Department of Management Studies

Political foreplay for nuclear new build

Defining good at the intersection of politics, economy and technology

Maarit Laihonen

Aalto University

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Maarit Laihonen

Aalto University
School of Business
Department of Management Studies

Main dissertation advisor
Professor Janne Tienari, Aalto University School of Business, Finland

Opponent
Professor Peter Fleming, Cass Business School, City University of London, United Kingdom

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Maarit Laihonen

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Abstract

This thesis examines the relationship of economy and society – politics whereby facts, ideologies and current ethical challenges are encountered – by investigating how the societal good is defined in political processes. I study the question in the context of the politics of nuclear energy by analysing the discursive production of the hegemonic definition of overall good, the procedural production of continuity of large-scale projects, and the wider societal effects of such processes.

Contrary to many other industries, the nuclear power industry operates in an exceptionally regulatory environment and nuclear energy investments are heavily dependent on state support in a variety of ways. As a consequence, the nuclear industry requires wider societal acceptance, rationalization and legitimation.

I build my analysis on the theoretical literature, which discusses the increasing economization of society and governance. My empirical work focuses on the political process of deciding on large-scale energy solutions in Finland, namely two new nuclear reactor units. The empirical analysis concentrates on the debate in Finland before, during, and after the decision of those nuclear new builds. The data was collected from 2007 to 2014 and includes policy documents, company documents, public discussions in the media, participant observation, and interviews. The analysis employs a discursive approach that focuses on how the process itself took its simultaneously sustaining and renewing form over the years, in terms of societally and morally appealing argumentation for legitimation, despite the organizationally and contextually changing circumstances.

This study contributes to the understanding of relationships of economic activity and politics in the context of highly regulated and otherwise peculiar industries that still hold a crucial role in society. I argue that political decision-making, following the ethically ambitious legislation and governance, is leaning on an ideological background that partly clashes with the diversity of stakeholder interests, by not sufficiently taking all the interests into account in defining the overall good.

Furthermore, I claim that the neoliberalized ideology and economized logic of politics are not only taking over but are also absorbing welfarist values in order to legitimize controversial decisions. Although nuclear power is an exceptional case in many ways, this analysis reveals many broader issues of the blurring boundaries of economy and society at a time of neoliberal ideology and politics, and the normative logic behind decision-making. The study also presents a novel understanding on the changing positioning of nuclear energy in contemporary society.

Keywords Economization, economy, neoliberalism, nuclear power, politics, society, welfarism

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Tutkimusala Organisaatiot ja johtaminen

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Tiivistelmä

Tutkimus tarkastelee talouden ja yhteiskunnan suhdetta – politiikkaa, jossa faktat, ideologiat ja nykyhetkeä koskettavat eettiset haasteet kohtaavat – tutkimalla, miten yhteiskunnallinen hyvä määrittyy poliittisissa prosesseissa. Tutkimuksen kohteena on ydinvoimapolitiikka ja analyysikehikkona hegemonisen hyvän käsityksen diskursiivinen luominen – prosessit, joissa suuren mittaluokan projektien jatkuvuus ja niiden yhteiskunnalliset vaikutukset legitimoidaan.

Ydinvoimateollisuus toimii poikkeuksellisessa regulaatioympäristössä ja ydinvoimainvestoinnit ovat monilla tavoin riippuvaisia valtiollisesta tuesta. Näin ollen ydinvoimateollisuus tarvitsee myös laajempaa yhteiskunnallista hyväksyntää, rationalisointia ja oikeutusta tuekseen.

Tutkielma hyödyntää kirjallisuutta, jossa on käsitelty yhteiskunnan ja hallinnon kasvavaa taloudellistumista. Empiirinen osio keskittyy laajan mittakaavan energiapoliittisiin päätöksiin, uusien ydinvoimaloiden poliittiseen päätöksentekoprosessiin. Tarkastelen vuosilta 2007–2014 keräämääni aineistoa, joka sisältää päätöksentekodokumentteja, yritysten omaa julkista aineistoa, mediassa käytyä julkista keskustelua, osallistuvaa havainnointia ja haastatteluja. Analyysi keskittyy siihen, kuinka prosessissa säilytettiin ja uusinnettiin diskursiivisesti ydinvoiman yhteiskunnallista asemaa organisatoristen ja kontekstuaalisten materiaalisten lähtökohtien muuttuessa.

Tutkimus edistää ymmärrystä taloudellisen toiminnan ja politiikan rajapinnoista erityisesti voimakkaasti säännellyn, muutoin erityislaatuisen ja yhteiskunnalle keskeiseksi nähdyn teollisuudenalan kontekstissa. Tulokset osoittavat, että poliittinen päätöksenteko, joka näennäisesti seuraa kunnianhimoista sääntelyä nojaa kuitenkin ideologisiin taustoihin, jotka osittain törmäävät sidosryhmien kokemusten ja näkemysten kanssa. Yhteiskunnallisen hyvän määrittelyssä ei siis pystytä ottamaan huomioon hyvän monimuotoisuutta.

Väitän myös, että uusliberalisoitunut ideologia ja politiikan taloudellistunut logiikka eivät vain kasvata sijaansa vaan sulauttavat itseensä hyvinvointiajatteluun perinteisesti liitettyjä arvoja, joita hyödynnetään ristiriitaisten päätösten yhteiskunnallisessa julkisessa oikeuttamisessa. Vaikka ydinvoima onkin ainutlaatuinen tutkimuskohde, tässä työssä tehty analyysi osoittaa talouden ja yhteiskunnan häilyviä rajoja politiikassa, ja erityisesti sen taustalla vaikuttavan normatiivisen logiikan päätöksentekoprosesseissa. Tutkimus luo myös uutta tietoa ydinvoiman muuttuvasta ja samalla pysyvästä asemasta nyky-yhteiskunnassa.

Avainsanat Hyvinvointivaltiopolitiikka, politiikka, taloudellistuminen/ekonomisaatio, talous, uusliberalismi, ydinvoima, yhteiskunta

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This thesis is dedicated to revolution.

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The most important comes in the end, of course. My mother, Milla, the most admirable courageous lady in the world, you taught me the value of life and how important it is to aim to help the innocent and fight for the right. I hope one day my work will be at least half as important as yours has been. Finally, father, although you had to leave us before you could see this work, I hope somewhere there you can see that your legacy of endlessly defending justice can be seen in these pages.

Helsinki, November 2016

Peace & love!

Maarit Laihonen

Contents

List of abbreviations and central organizations mentioned in the thesis

AREVA	French multinational group specializing in nuclear and renewable energy and the world's biggest nuclear company. http://www.areva.com/
DiP	Decision-in-Principle (in Finnish: periaatepäätös, PAP). Government decision on permitting new nuclear unit, and which the Parliament ratifies in voting.
EIA	Environmental impact assessment (in Finnish: ympäristövaikutusten arviointi, YVA). A formal process aiming to forecast the environmental impacts of, for example, a project. It is not only meant for nuclear projects but in general for large-scale projects such as motorways or production facilities.
EURATOM	European Atomic Energy Community. http://www.euratom.org
Fennovoima	(Fennovoima Oy) Finnish nuclear power company, founded in 2007. http://www.fennovoima.fi/en
Fortum	Finnish energy company that owns the Loviisa nuclear power plant of two units and operates also in other areas of energy production. Fortum also owns 26.6 per cent of TVO. Fortum is 50.8 per cent state owned. http://www.fortum.com/en/
IAEA	International Atomic Energy Agency. Organization for international cooperation in the nuclear field. Founded in 1957 as the world's 'Atoms for Peace' organization within the United Nations. http://www.iaea.org/
MEE	Ministry of Employment and the Economy (in Finnish: Työ- ja elinkeinoministeriö, TEM). Coordinating authority of the nuclear new build processes. https://www.tem.fi/front_page
NEA	Nuclear Energy Agency. OECD specialized agency and forum for cooperation and sharing information on nuclear related issues. http://www.oecd-nea.org/
NNB	Nuclear new build
NPP	Nuclear power plant
OECD	Organisation for Economic Co-operation and Development is an intergovernmental forum for promoting economic and social wellbeing. http://www.oecd.org/
Olkiluoto 3 (OL3)	Third reactor at TVO Olkiluoto nuclear power plant. The construction started in 2005 and the current estimation of completion is between 2016 and 2020 (when it is connected to the grid and commercial electricity generation is started) after the project has faced severe problems. The turn-key supplier is Areva (for the reactor) and Siemens is constructing just the turbine hall (after giving up its share of Areva in 2009). http://www.tvo.fi/OL3_3

OL4	Fourth reactor at TVO Olkiluoto nuclear power plant. Another one of the reactors receiving the DiP in 2010.
Rosatom	A Russian state-owned corporation specialized in nuclear related businesses. Rosatom is the follow-up of the Russian Ministry of atomic energy (formerly Soviet Union Ministry of atomic industry) and was altered to a business corporation in 2007. Rosatom consists of a variety of different business areas through its subsidiaries from building and running NPPs to recycling nuclear waste, producing nuclear weapons, and to offering education in the field. For example, the supplier of the Fennovoima plant is Rusatom Overseas but for the sake of simplicity, I refer generally to Rosatom and not to its subsidiaries. The predecessor of Rosatom, or better, part of the predecessor Atomenergoexport was the supplier of Loviisa 1 and 2 in the 1970s. http://www.rosatom.ru/en/
STUK	Säteilyturvakeskus. Finnish Radiation and Nuclear Safety Authority that belongs under the administration of the Ministry of Social Affairs and Health. Among other tasks, STUK regulates the use of nuclear energy from the radiation safety perspective. http://www.stuk.fi/en_GB/
TVO	Teollisuuden Voima Oyj. Finnish nuclear power company that owns the two units of the Olkiluoto nuclear power plant. http://www.tvo.fi/Home
VTT	Valtion teknillinen tutkimuskeskus. Technical Research Centre of Finland. Multitechnological applied research organization. Offers research reports concerning NNB projects to decision makers via MEE. http://www.vtt.fi/?lang=en

1. Introduction

The changing political sphere and changing governance due to a globalizing economy and globalized environmental and social problems have been an intrigue for various academic debates. Globalization and the changes in roles of nation-states, businesses, and civil society have changed the way governance and politics of a variety of crucial issues take place these days and subsequently, how they can be understood from an analytical perspective. Environmental destruction, climate change and growing global and national inequalities have become major issues in politics together with economic growth. However, how crucial these issues are understood to be and the opinions on how they should be taken care of, differ crucially (Kenis & Lievens 2014; also Newell 2008). Globalization has pushed politics and economy closer together. This change has been seen as a wider ideological change that has been claimed also to spread to the national level and to national decision making. The development has led to a stronger valuation of the economic side of a variety of issues (Bruff 2014; Ahlqvist & Moisio 2013; Teivainen 2002). In political science such a development, and its various dimensions, carries the name neoliberalization (Gilbert 2014).

From the perspective of regulating and governing economically organized, societally crucial activities, this development has led to growing de-regulation and liberalization, and finally to internalized ideological economization of political decision-making. However, the negative externalities and growing need for international collaboration to solve them, has not only opened a window but also created pressure for new forms of governance – either in collaboration with actors or privately led (e.g. Levy 2011; Falkner 2003). The literature both in organization studies, mainly in the broad field of corporate social responsibility, and in political science, especially in environmental politics and international relations, has addressed these phenomena. The main focus has been new forms of governance and its effectiveness in tackling the challenges and how governance structures are organized (Rhodes 1996; Treib et al. 2007; Barley 2010; Midttun 2005). Relatively little attention has been paid to traditional forms of governance (i.e. state-led administrative and political processes, and use and development of legislation) and the internal ideological change within them in terms of specific questions in policy making. This thesis concerns these traditional modes of governance, which also face changes due to both wider developments in the background ideologies of major representatives (political decision makers and their crucial interest groups such as corporations and other economic actors,

non-governmental organizations and the wider public) and also beliefs and how these shape concrete administrative actions and wider political decision making.

This thesis discusses the complex role of the economization of politics in controversial but societally crucial operations. I look at this relationship through a case that permeates the whole study – decision making on nuclear new builds in Finland from 2007 until 2014. The nuclear power case has a variety of interesting characteristics in terms of its political nature: nuclear power has a long history as a much debated topic, both in societal and political terms, globally; its technological nature is special due to the risks related to nuclear energy production; furthermore, as a concrete large scale industrial solution for energy production it also has a relatively long-term building timescale and thus, before a plant is at an operational stage, it has a long repayment period in fluctuating energy markets. The radioactive waste from the used fuel, normally uranium, is yet another issue and principally has made nuclear power a controversial topic in societal arenas of democratic decision making nationally and locally, in public debate, and in academia, especially in the fields of environmental ethics and social studies of science. However, modern society does not run without energy and emissions-free production is crucial in times of worsening climate change, and thus I take an approach of how such necessities are discursively framed in political debates in a current sphere of economic necessity. The case is an example of *a societal process whereby a large-scale decision becomes a battlefield of interests and appealing argumentation while the national and international political and material frameworks of the decision change crucially over the years but the original* status quo *does not change accordingly.*

Through studying this one specific case, which links to a variety of current problematic questions such as climate change and energy policy, and a wider economically efficient, reliable and responsible energy system, this thesis contributes to the understanding of the tortuousness of economic, technical and finally moral dimensions in just politics and policymaking and the ideological change of the Finnish political sphere. The case illustrates *how neoliberalizing welfarism renews the belief in nuclear power as an economically and technologically rational choice as a large-scale societal investment, and finally how the ideological background beliefs maintain the political* status quo.

This introductory part presents the background and goals of the research, methodological choices, and structure of the thesis.

1.1. Background

1.1.1. Neoliberalizing and economizing politics

Neoliberalism is a concept used for specific developments in governance. It is used especially in the context of describing the drawbacks of the state and the shifting of power both vertically and horizontally – to business corporations,

non-governmental organizations and other organizations that take or do not take responsibility in governing activities formerly governed by states (Gilbert 2014; Patomäki 2009; for Nordic context, see Ahlqvist & Moisio 2013; see also Springer 2014). It also describes the ideological content that refers to beliefs and leans on the goodness of such policy developments. The critique of such developments is often referred to as the problematic nature of neoliberalism in terms of democracy (Dahl & Soss 2014; Aho & Laihonen 2015). Where governance itself is not governed, the power of governing tends to dribble to those with power – often economic power (cf. Bruff 2014). Another related concept is economization, which describes a change in politics – namely the economization of politics (see Brohman 1995; Teivainen 2002). I use both of these concepts as I see them as being intensely related but I also acknowledge the partly problematic nature of the concept of neoliberalism and neoliberalization (e.g. Venugopal 2015). However, concepts of neoliberalism and economism capture something essential on the values behind a certain kind of policy making and its justification. We could speak about *the 'economistic logic of neoliberalism'* (Dahl & Soss 2014: 496) and in this work they go hand in hand: neoliberalism and neoliberalization refer to the overall ideological and institutional change, and economistic logic and economization of politics to the more specific rhetorical rationalization of taken actions.

Neoliberalism as a political 'dogma' is approached here as a general background ideology instead of aiming to pinpoint specific smaller policy choices (e.g. Larner 2000). The main focus is on wider ideological change and concrete actions that take forward certain developments, which of course include a variety of those smaller and important policy choices. The concept of ideology here refers to certain values and assumptions central both in actions and in the rhetorical choices in public framing. Although policy making is often claimed to be rational (by those holding the power to make final societal decisions), the definition is often narrow in terms of *how rational itself is defined* or *how and what background information was used* for the 'rational' decision. In this study, the specific type of economic and financial 'rationality' becomes central. The consequence of this is that policymaking is often following some kind of vague utilitarian legitimation in order to defend its rationality, and those views against such policy choices become presented as irrational. Such division hides the complex web of motives, information misflows, and finally even unrelated political interests that push decision makers towards a certain decision in a particular issue. Gilbert (2014: 8) recaps on the broader issue of the phenomenon called neoliberalism: '[…] the status of neoliberalism as an aggregation of ideas, a discursive formation, an over-arching ideology, a governmental programme, the manifestation of a set of interests, a hegemonic project, an assemblage of techniques and technologies, and what Deleuze and Guattari call an "abstract machine".' This description includes many concepts used in this thesis and which appear in all the literature discussed below.

General acceptance of the development of neoliberalism can be linked to the post-war period and in particular the 1970s' onward development of governance

in which societal interests fell behind in the belief of the market system, which was believed to better in taking care of social issues in societies (Larner 2000). The problem arises from both perspectives – from a societal one and from economic activity: on one hand, in what kind of activities should a private actor (e.g. a business company) engage in order to maintain its legitimacy (philanthropy, voluntary activities for compensation, e.g. environmental damage, etc.), and on the other how much power should a state give to private actors for social issues (privatizing healthcare, education, etc.) and, in particular, to ideologies and the driving forces behind them. In this study, the more explicit context is the Nordic welfarist tradition whereby social good has been strongly supported through direct state actions towards welfare (e.g. Bowles & Gintis 2000). Historically, these two ideologies have represented distant political ideologies with little to share in policy making and its legitimation. But in recent debates we have seen, for example, formerly more clearly leftist parties assimilating leading values of competitiveness and efficiency.

Recent literature on this complexity has concentrated especially on the fields of business activities that lack regulation, and on problems that are an ethical concern in ongoing business activity. Economic globalization has posed a challenge to traditional nation-state based regulation of economic activities and especially to their negative externalities. It has been suggested that civil society pressure has pushed the corporate world to create different kinds of (global) self-regulatory systems, so-called soft-law (Scherer & Palazzo 2011). At the same time, this development has been claimed to undermine democratic governance and its possibilities to protect society from negative effects of business activities. According to this view corporate-driven governance in the end still serves only limited interests of corporations and stakeholders – i.e. private economic interests (Banerjee 2008). Nuclear power makes a partial exception to this, in being state dependent in different ways as discussed later, in addition to some other highly contested technologies that face growing governance, such as genetically manipulated organisms (GMOs) and some other biotechnologies (e.g. Rosendal 2005), although, this makes a case for an economy-society relationship. The industry has always faced a lot of regulation and its challenges are also related to long-term or even pan-generational problems (i.e. it of course faces similar challenges of land use and material mining as other industries do, but the possible risk of problematic situations is relatively unique and poses unique ethical questions of current legitimacy, e.g. in terms of the nuclear waste question). At the same time the economy is highly dependent on reliable energy production.

In this thesis the politics of nuclear power is studied in the context of such political developments described above and discussed in the literature. The case illustrates a societal question whereby different dimensions of societal values are bound together – and not always in a trouble-free way. Social welfare, economic welfare, their significance and the solutions on how to fulfil them divide opinions and, finally, overall politics. Nuclear power has been offered as a solution to

energy security, a tool with which to fight climate challenge, and a path towards an affordable energy source for industry. At the same time a variety of uncertainties concerning all these possibilities abounds. The question proceeds to: whose interests are eventually served by such a wide-scale question and on what basis? Thus, instead of focusing on the lacking regulation and administration, which are at the centre of a corporate-centric debate that identifies, among other issues, ideological changes in the sphere of economy and politics (discussed below in the literature section), I look at a case where regulation exists but practice demonstrates similar developments of the ideological effects.

1.1.2. Framing the nuclear case

Decisions on nuclear energy – as any energy form – are often framed as environmental decision-making, which is natural as energy questions are considered to be global, and are among the most crucial issues in the battle against climate change. Nuclear power as a form of energy production saw a new increase in the beginning of the 2000s, after many years of a low-profile, and a similarly raised interest in the variety of interest groups (Schneider et al. 2013: 19; see also Sunell 2004). The relatively low CO2 emissions in production, high capacity, and subsequent to initial investment, the low price made nuclear power a tempting option to be considered as a form of low-carbon energy production1. But at the same time nuclear power could not rid itself of its old ghosts: possible disastrous accidents at sites, non-existent concrete final repository solutions for nuclear waste, and radiation (from waste and closed sites) that lasts for generations. In Finland, the new decision processes in the 2000s, Olkiluoto 3 in 2002 and the two other decisions in 2010 at the centre of this study (I will not discuss the nuclear waste repository Onkalo decision studied widely elsewhere, e.g. in Kojo 2014) also brought new challenges. Consensus of whether the decisions actually served 'the overall good of the society', as framed in the law, was not found during the eight years that this study concerns. Views of many changed due to the contextual factors around the decisions. From the outset, the opposition felt that energy use estimates were overrated, the situation of Finnish industry's need for energy was falsely described, and key politicians were more interested in their own parties' interests than in evaluating the whole picture (cf. Nyyssönen 2013; Kojo 2004). Many other events, related and unrelated to nuclear power, took place thus shaping the conceptions of these specific projects. As the events during the studied time frame showed, the facets of nuclear power are manifold, far beyond being mere scientific or technical issues.

Societally, nuclear power can be framed in many ways. In a time of climate change and ever-growing unsustainable use of natural resources, the search for

1. Many of those non-technical arguments have been contested especially in the US by some nuclear power analysts but the focus in this thesis is not to touch upon them as such (see e.g. Cooper, Mark (2014). Why The Economics Don't Favor Nuclear Power In America. Forbes 20 February 2014. Available: http://www.forbes.com/sites/energysource/2014/02/20/why-the-economics-dont-favor-nuclear-power-in-america/).

sustainable energy solutions is among the most important frames (e.g. Dietz & O'Neill 2013: 17). In that discussion, nuclear power is an option, often as partial solution, among others in an uncertain game for safeguarding our livelihoods. There the pros and cons of different energy solutions in different scales are calculated, evaluated and debated in different forums from local levels to national politics and as far reaching as to international negotiations, such as those of United Nations Climate Change Conferences and Conferences on Sustainable Development.

Related to the notion of different aspects of energy solutions, nuclear power can also be framed through our understanding and capability of timescales that exceed our everyday ability to reflect on time in an everyday sense. The reached natural radioactivity level of high-level nuclear waste is counted in thousands of years and although some recycling is done, it is not (yet) a large-scale solution (for some general information on the half-life of uranium, see IAEA 2003). Thus, this and many future generations will most likely live with the nuclear waste produced both prior and currently. This particular feature has generated a lot of discussion on our responsibility to future generations – what kind of possibly harmful material legacy can we leave, and how are they safeguarded from the radioactivity of waste when we are no longer here to oversee. This aspect of nuclear power is both material and immaterial in terms that it also concerns our abstract ability to see our moral responsibility for our own material experience of the world.

