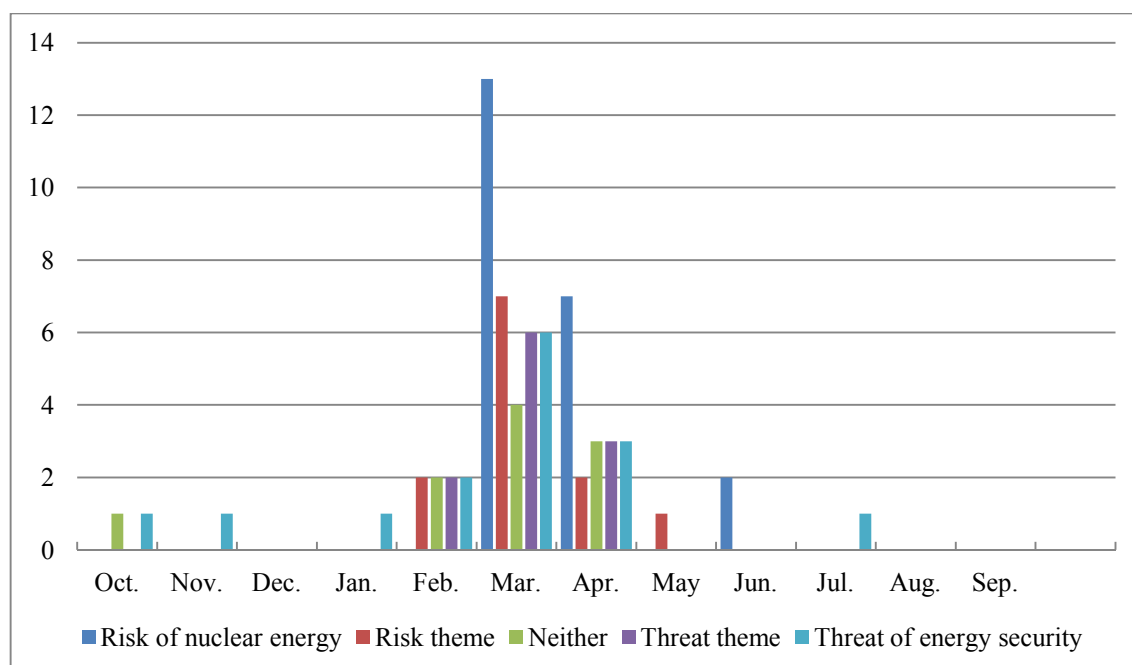


Appendix Figure 2: Distribution of articles with at least one keyword by months with selected articles highlighted



	Postimees	EPL	Äripäev	Õhtuleht	Ekspress	Maaleht	Total
Oct.	1	2	1	1			5
Nov.	2	2	1	2	2		9
Dec.	2	5		2			9
Jan.		3	1	2		1	7
Feb.	2	3	2	1		2	10
Mar.	32	56	16	27	5	4	140
Apr.	12	17	7	8	3	4	51
May	2	4	3	7	2		18
Jun.	8	4	3	4	1	1	21
Jul.	2	6	1	1		2	12
Aug.	2	4	1	3		1	11
Sep.	4	1	1	3			9
Total	69	107	37	61	13	15	302

Appendix Table 2: Distribution of articles with at least one keyword by months and newspapers



Appendix Figure 3: Distribution of appeals by months