One popular framing and topic of discussion in political science especially is the (international) politics of nuclear power. Today the main international interest lies in the question of who builds more nuclear power and who is willing to fully disengage from it, and the international nuclear arms race and nuclear proliferation. Such issues have wide ranging effects for global energy policies and naturally for the nuclear industry (see e.g. NEA 2014). After the 2011 Fukushima disaster, for example, Germany made a rather rapid decision to shut down all its nuclear units. Historically, the powerful countries in the nuclear industry (e.g. because of uranium supply), with the power of their alliances, have been able to enable or disable other countries in proceeding in their nuclear energy production – a measure that was directly related to nuclear weapons safeguards but affected also the peaceful use of nuclear technology (Goldschmidt 1982: 277-279). Today the nuclear weapons question and the peaceful use of nuclear power are tightly connected due to safeguards governed especially by the IAEA. In the modern context, especially after events in Japan, Finland has gained a somewhat special image in world nuclear politics – a so-called 'Finnish peculiarity' – by being a Western promoter of new nuclear plants first by the already ongoing Olkiluoto 3 building project (the first new project in the Western world in fifteen years), and then a few years subsequently with two other positive Decisions-in-Principle also for new units studied in this thesis[2] (see Sunell 2004). Another peculiarity

2. For the international post-Fukushima development, see Rogner 2013; for possible effects of nuclear phase-out, see De Cian et al. 2013.

of Finnish nuclear energy production is the internationally recognized safety culture and the remarkably high technical safety standards that are considered to be a landmark for others developing peaceful nuclear technologies and standards. Possibly partly due to and contributing to the latter, and adding to the second reason, Finland (at a government level) is strongly investing in the know-how of the industry (MEE 2012a).

1.1.3. Nuclear power politics as an illustration of societal changes in values and ideologies

The above are frameworks for understanding the special nature of nuclear power as a form of energy production and as part of industrialized societies. However, I turn my main focus to the *economic* nature of nuclear power, i.e. its role in sustaining the crucial material structures of modern society and economy. The highly political nature of nuclear power adds another twist to this economic nature: the relationship of economic activity and politics – especially in a morally complex activity such as building and using nuclear energy. The perspective of looking at nuclear power as an economic question with an economic rationale and its crucial political meaning in our energy system combines the issues discussed on nuclear power. Through this perspective and by drawing from recent developments in the literature on the politicization of the economic and neoliberalization of politics, I proceed to analyse the relations of the economic rationale guiding political decision making and societal good and fairness.

I began this work in 2012 with the aim of looking at nuclear power from the perspective of corporate responsibility (CSR) (which will be briefly discussed later) – how companies and other actors deal with the special challenges related to nuclear power in society. The developments of traditional CSR frameworks have also been criticized with the notion that they are only veiling the growing corporate power in fundamental societal institutions (Wilks 2013: 197; for comprehensive review of debates, see Fleming & Jones 2013). Thus, it soon became clear that such a perspective would not cover the wider nuclear-related societal questions that had become central in the studied case as the administrative and political process continued and changed over the years. As a research subject in the field of business–society relationships or CSR, nuclear power differs in one crucial way from other industries. The time frame of thinking about the environmental and societal effects of nuclear waste is out of the scope of most CSR approaches and practices, which are mainly concerned with ongoing business activities, although wider, especially political impacts have been brought in to the discussions during the last decade, in particular, by drawing from a study in political economy (cf. Banerjee 2008; Barley 2010). These perspectives enable the scrutiny of underlying values and ideologies related to the changing relationship of politics and economic activity. Thus, the issues of political and moral responsibility in the nuclear industry require an analytical perspective wider than the analysis of current business–society can offer. Nuclear power and

its development in societies is tightly connected to the economic situation and the policies and development of the energy system of the state and the wider environment.

In the public debate of nuclear power the participants often hold underlying assumptions of good and bad, right and wrong, which have effects on how the actors form their stance in the debate. These assumptions do not concern merely nuclear power but wider conceptions of society, community, nature, economy, and so on. The Finnish legislation also requires a positive parliamentary decision for enabling a nuclear new build to be based on the 'overall good of the society', which brings the debate into question on how this 'good' is defined and defined by whom. However, good and right are not the same thing and thus, have slightly different importance when discussing also the 'value-ladenness' of politics. In terms of policy, such provisions have often been interpreted as 'cost-benefit tests', i.e. improvements in social welfare. Such a simple utilitarian approach hides the plurality of understandings of what is social good, in the first place, for different people and what are the various dimensions of its implementation. Lovett separates them in the following way: '[…] it is common to distinguish conceptions of the good from conceptions of the right. A conception of the good is, roughly speaking, an account of *what makes human life go better or worse*; a complete theory of the good would thus be a complete account of human flourishing. By contrast, a conception of the right is roughly *an account of morality – that is, an account of right and wrong, or of what human beings owe to one another in their capacity as morally responsible agents*. […] Nevertheless, the good and the right are connected ideas […]. Understanding social justice requires both concepts' (Lovett 2012: 160-161, emphasis added). Studying the political phenomenon of whether nuclear power delivers the promise of 'the overall good of the society' requires both analysing and understanding beyond the mere technical facts of a technology and seeing it as also a social phenomenon, and at the intersections of right and good, wrong and bad.

Analysis in this thesis concerns the preceding stages of nuclear new builds (i.e. things that happen before the unit is in operation or is even built) when this 'good' is debated in public and political spheres. It means that the focus does not lie in its actual operation (producing and selling electricity) but in the legislation-based governmental and political processes that enable nuclear energy. These processes are analysed in terms of how legislation defines the decision-making process (official process), the societal framework with public debates, politicking, other political activities of different groups of actors (unofficial process), and subsequently how this lengthy and often heavy process shapes the role of economic rationalization in politics. In the case of nuclear power, the situation has become, over history, such that conceptions of good and bad are polarized – nuclear power is a 'yes' or 'no' question that raises a challenge in trying to understand its ethical nature in a different way. The case is analysed as part of a wider political and ideological development in an eight-year time span from 2007 to 2014 during which the world saw a deep financial crisis, failure of global

climate politics, disaster in the international nuclear industry, and national incidents that all interweave together with political developments starting in particular from the 1970s.

1.2. Research objectives and questions

This study is interested in the formation of a moral and political hegemony (Birchfield 1999; Gramsci 2012) in societally crucial decisions that are closely related – in one way or another – to crucial societal politics that also enable or disable economic activity. Prior operating business activity and its political nature have been studied increasingly in recent years (Scherer et al. 2014) but relatively less attention has been paid to situations in which the whole operation is questioned beforehand and whereby the effects of economic activity continue into the distant future. Nuclear power offers a good case for such analysis as prior to operation relatively long governance and political processes take place and also often include battles and claims of uneven power relationships (e.g. Death 2006). The aim of the study is to understand what happens in the preceding political stages before the debated activity (construction and operation) takes place. The approach does not separate the 'good' and 'bad' politicization of economic activity and economization of political activity but is interested in the overall phenomenon of what kind of logic seems to lead the public rationalization in rhetoric of legitimizing large-scale societal decisions. Thus, by looking at one overall case the main research question of the thesis is:

How is societal good defined in political processes related to nuclear new builds?

It is further elaborated with sub questions guiding the empirical research:

- *How were the decisions made and how were they developed over the years? (Process.)*
- *How were the decisions legitimized officially and in public debate? (Rhetoric and discourses.)*
- *How was the legitimation received/experienced by different stakeholders? (Rhetoric, discourses and material effects.)*
- *How did the context affect all the dimensions of the process? (The decision (process) itself, legitimation (process), reception/experience.)*
- *What were the critical points and moments in the process? (Descriptive emphasis.)*

Thus, through these empirical questions and the analysis lead by them, the study contributes to the theoretical understanding of the growth of economized neoliberal ideological hegemony as a background logic in decision making that still partly relies on welfarist values and diminishes them into simplified utilitarian claims of certain societal good following from uncertain economic good.

Nuclear power has been the subject of study in many social scientific fields, from environmental philosophy to media studies, due to a variety of complex and interesting features related to it, especially since the 1970s after the Three Mile Island disaster, and after it began to become clear that nuclear waste is a societal issue which was previously dismissed in the original nuclear hype of the 1950s. Risks of nuclear energy production and experience of risks, especially related to radioactive nuclear waste, have already been a longstanding major topic, along with other complex technologies (Thompson 1984, 1986; Shrader-Frechette 1991; Yli-Kauhaluoma & Hänninen 2013; Wynne 2002). In the Finnish context, the so-called Finnish peculiarity has brought about in-depth analyses of decision making structures (Ruostetsaari 2010a, 2010b) and historical analyses of the development of Finnish energy and especially nuclear energy policies (Litmanen & Kojo 2011; see also Lehtonen 2012). Public debates, legitimation of contested solutions, and argumentation on energy policy have all been studied both in national contexts and also comparatively (Teräväinen et al. 2011). The Fukushima disaster in 2011 raised a wide international interest in understanding nuclear power as a complex socio-technical phenomenon (for a comprehensive overview on the Fukushima disaster, see Elliott 2013)3. The problematic political and social questions related to nuclear power and waste became scholarly interest soon after the original resistance movements against nuclear power emerged. Those resistance movements originated from the resistance against nuclear weapons but extended also to the peaceful usage of nuclear power due to the similarity of many risks related to nuclear energy production (Barkan 1979; Kitschelt 1986). The Three Mile Island accident in 1979 (and followed by Chernobyl in 1986) proved some of those fears of risks right and initiated major reforms in governance and technological issues. Thus, the politics and technology of nuclear power naturally have their place in the interests of analysis from a variety of social scientific perspectives. Possibly the most in-depth analysis of ethical aspects in nuclear energy, concentrating mainly on nuclear power as *technology*, is still Shrader-Frechette's text from 1980 in which she discusses nuclear technology from the perspective of just and ethical public policy.

But nuclear power as a politically defined (right or wrong) solution to a growing and more sustainable energy need in the growing economy from a process perspective has been an interest to a lesser extent. A challenge of increasing energy use globally, however, has brought nuclear energy once more to the centre of complex societal solutions where a variety of trade-offs possibly need to be made. At the same time, a globalized world and especially a globalized economy has blurred how we see economy and economic rationalization in society. And that is what nuclear energy production is too, activity driven by economic interests both private and national. This multifaceted and sometimes ethically problematic nature is the source of interest in this thesis. Former literature in this

3. For example, the Society for Social Studies of Science (4S) annual meeting 2012 included various debates in which Fukushima was discussed, from dozens of different perspectives, by social scientists around the world (http://www.4sonline.org/meeting/12).

research especially comprises perspectives on public debates (Bickerstaff et al. 2008; Culley et al. 2010) and social movements (Kitschelt 1986), risks, rationality and participation in decision making (Wynne 2010; Strauss 2011), and nuclear power as part of a wider energy policy (Litmanen 2009).

Related to the notion of political power, it is here considered as something that exists always in different forms – decisions are based on *power to* finalize them. Essential is *how* that power is used and whether the holder of it is considered legitimate by the affected parties. The conceptual connection between concrete power and responsibility is, according to Morriss (2002: 39), essentially negative: 'you can deny all responsibility by demonstrating lack of power. You can do this […] by proving that you couldn't have *done* the crime. Or you can do this by showing that you couldn't have *prevented* the catastrophe. In either case, power is a necessary (but not sufficient) condition for blame: if you didn't have the power, you are blameless.' Thus, the evident positioning and starting point in the thesis is that those who hold power (during and after the decision) also carry, at least, moral responsibility for the decision (e.g. Wilks 2013; Clegg 1992). On the other hand, power is constantly recreated in speech and legitimated through it (Fairclough 2001; Beetham 2013). Thus, in this study *power is seen as having dual nature, as something concrete in actions and relations, but also as something existing on a discursively constantly re-negotiated level*, although the empirical methodological possibilities limit the perspective often to the latter. However, the research approach I have chosen, enables reflection on the connections between discursive and material levels (Schmidt 2008).

The normative nature of the study is discussed furthermore but I will mention a brief notion on the methodological approach, which is also guided by a discursive understanding of societal debates and their background in power relations, which often draw from Foucauldian traditions. Power and discourse can be divided into two scopes: power in discourse and power behind discourse. Power in discourse can be seen as the use of power in text (speech), for example in the case of the media. Power behind discourse affects the conventions in particular discourse types. Discourses are also guided by various 'common-sense' implicit assumptions that we have about the world. People (to refer also to actors such as 'media' and 'public' as collectives) also tend to carry some sort of ideology that shapes their world view. All these can be seen in the use of language. But, as dominant discourses are naturalized in institutions we most often are not conscious of the dimensions and meanings in our speech (Fairclough, 2001: 36-46, 64-65). This tight relationship of discourse and the power which defines it and, consequently, the realisation of concrete large-scale societal changes is at the core of such phenomena as studied here.

This study approaches the political process by analysing elements of how the decisions are discursively legitimized with a principal approach of discursive institutionalism (Schmidt 2008) and with a focus on argumentation and its outcome throughout the process of an eight-year period. The wider societal and political contexts and their development over the period of the process

are a crucial part in understanding the case. *The overall unit of the empirical analysis is the process of governmental/political legitimation of new nuclear new builds in the context of one country's legislative, regulatory, economic, and moral spheres.* Examining the current case of nuclear new builds contributes to the understanding of controversial activities, especially in economically sensitive times.

The analysis illuminates society's difficult relationship with economic necessities (of energy production in a growing economy) and related unanswerable ethical questions (local effects on new nuclear sites, moral responsibility for future generations, system effects of such major initiatives) in connection with the production mode of that energy. The overall results point towards change towards a growing hegemony of a specific kind of economized neoliberal discourse and reasoning in policymaking (Patomäki 2007; Ahlqvist & Moisio 2013). At the same time some aspects of the traditional nuclear debate (e.g. the nuclear waste issue) have taken a back seat (althoughnot disappearing altogether from different political agendas due to the concrete pressing question both politically and in practice on a global scale). Some political events outside Finland, on the other hand, brought world political issues to the debate that was hitherto considered highly national. Positions of traditional political coalitions also partly took new forms, again with strong value-based argumentation. For example, division inside some political parties raised the issue of the breakdown of customary strong shared values behind party actors.

1.3. Key concepts in the study

Here I present key concepts in the study, which are repeatedly used, and aim here to illuminate how I use them as some vary slightly across the literature used in this study (see Chapter 2).

Discourse By discourse, I refer in this study to constructions or generalizations growing out of larger and wider public debates and discussions. Thus, it does not refer to single pieces of text (also speech) but a larger entity that creates hegemonic (see below) positions that define how reality should be understood and to the wider societal practice of using language and argumentation. However, individual pieces of text can represent certain discourses. Such an understanding of discourse emphasizes the context of the (analysed) text (e.g. Taylor 2013; Lau & Morgan 2014). In other theoretical frameworks, discourse can have different meanings.

Governance By governance, I mainly refer to *official governing (and sometimes purely administrative) activities* guided by laws or industry-related norms. In the case of nuclear power this includes, for example, governance of risk and safety, and governance activities related to general energy policies at the nation-state level. However, 'unofficial' governance can also take place – with or without an

official governing institution, i.e. government or administrative bodies – and it takes its form in different public-private arrangements or market tools, instead of hierarchical legal rules (see Baker 2014: 100; Rhodes 1996). In the case of official governance, however, for example unofficial discussions and agreements between the governing body and actors who are governed can take place. In the latter case, actors can self-organize governance when official institutions are lacking. A good example of this is the history of CSR activity whereby economic actors (due to external pressures) started to create common rules of responsible economic activity to create higher standards than those required in legislation. Especially in unofficial governance, *politics* takes place in a way described below, for example in negotiations over how collective ethical frameworks are formulated.

Hegemony Hegemony, in the Gramscian sense as used here, refers to ideological power, supremacy over others. Hegemony does not create power simply as (violent) physical power but through complex, indirect, societal processes – social, cultural and economic (e.g. Lears 1985). In this study I am especially interested in the formation of moral and political hegemony through technocratic and neoliberalized ideological structures.

Nuclear power & nuclear new build In this thesis mainly *nuclear power* is used when discussing *nuclear energy* production. However, when nuclear energy is used, it is interchangeable with nuclear power although they technically refer to different things (cf. Ferguson 2011: 3-5). *Nuclear new build* refers to a nuclear reactor unit to be built. New build can be an entirely new nuclear plant (as in the case of Fennovoima, where there is no prior existing energy production plant and the new unit establishes an entirely new plant) or it can be just a new reactor unit to be added to an existing plant (as in the case of TVO, which is currently building a new unit – Olkiluoto 3 – at Olkiluoto where two units have already been in operation since the 1970s and 1980s, and which has received preliminary permission for a fourth one – Olkiluoto 4).

Political & politics This thesis greatly uses the concept 'political'. However, 'political' has been understood in many ways in the literature. I mainly follow Palonen (2003) who has clarified the different aspects of 'political', also noting the differences between languages. Palonen identified four aspects of concept politics: 'policy', 'polity', 'politicking', and 'politicization' and such a broad understanding of various aspects of 'political' is adopted. He writes:

> *In this conceptual horizon, policy refers to the regulating aspect of politics, politicking alludes to a performative aspect, polity implies a metaphorical space with specific possibilities and limits, while politicization marks an opening of something as political, as 'playable'. Policy-politicking and polity-politicization form two conceptual pairs. In the sphere-concept, the core of politics is occupied by the borders and regulations of the polity-policy*

> *space, whereas in the activity-concept politics is constituted by the 'verbal' figures of politicization and politicking.* (Palonen 2003: 171.)

In this thesis, politicking and policy mainly fall under the discussion and the term governance although when it includes politics, we could speak about active politicking. Politicization is an essential premise for the thesis as nuclear power is understood as not only a technical question but as being strongly societal and thus also a political question.

Power Societal and political power refer to the ability to influence others. In the discursive sense, power refers to what is considered legitimate or what seems legitimate when framed in hegemonic discourses. In this study the concrete nature of power is also acknowledged; the (hegemonic) power exists also in relations, in the different institutions actors represent and not all these institutions hold equal societal and political power based on their position (e.g. Heiskala 2001; cf. Fleming & Spicer 2014).

Society & economy/economic activity In this thesis the society-economy relationship refers to the close connection between the two. These are, for example, the interdependence of them, and the social and environmental effects of economic activities that are governed by preceding political processes. I often also speak about *economic activity* in relation to society – by this I refer mostly to the institutional nature of economic activity as something (mostly) private and carrying values of private benefit (although economic activity, of course, takes place in society), whereas society refers to something common or public carrying a wider value basis than private economic activity. Relevant is how 'good' is defined in different spheres of activities in society – whose values are appreciated in different situations. Recent CSR literature has also tackled this issue, the blurring of the limits of public and private in this sense (Scherer & Palazzo 2011). The notion of 'good' is essential in this thesis as the objective of the Finnish Nuclear Energy Act begins with the notion: 'To keep the use of nuclear energy in line with the overall good of society' (Nuclear Energy Act 990/1987: Ch. 1, Section 1) and is among the key starting points of understanding the discursive nature of legitimization and the rhetorical creation of societal good.

1.4. Structure of the thesis

By now the research background, objectives and questions have been presented and questions have been raised by the case phenomenon and recent discussions. The thesis is structured as follows: in the next, second chapter, I present more profoundly the relevant literature. It consists of the recent development in economy and society literature that draws, in addition to traditional organization studies, from political science to analyse the role of economy in society and politics. More attention has been paid to the analysis of power in politics, and

recently, in particular, of the economically coloured politics and policymaking of modern societies from the viewpoint of power. I draw from the literature of environmental politics, which has probably the longest relevant tradition of discussing the problems of creating such regulation and governance of economic activity to prevent its harm to surrounding nature and living beings, including human beings and their societies. And, at the end I discuss the studies in science and technology in society in order to place nuclear energy in the framework of discursive creation and meaning of technical development for society. All these literatures have, among other topics, addressed in different times and contexts questions of societal justice and good, the latter concentrating on technology in modern society.

In the third chapter, I present the philosophical foundations and methodological choices of the thesis. I discuss the overall philosophical assumptions and empirical methodological possibilities that determine the approach I have taken in the empirical analysis and in the abstract discussion at the end. Different data and methods of analysis are presented. I also discuss briefly the challenges of studying controversial issues and the limitations of such studies. In this chapter, the core of the case phenomenon is also presented – the preliminary stage (started publicly in 2007 and still ongoing) of the two studied possible future nuclear new builds.

Before the analytical section I aim to present the case, the eight-year period of deciding and debating nuclear new builds in Finland in a changing national and international economic political context. This is followed by the analytical section. In the concluding section I discuss the theoretical and societal implications of the thesis and suggest avenues for further research.

2. Literature review: Intersections of politics, economy and technology

In this literature section, I present the key discussions and their most relevant concepts for the thesis. All relevant literatures concerned central issues analysed in the thesis: *power and the following responsibility and rationalization within,* and *the relationship of economy and politics* and thus*, questions of justice of and in underlying political institutions*. These themes are discussed in a variety of fields in social sciences (sociology, political economy, history, organization studies). Those relevant to this study are the wide field of *economy in society*, literature on *environmental politics/governance*, and finally literature on *science and technology in society* (generally called science and technology studies, STS) from which I draw particularly from literature that concerns political decision-making on large-scale technology. The essential nature of societal political conflicts is the incompatibility of interests. We could say that the aim of fair and democratic politics is to solve conflicts in a fair way to all actors (Barry 1990: 84-85). As a case of nuclear new build (the debate before and after the parliamentary voting, which by definition is a commonly accepted solution at one stage of the debate) cannot really be solved in a way that would equally satisfy confronting parties – it is not possible to have half of a nuclear unit or one without those aspects that are the main concerns of people as they are inbuilt in the nature of current nuclear technologies. Such situations require a wider understanding of the complexity and thus, theoretically also cross borders of disciplines. For the sake of understanding the case, these literatures were found most useful in an abductive analytical process as together they draw a picture of different rationales behind *economically driven, technically challenging and ethically multidimensional political and governance challenge*.

Literature on *environmental politics* has long traditions in aiming to understand the wellbeing of nature in relation to organized, and today often industrialized, societies and the global community (Schlosberg 2013; Barry 2001). In particular, the global environmental problems and the international aims to tackle them, through common policies, have brought the topic to the interest of scholars. Due to the large role of the economy and economic activity (Kelleher 2006) in creating and solving these problems, makes them also an important focus in the analysis of environmental politics and governance (Auer 2000; Bled 2009; Clapp 2005). The field has long traditions in studying conflictual environmental governance

processes with multiple dimensions in terms of justice, upon which this study also focuses.

The secondly discussed literature on science and technology in society (to be referred to as STS from science and technology studies) becomes relevant because of the chosen case of nuclear power politics. Scholars in STS have been interested in the democratic effects of science and technology in policy-making and politics, and in society more generally – especially in terms of knowledge (Durant 2011; Wynne 2002). The topic has become even more crucial due to climate change (e.g. Forsyth 2012) and related to the question of energy, and in this sense also nuclear power with its many technological dimensions, but also as a societal question (e.g. Bijker et al. 2012). Nuclear power has also been in the interests of the field due to its major scale in size and its pan-generational ethical challenges.

What I have referred to as literature on *economy in society* is a versatile field that has carried many names, covers a variety of issues, and as a topic has been discussed in a variety of literatures, especially inside the broad school of organization and management studies. For the sake of simplicity I refer to those streams of literature with this one title. For clarification of the overarching issues in the field is the notion of interdependence of economic activity and society. It is important to regard that although markets (the expected primary environment of economic activities) on one level work on their own rules, the externalities and structural effects connect economic activity tightly to the wider society also in terms other than economic ones. In particular, the field of political economy has tackled questions of economic rationalization in political decision making, and has thus also created a fruitful source for critical analysis of businesses. As these issues have also been studied, since the 1950s, in business literature, and recently in the broad field of corporate social responsibility (CSR), often recently drawing from political economy and political philosophy – a term that has been established in particular since the 1980s (de Bakker et al. 2005) and also developed subsequently towards a more extensive analysis of economic activity in society. Other popular conceptual framings have been business ethics, stakeholder management, sustainability, and corporate citizenship (Schwartz & Carroll 2008) and recently political CSR referring to the changing or new political role of business in society (Scherer & Palazzo 2011). Critical organization studies (often: critical management studies) is a broad field that draws from traditions of societal analysis, especially from political economy (Hassard & Cox 2013; Linstead et al. 2014). I concentrate on its interest on economic activities' multiple and complex ties to society. The field has been aimed at – among other goals – bringing out the political and ethical issues within organizations but also in their wider connections with and effects on society (Grey & Willmott 2005: 6). Especially in an economically globalized world many of these issues overlap with the study of political economy, which notes the inseparable natures of politics and economy (e.g. Teivainen 2002: 7-8).

In addition to the literature discussed here, a wide range of research literature on nuclear power has been used. It is discussed above and below together with the case, analysis and methodological choices. The historical background of the nuclear power debate is discussed throughout the thesis as the industry has an exceptional historical background coloured by sore debates and politically demanding events.

2.1. Governing the good of nature and humans within

In this section I discuss the literature on environmental politics, which is at the centre of the analytical framework as the field has long traditions in discussing questions of fairness or justice in policymaking. I utilize the term 'politics' to refer to the wide range of literature interested in the relationship of politics with nature or the environment: not only politics, but environmental politics due to both forums in which scholars have discussed the topic, and also the concrete current and historical framing of nuclear power as an environmental, or green, question in politics and public debates (Carter 2007: 1-2). This wide field consists of, for example, environmental governance, ecological economics, and environmental philosophy, which are all multidisciplinary and draw from a variety of traditions of thought that build a picture of the complex relationships of nature and the human activity within it, and of society and also the economy. This multidisciplinarity arises from the complex nature of environmental issues – from both sides – of their causes and their effects. For example, loss of biodiversity results from many different reasons such as pollution and misuse of land. On the other hand, for example, building an industrial plant can destroy a whole local ecosystem or carry risks of poisoning the soil. These problems can be discussed both from a human perspective (effects on people) or from the perspective of the intrinsic value of nature. I focus especially on the literature that has problematized effectiveness and fairness in many of the political and governance institutions that regulate economic activity in relation to the environment4 – issues that became evident during the process of this research. This approach, which combines a reflection of both intrinsic and human-related values, is compatible with the approach that politics is much more than official processes, actors and institutions (Death 2014: 9; Barry 2001: 7).

Although, I frame this literature here as concerning environmental politics, it might be worthwhilenoting that the field of study and the research subject of environmental governance is probably the major 'sub-field' of the topic as it attends to the major structural issues in environmental politics (by approaching these fields from the other way around, see Treib et al. 2007). Lemos & Agrawal (2006) define it in the following way: 'environmental governance is synonymous with interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviours. More specifically,

4. The view that environmental problems are not disconnected from human wellbeing and actions is discussed later.

we use "environmental governance" to refer to the set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes' (Lemos & Agrawal 2006: 298). The less 'structured' or 'institutionalized' *political* is broader than this formulation, in terms of how Palonen's (2003) notion of politicization and politicking, which can concern a variety of forms outside but close to official politics or governance in terms of certain aims, (cf., e.g. public debate and different civil society activities in influencing wider politics)[5] as is evident in the studied case in which the officially administrative and officially political seemed to overlap especially in the later stages. Thus, politics refers also to the less 'managerial' processes of creating and moulding general valuations of politics whereas governance issues often have a certain focus, such as the sustainable use of forests or limiting CO2 emissions. In the case of this study, the political concerns not only the official processes (administrative, governmental, and parliamentary) but also the wider politicking happening within civil society, and public discourse and rhetoric.

Literature on environmental governance has longstandingly tackled the problems related to human's collective action in nature. The resultant climate change questions on energy production modes and whole energy systems have become central to environmental decision making. These decisions on such crucial systems as energy systems affect in one way or another entire societal action and their paths lead to future development (Lovio et al. 2011). Politics of the environment has seen a similar decline of the state resulting in more market- and voluntary-based governance as practice. However, literature on economy and society has seen a rise even of such controversial institution as 'private authority' of 'private governance', which represents the blurring boundaries of public (state and citizens) and private (referring to economic activity) (Lemos & Agrawal 2006; Andonova 2010; Falkner 2003). These state-replacing institutions are part of a wider development of what I, in this study, have considered as the general neoliberalization of politics (Duffy 2005; Ahlqvist & Moisio 2013) in which the economized nature becomes central through discourse.

As institutions are also often discussed in this thesis and as the concept can refer to a variety of issues, as they are not only simply formal procedures in society, it is useful to offer what is meant by 'institution' here. Interest in this study is mainly at the level of society and in its economized modern form. Vatn (2005: 60) defines institutions as: 'Institutions are the conventions, norms and formally sanctioned rules of a society. They provide expectations, stability and meaning essential to human existence and coordination. Institutions regularize life, support values and produce and protect interests.' Vatn continues with a notion of how the definition should be understood. Institutions are not only external 'guidelines' in our choices but they affect ourselves and our values already on a deeper level which distinguishes his understanding from that of most economists (Vatn 2005: 61). This understanding is crucial for successful environmentally related policies

5. 'Politicization searches for new power shares, while politicking aims at the increase in the disposition over the existing ones' (Palonen 2003: 184).

as, as we have seen, there is hardly ever a single solution that would be simply the best, but policymaking in this case requires many trade-offs and an in-depth understanding of different values.

By environmental justice, it is meant in this thesis that environmental politics, in order to be just or fair, must consider also the social and societal context and outcomes to be just, which is the opposite to a mere consideration of biocentric thinking whereby only environmental outcomes matter in terms of *right* (Bookchin 1980). The definition I follow from the human and societal perspective, divides environmental justice into three areas: 'equity in the distribution of environmental risk, recognition of the diversity of the participants and experiences in affected communities, and participation in the political processes which create and manage environmental policy' (Schlosberg 2004: 517) and is thus very practical even in theorizing (Schlosberg 2013), which fits well with seeing justice through the lenses of politics. Balancing ethical reflection, experiences of past decisions, and scientific knowledge of the state of the environment and uncertainties has been seen as a fair starting point for creating environmental justice that can extend over generations (Cotton 2013). The practice, however, is trickier, exactly because of the political arena, which consists of a variety of other issues and interests, too, also seen in the discussion of the neoliberalization and economization of politics. This is especially the case when the decisions include an economic dimension that often indicates very different kinds of valuations of good decisions – especially when economic good comes as a requirement in addition to the core issues of governing environmental and social good.

The question of justice has been approached from a variety of perspectives in a variety of crucial environmental questions. Lately, due to the need for global governance and politics especially for the issue of climate change, for example, questions of global justice have been the interest of many authors. In the building, developing and appropriate use of governing institutions considerations of justice become important although economic efficiency is often at the centre of the debate (Paavola 2007). But when company actors, with their major resources and strong interests, come to the sphere of environmental politics and governance, the effect of power relations in form of economic interests (the source of ideology of efficiency) come into the picture (Death 2006). Research on environmental governance that makes these notions, shares many intellectual frames with critical organization studies. The role of economic actors in environmental governance becomes problematic if the economic issues become the main concern even in institutions built for supporting the safeguarding of the natural environment and the institution itself presents itself as an arena of goodwill (e.g. Van Alstine et al. 2013). Analysis of environmental governance institutions has found similar deficiencies in the self-governance systems of economic activity as the critical analyses of businesses in society. Also the reasons behind the inefficiency, dysfunctionality and finally inability to create more just governance systems, have been analysed as being linked to the negative sides of neoliberalization

and globalization. For example, if the only sanction for a company not acting according the blurry deliberated rules is losing the 'licence to operate' there is no plausible power to prevent harm to the environment and thus also human-beings (Gouldson & Bebbington 2007; Spash 2001; Aho & Laihonen 2015).

Approaching environmental politics from the perspective of justice and fairness offers a coherent framework, also between the perspectives discussed in this thesis, as the injustices ensuing from a dominating relationship with nature has wide-ranging human effects that are the concern of politics in the modern world (Curran 1999). Concerning the political debates, the focus on justice can offer a coherent picture of interplay between politics as policy-making, scientific knowledge, and historically founded structures and institutions – and finally power structures that create hegemonic discursive institutions in all of these (Newell 2008). The neoliberally driven ideological change in governance structures has had problematic effects on creating or maintaining coherent policy frameworks when dividing power and responsibility, for example in the form of the creation of self-governing institutions (as discussed in the section below) without wider genuine social responsibility (Martin & Boersema 2011; Charkiewicz 2005; see also Levy & Spicer 2013). Quests for legally binding comprehensive governance have again been presented instead of highly problematic self-governing systems (Clapp 2005). In particular, the ethical role of science and technology in the formation and understanding of governance is discussed in the following section.

The notion of neoliberalization, or as well as the more specific economization, of politics connects environmental politics and recent developments in critical organization studies, which share a background in political economy. The political shift can be seen in policy discourses and finally in concrete policies and governing institutions (Falkner 2003). Thus, it is important to understand the background ideologies and their premises when analysing controversial politics and experienced and hypothetical future injustices in environmentally crucial issues already in processes (Vlachou 2004). Similarly, both the distributive and the procedural dimensions of justice need to be analysed to gain a coherent picture (Paavola 2005, 2007) of how the institutional ideologies affect the practical outcomes (e.g. Borck & Coglianese 2009). These institutions are corollaries of collective action.

However, for example, Jordan (1989: 24-25) frames the impossibility of collective action for common good in the following terms: Societies have come so big that complexity makes it impossible to either define not to mention acting for some collective good purposes. An increasing individual freedom, one of the key aspects of neoliberal values, and its dark side, the rising belief in individual rationality, is tightly connected to the challenges of collective action and in particular responsibility and thus, the responsiveness of institutions to reckon with the plurality of values of concerned actors. For example nature, from the human viewpoint has a limited amount of natural resources, and we have not found any particularly peaceful way to operate within these limits in the globalized world, in which some gain while others suffer for those gains.

And finally, every social coordination system is incomplete, even in terms of 'good' (if we ever had such a collective definition). This complexity creates a situation whereby one (or more) compromise must be done within collective decision making and thus the question of which values are prioritized becomes important. In addition, disagreement and differing positions to a question does not mean that either party would be irrational but these normative positions also do not have to be considered as equally acceptable (Rescher 1993: 117-118). Such notions are against the popular views and theorizations of consensus, for example through deliberation. However, this does not detract from the possibility of making procedures better for all concerned actors.

Behind these problems of governing societies, and the specific actions within them, that have become faceless, is also the modern world belief in technological possibilities, and the hegemonic philosophy and discourse of economic growth – namely, its unquestioned 'goodness'. The race for more money, more material good at all levels of society is starting to have an increasing negative impact compared to the good the growing economy was meant to offer (Dietz & O'Neill 2013: 15-16; Gorz 2012: 2). The concrete impacts on environment and social prosperity are rather clear but the discourse resides also in discussions on issues that we might not consider directly related to the harm of unsustainable use of our nature. Whereas now our activities, i.e. simplified to refer to Western material culture and policies and their driving forces, are guided by subordinating eco-social rationality to economic rationality, to reach a viable society also in future, this subordination needs to be turned upside down (Gorz 2012: 12, 30). For Gorz, this includes essentially understanding the need for a transformation in industries and energy production (2012: 32). These notions point towards the problematic relationship between the politics of economic activity and technological hegemony within current politics through the notion of neoliberalism and its connection to the questions of common good, which is extremely tightly connected to questions of energy production in the modern industrialized (and industrializing) world.

In the studied case, much of governance mainly takes place when a nuclear plant is already in operation and during its construction phase. The focus of this thesis is largely on the preceding (often strongly national) politics and governance when it is politically framed as the considered the common good in a policy sense. Of course, this framing thus has other effects, such as in case of energy questions that support certain developments towards future energy systems. This raises questions of procedural justice in policymaking and politics. These questions are the concern of environmental justice – questions on how and on what value basis decision making structures are built and especially how they are used – even by future generations (Schlosberg 2004; Cotton 2013; Shrader-Frechette 2002: 6), which resonate with the critical approaches towards a growing economization of politics. O'Neill frames our current activities and their meaningfulness both in terms of the past and future. Our actions make sense (only) in 'a particular history of problems' and in their fruitfulness in the future and their capacity to be

part of solutions of future problems. O'Neill provides a broad example of science that is all the time its own critique and developer but he also notes that, especially in politics, success or failure is seen normally only afterwards (O'Neill 1993: 32-33). Nuclear power as a phenomenon is constantly under such a moral-political evaluation being a technology that carries such questions throughout its lifecycle.

2.2. Science and technology in society

Literature on science and technology in society (usually referred to as science and technology studies, STS) becomes relevant for this study on many levels as it captures an established perspective of the social scientific study of nuclear power. Firstly, is the historic battle over nuclear power and, in general, the usage of nuclear technology, which includes potential military application. Secondly, is the more specific question of risk in using technologies and whether their benefits are greater than their potential harm, which is publicly debated when major decisions on technological projects are made (if the decision making process is public then at least to a certain extent it is official). Both of these are strongly related to how risk is understood in the first place and the insufficiency often by science to understand the social nature of risk perception. Wynne has described this limited realist view as simple-realist (Wynne 2002), which hinders the possibilities for a fruitful and respectful conversation between disagreeing actors – apparent in the Finnish debate too. In simple-realist thinking worldviews, and accordingly understandings of technology, can only be realist or anti-realist, objective or subjective, and finally real and unreal, which limits the possibilities for simple-realist thinking to appreciate the views of opposing or critical perspectives. This resonates with the economized discourse of only one possible form of rationalization of decisions. This thesis aims to understand the material world in its context of the discursive construction through which it is studied, and also those clashing worldviews that are also present in the quotidian battles over nuclear power. This is discussed below in the methods section of the philosophical background. The third and final level is the political; major technological decisions can have major effects on a variety of areas in society – in this case relevant examples are energy markets as such, land use, other industry effects through electricity prices, system effects on finances of renewable energy production, and so on. Risk is a major factor on all levels but this study aims to understand also the wider societal effects and debates.

Understanding technology as a wider phenomenon – as in this thesis – breaks down, in particular, the technical–social dichotomy. It creates possibilities for understanding technology in society and thus, possibility for understanding the complex nature of the phenomenon and the fundamental basis in economic interests. Historically, technologies were (and mostly still are) developed as solutions for some social problems by which I refer to the fact that they do not exist in vacuum (See Bijker et al. 2012: 4). Similarly, in a time of serious environmental problems science – and consequently, technology – goes hand in

hand with having this very problem-based solution-seeking nature as we can see of much of climate science. In the modern world, transformation to sustainability is necessarily connected to technology and technology policies and activities (e.g. Mickwitz et al. 2011). In recent years nuclear power has returned to the centre of such debates and necessarily also affects the recent Finnish debates on the technology.

Decision making on technically related issues has often been a battle of authority that is based on technical expertise and scientifically gathered and legitimized knowledge (Strassheim & Kettunen 2014). The social aspects of technology and its effects have been more or less undermined consciously or unconsciously in many technology-related societal questions due to the 'rationality' that is often considered as belonging to the technical side of decisions (Kurath & Gisler 2009). However, admitting the political nature of science, and particularly technology, does not take away the scientific reliability of well implemented research or its policy applications (e.g. Forsyth 2012; for relationship of science, economy and politics and scientific disagreements see, e.g. Lefsrud & Meyer 2012). Successful decisions on crucial socio-technical system-level issues (e.g. policies that concern critical industries) and case-specific issues (such as siting decisions of nuclear power plants) both require a variety of relevant knowledge, which also includes other than purely technical (di Norcia 2002). This builds an important link between understanding nuclear power not only as technical but also as a societal and ethical issue even at the stage when society 'deliberates' whether or not to permit and invest in a certain industry. Similarly, especially policy-relevant science (e.g. climate science) itself is not free from social relations although it offers a special value (compared to lay knowledge) because of knowledge gathered through scientific method (Demeritt 2001).

Deliberation and deliberative democracy have been buzzwords in discussions on crucial societal issues for at least two decades. Engaging citizens (or in more corporate language: stakeholders) in decision making processes has been considered a path towards more democratic decisions that cherish also plurality of knowledge and views beyond hard technical facts – and nuclear technology has been among the first deliberated in such a sense (Kurath & Gisler 2009; see also Setälä et al. 2010). However, in addition to science being criticized for not being able to take into account the social dimensions of its applications, the idea and practice has also been criticized for the inevitable fact that it is challenging for laypeople to internalize all relevant knowledge for a 'rational' decision (Smith 2014; see also Yli-Kauhaluoma & Hänninen 2013). But as well as science not being perfect, as its history shows (Martin & Schinzinger 2005: 126-127, 174-176), it would be equally absurd to expect full – unilaterally defined – rationality from people (e.g. Smith 2014). And although science is mostly considered, as the crucial original source of accurate information, trust also in which actor holds the knowledge for the best possible solutions differs according to the context – at least on a discursive level (Teräväinen et al. 2011). Thus, in this thesis the ideal of pluralistic knowledge is respected as a starting point when looking at the

ensemble of the decision making process (e.g. Rosa et al. 2010; see also Palsson et al. 2013).

Argumentation and its (claimed) rationality are at the core of why nuclear power and related political decisions are such complex socio-technical issues (Monk 2008). This is also part of the strongly polarized nuclear debate that is repeated in different places from time to time and post-Fukushima more so internationally. However, it is too often forgotten that no matter how well civil society or politicians argue for or against, it is today in the end (in many countries) the energy companies that hold the power of furthering or not furthering nuclear technology concretely – although still mostly with different forms of support from the state (Space 2006). This brings in an important third actor in the decision making process (even if the energy companies were state-owned fully or partly as they often have their own decision-making structures, policies and wider economic interests in investments). The importance of diverse knowledge becomes crucial especially when something goes wrong; for example, in Fukushima the failures leading to the accident after the tsunami were not merely technical (e.g. technical system failing alone) but also human factors such as inefficient governance procedures concerning the decision making in a disaster situation (e.g. Pritchard 2012; see also Perrow 1999: 23). In addition, such systemic socio-technical failures have far-reaching and sometimes unexpected global outcomes as technology is seen to have a different role in society – and also the outcomes are on a system level: the whole energy system and the economy (Schreurs 2012).

This notion of uncertainty in decisions related to technology, even with the best possible knowledge at the time, builds a link with the economic aspect and its dimensions of ethical legitimation of nuclear power as business (see e.g. Schröder 2013). The nature of administrative, technical and economic processes is often such that the value-related and ethical issues are engulfed even if relevant actors (often the 'experts') would consider them essential in the decision making (Brown 1987). Additionally, relatively little attention is paid to the economic actors acting in industries crucial to infrastructure as major holders of power in society but also to the (scientific) knowledge produced by them (Rothenberg & Levy 2012). This situation creates an often unequal starting point whereby different actors hold very different resources when entering the possible debate over an upcoming techno-political decision. This was (and is) the case in many ways in the studied phenomenon in this thesis. To some extent, the inequality as such exists inevitably as the governmental actors and economic actors are well organized whereas, for example, the local people at a possible site of a nuclear new build enter the debate only when it begins and are not organized in advance. But inequality as such is not a problem if it is not misused by the more powerful actors. Analysis of the studied case reveals some crucial pitfalls of not genuinely seeing a decision as part of wider societal development from diverse perspectives.

However, for crucial issues dependent on sufficient knowledge the political decision-making must still rely strongly on science. Scepticism towards science

can be harmful but on the other hand not everything presented as science should be taken as granted. In practice, drawing a line between unnecessary scepticism and rational scepticism is sometimes hard (O'Neill 1993: 123). But, when is it sensible to trust in (scientific and other ones) authorities? Authorities, almost by nature, are privileged in some sense – they hold access to things that others do not, for example power, education, information, money. Unfortunately, there is not one general answer. Only using 'tools' of rational scepticism with an understanding of social conditions can lead to probably justified suspicion (O'Neill 1993: 135-144). In addition to carefully evaluating the reliability of scientific knowledge and similarly acknowledging its political nature, decisions such as those studied in this thesis, there must be an appreciation of the wider societal effects. These effects exist at various levels, from local to national, and even to global, especially in extreme cases such as the Fukushima accident. Understanding and valuing other actors' values is crucial for a just decision.

2.3. Economy in society

The economic sphere of the society in its modern form was born to serve private actors' internal economic purposes (except, cf. Perrow 2002, for economic organization in early history in the US whereby building a private economy was tightly connected to the infrastructures of society from the outset). On the contrary, the democratic sphere (i.e. regulation, uneconomic societal organization etc.) was created to serve the wider good and to protect citizens – for example, from the negative externalities subsequent to industrial activities. Ideologically these backgrounds of organizational forms are very different. Safeguarding private and public purposes begin from very different valuations of prioritizing issues in decision making and social organizing (See also Levy 2008). Here, I present the final part of the analytical framework, economy in society, and also return to the perspectives of organization studies, looking critically at wider business and society relationships as this was the point of departure for this work from the outset.

The 20th century saw a new rising of the market economy: its problematic relationship to the other of the society came up in very concrete ways – a few of the important things being the role of the economy in society and thus, the question of regulation of markets and economic activity within. Already Polanyi noted (in 1944) that the new rise of economic liberalism in the 1920s brought back the idea of self-regulation as a counter force for 'interventionist policies'. However, it was noticed that fully disengaging these two spheres did not serve anyone's interest, quite the contrary (Polanyi 2001: 239, 243). Similar tension remains today (Birchfield 1999) and is the interest of a variety of research fields in social science and conceptually the political phenomenon is often situated under the term 'neoliberalism' (O'Connor 2010). Economic globalization – which often carries Western neoliberal ideology – and the competition of attracting big

multinational firms, has itself been a source of obstacles for regulating business activity (Hasan 2013).

Today the wide field of literature on economy in society draws from a variety of fields from political philosophy to radical traditions of societal analysis (such as Marxist and Gramscian see, e.g. Levy & Newell 2002; Levy 2008) and to more traditional organization studies and institutional analysis (e.g. Barley 2010), from which I began and then shifted the analytical framework of this thesis. It covers a variety of topics from corporate environmental programmes and an overall relationship with nature (Press 2007; Gouldson 2008) to the analysis of economic elites (Reed 2012), and to the blurring boundaries of business and society (Scherer & Palazzo 2011), and the different forms of CSR (Matten & Moon 2008). As business corporations specifically are understood mainly as market actors, analysis of market ideology and its confrontation with democratic ideals, especially in globalized world, comes close to the critical views of businesses claiming political agency, and shares some traditions of thought (see e.g. Birchfield 1999; Levy & Egan 2003). Below I recap some of the most relevant perspectives of literature discussing economy and society. It is not a full review of all literature in the fields interested in the issues but concentrates on the relevant themes for this study – namely, economy in society, the economic rationale in politics, their relationship's relevance to just in society and fair politics, and finally the underlying issues of power leading to the question of the practical and ideological formation of the meaning of good in society.

The field of business and society research has not yet found any certain commonly agreed paradigm or generally accepted theory or theories (cf. Abend 2008; Stanley 2012). Economic paradigm of firms suggests that pro-social activity belongs among the strategic tools of corporations and is both the starting point but also the main source of critique. However, loosely said, it is interested in corporations' relationship with the institutions of society and to the natural environment (Schwartz & Carroll 2008). However, interest mainly lies in the situations of these relationships when something goes wrong, when activity is considered harmful, and today often when civil society actors raise an issue that is considered questionable in business activity. A solution-seeking nature is also an important part of the literature. Although legislation is often considered as being a commonly accepted moral code, it has been unable to fully govern these problematic issues of economic activity. The business response to this challenge has been what I simplify to CSR – an aim to take responsibility and participate in local society relevant to its activities, or through philanthropy (Carroll 1999; Sison 2009) which has also been criticized for its narrow scope of not including wider societal analysis, which is needed also in this study.

Such CSR activities have often been criticized to be mainly window-dressing, false promises, and especially with respect to environmental issues as 'green washing'. The criticism is often based on the fundamentally economic nature of business corporations – in literature the economic paradigm of a firm, according to which a company is an actor that *raises the economic benefit above other*

values (Fleming & Jones 2013; see also Friedman 1970). However, in practice CSR remains relevant as it is something that is rather commonly accepted to be possible to be required from companies in issues that are not effectively governed otherwise (see e.g. United Nations Global Compact and Ruggie's Principles[6]). This requirement is based on the idea of gaining societal legitimacy, a licence to operate, for a business activity (Drori & Honig 2013). These moral responsibilities are addressed also by the nearby field of business ethics. Among the relevant questions in business ethics are: why, how, and to whom are corporations actually responsible(Calabretta et al. 2011; Pettit 2007).

In this thesis, the premise is that in a complex political setting an individual actor in a company cannot be held morally responsible *as such* but through wider policies, actions, discourse and setting of roles[7] (see also Soederberg 2008; Boatright 1999). Similarly, I see businesses dependent on surrounding power structures – both good and bad. Thus, interest here is more on the institutional and structural issues of the discursive formation of common good that guides, although also is built, by economic actors, although the structure-agency question is not generally straightforward on how they interact in the process of formation.

Inside organization studies, there has been a rise of internal critique over the limiting economically focused approach to studying business organizations. A quest for bringing the structural and institutional environments back into the analysis is congruent with the notions of more critical approaches to responsibilities of those holding economic, followed often by political, power in society (see e.g. Senge 2013). In practice, embeddedness of economy and society beyond CSR activities is not only a phenomenon of the age of globalization but has historical roots, for example, in welfare state systems (Midttun et al. 2006; Mäkinen & Kourula 2014). These notions also place this study close to the field of new institutionalism, which is compatible with the recent theorizations in the field of economy in society noting the building on more societal macro perspectives as opposed to traditional organization-level analysis (Detomasi 2008; see also Barley 2010).

International relations literature has suggested two other logics for the changing relationship of economy and society: as part of a long-term change towards new forms of authority instead of the traditional state-centric, and following the neo-Gramscian analysis, it is suggested that capitalist forces are building new alliances with other actors to maintain the existing hegemony in new forms (Falkner 2003; see also Levy 2011). In this thesis, the latter view is considered relevant as will be presented later: the hegemony benefits from combining the political and economic interests with power. These blurring boundaries of the political role of economy have created a heated debate over a variety of issues that

6. http://www.unglobalcompact.org/ and http://www.business-humanrights.org/SpecialRepPortal/Home.

7. Except in cases where the causality of an individual's decisions and actions is fully clear – as was more or less so in the well-known Enron case see, e.g. http://news.bbc.co.uk/1/hi/business/3398913.stm.

are familiar in the studies of governance, which are also discussed above, in the section on environmental politics.

The aim to approach these underlying power structures and subsequent inequalities led me to examine perspectives that draw from critical traditions of thought from the study of political economy. The Gramscian term 'hegemony' to describe historically moulded blocs or alliances also fits well in understanding the economization of political decision making and economic power within (Levy & Newell 2002). From this perspective the material, organizational and discursive (or ideological, see e.g. Larner 2000; Birchfield 1999) forces for those who hold economic power and lead the public that discourse becomes a source of their superior power. This power can also be used strategically, in so-called political strategizing (Levy & Egan 2003; see also Reed 2012). In the context of this research, the focus is on hegemony to legitimate and the Gramscian vocabulary is used for understanding the dynamics in argumentation, not for developing the concept itself as such.

The problematic picture of widening the political role of economy in different areas of offering social welfare requires diving deeper into the underlying ideology of economic activity as recent literature of economy in society has aimed to do. As the self-interested way of acting is not, in practice, able to provide all goods, nation-states are there to offer 'public goods' – which are also needed by markets to work (Jordan 1989: 28-29; see also Parker & Pearson 2005). For example, in the studied case the limits of private and common good blur in the promoting discourse. Several discussions question the dominant economic paradigm in which a business company and its economic stakeholders are seen as somehow separate actors in society (Mäkinen & Kourula 2012; also Sison 2009; Veleva 2010; Matten & Moon 2008). However, in the case of nuclear power economic and related actors are from the start in a tight relationship with the governing and enabling institutions of the society. If a project is considered beneficial and feasible by the relevant government officials and of course by the company, the Parliament has the last word in approving the investment. As discussed subsequently, the deliberative processes related to the preceding stages have been experienced as window-dressing activity, and not as genuine collective reasoning of the meaning of the overall good of the society, from the perspective of the less privileged and those in the opposition. Thus, the dilemma underlying such cases is not the scope of the traditional responsibility debate but exists on a more embedded structural level in the economy–society relationship (Wilks 2013: 197). These structural effects are materially and discursively replicated by various actors in the process studied here. This replication is at least partly unconscious and reflects the underlying values that lie behind the whole problematic nature of an economically motivated actor in a decision making setting that is crucial to the whole society.

Understanding the ostensibly unpolitical logic behind business activity, interests and intentions becomes important when business-related governance takes place. By this governance I do not necessarily mean governing economy

directly but also other wider governance structures that affect economic activities by enabling a growing or diminishing role of economy in different areas of society. All governance, legislative and other political decisions can have secondary effects that can act as a source for undermining democratic goals, as presented in the literature concerned with the growing political power of economic interests (Fleming & Jones 2013: 29; Banerjee 2008). The development of theorizing the changing role of economy in society has also noted the threats of democratic deficits when economic logic moves to areas normally governed democratically (Scherer et al. 2014). Doubts of the development among critics are often grown from the general critique of neoliberal development in the political sphere, which leads to privatizations, downsizing public services, and similar, despite the development of economization of political sphere itself (Springer 2014; Nyberg et al. 2013).

2.4. Concluding remarks of the literature

Political decisions that have a very complex nature, because of the considerable need for diverse (and sometimes also scientific) knowledge and simultaneous careful democratic processes and ethical consideration of different interests, face another challenge also when economic interests are at stake (Lalor & Hickey 2014). When simultaneously the political context is in flux (e.g. privatization, budget cuts) the limits of democratic values and economic values become morally challenging for those holding the responsibility of large-scale societal decisions. With the analytical tools discussed below I analyse the case of political decision making on two new nuclear reactors and the contextual factors that moulded the process as it came into being, and finally, what process can be seen represented in the wider political sphere. Understanding also all the actors is equally important in analysing how the moral and political role of economy becomes framed in certain questions and subsequently, how values related to that world more generally affect the political sphere in one decision. In this specific case, the debated technology itself brings in another nuance in the contested political question. The literature has discussed how politics and governance are changing and shifting from traditional actors to new arenas creating a new economically driven basis for the rationalization of decision making. Large-scale political decisions express the values that are prioritized at a given time. Policies have a normative character signing how things should be according to policymakers – whether official ones or those participating in policymaking in one way or another (Palonen 2003).

Following the recent traditions of analysis of borders of economy and politics – the politicization of economy and economization of politics – this study adds to the understanding of discursive framing of neoliberal values in political institutions and decisions (cf. Patomäki 2009). This framing process is a constant debate between actors and experienced injustices occur already at this stage in the process. These political processes preceding such large scale projects as

nuclear new builds have been less analysed from the perspective of how societal good – the wider scale effects – is defined at the time of process and what kind of values underlie the decisions as such. The analysis relies on the theorization of connection of discursively reproduced technocratic power relations and adds the notion of effect of economic globalization and the following neoliberalization of politics. Decisions made in such a sphere become framed as rational in the form of deprecating the underlying values and economization of politics. The situation becomes problematic and creates experiences of injustice as, according to, e.g. Radcliffe (1952) it is not clear what would restrain the holder of political authority from abusing the power. This leads to the commonly reasoned notion of the corrupting nature of power – well known both in politics and economy and at their intersections and when interest groups experience injustice and unfairness in the political sphere. However, power also tends to separate from its holders – and 'takes a life and character of its own' (Radcliffe 1952: 3-4, 99; see also Heiskala 2001). This 'separated' character of power – its own 'life' in societal discourse – is the main interest of this study.

Although the discussed literature somewhat varies in their epistemological backgrounds, they share crucial central interests towards societal phenomena relevant for understanding the studied case. The events take place in the *political* sphere of the society *governed* by official and unofficial *institutions*. The growing role of the *economy* and the *ideologically* driven acceptance of this growth alters and maintains the *power structures* that finally affect the policy formation, and the official and unofficial politics behind it. These concepts form the central conceptual framework.

In the following sections I move to the empirical study. First, I present the philosophical backgrounds of the chosen methodological approach and the methodology and the analysed data. In Chapter 4 I introduce the events during the studied eight-year period. I have separated the analytical section into its own chapter (5) to illustrate the power relations that tend to affect who has the privilege to define 'rationality' in politics and in political decision making. The rationality is often limited to those representing established societal institutions (from organizations such as ministries to actors holding major lobby power, and to the cultural beliefs such as here the traditional Finnish trust in superiority of engineering and engineering logic), and similarly they maintain themselves through chosen actions and discourses related to them. In the studied case, such a process is illustrated through a time span in which original reasoning changed in order to be based on largely ostensibly different arguments – for example, from 'technological energy independency' to 'important collaboration', and from 'industry's own project' to 'nationally crucial investment'. The illustration points towards the power of ideologies over time and over a request for altering paths, and for securing the *status quo*. Such processes have long term and concrete effects on the society concerning its infrastructure, not to mention the changes that take place locally. Finally, such decisions do not only follow from

how such issues are governed but also alter the governance and its fundamental assumptions, including the role of economic valuation in the society.

3. Methodological choices

3.1. Philosophical foundations

The philosophical point of departure of this study is situated in the critical realist tradition with features of (social) constructionism. I argue for this choice of a middle situation by referring to the nature of political processes and how they are very subjectively understood among different relevant actors, which I discuss more below. The role of the empirical part of the study is to offer a starting point and an illustration for analysing the real world manifestation of abstract questions of good and fair in a political setting. The constructionist nature of collectively defining societal issues is existent in all stages of political processes: from a starting point whereby an issue is concerned as politically relevant, to the argumentation of participating actors, and finally to the response to the decision made. Although many critical realists do not accept all constructionist ideas, I have taken the position that the critical constructionist research approach can offer a valuable understanding of societal and political structures, in addition to understanding the agents acting in them, which create the basis for a more fluctuant reality of certain changing political topics and debates – as in nuclear energy decision making in this case (Thompson & Harley 2012; see also Cederström & Spicer 2014). Where political structures, particularly in energy policy, are guided by heavy national and international institutions and regulations, the nuclear policy question carries another kind of nature because of its historical meaning and rapidly changing operational environment. In this study these go hand in hand by creating a novelty value when understood together and by understanding their interactive relationship in policy formation. Answering 'how' and 'why' questions are essential in this thesis as they are the only way to try to capture the societal complexity of nuclear power as a phenomenon beyond its apparent technical nature and for this both approaches have something to contribute to the basis of the analysis (Hallebone & Priest 2009: 45-48).

3.1.1. On critical realism and traces of constructionism

The empirical analysis in this study is situated in the philosophical tradition of critical realism. However, parts of the phenomenon were mainly identified as existing as social constructions. Because of such a combined approach of critical

realism and constructionism, the methodology does not take any certain stance in terms of theory of society but is purely based on the fit with research questions that arose at the beginning of and were subsequently developed during the study and for issues whereby no specific questions were set (cf. López & Potter 2001: 270). After the interconnections of the studied case with wider political sphere began to arise, the case took more illustrative forms: the, both concrete and discursive, political process became an illustration of wider hegemonic institutions and of how discourses renew and sustain themselves in a political sphere and also alter it. The chosen theoretical approaches, which have traditions drawing both from constructionist but also from more realist traditions, on the other hand create the basis for a certain theoretically structured understanding of society in the thesis.

Roy Bhaskar created the basis for what was subsequently called critical realism in his book *A realist theory of science* (1975). Bhaskar called it transcendental realism and wanted to advance the understanding of 'knowledge as produced in the social activity of science'. He situated it between empiricism, which tried to capture phenomena, and idealism (today referred to as constructionism), which saw the world as a (fully) human construction. For critical realism the objects of knowledge are real structures of the world and independent of our thinking but we can access it through this – and both the world and our knowledge can alter (See also Burnham et al. 2008: 35-36). Bhaskar concentrated on the relationship of the knowledge-independent material world, which science aims to capture, and the knowledge we can gain from it, with scientific tools. Science is a process that depends on the human mind: thought. But the tools of imagination do give us ways to achieve knowledge about objects – but knowledge itself remains a social product. The claim of realism in Bhaskar's philosophy is *about the objects, not about knowledge itself* as empirical realism (which he considers opposite to transcendental realism) especially claims (Bhaskar 2008: 25-26, 185). In my analysis it is considered clear that the nuclear question is very concrete in the material sense of existence but as history shows, knowledge of it takes many forms although the premises are shared.

In this thesis another important issue (along with the already mentioned concrete politicking, concepts of power, hegemony and legitimation) is knowledge and the different forms of it (discussed also in the former section of science and technology in society), which are often the basis for political debates. As well as our being and experience in the world in general, I also see our knowledge of it as mainly socially and historically constructed (Pascale 2011: 154-155) although, simultaneously, I consider it as being clear that this knowledge concerns very much the material world. Not only is the world filled with 'politics', but also knowledge is coloured by politics – and their interaction is two-way as presented in the analysis in which rationalization became a central part of the debate. Following Pascale (2011: 161), I see the socially created as being dependent on language, which connects the critical realist approach to the constructionist. And not only dependent, but language is something that also connects structure

and agency together. Clegg (1992: 187) emphasizes that although the relation of power and structure is clear, it does not lead to a claim of intentional agency or objective interests. In addition to the discursive level, power lies (in structures as) in collective decision making, in formal and informal organisations. In the studied case, both formal organizations and institutions are central actors, yet different forms of informal institutions or institutions that cross official borders also exist.

3.1.2. Studying politics: Practical and epistemological challenges

The challenge of empirically studying politics, the power relations within it and the undocumented part of policy formation has been long found as axiomatic. This is due to the fact that political processes are, by nature, often very long and include large amounts of undocumented interaction and concrete actions (such as policy formations having direct or indirect effects, such as siting decisions and their indirect effects on infrastructure) between decision-makers and their interest groups – the political foreplay of final outcomes. In addition, some documents of policy processes are confidential. Referring to political decision making in energy policy, the processes also often include large amounts of highly technical data gathered from complex natural scientific research and other sources. These facts limit the analysis to the levels which I describe here and are the basis for reviewing the thesis topic from different perspectives that complement each other.

However, in terms of understanding social phenomena, studying politics can offer significant value as politics with its different meanings permeates all important areas of modern life. This study follows the critical view of political analysis that examining ideational, perceptual and discursive factors leads to a better understanding of dominant political paradigms in different contexts – ideational and material realities – of politics (Hay 2002: 214-215). There is also always a gap, incommensurability between lay knowledge and technical or scientific knowledge or knowledges. Both are valuable for policymaking but challenging for studying political questions whereby scientific knowledge is a key role (e.g. technological possibilities) (Dryzek & Niemeyer 2008). I have aimed to appreciate these different perspectives by constantly reflecting on them alongside each other in the analysis and by trying to offer a coherent portrayal of the analysed events, which included constant weighting of different forms of 'knowledge'. In addition, I see political processes, as social mechanisms, as more than merely existing in speech – concrete actions and direct and indirect effects form a crucial part in the continuum of the process (see above on critical realism; Swedberg 2014: ix).

According to Meehan (1990), policymaking is a field in which analysis must step out of mere descriptions to normative analysis, as policies themselves have normative goals. Meehan raises policy outcomes as one important issue to be analysed when evaluating (or at least projecting) the 'good' and 'bad', 'right' and

'wrong', or 'just' and 'unjust', of a policy (Meehan 1990: 1, 24-25, 29). Analysing such phenomena requires taking stances in one way or another and often they are related to the implicit or explicit value judgements in politics. Unfortunately, in the case of nuclear power we cannot only rely on evaluating, analysing and reflecting the final outcomes. The temporal dimension of any *negative decision* for nuclear new build is impossible to evaluate without aspects of speculation (unless, e.g. an accident occurs and changes the situation towards concrete present effects) (see Perrow 1999). In a situation of *positive decision*, the time frame is also relatively long if nuclear energy was, during the studied time period, defended primarily by arguments such as CO2 emissions, economic welfare, and technical reliability. In these situations a long time frame brings with it so many other variables that the meaning of a single nuclear unit decision becomes too unclear. This leaves me with the possibility of analysing, for example, the process as such but valuing at the same time the concerns of time frames raised by the actors, and finally the outcome of the political process and experiences of it. Such references usually include a normative stance – for example, when climate change and nuclear waste issues have an ethical undertone in the debate.

However, one should carefully note that doing normative analysis and using normative concepts (such as good or bad) should not be oversimplified to the expectations of simple normative outcomes. For example, in analysing an ongoing process a study is only capable of recognizing factors or *modus operandi* that fail or succeed to fulfil the diverse and even contradicting public requirements of good governance procedure and thus theorize based on these notions of current events. But it is not necessarily possible to make conclusions of the possible futures. In this context, the question of power again becomes relevant as the access to the 'reality' of good politics happens mainly through experiences of it, which has impacts on methodology.

Morriss (2002), whose notions of the connection of power and responsibility were mentioned earlier, concludes with three main notions on studying power: first, the study of power is always indirect as there is no way to directly observe it, and this is connected to the second notion of what kind of evidence is accepted. Studying such a phenomenon cannot fulfil the criteria of 'hardness' – it only needs to be understood and dealt with in different way but it does not make such studies *a priori* unscientific. The third notion is that power is (because it needs to be) always studied in context which always makes it a study of society (Morriss 2002: 145, 151). Thus, through the chosen methodology presented below, in this study I maintain, as one of underlying questions, that the formation of moral and political responsibility of relevant actors, and especially economic ones, are the organized 'carriers' of economic hegemony in society.

Studying new and emerging challenges and their institutional backgrounds in the field of environmental politics, governance, and policymaking, from a social scientific perspective is a different kind of challenge than studying, for example, the possible solutions from a technical perspective or merely discursive representations. In the studied case, energy companies' simple wishes to enhance

their energy producing capacity became a several years long political 'theatre', which concerned who can and how can they define 'rationally' the societal good. A political perspective requires understanding dynamics, power, legitimacy and authority beyond the official politics and formal surface and outcomes of them. Applying multiple methods and collecting a variety of rich data enables the in-depth understanding of the complex nature of politics (O'Neill et al. 2013). In essence, the confrontations over the nuclear power question ensue also from the technical and societal complexity of the issue. This means that different actors often 'do not speak the same language' and events are understood in a variety of ways (see above for the notion of 'knowledge'). For example, various technical issues are rather straightforward (although complex) as such ethical dimensions within nuclear technology cannot be addressed without further reflection beyond technology as a separate entity (e.g. Martin & Schinzinger 2005: 1.1). By this choice I also point at the historical debate over nuclear power in which the human-technology-nature relationship has been central. As well as in the literature review, and also in my illustrative case study, the 'story' I have reconstructed, I have strived to appreciate all these contradicting dimensions of the phenomenon by focusing on their relevance for understanding the aspects of 'just' in the process.

As both theoretical and empirical phenomena were argued in this thesis to be value-laden in some sense (a debate of ideologies), I have aimed here to discuss the legitimation of doing such research, which is partly based on philosophical ethical traditions that are not unanimous about how moral responsibilities that aim for the 'good' should be looked at in cases of human collectives, such as business organizations or in a broader operational environment consisting of societal decision-makers (Pettit 2007). Both possibilities and challenges of the study lie in the debated paradigmatic backgrounds of most of the 'economy in society' discussions. Thus, the study has been a continuous interplay of theory and data. This defines what, why and how certain choices were made during the study in answering the research question in the limitations of accessibility of the data.

3.1.3. Research approach: Discursive institutionalism

Considering the empirical analysis in the thesis, my study can be methodologically placed under the title of *discursive institutionalism,* which enables the analysis of ideas beyond official structures and hierarchies but still appreciates their existence (Peters 2012: 112-126; Schmidt 2008; Hajer 1995; Miller 1994). I start from the assumption that for full understanding of a social phenomenon, one must study all dimensions of it – actors, structures, and discourses – from which I consequently continue to the critical and conceptual part of the analysis in which the studied case acts in an illustrative form of the wider political sphere affecting the decision making in a neoliberalizing era. In this study, these materials and more abstract, discursive dimensions are considered as being in constant interaction recreating

institutions of economy–politics relationship. Referring to my specific case of nuclear energy politics and former research on it, I am interested in how an authority of 'good' is created in actions and discourses in the political process, which philosophically would fall under the institution of procedural justice (e.g. Rawls 1999: 73-78). Based on this, following Hajer (1995), I firstly approach the empirical phenomenon as 'a struggle for discursive hegemony in which actors aim to secure support for their definition of reality' in discourses and actions (Hajer 1995: 59) that was traced through the methods described below and then I continue to the more material effects of that hegemony. Analysing the events as one process (Langley 1999) is thus, the other important empirical choice made in this study. Whereas during the early stages of this thesis, the decision making process and its context seemed relatively stable, things started changing quickly making a timely stagnant analysis 'crippled' in terms of description and explication forming a partly new nature for the process, that is, adding additional political aspects to the process in terms of, for example, foreign policy. Due to the richness of data in this empirical analysis, possibilities for standpoints to it are many and the research process often data-driven (cf. Natow 2015). As I have discussed earlier, I chose to approach the case as a unique exemplar of political process driven by certain ideological rationales and their renewal. Other theoretical perspectives could have been possible but following the colourfulness and multiple societal dimension included in the case events and the extensive former research conducted with different perspectives, the empirical analysis led me to choose this comprehensive methodological approach that is compatible with the theoretical framework built above, and which also enables me to discuss the wider theoretical contributions beyond the mere nuclear question itself.

The approach describes not only the current case of nuclear new builds but also reflects the historical development of nuclear energy politics in general as an exceptionally heated topic in societal debate (e.g. Goldschmidt 1982). Although the concrete actions and events are central for the analysis, I discuss here mainly the methods for analysing the textual, discursive and rhetorical dimensions of the case as through these linguistic actions the material reality is framed and is understood. As the debate over the nature of nuclear power – or any energy production mode or similar major societal solution – carries strong ideological or philosophical background assumptions, both conscious and unconscious, becomes normative in decision making (especially when reasons are stated) discursive institutionalism offers an ideal starting point for understanding the role of different actors with different interests and their institutional environment in such a societal issue (e.g. Schmidt 2008). However, at the same time these decisions have very material outcomes (technical, financial, etc.) that create furthermore new questions of long-term effects. To be able to comprehensively analyse activity that is generally understood as being a technical-economical issue in terms of governance, the approach must be multilevel. At the macro level, the power of economic actors and their close interest groups must be noticed as it has meaning in major structural changes in economy and society. But discourses

and concrete regulatory arrangements have their effect on actors at various levels (strategy, operations, etc.). For example, Newell and Levy have alleged that such power must be analysed through combining analysis of prevailing material conditions, organizational forms, and discursive practices and must give up concentrating on sole state-centric thinking in creating global environmental governance (Newell & Levy 2006: 176–177). Thus, here discourses are seen to be in tight connection with the material world and the institutions in it, and finally with actors' internal organizations, roles and the power relations between actors (Maguire & Hardy 2006; Reed 2012). The analysis is based on interpreting the rich and diverse data and mirroring them to the societal context in which the events over the eight-year studied period took place and have their meaning (Yanow & Schwartz-Shea 2005).

As both theoretical and empirical phenomena were argued in this thesis to be value-laden in some sense – a battle of ideologies and the values behind them – I have aimed here to discuss the legitimation of doing such research that is partly based in philosophical ethical traditions that are not unanimous on how moral responsibilities that aim for the 'good' should be looked at in cases of human collectives, such as business organizations or in a broader operational environment consisting of societal decision-makers (Pettit 2007). Both possibilities and challenges of the study lie in the debated paradigmatic backgrounds of most 'economy in society' discussions. Thus, the study has been a continuous interplay of theory and data. This defines what, why and how certain choices were made during the study in answering the research question within the limitations of accessibility of the data.

These challenges are linked to how, in particular, economic rationale is understood as a creator of collective good. In the concrete form, the economic organizational (human) collectives are created for economic purposes. This has been one of the challenges and a source of discussion for paradigm shift theorization of economy in society (e.g. Fleming & Jones 2013: 96-99; cf. Scherer & Palazzo 2011). Economic theory that usually guides our understanding of economic activity is in contradiction with the idea of ethics (it is often only able to be discussed at an individual actor level), and thus asks questions about morality and responsibilities of corporations. This cannot be understood as a philosophical dilemma of empirical research, but as a theoretical contradiction or as an unsolved debate with two polarized views (Dierkmeier 2011; Steinmann 2008; Pettit 2007). Thus, this study, following many others, needed to step away from merely analysing organizations in order to understand the entire economic logic of and in society.

3.1.4. Power to legitimate through discursive power

Discourses are ways of representing aspects of material (structures, processes etc.) and the mental (thoughts, feelings etc.) world. Different discourses are thus different perspectives on the world and are affected by the different positions,

social relations and similarly related things of different people. They are not objective but are constructions in the thinking of an agent (Fairclough 2004: 124). The aim of the critical language study is to reveal, among other underlying issues, the unequal relations of power, the dominance created by language in production, and the maintenance and change of social relations of power. It aims to traverse the common-sense assumptions that guide the use of language by showing that social structures are present and produced in everyday speech. It argues that it is possible to find linkages between 'micro' structures of speech and 'macro' structures of societies and societal institutions (Milliken 1999; Fairclough 2001: 1-2, 9-10; Fairclough 2004: 2).

Different public forums from the media to (especially today) different social media and to real world encounters of people act as an arena for (more or less) rational debate and discussion of political issues. However, the arena is not similarly open to all actors of society but, for example, media can choose which issues and opinions it brings up and which meetings are open to only a limited group of people. The arena is thus also ideologically shaped (cf., e.g. how newspapers are often referred to as right of left wing leaning) and contributes to reproducing social relations of dominance and exploitation. The ideologies are not explicitly in view but implicitly in ways of using language: presuppositions, taken-for-granted assumptions or the overall naturalization and commonsensical use of language (e.g. Entman 2007; Bednarek & Caple 2014; Kepplinger 2007; Fairclough 1995). The issue is critical especially in terms of the media data as the media is a mediator of other interests. According to Fairclough, media is not only giving information but is acting politically in this implicit ideological way but also in an openly persuasive way (e.g. Tollefson 2014). Because of extensive audiences the biggest media especially have a great potential to influence, simply: they have and re-create their power. Various actors are also interested in manipulating the media in the directions they wish. These issues fit well as the foci of critical media analysis (Fairclough, 1995: 44-48). Thus, media analysis, in particular, needs to specify the repertoire of voices (different societal actors such as politicians, experts, ordinary people), discourses and genres (editorial, interview etc.) and how these repertoires are articulated together in media output (Fairclough, 1995: 185-189). Such analysis can reveal socio-cultural practices apparent in the public debate. In this study, as will be shown in the analysis, the culture is divided into two parts which reside simultaneously and overlap by creating the realm of the specific debate: that of changing Finnish welfarism towards neoliberal values in general and specifically for the nuclear and engineering debate.

3.2. The empirical subject of the study and the scope of data

In 2007 three energy companies, Fortum, TVO and Fennovoima (presented furthermore in-depth in the next chapter) started their environmental impact assessments (EIA) in order to submit applications for three new nuclear units in

three different sites in Finland, of which two already exist, both having two former reactors, and one new actor with site possibilities where no former nuclear energy production exists. After commentary rounds and corrections of EIA reports, the applications were submitted in 2009. Until the time when the applications were still in preparatory stages, Finland was experiencing stable economic growth and trust in the future. In spring 2010 the Minister of Economic Affairs decided to propose two of those applications to proceed to Parliament for voting in which both applications were carried by votes 120-72 (TVO) and 121-71 (Fennovoima). The decision was preceded by a heated debate over nuclear power in general but also by a debate over to whom and on which basis the possible new units should be allotted. In summer 2010 the Finnish Parliament voted for two new nuclear power unit permissions after the responsible minister decided not to proceed with the third application. The preceding administrative procedure, with all its required documents and stages of approvals and revisions, in Finland is relatively heavy and long. It is a result of former battles over nuclear power safety after Three Mile Island and especially after the Chernobyl accidents in the 1970s and 1980s, and finally due to a lacking comprehensive legislation until the 1980s (the first four nuclear units in Finland were built in the 1970s). Fennovoima received a preliminary permission for a nuclear unit and thus a whole new plant. TVO received permission to build one new unit at the existing Olkiluoto site.

After a few years of facing some practical (related to land ownership and similar) and economic (large investors leaving the company) problems, Fennovoima submitted an application of supplement to their original application in 2014 (MEE 2014a), as only the situation of the original application had stayed the same. TVO applied for a lengthening in their construction licence application time (due in summer 2016) due to delays in the Olkiluoto 3 project. However, the Finnish Nuclear Energy Act does not recognize an idea of supplementing the original application of a nuclear unit, which created another major public battle. The Finnish Nuclear Energy Act frames the decision process in a way that it needs to take into account the 'overall good of the society'. That Government (2011-2015) had decided in their government platform that it does not make new decisions on nuclear power. According to legal scholars this application would be a new decision and thus something that the current government cannot decide upon. However, a positive decision for Fennovoima was made in autumn 2014 whereas TVO did not receive its extension.

Especially since 2008, the Finnish economy started to suffer from the effects of the global financial crisis and has not since found any sustaining cures. Thus, the economic conditions changed dramatically from what was estimated in, for example, the energy consumption estimates preceding the applications. In addition, nationally, a variety of changes occurred compared to the original applications in the plans (Fennovoima) and in the latest new build project, TVO's Olkiluoto 3 (OL3), has suffered a series of delays. In 2011 the Fukushima Daiichi accident changed the international political sphere in terms of nuclear power. These events raised once again the discussion on the original

argumentation of the 2010 decision and even questioned the legitimacy of it in the case of Fennovoima. In addition, the historical debates and confrontations still ripped apart the camps for and against nuclear power, which were and are again coloured by wider the environmental problems of modern industrialized society (cf. Goldschmidt 1982: 431-433, 439).

In the background, the global nuclear community worked for strengthening the safety and regulatory systems post-Fukushima (IAEA 2013). At the same time, Finnish nuclear governance faced new challenges when the two companies began to update their original applications in spring 2014. The system did not acknowledge such 'updates' and the question ended also as a possible problem for the Government as the new government platform included an item of not making new decisions on nuclear new builds, to which the updates for applications would have led. The governance and administration of nuclear power has always been seen as one of the 'Achilles heels' of nuclear power especially from the perspective of proponents (Goldschmidt 1982: 331). However, the situation was probably most crucially affected by internal issues of the companies and their business. In 2012 some shareholders of Fennovoima started to pull back from the project and in October the biggest shareholder, German E.On, left. In 2014 Russian Rosatom became the replacement of E.On but the deal was considered somewhat controversial as among one of the original arguments for both new builds was energy independency (independence from Russia). TVO, on its part continued to suffer from problems with its French turnkey supplier Areva at the building site of OL3. Considering the economic scale of such projects, the biggest problems of these nuclear new builds might not originate from external sources but from the very internal challenges, which lead to a variety of colourful political, also public, disputes. In the figure below, I have compiled the main events during the studied period.

Collection of the data started in 2010 and is thus partly retrospective and partly collected as events occurred. The events are looked through in detail in Chapter 4 in which I describe the process and crucial contextual factors and their wider political context. Data collection ended for good at the end of 2014 to the refreshed political debate and repeated parliamentary voting over 2010 decisions. The Green Party resigned from the Government because of government support for continuation of the Fennovoima project. The timescale and core events are presented in Figure 1 below.

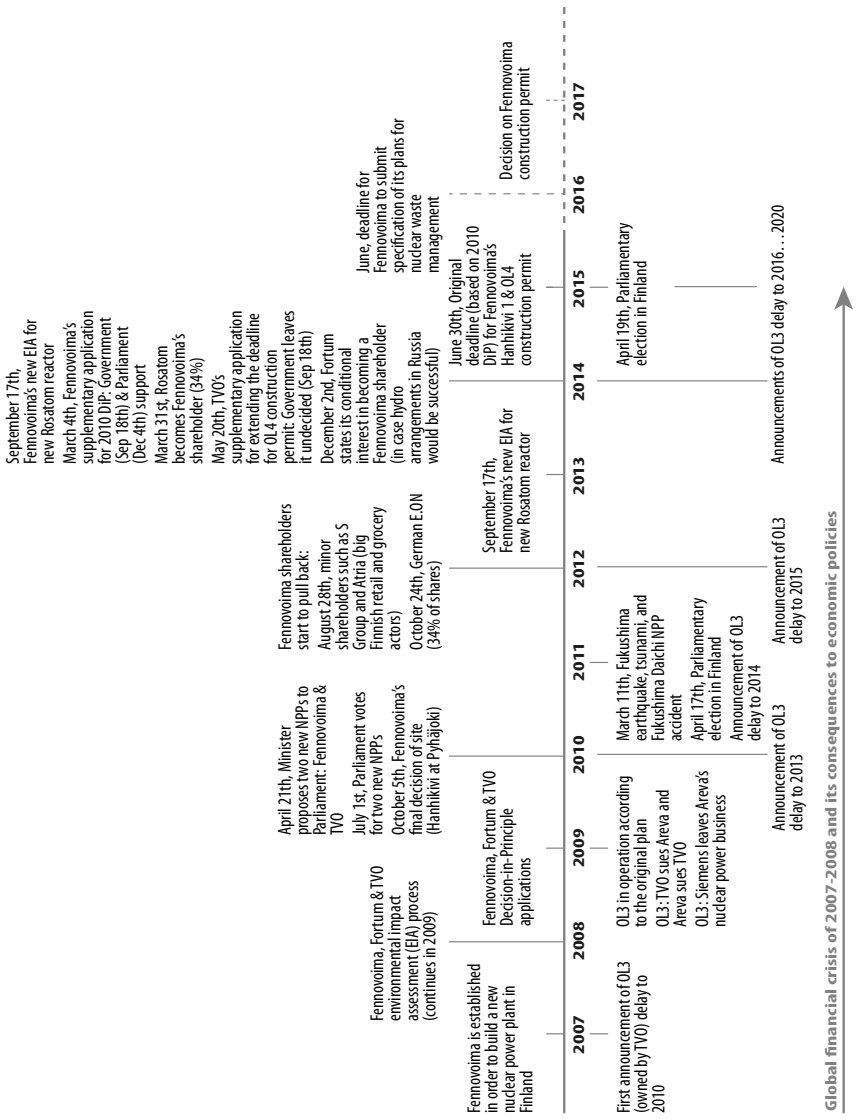

Figure 1. Relevant events during studied timescale.

The different data tell different sides of the story and the events from 2007 to 2014. Similarly, the methods differ somewhat according to their suitability with the data. Also, at different times different data were available, for example at times the official documentation dominated whereas at other times media was heated and public debates took a major role. Official discourses of decision making are analysed with tools of documentary analysis or more specifically the content and discourse of them. The public debate data is in different relevant media and relies most clearly on the tradition of discourse analysis. The more local events and personal perspective is analysed based on participant observation data. In the end, an also more conceptual approach is taken in order to understand different ways of knowing about nuclear power at a certain time and context. The chosen data and their analyses answer different empirical sub questions of the thesis and

provide mutually supporting approaches to the one specific case studied in the thesis – the process of defining societal good based on what the final political blessing became, as it is today.

In the analysis three different levels of foci arose and were thus considered in order to make them complement each other: first the *process itself* (there are internal and external claims of how this/such processes should take place in order to be considered legitimate); second, *actors' experiences and their usage of language* (discourse, rhetoric) were considered, and finally, the wider *effects of the political context, ideals and ideologies* behind decisions. The first two levels rely more strongly on the empirical analysis, and the third widens the discussion of the thesis towards a more abstract discussion background: ideologies, assumptions and expectations in decision making. These different levels do overlap at many points and the ensemble of discursive and material events for the main research question is discussed at the end.

3.2.1. Document, media, and interview data

The most important data are the official documents of the Decision-in-Principle (DiP) process and media materials – both because of their availability publically and naturally because of the following analysis but also for telling the story with an aim of including various perspectives that have seen many changes during the years (see Chapter 4). In addition to these core data, company materials offer a valuable source of corporate framing of nuclear power investment from a business perspective. Seven supporting interviews were carried out especially concerning the DiP process and post-Fukushima events. In 2013-2014 I participated also in the creation of a national research strategy for nuclear energy (YES) (discussed more below). General learnings from this work are also used for an accurate as possible knowhow-related description of the state of nuclear power in Finland today. A variety of unofficial discussions over the events took place but they are not listed as data here. *I do not include any information that I was explicitly told not to use or I otherwise consider confidential or sensitive, and I do not use such information for any other purposes except for my background knowledge in describing the events as honestly, in terms of appreciating perspectives, as possible.* The data set is described in the Table 1 (and specified in the Appendix 1). The different actor groups are described in the following, fourth, chapter. During the studied eight-year period, the available, used and useful data differed between periods. Roughly, in the beginning the document data had its largest role as major materials were produced during those years by the applicants and their core administrative stakeholders, whereas during Fukushima public debate it was central, and finally from 2013 to 2014 when the focus centred almost fully on one applicant (Fennovoima) and when the industry and its closest and most crucial stakeholders (e.g. administration, education) started to prepare for new NNB, both documentary data and public debates together with my own participation in different stakeholder forums (whether official or unofficial) acted with a

more equally important role for the analysis. These data are more profoundly presented below.

The core data was collected around the time of original parliamentary voting in summer 2010 and the Fukushima accident in spring 2011, and again in 2013-2014, when crucial internal issues of the companies started to change and when Fennovoima and TVO renewed their DiP applications, and the public debate became heated again. The core document data consists of what official documentation is available at the MEE website. Media data was first based only on selected major national newspapers representing the general media (Helsingin Sanomat & Yle), economic newspapers (Kauppalehti, Taloussanomat) and technically oriented economic media (Tekniikka & Talous) with an interest towards major national energy projects. After the final Siting decision of Fennovoima in 2013, also local newspapers from Northern Osthrobothnia (Kaleva, Raahen Seutu) were added as the interest of local media became more focused than having to participate only in the national debate. This collection was done on a daily basis during the periods described, as crucial for the study, and retrospectively before proceeding to the analysis and reviewing data and analysis in the later stages.

Official documents and media reports were analysed in 2010 from May to the actual voting and subsequently until July (in total around three months), and in 2011 a few weeks around the disaster in Japan, and in 2014 the public debate follow-up lasted ten months. At other times in between and retrospectively before 2010, the data were collected and analysed for its main points, i.e. major events and news and official statements. The core documents are counted in dozens whereas the whole set of decision making and company documents, and media articles are counted in thousands. It must be therefore be noted that not all contents of the documentary data were equally important for my analysis or possible for me to analyse from the chosen perspective. For example, the EIAs include large amounts of detailed accounts of the effects on the surrounding nature of the site (i.e., flora, birds, fishes, etc.) which become political in a very different way and different scale, for example, if they become central to debates valuing nature. Sometimes analysing such debates would also require a wide knowledge on biology and geography (mainly in the case of Fennovoima where fully new sites had to be researched), which I do not have. Some of the technical information is also beyond my acquaintance.

First, I look at the formal policy documents of the actual decision making process. That is, the public material offered by the preparing ministry (MEE 2010 and 2011, and later on in 2014(a, c) when the two approved applications were updated). This material includes practically everything official that is required by legislation and in the Finnish case, and is thus relatively extensive from preliminary reports to official applications and their invited and open commentaries, and finally the decisions. In addition, the data includes other policy work widely referred to in the actual nuclear new build decision documents, for example the national climate and energy strategies from 2008 and 2013 are crucial policy work

that have a direct effect on all energy solution decisions (MEE 2008 and 2013a) and are also closely related to the National nuclear energy research strategy work in which I participated. Most of the material (e.g. preliminary reports and statements of interest groups) is mainly available only in Finnish and I have analysed this as it is in some case more comprehensive than the English versions (e.g. Climate and energy strategy 2008). However, where possible and in order to guarantee the original presentation of the authoring party, the quotations are from English versions if I have considered them commensurable enough in terms of the overall message of the text. Otherwise, translations are mine and separately mentioned. As the process is formally open, the documentation also includes the information of who and how they have been involved in the hearings during different stages of the process. In addition to document and media data, in the beginning I utilized promotional material (e.g. annual reports) of nuclear power companies in order to get to know their general communication; there was a limited amount of documents from other actors participating in the societal nuclear energy debate (e.g. environmental NGOs and local resistance group public communication). The data are limited to the documentation during the actual and public political process, which continued from 2007 until the data collection of this study ended at the end of 2014.

These sources are the basis for the analysis of how the nuclear power policies and their discourses changed and simultaneously persisted, from the early stages of the processes to March 2011 and autumn 2013, in different media and actors' forums that concentrated on the immediate reactions, and in case of summer 2010 the preceding commentary. For this, I adopted the discourse analysis (DA) perspective described below. This way, I aimed to capture the perceptions as they were at the critical moments – during the decisions, during the Fukushima disaster, and finally when critical societal and organizational circumstances changed after autumn 2013.

3.2.2. Participant observation

The first (of three) participant observation periods took place in August 2013 during an eleven-day art project 'Case Pyhäjoki – Artistic reflections on nuclear influence' in which a group of artists and researchers gathered to work at the possible siting place of Fennovoima's nuclear power plant. The nature of the project was 'transdisciplinary artistic expedition, production workshop and presentation events in Pyhäjoki, North Ostrobothnia' and had the aim to 'explore artistic perspectives' on the vast changes planned in Pyhäjoki, through the planning of a nuclear power plant at the site, and this way of considering energy production and consuming [sic] in the world. Artists can not only reflect upon and depict social phenomena and socio-economic relations, but can also situate themselves in between politics, activism and science' (Case Pyhäjoki 2013). Various lectures on different issues in nuclear power and visits to, for example, the possible site and industrial facilities were organized to preface the following

interdisciplinary working of the group. I attended the project both as an observer but also as an informant based on my own research work (I gave a lecture and helped the foreign visitors especially with details about the Fennovoima project and the Finnish context), and participated in some of the sub-projects in different ways. The project provided the possibility of gaining a deeper perspective on the more local effects and of experiencing a long industrial project that had already had a variety of social effects that were also connected to the possible future environmental effects. In addition, I preliminarily hypothesized that such a project that combines preceding knowledge with concrete experience and subsequently takes different forms in the projects of the artist can reveal something novel about the polarized nuclear debate, which would not be possible to find and understand in other ways (Degarrod 2013). Thus, this project offered me a possibility of becoming acquainted with the concrete material and social effects on site where such a large-scale project would take place.

Especially, the reconstructed story in Chapter 4 has benefited from a second participant observation when I attended a social science working group in the development of the National nuclear energy research strategy (the abbreviation YES comes from Finnish) in 2013-2014 (MEE 2014b) whereby core Finnish academia on nuclear power issues gathered with company representatives and administrative bodies to map the future needs of nuclear energy research in Finland. The working group offered me valuable information on the current state of the industry in the wider energy system and other social environments in which it is crucial. Third, I attended an IAEA led two-week course in November 2014 in Trieste, Italy (IAEA 2015). This course educates the future generation of nuclear scientists and officials to understand the global state of nuclear power, the political, technical and other complexities on all levels. For this study, it offered me an authentic perspective from outside Finland on the Finnish events through a variety of discussions with specialists from numerous fields of nuclear governance, science and industry and an in-depth understanding of the nuclear field. From working with the nuclear community I benefited by having the possibility to observe from both inside and outside the phenomenon called the 'Finnish nuclear peculiarity'.

Although my role in and the timescale and nature of these participatory projects differed, they all offered valuable insights in the complexity of the nuclear power discourse on different levels from technical and economical to social, environmental and finally, political (Kemp 2001; also Evans 2013). Although such a method in such an intensive case includes the risk of blurring the researcher's role, I consider the gained understanding as a valuable counterbalance to the otherwise relatively formally structured main data (the documents) or 'distant' data in the media in this study (Labaree 2002; Paechter 2013; Hibbert et al. 2014). In addition, all the observation periods became more or less as offered possibilities instead of being part of my initial research plan. Thus, this part of the data has a clearly supporting role although it has enabled me to be more accurate in the usage of terminology in nuclear governance and to find different stakeholder

groups and understand the diversity within them. Thus, the innermost value of these few participatory periods is in enriching the data in terms of access to more varied views and experiences of the various groups, from local people at the NNB site to national decision making, and to the international nuclear community. Without meeting people who are experiencing the process concretely for different reasons, I would not have been able to become immersed in the reasoning behind publicly available data and would not have had the possibility for the various informal discussions with scholars and other colleagues working on the nuclear power topic in many (research) fields, people in administration, and activists in different positions.

3.2.3. Supporting information sources

The background work of this study has required a large amount of information and knowledge that is not as such analysed but used for the technical accuracy of the story (e.g. international nuclear governance and its effects, international reactions to NNB projects and Fukushima) and discussions during this research project. In terms of used statistical information, legislation and more technically oriented information is widely offered by, for example, the NEA (Nuclear Energy Agency), that is a sub-organization of the OECD (Organisation for Economic Co-operation and Development), EURATOM (The European Atomic Energy Community), and the IAEA (International Atomic Energy Agency) (see NEA: Nuclear publications and reports; EURATOM; IAEA 2014). The World Nuclear Industry Status Report (Schneider et al. 2013), on the other hand, offers statistics and future estimates that are not driven by industry interests as much as the authors are independent from the significant nuclear energy organizations. With such background knowledge, I have also aimed to systematically rely on these sources for two main reasons: first, they are the most often referred to in discussions on energy policy internationally (as they are the major actors in many ways from the Finnish perspective, except for the Status Report that discusses similar issues, but from a non-state or industry driven perspective), and second, the information is publicly available to all. I acknowledge that as almost everything related to nuclear power, also all of these sources, have been questioned in many ways over time – especially if policy relevant conclusions are made from them. Thus, I have aimed to use them in balance, and their availability publicly on the Internet for everyone to see is a major advantage. Much of the even numerical data and calculations are considered to be more or less political as choices of what to include and in what timescale must always be made.

Table 1. Summary of collected data. (See more details in the appendices.)

Type of data	Specification
Decision making policy documents (available from MEE website*)	• Collected 2007–2014 • EIAs, DiP applications, ministry comments, public comments, ministry press releases, decisions; Focus is on the main application and decision documents • National Climate and Energy Strategies 2008 & 2013 • Specification of numbers of documents is presented in the appendix 1
Company materials (TVO, Fennovoima, Fortum)	• Collected 2007-2014 • Including general websites (basic information of the companies), press releases, annual reports and sustainability reports
Interviews	• Including seven chosen final interviews made 2011-2012 • Interviewees represent core actors, around 2010, who followed the events up close
Public discussion/media follow-up	• Collected 2007-2014 • Media: Helsingin Sanomat, Kauppalehti, YLE.fi, Tekniikka & Talous, Taloussanomat, (smaller local newspapers) • NGOs, interest groups, specific campaigns: ÄYH ('Vote nuclear power to history') campaign**, Pro Hanhikivi, Energiateollisuus (Finnish Energy Industries) and its collective blog Ydinreaktioita ('Nuclear reactions')
Participant observation	• YES (National nuclear energy research strategy); 2013–Spring 2014; used for background information • Case Pyhäjoki art project 2014; 13 days participant observation, project website, email exchanges • IAEA School of Nuclear Energy Management; 2 weeks in autumn 2014; used in order to acquire general knowledge on international situation of nuclear energy
Legislation	• Nuclear Energy Act 990/1987; amendments up to 769/2004 included • Nuclear Energy Decree 161/1988; amendments up to 430/2004 included • Act on Environmental Impact Assessment Procedure 468/1994; amendments up to 458/2006 included • Decree on Environmental Impact Assessment Procedure 713/2006

* This material is fully public. The documents I have studied were available at the MEE website from 2007 to 2015. After summer 2015 when the deadline for construction permits was expired, a lot of the material concerning TVO and Fortum applications was removed. Fennovoima material remains at the website as the project continues after the June 2015 construction permit application.
** The campaign was originally launched on the Internet (in addition to physical actions such as demonstrations of which some I also participated) at website http://www.ydinvoima.fi/ in January 2010 before the parliamentary elections (e.g. http://www.greenpeace.org/finland/fi/media/lehdistotiedotteet/aeaenestae-ydinvoima-historiaan/). However, by the end of 2012 the site was no longer active and it was re-launched in 2013 with some renewed scopes and messages. A related Facebook site 'Ydinvoima kuuluu menneisyyteen' ('Nuclear power belongs to history'; https://www.facebook.com/ydinvoima) has been active although less since the 2010 and 2011 events. Thus, much of that time message is not available anymore in its original form but can be partly found from referring sites (e.g. http://www.luontoliitto.fi/ajankohtaista/tiedotteet/ympa-ristapja-rjestapjen-teesit-ydinvoima-kuuluu-345) and in Internet archives.

3.3. Methods of empirical analysis

3.3.1. Analysing discourses in process

All empirical data was analysed and re-analysed over the years as events took new directions. The focus has been on the crucial moments – in time spans when essential events took place. This is due to the fact that those eight years also included long periods when 'nothing' happened. Of course, the projects proceeded all the time in different preparatory ways and nuclear power was constantly discussed among interest groups. Focusing on the most crucial events gives a more coherent structure for the analysis of the overall process. Through analysing my research notes and unofficial discussions (face-to-face, through email exchange) with other scholars and specialists, I started to identify repeated and changing patterns of rhetorical tools and ways in which decisions and actions were brought to the public, and to which I later on applied. Participant observation was recorded in research notes, both electronically and in notebooks. Supporting interviews were analysed in similar ways and interviewees were later on promised to have anonymity. In spring 2014 I returned to the data: all notes were re-read for guaranteeing the overall cohesion of the picture drawn in the thesis and in spring 2015 the amount of official administrative documents were also re-read. All of the analysis was done manually. The data consists mainly of texts in Finnish and to a lesser degree in English. The analysis was done based on the original language of the texts (i.e. mostly in Finnish) and quotes were translated afterwards. The original Finnish language and the translation work have affected the quotes and their relation to the analysis in two ways: first, some of the quotes consist of relatively technical/administrative language which has its own special characters that might seem ungainly to a reader not accustomed to read such language. I have not aimed to 'correct' this ungainliness in translations. Second, quotes from discussions and sometimes also from public data seem to be disconnected as everyday speech often is (compared to written, edited texts). I believe this is often due to the complexity of the topic and thus, have aimed to appreciate this flow of speech and text also in the translations.

The overall analytical focus of the conceptual side of the analysis is based on the idea that language is a carrier of reality in different ways. It can take more specific forms (technical facts and similar relatively straightforward descriptive issues) or describe abstract realities (such as comparative valuations of such technologies). As it is not believed here that there is a direct way to reach the material reality (let alone the abstract) through language, there is always an agent perceiving that reality. That someone or something can be an individual speaker, collectively created discourse or finally the researcher making conclusions on the data. The discourses reflect the different ideologies through which the complex socio-technical phenomenon of nuclear power is approached (cf. Kaplan 2008). According to Taylor, 'Discourse analysis enables researchers to explore

[these] everyday situations and practices as part of larger processes and social phenomena, such as a contemporary political project […]' (Taylor 2013: 54). In this study such an approach makes it possible to reconstruct and analyse a long period of time during which the context and even some actors changed but the political commitment held.

DA is considered to hold a strong connection to critical research (see above the literature review section) as generally being interested in the interplay of knowledge, truth and power (Taylor 2013: 17-20; Burnham et al. 2008: 253-254). As the aim was to understand the creation of common understanding and confrontations on a debated topic which is a value-laden and thus, ideological question, I held as a starting point that competing discourses carry values with them and which later on offer evidence through theoretical and empirical analysis. Such values were more or less represented – and aimed to be legitimized – in all argumentation in the given case whether or not actors would explicitly intend to bring them forth (cf. Patriotta et al. 2011). In addition, the discursive approach is compatible with both media and other public debate data and data from official documents in which also, intentionally or not, a certain kind of 'truth' is tried to be built (e.g. Bednarek & Caple 2014; Sowińska 2013). Throughout this study I have followed a so-called *relational-dialectic* conception of discourse. This approach cherishes the epistemological complexity that is manifested in discourses and is essential in the DA itself. The value of analysing the discourse is both in itself but also in analysing the context (Chouliaraki & Fairclough 2010). According to Fairclough: 'The critical interest of CDA focuses, in particular, on four general objects of research: the emergence, hegemony, recontextualization, and operationalization of discourses' (Fairclough 2005). Such an approach fits well with the long-term analysis of development in a certain case and the language utilized by actors can be seen as aggregate of meanings (Taylor 2013: 9-11).

Considering the empirical case, especially during the Fukushima disaster, meant the study benefited amongst others, from the literature on discursive framing of societal debates related to especially nuclear energy as a controversial technical, economic and political activity. However, since then as my perspective to the case widened, I changed the focus towards a more comprehensive societal analysis. Still, the discursive perspective enables an understanding on how in nationally and sometimes internationally heated debate re-legitimation of existing hegemonic beliefs is created by adding new dimensions to the dominant discourse and how controversial voices are still kept outside this dominant discourse (Entman 2007; Phillips & Hardy 2004; Teräväinen et al. 2011; cf. Vaara & Tienari 2008). This perspective to understanding societal debates in a situation where the context, of a certain debate with an already controversial role and internal fluctuation, is in flux.

3.3.2. Background for the analysis

In *Language and power* Fairclough (2001: ch. 5-6) divides discourse analysis into three stages: description of the text, interpretation of the relationship between text and interaction, and explanation of the relationship between interaction and social context, i.e. here more precisely the power relations and ideologies. In this work this is done through offering the story of events and different experiences of them and finally combining them in their wider political context and analytical framework. After the initial analyses over the years, I returned to the whole data set and reconstructed the 'story' to support the analytical process, now presented as edited in Chapter 4. The first stage of the analysis reveals the experiential, relational, expressive and connective values of the formal features of the texts. These lead to the second stage, interpretation that aims to highlight the dependence of those discourse processes to underlying background assumptions. In the third stage the relationship of the discourses to societal structures, ideological development and power relations are explained. These stages are discussed in the following analytical chapters by understanding the story through literature and formation of meanings in the story. The societal context could of course be framed otherwise than as political power struggles but it is adopted for the purposes of this study as the issue clearly arose from the data, not only implicitly but also pinpointed both by literature, civil society and media in this certain case.

The public framing, which aimed to societal legitimation of a decision in the studied case happened through official governmental processes leaning on the administrative process and also on public communication through different media by different actors. In this, knowledge becomes crucial both in ways of its usage but also in creation of it – who was able to speak about the topic, how those speakers argued for their statements and how they regarded other actors' statements and responses (Cornelissen & Werner 2014). Such composition of factors affecting how the case became to be, requires an approach such as discursive institutionalism that can appreciate actors as such, structures in which they operate and the discourse built in the interactions. Thompson & Harley (2012) suggest that research on causal powers of discourses should move towards paying more attention to actors and institutions, which resonates with the institutional discursive perspective. In this research the interplay of actors and structures, the interplay of discursive and extra-discursive is at the centre, but intertextuality to a lesser degree. Saying that discursive phenomena are real is not saying that everything that is real or important is discursive. The material side, i.e. the concrete effects, of the events is revealed in the description of the events and analysis of the process(es).

For purposes of presentation here, I have approached the analysed case as a 'story' told in public forums, in decision making documents, and since 2011 and especially since 2012, experienced by myself as a participant being 'part of the story' – but also as a story with concrete material effects. In the story the good of

society is built from different perspectives and thus, receives different meanings from different actors. In the following chapter I have reproduced the story for the reader to see how events evolved over the years (e.g. Gelman & Basbøll 2014). In the story, legitimation is built over a long period of time during which the context and the new build projects themselves changed. Although dissident voices and unexpected events brought 'cracks' to the hegemonic story of societal necessity, it strongly held its force over time, ending with one positive political reinforcement of the other decision and the other was left to wait on the government's table, and finally faced a 'natural death' when the company decided not to proceed with the project (this last event is not analysed as it took place only in 2015) (KhosraviNik 2014). Before that I revisit the analytical process which developed over time as the events brought new dimensions to the story both by confirming the former analysis but also by bringing up the dimensions that made me proceed with the analysis towards societal levels.

3.3.3. Analysis step by step

The analytical process faced a variety of phases both due to the growing and varying amount and scope of data but also due to the different natures of the events that took place during the studied time period. My research started with a relatively limited analysis of documentary data on decision making that was meant to be used for the illustration of one timely limited procedure (the original DiPs around 2010s). As the study was still in its planning stages in spring 2011, the Fukushima events brought interest and thus data on the public discussion over nuclear power, also internationally. For a year or two, I was settled with these sets of data, complemented with interviews with different relevant actors during those times. Reading and re-reading the different data supported each other in richness. However, already during the analysis made by 2012/2013 it started to seem clear that approaching the topic only from an organizational perspective would not offer a comprehensive picture behind the events that had taken place. In 2012 also both organizational and contextual changes started taking place and the wider political context had to be taken into account as a declining economy and geopolitical questions became central for the analysed new build projects.

The challenge of this study has been the fluctuation of the phenomenon. This has also meant that the data for different times are different. Also, part of the data was collected retrospectively whereas all data from, for example, spring 2011 was 'lived through'. The diversity also offered a variety of possibilities and forced the consideration of different aspects in the analysis of the discursive legitimation process (e.g. Schröder 2013; cf. Stoett 2003; KhosraviNik 2014) when discussing how the hegemonic picture was constructed in the middle of political flux in terms of the technology itself but also the surrounding society and especially the economy and the internal economic issues of the projects. However, when revisiting the original research notes on the data, they pointed in the same direction – to questions of wider political economy – although at that time I had

not included such a wide frame for the analysis but had been concentrating only on the business-society axis.

When I returned to the data in spring 2014 with an analytical framework built on a variety of literature that took a critical stance on the relationship of politics and economic interests, I decided to focus on what the data illustrated on the overall goodness of nuclear power and the specific projects to Finnish society or societies in general. As this argumentation seemed often to have a clear economic tune with a hint of 'necessity', the study was also guided by these notions, which later on became to fit with how the wider development of governing and politicking large societal issues was discussed in the literature. Thus, the analytical process was guided by an abductive approach in repeatedly returning to the data and literature in order to build one subsequent coherent analysis.

3.4. Limitations of and ethical questions in the empirical study

This study has limitations in its empirical scope and scale. First, it is limited time-wise to a specific political process that covers the preparatory governance stages from 2007 to 2010 when the then minister of Trade and Industry Mauri Pekkarinen made the choice of advancing the applications of two companies to parliamentary voting for DiPs, and was extended until autumn 2014 (originally from late summer 2013) when Fennovoima made the historically exceptional application for a supplement to 2010 DiP in March 2014 (see MEE 2014c) followed by government and parliamentary voting in late autumn 2014.

Naturally, some of the industry- and policy-specific contributions are limited to the Finnish context. However, nuclear power governance is also strongly international both in the sense of common regulation but also in a sense that the industry constantly follows the development in all countries producing or building nuclear power. In addition, the process itself is relatively unique and much of the knowledge is hard to apply to other industries. On the other hand, the nature of the process is tightly connected to the society revealing many dimensions of the complex relationship of economy, large-scale industrial decisions and the society. The theoretical contributions are discussed in the conclusions. Finally, the large amount of available data – of which much is not possible to be explicitly present in the limits of this monograph – resulted in limiting the use to those described and concentrating on political aspects (legitimation, argumentation, referencing referring to the wider society).

In addition to this, possible sources could have been, e.g. discussions in the Parliament (available on the Internet) or, for example, interviews with Parliament representatives. The social media discussion could have been systematically followed and in general, more interviews could have been done. There are various reasons why the data selection became what it is. I wanted to concentrate on the key actor groups who formulate the public legitimation story and stay formally

unchanged over time (the companies) or represent a certain institutionalized position (ministries) although the *individuals* in them might change. With this focus, for example, single Parliament representatives' decision to vote 'yes' or 'no' takes very different, personal, meanings based on a variety of personal factors like interest in and knowledge on the topic. On the other hand, the social media discussions are toady often suffering from so-called 'trolls' especially in such heated topics. I did not see value in possibly analysing such mischief if the study aims to build a coherent analysis on a longer time period policy analysis. However, I do not say that such analysis would not be valuable as such but it would have to be analysed in different terms than the political legitimation leading to defining large-scale nuclear investment as overall good of the society. The limitations of the empirical data naturally limit the theoretical approach in which I have stayed on the institutional level of policymaking analysis. Various praiseworthy studies based on other kind of data are made elsewhere and widely referred to also in this study.

Studying complex societal issues with aspects that people consider morally questionable induces some ethical questions for the researcher. The major issue is the distance from the researched issue and data. I have chosen to aim to utilize all possibilities to gather data when it has either been public or otherwise straightforwardly available. In the latter case, the minor participant observation took place mainly due to the fact that the 'nuclear community' is relatively small in Finland and the active stakeholder groups are very limited regardless of their position. Although, I have for small periods been part of the events I was studying, I consider the vast amount of very distant data balances my own role, especially as my role was mainly an observer or an invited specialist (researcher) in the field. In addition, the studied events were surprising many times which made the nature of the data become more an 'occurrence' towards the end of the researched period, both nationally and internationally, due to the variety of industry-specific (e.g. new nuclear policies and projects around the world) but also contextual events (e.g. tightening climate change policies). These events also raised new research questions which are discussed at the end of the thesis as well as the ethical and normative issues of this study in the concluding Chapter 7.

4. Finland: An extraordinary place for nuclear power

4.1. Introduction to the case

In this chapter I briefly reconstruct the events of the 2010s round nuclear new builds – that is from 2007 when the initial environmental impact assessments started until the end of 2014 when Parliament re-ratified the other formerly approved application – in Finland before proceeding to analysis in order to offer the reader and an overall picture of which internal and external crucial events and changes took place and in what kind of wider context during the studied time. The *core* of the research is the decisions made over the years and the argumentation made over them (the main governmental and parliamentary decisions but also smaller decisions done, for example, in exceptional circumstances) but equally important are the contextual events and other factors that affect how the decisions became received by the public and different stakeholders, and how they look from an abstracted perspective in (partly retrospective) analysis. Also, I have concentrated on the crucial moments (e.g. Fukushima events, major ownership re-organization) that received the most attention in public and were possible to follow and describe in retrospect by appreciating as many experiences as possible and also gather the ensuing knowledge to demonstrate in the next chapter how the studied case expresses the current political sphere, the values behind policies, and the strength of one discourse over other discourses, and finally the concrete outcomes of policy choices. The methodological cohesion is built on the chosen philosophical approach to empirical phenomena although the rich data is versatile and could have enabled a variety of approaches. Similarly, although the chosen data and methods are diverse across the study, they contribute to the same understanding of how the societal situation was formed in and around the political process of two new nuclear new builds at the turn of the decade. Much happens 'behind the scenes' and because of this these certain moments are chosen for the study. The main events were presented on a timeline in Figure 1 in the methodological chapter.

Energy policies are a crucial part of environmental policymaking due to the challenges posed by climate change and the subsequent international and European level policies. For example, in Finland the long-term national strategies for climate and energy are framed in the same report. The goals and strategies

follow European Union policies, which again are guided by results of international negotiations (MEE 2013: 22-15). Such reports and alignments take a wide stand on a variety of issues from, for example, state governance and support, to private investments, to innovation policy, and to food production. In strategic fields research and education are also strongly framed as crucial areas for the state to support in a variety of ways (MEE 2012a, 2014b). This policymaking connects nuclear power tightly with the wider framework of environmental politics and as a source for understanding the underlying structures and ideologies.

It might also be useful to specify briefly at this point what kind of governance and politics, in terms of nuclear power, I am discussing and what I am not. Especially, nuclear safety is carefully governed at many levels, internationally and nationally, already at the initial stages. International governance is based on international state and industry collaboration (the OECD Nuclear Energy Agency, NEA; International Atomic Energy Agency, IAEA; European Union level collaboration and governance) that national governance follows although a nation-state can also employ stricter governance as in the case of Finland (see e.g. Radiation and Nuclear Safety Authority, STUK; MEE). The preliminary process discussed in this thesis is at the beginning administrative (official parts of the EIA and DiP applications) and it turns political at the stage at which the current minister decides to proceed or not with the applications to the Government, which proposes new applications to be accepted by the Parliament. As being the latest, this stage comes publicly very well known as the opposition to nuclear power remains strong and has been said to be one of the origins of modern green movement. However, the public side of such decisions and debates is not any easier than the one hidden from the public's eyes – many important events and battles take place behind the curtains and can be interpreted only through public statements. For example, throughout the years in-depth analysis of the nuclear new builds' decisions was largely lacking from the Finnish media, which concentrated on reporting the events without further or deeper analysis (however, see Nikkanen 2015 as an example for in-depth investigative journalism on the topic).

During recent decades public communication, related to issues in which scientific facts are important, has shifted towards a more democratic engagement of public and differing views. This dialogue has its imperfections as a democratic process or as a search for a consensus, for example in decisions on nuclear power they are tried to be carried through the governmental process based on an overall argumentation of nuclear energy in society (Strauss 2011; Hokkanen 2008). However, researched public opinion is sometimes controversial with the official statements and, for example, the hailing of large support for some political projects can be seen as a misled use of facts, as in the case of claiming strong support for new nuclear power in Finland, although the statistics could be also seen in a very different way (see e.g. Energy attitudes 2009, esp. Chapter 2 and Figure 3; Finnish energy attitudes 2012, slides 2-3, 6-7). Such usage of studies has been recently present in Finnish public debates on all energy related questions,

not only nuclear. But the problem is not only in research itself but in the fact that creating a common base of public knowledge in societies is extremely difficult. Thus, media is both at the intersection and an interpreter of 'hard' scientific knowledge and 'soft' values. This complex combination of actors, knowledge, power and long-term effects, makes nuclear a special case from many perspectives. On the other hand, public policy not only shapes but also depends partly on media and public opinion, which again is shaped by the media representations of the questions to be solved (Protess et al. 1987; cf. Kepplinger 2007). In addition, lobbying (for and against different projects) has become a widely discussed phenomenon but it is not directly as such in the interests of this thesis. Despite the increasingly highly science-based nature (today often because of climate change and energy production emissions) of the nuclear energy debate, it raises also traditionally heated and emotional discussions when it becomes current in policy making.

The process of enabling nuclear new builds in Finland is defined by the Nuclear Energy Act. In practice it takes years from preliminary EIA to the actual Decision-in-Principle (DiP) and to the eventual construction licence that seals the project concretely (only after which should building works start). Although framed as being administrative, both these processes can be seen as political as they are constructed with the concern of answering to the 'overall good of society'. After these, if DiPs are positive (first, the prepared administration and proposed by the Government, then ratified in parliamentary voting), the competitive bidding process performed by the applicant (the company) is followed by various other political decision processes (MEE 2010; Nuclear Energy Act 990/1987). My main interest lies especially in the core processes and their societal context. The official administrative process is described in the figure below for clarification of the stages whereby responsibilities of the company, administration and political decision makers alternate.

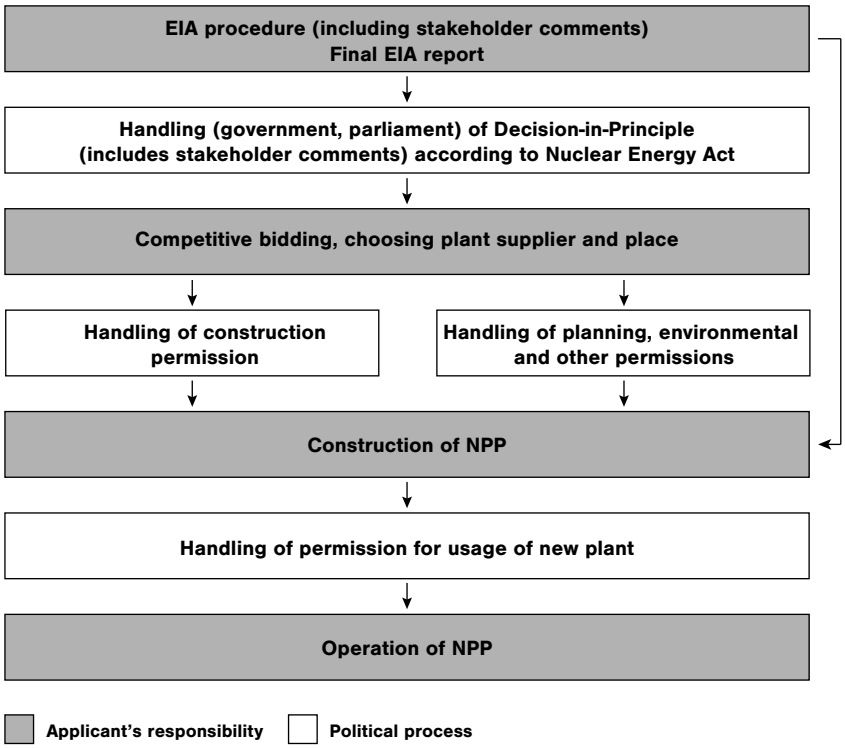

Figure 2. Full licensing process of nuclear new build in Finland (modified from Aurela 2011).

The decision of new nuclear plants is meaningful, even in an international sense as positive nuclear power decisions are today often targets of heated public debates everywhere, and is an encouraging signal for countries wishing to add their nuclear capacity or enter as newcomers. Internationally, any given positive decision is also carefully analysed by other nation states (and civil society and companies) while they are making their own decisions on their energy policies. For example, the Finnish decision to approve OL3 in 2002 which was the first Western decision to add nuclear capacity in two decades and was used as an exemplar of the industry until the project became a technical and economic disaster for the owner company TVO, and was delayed in the construction stage for ten years (see figure 1).

In Finland, MEE acts as the coordinating authority at both stages of the EIA (Programme and Statement phases). Based on these, the ministry allows the process to continue to the DiP stage. The Government proposes which applications it supports and the final decision is made by the Parliament. At this point, the process stops in case of those applications that Parliament does not support, as happened to Fortum in 2010. The next possibility opens, in principle, only through new a process starting from the first stages and preliminary preparations. In the end of the 2000s the Government had in total five different applications for nuclear new builds and spent fuel management projects. Finally,

three of these proceeded to the Parliament. Two of these – the new builds – are my principal interest, as the third application concerning a spent fuel management project is by nature slightly different and widely studied elsewhere.

In the following, I briefly present the main information of the applicants and their situation in the Finnish nuclear power field from the new actor Fennovoima to the old actors' state company Fortum, and the partly private TVO. Then I describe the main events that brought the nuclear question repeatedly to the table during these years.

4.2. The actors

4.2.1. Fennovoima – New actor, new challenges

Fennovoima Oy differs from the other two – more established – applicants, as it was particularly founded in 2007 for producing nuclear power. This business was of course dependent on their 2009 application for Decision-in-Principle as the company does not have other business activities than producing nuclear energy with the planned plant. Originally, (the changes in ownership is discussed later in this chapter and in the analysis) Fennovoima's owners were Voimaosakeyhtiö SF with 66 per cent of shares and E.ON Kärnkraft Finland 34 per cent. 45 per cent of Voimaosakeyhtiö SF's owners were trade and industry actors and the remaining 55 per cent mainly regional and local Finnish electricity companies. Fennovoima's function is to produce electricity for its owners' needs at production cost and the share of capacity is proportional to share of ownership in Fennovoima in line with the Mankala principle[8]. As well as TVO, Fennovoima also received positive Decision-in-Principle from Parliament for the new nuclear plant which will be situated in Pyhäjoki, on the North-West coast of Finland. Over the years Fennovoima became the centre of events relevant to the nuclear debate in Finland due to internal and external events affecting its project plans and due to its nature as a novel actor in the Finnish nuclear scene.

4.2.2. Fortum – Same arguments, different result

Fortum was founded in 1998 when businesses of state-owned Imatran Voima (IVO, originally founded 1932) and the principally state-owned, listed company

8. The so called 'Mankala principle' (named after a company called Oy Mankala Ab which was mentioned) is a unique form of ownership in Finnish energy markets. An energy producing company that follows the model is owned by many other companies, normally smaller energy companies and, for example, large industry actors having a great need for affordable electricity and/or electricity at a stable price. A Mankala company is a limited liability company but the profit owners get comings in the form of energy they can and have to buy at set price, the amount based on the share each owner has. A characteristic of a Mankala company is that it is established for a large-scale project that no actor could afford by itself and thus, the model enables smaller energy companies to produce their own energy through a Mankala company (instead of having to buy it from markets, for example). Also TVO and PVO (major owner of TVO) are Mankala companies. The ownership model in Fennovoima's case will be discussed more in-depth in Chapter 5. The Mankala principle becomes relevant when future scenarios of electricity markets are used in the debates.

Neste Oy (originally founded in 1948) were combined. The Finnish state owns 50.8 per cent of Fortum. The rest of the ownership is divided by more than 100,000 shareholders, mainly by households, financial and insurance institutions, other Finnish investors and foreign investors. 45 per cent of Fortum's European power generation comes from nuclear power. Fortum Power and Heat owns 25.8 per cent of Teollisuuden Voima Oyj (TVO). In summer 2010 the Decision-in-Principle for Fortum's new nuclear plant was not favourable – the responsible minister and Government did not forward it for parliamentary voting. For a considerably long time Fortum (formerly IVO) has been amongst the most reliable nuclear operators in the world.

4.2.3. TVO – From previous challenges to new challenges

Teollisuuden Voima Oyj (TVO) is a unlisted public company founded in 1969 to produce electricity for its shareholders at cost price (Mankala principle, discussed below). At the moment, TVO runs two operating nuclear power plant units (OL1 and OL2) at Olkiluoto, on the west coast of Finland. In addition, in 2005 TVO started to build a third reactor, OL3. Due to problems of the supplier, Areva, OL3 has become mainly a sad story of continual problems; the unit was meant to be in operation already in 2009 but the latest estimation for beginning the commercial operation is now somewhere after 2018 (see figure 1). Owners of TVO are mainly electricity companies, such as the state company Fortum with 25.8 per cent of shares. The main owner is Finnish energy company Pohjolan Voima Oy (PVO) with 58.5 per cent of shares. It is notable that the forest industry company UPM Kymmene is a major shareholder of PVO (43.288 per cent) and through that, a major single owner of TVO also. TVO has two other significant industry owners, Kemira Oyj with one per cent of shares and Oy Mankala Ab with 8.1 per cent of shares. However, as the shares are divided in three different series between different power plants OL1+OL2, OL3, and the Meri-Pori coal-fired power plant, the owners are able to buy electricity depending on the certain plant. This is mainly crucial when considering the investments for future power plants and their success during the building process. In summer 2010 TVO's application for a fourth unit, OL4, was voted positively in the Finnish Parliament. TVO's former project OL3 was groundbreaking in scale and in terms of technology (especially safety issues for which it is referred to as the first 'generation III' nuclear unit in the world).

4.2.4. Other core actors: decision makers and interest groups

Although the situation of and formation of the applicants is at the centre of the process as the process would not exist without the applications, a variety of other actors play a major part in how the process became to be. First, there are *politicians* – government and Parliament members. The Government makes the first decisions of whether to proceed with applications after the minister

responsible from the Ministry of Employment and the Economy (MEE, ministry in which nuclear power and other energy issues are prepared and handled administratively). Secondly, the *officials* from the same ministry prepare the decisions based on administrative and regulatory rules, officially not taking a political stance. Finally comes the so-called *civil society*, *media* and what is abstractly called 'public discussion' that takes place in a variety of forums from demonstrations to social media and to official public hearings of the official process (for example, Tapio Litmanen and Matti Kojo have studied these hearings in-depth, so I have excluded this perspective from my study as such and base my understanding on their research).

I will not discuss further the media as it was covered in the methodological section. Due to the various forms public discussion takes place, I include in it all discussions and debates I have followed and observed more closely as a participant over the years, and which were in one way or another publicly available. Civil society includes actors with very different organizational (or organizationless) forms: it includes traditional non-governmental organizations (in this case, especially environmental ones but during the original decisions also, e.g. youth associations of political parties), more local organizations, individual actors actively taking a stance on the topic, and finally movements without an official form of organization. As the last groups – civil society – often are on the resisting side (in the nuclear case), it must be mentioned that they are not a homogenous group of people and thus, do not always share the same reasoning for their resistance. For example, in this case resistance has developed from local interests, general resistance towards nuclear power, proponents of alternative energy sources, people critical towards large-scale systems in general, people critical of economic growth and environmentally destructive modern society in general, and finally people critical due to the latest events in geopolitical relations in Europe. These groups might have very different understandings on the meaning of the events analysed in this thesis, and similarly can have very different understandings of good society and how these various problems should be solved for which the studied new build projects were started in the first place. However, I do not go too deeply into the nature of different actors as nuclear resistance and its various forms are well discussed elsewhere.

4.3. Welcome to the game on permission to build: Preceding stages of political decision in Government and Parliament

When the plans of nuclear new build projects came fully public and the EIA processes of all applicants began at full speed in 2007 there was a new situation in addition to just adding units to the already existing Olkiluoto (TVO) and Loviisa (Fortum) sites. There was a new player in the game that wanted a greenfield site with up to 1800 MW electricity production with one or two reactors. The German E.ON had had interest towards such a project in Finland and now it had

also the national support in economic terms. The new company Fennovoima surveyed dozens of possible sites for the new nuclear plant (diminished to three in the EIA but still the largest EIA in Finnish history). Siting of a nuclear plant is not amongst the easiest things even if one counts out the political battles that the idea will face – the site has to meet various geographical and environmental requirements. But considering the siting itself, the newly founded Fennovoima established also, as a side effect, one of the most dedicated grass-root born resistance movements in contemporary Finnish history of activism. The Pro Hanhikivi association was established in December 2007 in a municipality of some three thousand people. However, this association during the next following eight years was able to enter all arenas from debating with ministers on major television channels to E.ON shareholder meetings, and it created a wide national and international network. At the other end of a means of acting (and outside the analysed time span of this thesis but worth mentioning), an independent group of activists entered the Hanhikivi site in spring 2015 soon after Fennovoima had started preparatory work. This resistance camp brought persistent direct action back to the Finnish resistance scene where more politically correct means had been appreciated for decades. There was something new in the Finnish nuclear field but there was certainly something new also in the Finnish activist field that has been mentioned as 'lazy' in terms of renewing, in an organizational sense or in demonstrating, since the 1970s.

The EIA and DiP processes in Finland are open for everyone to comment in addition to the requested and legislatively defined requested comments. Ministries, safety authority, municipalities were asked for their commenting. In addition, everyone can comment on the nuclear new build processes in Finland (see Appendix 1 for the number of comments). TVO and Fortum applications received, probably expectedly, small amounts of comments as there was already nuclear production at those sites. But Fennovoima's EIA process and later on the DiP application caused a surge of comments due to its nature as a greenfield plant. In total, during both processes we are talking about hundreds of comments (referred to as 'opinions' and 'statements' in Finnish on the MEE site). Both careful critique, especially on the environmental dimensions, and a few non-understandable commentaries were sent, and naturally everything in between. Nuclear power is also an exceptional business in that the state needs to ask what the neighbouring states and actors within think about the project idea, the so-called Espoo process, an international EIA. Also in this sense, the state is the chaperone of the nuclear industry from the very early stages. And the battle of Fennovoima partly hid the fact that TVO's and Fortum's projects would quite as well bring new nuclear power to Finland which was already reason enough for the civil society to become active, although these would be situated on already existing sites, which of course makes the process easier in many ways.

The game was on. It was relatively clearly written in the national energy and climate strategy that Finland could become more nuclear (MEE 2008). Estimates said at least one unit more, some said even two. There were three

applicants, two experienced, and one with regional politics and energy market competition arguments behind it. Parliamentary elections were close (2011) and due to the global financial crisis the Finnish welfare state was hanging in the balance. The question was about selling arguments and did not seem to have much to do anymore with nuclear itself but as wider societal choice of path. Several environmental NGOs in collaboration with youth organizations of many political parties organized an extensive campaign against any new builds. But it seemed clear that there would be at least one new DiP (permission), and maybe even two. Who would get the coveted new build and with which arguments? All three would be unable to score.

4.4. The political blessing: From administrative process to political process

The Finnish process of deciding on nuclear new builds turns from the administrative to the openly political from the moment the economy minister holding the crucial post in the Ministry of Employment and the Economy decides to propose certain applications for the consideration of the Government. Minister Mauri Pekkarinen, in 2010, decided to propose TVO and Fennovoima, and leave Fortum, the state company, to lick its wounds.

In the EIA and DiP application stages, TVO based its arguments on reliability and profitability. Normally used arguments in the nuclear energy debate for CO2-free energy production were of course noted in TVO's ensemble of argumentation for a new nuclear power unit. It also argued considerably for the need for basic national energy production. Thus TVO's argumentation but also their responses to stakeholder comments discussed mainly 'top level' issues, sometimes even ignoring specific questions about, for example, the EIA process details. In the DiP process it was discussed how the applied unit would 'help in reducing greenhouse gas emissions' and 'advance functioning of electricity market in Finland' thus applying Fennovoima's most unique argument. However, it was noted in reports that such an excessive growth in energy production requires investments to the electricity transmission system leading to rising electricity prices. These issues can be considered relevant to all possible new nuclear new build projects but they are, at the same time, contradictory to the argumentation itself from a common sense perspective – cheaper energy production would require rising prices in the transmission system directly affecting the price of electricity.

As an applicant, Fennovoima was in a very different situation compared to the other two companies. Thus, its argumentation was in many cases much more specific. Fennovoima referred to the competitiveness and energy self-sufficiency of its industry owners, employment and various other positive economic effects especially Fennovoima's nuclear plant and the construction project it could have. The Ministry of Finance, for example, also commented that Fennovoima's plant would have positive effects more equally than in the cases of the other two applicants. These were the most important arguments for the plant. But, as the

starting points for Fennovoima were purely new and the planned site would be situated in an area where no prior nuclear plants were currently situated, the debate at local, national and international levels became relatively vivid. In addition to a series of requests to correct and specify, both applications took place in the process. The nuclear field is not only extremely stabilized for political purposes, it actually is technically an extremely challenging business to enter as a newcomer.

In Fennovoima's case many of the counter arguments from different actors referred to the fact that the nuclear waste issue is not resolved in this project. The other two applicants also commented actively on Fennovoima's process. Local communities around planned sites commented especially on the very specific issues concerning the effects on the natural environment, land use and community development in case the plant would be built, and the unclear division of responsibilities at fully new nuclear plant sites and their nearby municipalities. The Ministry of Employment and the Economy noted that many replies by Fennovoima about some specific issues do not respond to the need to look at the overall societal good. Thus, Fennovoima had to amplify their reports and applications at many stages.

Fortum's application for DiP was mainly similar in its basics as TVO's in relying on former trustworthy operations and an established site and infrastructure. Justifications for a new unit were mainly based on the national climate strategy and CO2-free forms of energy production needs. The Ministry of Finance commented at the EIA stage that it does not show clearly enough how the plan would advance the benefit of the whole society. According to the argumentation it is still not clear why this would be a major fault in Fortum's case as TVO can be considered as being in basically same situation and this issue has been raised in public every now and then up to 2014. However, it could be assumed that Fortum's share of ownership in TVO's forthcoming new plant unit in Olkiluoto (OL3) most likely had an effect on the final negative decision from the Government based on the same argument as the Ministry of Finance made earlier as the decision referred to too much centralization in the markets if Fortum were to be approved with their own new unit. Later on, this was openly argued as such.

For Fortum, the counter-arguments presented by stakeholders during both, the EIA and DiP discussed partly similar kinds of topics such as excessive growth of nuclear energy production that leads to the export of nuclear electricity, which does not follow the basic idea of the nuclear energy legislation. It was also argued that Fortum presented lower than expected expenses for the project than recent experience in Finland shows. It was also claimed that the positive effects on employment were exaggerated and anyway would be smaller than in the case of investing in renewable energy sources. These arguments can be considered to support the final decision but were not as such presented by officials. The negative decision in Fortum's case shows that the 'overall good of society' in the

legislation can take many forms when the technical bases are the same to a large extent (TVO) or very different (Fennovoima).

The Finnish regulation on nuclear energy building is among the strictest in the world. In addition, it is supplemented with international regulation and agreements on nuclear energy (e.g. Sallinen et al. 2011). This complex regulatory framework also guides the decision making process, which is also meant to follow the democratic values of participation and openness for all interest groups of energy policy. These interest groups are, for example, other industries, non-governmental interest groups and local communities near energy production facilities. The national, European Union-level and ratified international climate and energy policies are the formal basis guiding the decisions from a higher level (Nuclear Energy Act; MEE National Climate and Energy Strategy 2008).

Officially, the roles of different actors are well defined – companies produce electricity, the governing bodies regulate and monitor activities to be safe, and politics and finally people (through politics and as customers) define which is the desired way of producing such a crucial commodity. However, all actors are continuously interdependent and all need to at least respond to some collective definition of values explicitly or implicitly. In addition, most of the administrative preliminary processes in the case of nuclear power are under MEE coordination except basically the safety evaluations by STUK, which operates under the Ministry of Social Affairs and Health. These interdependencies, almost by definition, create ethically grey zones in relationships of actors: the core nuclear community (companies, administration, education and research) in Finland is relatively small, as noted by many people (regardless of their attitude towards nuclear) with whom I have discussed, and thus are well networked with each other whereas the local resistance against Fennovoima started from scratch in terms of organization and resources. In addition, there is a strong societal interdependency of issues, structures and actors that blurs the picture in such wide-scale societal and infrastructural decisions (Star 1999). Officially, for example the ministry-based nuclear energy governance cannot take a stance (although its responsibility is to listen as such during the procedures and take them into account where necessary based on the definitions of the process itself) on ethical questions – its role is to prepare processes and monitor that requirements of legislation are fulfilled. However, already this one single process case shows, as will be discussed later, that such processes do include various dimensions that require analysis beyond the 'official' rules.

Thus, in summer 2010 the Finnish Parliament voted for two new nuclear power plant preliminary permissions. In addition to these two positive ones, the third negative one became crucial later on in an unexpected context. Also a positive decision of Onkalo, the final repository of nuclear waste, was made at the same time. For holders of those positive permissions, TVO and Fennovoima, the decision was a victory in that phase but theoretically did not mean an absolute permission to build more nuclear power capacity as, at least *in principle*, for example the construction licence faces new handling in the Government and as

was later seen in TVO's case, the limits of its own capabilities of the company ruled out the continuum of the project. The public opinion at the time was in general somewhat neutral towards building new nuclear plants. However, the support was not unambiguous (Energy Attitudes 2009; see also Gamson & Modigliani 1989). In addition, many reports suggested that at the time there was need for only one new nuclear power plant. Thus, the Decision-in-Principles for two new nuclear power plants faced diverse criticism, from the traditional nuclear power risks to more recent discussions on how the state is locking itself to a certain energy policy path guided by excessive amounts of nuclear investments. These decisions were claimed as being part of strengthening the institutions of Finnish energy policy elites.

During the several years' preliminary administrative process the Ministry of Employment and the Economy, the main administrative authority during the whole process, asked for various reports in addition to over a hundred requests for comments for the applications. Reports covered, for example, nuclear waste disposal, risks, competition in energy markets in Finland, Nordic countries and Europe and overall energy scenarios with all relevant dimensions. Mainly, these reports were ordered from the Technical Research Centre of Finland (VTT) which is a research institution with the MEE itself being its authority – making the VTT an organization that can be partly seen as governmental despite its status as an independent research organization.

Requests for comments were directed to a variety of stakeholder groups that are defined in the Nuclear Energy Act. In addition, as mentioned, practically anyone in the world can comment on the process of deciding on nuclear new builds in Finland. The directed requests were sent to, for example, the Radiation and Nuclear Safety Authority (STUK), other ministries (Ministry of the Interior, Ministry of Defence and Ministry of the Environment), municipalities of planned sites and the neighbouring municipalities, labour market organizations, and environmental organizations. These requests are separate to all applications: Fortum Power and Heat Oy, TVO and Fennovoima. After the end of the commentary period, the companies offer their responses to the comments. In the case of the EIA, the process ends with a final report by the contact authority (MEE) that should take into account the requested corrections, especially those made by environmental and administrative actors.

In addition to the official processes, a vivid lobbying proceeded over the whole period, and also private citizens took the possibility to comment on the applications to MEE. However, the wider audience became involved mainly when the parliamentary voting for the DiPs in summer 2010 was approaching and after the decision when the media became interested on a wider scale. When the news of the Parliament decisions came, the victorious candidates celebrated openly and framed the voting as a *benefit of the whole society* which would become the leading, although repeatedly newly defined, headline of the legitimating arguments:

> *Teollisuuden Voima was very pleased to learn about the Parliament's ratification of the favourable decision-in-principles the Finnish Government made concerning the Company's application to construct its fourth nuclear power plant unit Olkiluoto 4 and Posiva´s application to extend its final disposal for the spent nuclear fuel of the unit. "The decision is important for us and well welcomed by our personnel. It is also an extremely significant decision for all our shareholders and the entire Finnish society", says Mr Jarmo Tanhua, President and CEO of TVO. […] "The electricity produced at our new nuclear power plant unit will benefit not only the Finnish industry but also households and the service sector", says the President and CEO of TVO, Mr Jarmo Tanhua. […] "The decision made today is an important milestone towards the EU vision of CO2 neutral energy production. Placing greater emphasis on nuclear power and renewable energy sources will help us achieve significant cuts in emissions in electricity production", Mr. Tanhua states.* (TVO, press release, 1 July 2010.)

> *Fennovoima and its 64 shareholders are very pleased with the Parliament's decision. Fennovoima is delighted that the MPs recognized the need of the company's owners to have reasonably-priced and emission-free nuclear power. So far only small shares in nuclear power production have been available for them. … Fennovoima brings new competition to the electricity market. This will benefit the entire national economy and all electricity users in Finland. … The new nuclear power company Fennovoima improves Finland's security of supply as the power plant is to be located to a new site, dozens of new nuclear power owners will enter into the market and a new nuclear power expert will emerge.* (Fennovoima, press release, 1 July 2010.)

The public debate on nuclear power calmed down quickly that summer only to wait for a few months to explode again for a reason neither public or international nuclear community would have expected. The third large-scale nuclear power related accident in world history took place in Japan in spring 2011.

4.5. Fukushima and the changes in international nuclear activities and discourses

Early on the Saturday morning, 11th of March 2011, news from Japan reported about the earthquake and the ensuing tsunami. The earthquake damaged, among other things, units at the Fukushima nuclear power plant in a way that caused explosions and finally melting cores. In the following days and months, the media reported on various explosions, gas leakages and other problems in Japanese nuclear power plants, mainly still in Fukushima. Although, the amount of immediate the victims of nuclear power plant accidents remained significantly smaller (in the sense of direct victims) than the amount of victims of the earthquake and tsunami, the Finnish among many other national and

global media concentrated on the significant amounts of the following situation especially in the nuclear plants. Internationally, the nuclear community went on alert. The last large scale nuclear accident had taken place 25 years earlier and just since the mid-2000s the industry had seen a significant growth in interest towards nuclear new builds. In Finland, the opposing critical voices were aimed at raising the questions of the former summer's decisions to public knowledge – and re-consideration in Finland.

After the Fukushima accident, for instance the IAEA and EU started large-scale actions to prevent the similar from happening, for example by starting safety peer reviews at nuclear power plants all over the world and a process of updating the safety standard series already started. Many states also started their own national processes for enhancements. The situation was similar to post-Chernobyl when the nuclear industry started a long and painful process of learning from its own mistakes. In the Chernobyl case, it had taken ten years. Major nuclear accidents become larger than life as their effects are relatively disastrous and have an effect much wider than in and around the accident site. Some countries start to hesitate with their new nuclear projects and energy policies and energy companies rethink their future investments: *safety costs and more safety costs more.* In addition, the mistrust and political troubles related to the nuclear question can lead to years' long processes that require huge resources but there is no guarantee of a successful project, and maybe not even the start of such. In the aftermath of Fukushima, the German E.ON informed their leaving the Fennovoima project and thus, its 34 per cent ownership share was without a home in October 2012.

Politically, the Fukushima effects were wide especially in the situation in which the majority of the world was at the same time facing a need for low-carbon policies. Until events in Japan, the role of nuclear had been a lot easier in this context, and for example running nuclear programmes down quickly might have had effects on local level growths in emissions from renewed usage of fossil fuels. Moreover, the most important thing is that although new large-scale energy policy challenges followed all around the world, the greatest damage happened to the people in Japan – those who had to leave their homes, maybe for years, and the relatives of the victims of the triple disaster (for comprehensive analysis on Fukushima, see Elliot 2013: e.g. 93, 103 for these issues).

4.6. The rise and the (temporary and partial) fall: Two projects diminishing to one

Autumn 2013 brought a new international dimension to Fennovoima's project that had started to look desperate, as no new owners for the major share left by E.ON had been found. Rosatom with whom Fennovoima had earlier signed a contract of delivery of the new plant also became a candidate as an owner. In spring 2014 also this deal was sealed with the minority ownership of 34 per cent and there was new light in the end of Fennovoima's tunnel. Due to problems at OL3, TVO's situation was different and in autumn 2014 the plant supplier Areva

announced further delays in the construction that had already cost it billions of euro losses and TVO also had a deadline to prepare its construction licence application to OL4 by summer 2015.

In autumn 2014 various crucial decisions at state level were made. In September (the newly responsible) Minister Vapaavuori announced his decision to propose Fennovoima's DiP to be amended with a new DiP and new terms and not to continue TVO's deadline for a construction licence application. Thus, the deadline for both projects was the original 30 June 2015 to apply for the construction licence but doubts of their preparedness to submit applications were already in the air. Fennovoima's decision came with a condition of having to have enough (at least 60 per cent as stated in the renewed DiP) Finnish ownership as some shares were still without owner and resistance towards over large Russian ownership was considerable not to mention that over large foreign ownership in general would *per se* wreck the reliability of claims of a nationally important project. The Government accepted the proposition numbers, 10-7 in voting, which ended with the Green party leaving the Government. The Government was left only with a 101-99 majority in the Parliament that was widely seen as a threat for the Government to fall anytime soon. Nuclear power had become a major political problem for many actors down the line but for a variety of different reasons. For example, the minister from the Social Democratic Party (which has traditionally been considered as being close to workers in large industries), Antti Rinne and Finnish Energy Industries organization announced their great disappointment for the negative TVO OL4 decision whereas even many other proponents of nuclear power considered leaving it on the table as the only possible decision due to the uncertain situation of OL3. The technical knowhow and possibly finances of TVO were tied to OL3 for years to come and starting a new large-scale project became impossible for the company, which was confirmed by their 2015 announcement that they will not proceed with their application and project of OL4. In addition, the decision not to lengthen TVO's deadline was considered a possibility for new reactor applications during the period of the next government. A heated debate with a display of unbelievable colours of arguments continued in all the major media until the following week.

Parliament voting on the government decision about Fennovoima was expected at the beginning of December. The voting Friday was long-awaited with fear and excitement. But what happened on Monday that week surprised everyone outside the core decision making circles. Fortum announced its willingness to participate in Fennovoima's project (with maximum 15 per cent of ownership) through an arrangement, including for example hydropower possessions in Russia, with Russian Gazprom and Rosatom. Still in the spring, Fortum had denied any interest in participating in the Fennovoima project.

> *'These transactions strengthen the cooperation between energy sector companies in Finland and Russia and also with our long-term partner, Fortum,' says Mr. Sergey Kirienko, CEO of Rosatom. […] 'Fennovoima's*

> *nuclear project is important for Finland. While Fortum's participation and competencies are extremely valuable for the project, it will also provide Fortum with possibilities to grow in the area of nuclear expert services', says Mr. Kuula [President and CEO of Fortum Corporation].* (Fortum press release 2 December 2014)

This was reckoned to be a final seal to guarantee the approval from the Parliament to Fennovoima's updated project. Friday's approval from Parliament was followed by a historical approval from the Parliament to Fennovoima to expropriate the lands they still needed at Hanhikivi cape. Expropriation has been traditionally used for state projects concerning infrastructure projects. For example, Pro Hanhikivi complained to the Supreme Administrative Court on the decision. Already Fennovoima's willingness to expropriate was considered as an offence of their own original promises to co-operate with locals.

At the same time the situation in Ukraine, a war-like situation whereby Russia had a major role, was tightening. Other countries became alerted and, for example, the EU started preparing economic sanctions in order to change Russia's course. The old Finnish cold wartime dictionary definitions of Finlandization, Russophobia and Russophilia were re-invented in Finnish political and public debate language. Parliamentary elections in Finland were approaching once more in spring 2015 and the nuclear question had broken the customary positions inside political parties. For those to whom the nuclear question was important the following months would be extremely interesting – and consuming.

4.7. Eight years, three battles

I briefly have presented here the three crucial time periods, stages of the decision making process: the original decision and its preparatory stages, the Fukushima disaster that gave a global nuance to the local events in Finland (after all, Finland was since Olkiluoto 3, TVO's former unlucky project, the first Western country investing in nuclear after Chernobyl), and finally the end period during which the successful applicant companies descended into internal economical and project-related problems at the same time as international geopolitical issues came into the picture. A variety of details are left out of this description and I have concentrated on the three essential periods that became meaningful in different ways for the final decision. These periods also constitute the basis for the analysis in which I illustrate the simultaneous inevitability of the nuclear politics and the radically changing wider political context of it.

In the next chapter I will illustrate and offer an analysis of how and why in the studied case, a series of events in which the political belief in the goodness of nuclear investments in Finland held despite the internal and external turbulence the original decisions came to be faced over the years and how it reflects the Finnish combination of discursively defending both the old welfarist institutions

and values, and the newer neoliberal mindset putting forward economic over other ethical questions by framing the approach as rational.

5. Politics of good: Process, rhetoric and discourse of the renewing nuclear new build decisions 2007-2014

5.1. Introduction to the analysis

In this chapter I proceed to analyse the events of 2007-2014 and concentrate on the processes of legitimating two new nuclear reactors in a changing political sphere and context. Two different applicants were able to pass the original test of DiP (TVO and Fennovoima) and the phases of the third applicant, which had to leave the game at the beginning but yet made a peculiar return at the end (Fortum). Thus, this section forms the empirical analysis of the process itself and the rhetorical (specific features in argumentation) and discursive (wider references in reasoning) legitimation of the outcomes of the process and, finally, it proceeds to conceptualizing the analysis towards theoretical contributions. *I illustrate how traditional Finnish welfarist argumentation became combined with economized neoliberal logic behind it – something remaining stable, something taking newer forms of policy making logic.* The nuclear new builds became the carrier of everyone's good through the economized argumentation of necessity of growth whereby industry-led economic growth becomes good for everyone. Meanwhile, the Finnish energy intensive industry saw a decline or at least faced forecasts on it and a growing push towards so-called information society. At the same time, opposition from lay people to the professionals of energy system development not only held their traditional uncompromising resistance towards nuclear power with more traditional arguments on, for example, nuclear waste but also acquired the objectives and discourse on economic growth by responding with claims of renewable energy sources. In addition, arose the discourses of energy saving and the questioning of the growing need of energy on the one hand, and on the other the problematic geopolitical questions that shifted the debate towards the role of the energy system in the economy.

Outside the debate on the economic feasibility of nuclear power, the world saw the nuclear industry failing in safety issues in 2011 after 25 peaceful years and three years later Europe saw a rising crisis in Ukraine that also had wide effects on energy policies. The already approved applications of nuclear new builds

came to a second political round in 2014 and broke even the customary front lines inside political parties and also changed the original parliamentary support. On an organizational level, major obstacles also created fundamental changes to the projects that had not even started yet. Fennovoima lost one major and some smaller investors and was later on saved financially by a Russian nuclear energy company. This was considered to be a politically controversial turn of events. Fennovoima's application was re-ratified in Parliament guaranteeing a continuum to the years' long process. TVO faced challenges with their former OL3 new build project and it seemed they would not be able to apply for the crucial construction licence by summer 2015 deadline and thus applied for an extension to the application time which was not approved by the Government in autumn 2014. Both developments divided opinions of decision makers and stakeholders for a variety of different reasons.

Adding to existing capacity or building brand new nuclear is always a relatively complex process in itself, not to mention the societal complexity surrounding nuclear energy. However, the political goals for reducing energy dependency from Russia required large amounts of new energy production at the same time as four existing nuclear reactors were approaching the ends of their lives (Loviisa 1 and 2s' operating licences ending in 2027 and 2030, and OL 1 and 2 in 2018, although there are plans to renew the operating licences with twenty more years). The international nuclear community was hoping to see a reincarnation of nuclear after a couple of decades of decline and Finland became to be in the vanguard although many uncertainties were apparent. Nuclear energy became a top priority in energy and climate policies – although not without a splintering in support.

Nuclear energy is technically and scientifically a complex form of energy production when considering, for example, the risks attached to it, and the length and scale of construction project. Unfortunately, these issues also increase the challenges of communication on the topic. During the last decades, communication related to such complex questions has shifted towards a more democratic engagement by the public which follows the general growing trend of overall citizen participation. Still, the problem is the fact that creating a common knowledge base in societies is extremely difficult (Kurath & Gisler, 2009). In the studied case, knowledge became crucial as the camps polarized not only between promoters and opponents of nuclear but also as 'pro-nuclears' and 'pro-renewables', finally making this also the elementary political division in how Finland responds to the climate change problem and the future of the common energy system. On the other hand, what could be called 'knowledge' remained in debate through all the years; calculations, valuations of the externalities of different project possibilities, and the significance of other contextual issues took a variety of forms depending on the time and the contributor.

The argumentation for and against nuclear power was originally, around the original DiP processes, concentrated strongly on two main issues: economic advantages and the cleanliness of nuclear power. The relevance of discussion

partners was apparent as the different sides did not seem to discuss among each other but mainly with decision makers and the public – market their own agendas. Lobbying crucial decision makers was central, instead of convincing the other stakeholders such as the opponents. Tension over the multiple-year process included (and still includes) a variety of proposing and opposing argumentation which is historically characteristic of the nuclear energy debate. However, this certain process also included tensions between different applicants.

Table 2. Legitimation for additional nuclear power in Finland 2007-2014.

Time period	Examples of public legitimation (in chronological order during crucial events)	Leading discourses
2007-2010	*Fennovoima 6.6.2007: Fennovoima to construct a new nuclear power plant in Finland [title] […] A consortium of industrial and energy companies announced today a project aiming at constructing a new nuclear power plant in Finland. […] To implement the project, a new Finnish power company Fennovoima Oy will be established. […] – The power generation of Fennovoima is important both for participating companies and Finland. The new nuclear power plant will expand CO2-free power generation in Finland and at the same time decrease dependence on electricity imports. In addition, competition in power production will increase, which is good for all users of electricity and the entire national economy, stated by Juha Rantanen, CEO of Outokumpu.* *TVO 10.7.2009: TVO's application for a decision in principle to build the fourth nuclear power plant unit (OL4) in Olkiluoto is ready for the handling of the Finnish Government. All the statements requested for the handling of the application have been received. The statements, including the one received from the Eurajoki municipality, are favourable for the application.* *Fortum 21.4.2010: Finnish Government to make a negative decision-in-principle on Fortum's nuclear application […] Despite the negative decision-in-principle, nuclear power will continue to be important to Fortum in the future. The company's strong nuclear competence will be needed in the modernisation of Swedish nuclear power plants as well as to secure the safe and reliable operation of Loviisa's two existing units. […] Fortum's expertise is also in demand in several new nuclear power projects. The company's willingness to participate in nuclear projects abroad has been enquired and these opportunities are being investigated.*	Economic necessity (neutrality of background claims), climate change targets (CO2 emissions), public support

Time period	Examples of public legitimation (in chronological order during crucial events)	Leading discourses
2011	*Fennovoima 5.10.2011: Fennovoima nuclear power plant to be constructed in Pyhäjoki [headline] Fennovoima has chosen Pyhäjoki as the site for its nuclear power plant. Pyhäjoki municipality is located in North Ostrobothnia and the nuclear power plant will be constructed on Hanhikivi peninsula on the coast of Bothnian Bay. […] In the final site decision, safety, technical feasibility, environmental matters, construction costs and schedule were the main factors examined as well as the ability of the site region to support a project that will bring thousands of people to work and use services there. Hundreds of details were assessed within these key factors. […] In addition to these technical features, Pyhäjoki's benefit is that there are very few permanent residents and summer houses near the power plant site, which means that the construction will cause less disturbance for the neighborhood.* *Fortum 31.10.2011: Fortum has today submitted to Finland's Radiation and Nuclear Safety Authority the licensee's final report regarding the safety assessments carried out within the EU on nuclear power plants, the so-called stress tests. The European Council decided on 25 March, 2011, in the wake of the accident that occurred in Japan at the Fukushima Dai-ichi nuclear power plant on 11 March, 2011, to implement a Europe-wide re-assessment of safety at nuclear power plants. […] The safety assessment concludes that the design basis is proper and that the existing technical solutions and safety margins are sufficient. […] Based on the assessment Fortum has however identified some possibilities to improve safety even further: for example securing sea water cooling with air cooling; and securing of the fuel pond cooling in case of exceptionally long lasting accident situations.*	Technological superiority, Finnish exceptionalism; i.e. overall technical

Time period	Examples of public legitimation (in chronological order during crucial events)	Leading discourses
2013-2014	*TVO 31.1.2013: - A remarkable milestone has been achieved in the Olkiluoto 4 project when we received bids from all the plant supplier candidates involved in the bidding process. […] The construction licence application will be submitted to the Finnish Government by mid-2015. The construction of the power plant unit can start after the investment decision has been made and the construction licence granted.* *VTT report 13.8.2014 (p. 27): Finnish emissions would be 4 % smaller in 2030-2035 in case of additional nuclear power according to the results. The differences of the emissions focus on emissions trading sector. Scenario of building additional nuclear power generates major new investments not only to energy sector but also to construction industry and to many industries producing investment goods. According to estimates of effects on national economy the additional income growing from investments would also revitalise consumer demand. Investments on nuclear plants would increase investments 2 % and national product 0,5 % compared to comparative scenario in 2020s. (Translated.)* *TVO 15.9.2014: The Ministry of Employment and the Economy of Finland has today announced that it is suggesting the Government to decline Teollisuuden Voima Oyj´s (TVO) application to extend the period of validity of the existing Decision-in-Principle of Olkiluoto 4 nuclear power plant unit.* *- We were expecting a different resolution. The hearing process carried out regarding the application and various favourable statements confirmed the wide support OL4 enjoys from the entire society and the Finnish industry. The nuclear power project is strategically important. The project was once found to serve the overall good for the society, and this has not changed in few years, says Mr. Jarmo Tanhua, President and CEO of TVO.* *- A favourable decision would have been a good message to Finnish industry considering new investments, and would have had a significant impact in terms of employment and economy for the whole of Finland. New nuclear power capacity is also needed to ensure the achievement of the objectives set in our energy policy for emissions and self-sufficiency, Mr. Tanhua explains.* *Fortum 2.12.2014: Provided that Fortum obtains a 75-plus-percent ownership in TGC-1 hydro assets, Fortum would be ready to participate with a minority stake (max 15%) in the Finnish Fennovoima nuclear power project on the same terms and conditions as the other Finnish companies currently participating in the project. […] 'These transactions strengthen the cooperation between energy sector companies in Finland and Russia and also with our long-term partner, Fortum,' says Mr. Sergey Kirienko, CEO of Rosatom. […] 'Fennovoima's nuclear project is important for Finland. While Fortum's participation and competencies are extremely valuable for the project, it will also provide Fortum with possibilities to grow in the area of nuclear expert services', says Mr. Kuula*	National importance (moral aspect integrated to rationalized argumentation on), economic necessity, technical competence

Considering the obstacles in the later stage (technical delays in TVO's former project, crucial lack in financing of the project, etc. which will be discussed in depth more in section 5.4.) of the projects approved in 2010, it started to seem to many

that these projects would be carried through no matter what. The public presence and formally careful administrative and political processes were just legitimating the obvious and formerly decided future. The search for external legitimacy is not only a simple set of activities that would be unambiguously straightforward. Legitimacy is constantly 'negotiated' in and around organizations and thus also the meaning and basic assumptions of it, the meaning of good and the eligibility of it – similar questions as in the wider societal environment from which they occur or come, in a normally a just democratic society (Drori & Honig 2013; Dryzek 2013). This internal complexity of legitimacy can be seen as a reflection of the complexity of external legitimacy. Legitimacy is considered as something that is requisite but its nature changes in context (organization, time, different operating environments, etc.), it can be questioned and criticized but those are also essential to the development of legitimacy (van Aaken et al. 2013). In the case of negotiating over nuclear new builds in Finland 2007-2014, the legitimacy of the plants was built on wider societal needs and societal necessity.

I have approached legitimation as a *process* due to the nature of the industry (before legitimacy is 'gained') although the processual nature is less studied than the existing (although sometimes debated) legitimacy or the losing of it. Suddaby & Greenwood (2005) studied this process from the perspective of rhetoric as the inmost meaning of legitimacy is persuasion (cf. Palazzo & Scherer 2006). This persuasion can be systematically done by powerful (economic) actors and institutions in organized ways on institutional levels that govern the operational environment of economy (Dahan et al. 2006). Although the general discourse of legitimation, axiomatically, is pointing towards the rationality of positive support of a certain project or actions or idea, it still has a rhetorical side that makes it sell speech instead of putting over a full appreciation to the facts. The DiP application is meant to *sell the project* whereas in other types of power plants the technical environmental licence process is crucial. For example, quite quickly many claims in the OL3 application were proved to be false, not least the costs which have risen in billions since the construction (which is still ongoing and will continue a few more years according to the current plans) started in 2005 (See: Lampinen 2009: 65). Before going further to the analysis in the next section, I have collected briefly below in the table some of the core arguments during the process. They represent the fundamental actors' communication over the issue at crucial moments during major events to which I will further immerse in this chapter. Further illustrations are also presented and discussed and the main points of original DiP decisions can be found in the appendices.

The case for nuclear energy raises, of course, a variety of technical and economic issues to the debate but has also been traditionally a strongly value-laden topic in the public debate. As the chronologically presented quotes from the core periods of the analyses illustrate, the external events affect relatively little the core arguments *for* adjunct and, in a wider sense, the overall meaningfulness of nuclear power. The official political process but also the public debate in Finland concentrated strongly on the technical dimensions of nuclear power as

a solution to challenging questions of sustainable energy solutions at a societal level. The disputes are born out of different perceptions on whether nuclear power has a role in the climate change solution. As any other infrastructurally important industry, nuclear power production also has its various other effects that can be seen in the argumentation on energy independency, (competitive) cost of electricity, and effects on other industries. On another level, we see argumentation on what long-term effects, such a large-scale decisions, have especially at local level (nuclear plant sites), and how they influence the long-term development of energy policy. In the process of legitimation, these issues sometimes overlap, sometimes stay or are kept scattered, and thus legitimation takes place on various levels.

At the core of such societal processes and thus, their analysis, is the original unequal (in terms of resources and the rate of organization of different actors) organization of the processes, which is linked to the economically driven unequal power relations and their problematic nature that occur especially after the rise of modern economic liberalization (Gouldson & Bebbington 2007). It would be of course naïve to expect from the beginning state-based bureaucratic regulatory processes to be perfect. Quite on the contrary, they have throughout history included flaws unfit for democratic ideals (Paehlke 1988). However, their starting point and procedural organization itself better fulfils the democratic ideals especially on the questions (such as new laws) which face governmental and parliamentary evaluation. In this sense, nuclear power in Finland is special, as no other industry needs such a political seal of approval.

When I started this research soon after the 2010 DiPs, I was often asked a question that intrigued my mind and pushed this study forward and me deeper into the wider societal reasoning beyond the technical questions of nuclear power. This question was, in outline: 'There were three candidates applying for permission for a nuclear new build. Two of them experienced actors in nuclear power and one with no former knowhow, except what came from foreign owner. Still, when two DiPs were proposed and given, the other experienced actor, with existing siting plant, was left outside. Why exactly this happened? If two permissions were to be given, why did not they play safe?' Since then those with permissions descended into different kinds of problems with their projects, and finally other's plans took a variety of turns changing the nature of the project fully in the eyes of many observers. At the same time, the other successful applicant gave up the process at the point at which the construction licence was meant to be applied (2015). Of course, new questions were raised while political will was adamant in one case but the other faced hesitation. The most important time periods are the DiPs in 2010, the Fukushima spring, and from the end of 2013 to the end of 2014 when the formerly successful applicants renewed their applications and the events leading to them. The first, original decision time was characterized by the heated climate change discussion that was topical in European politics and globally. At the same time, locally in Finland a new applicant entering the nuclear field made nuclear new builds a regional policy

question and the focus was turned also to the entire Finnish electricity market and its competition. An underlying question for all was how many permissions are to be expected and how many new builds are needed and for which reasons. Fukushima put nuclear power on the global map again. Human and technical failures, effects and responsibilities became something to be rethought for the nuclear community globally. In Finland, valuing the possibility of a similar disaster deserved little attention beyond those opposing nuclear power and those organizations operating existing plants, but of course in different ways. Finally, by 2013 the economic decline of Finland was clear and the approved projects were in difficulties in their own ways. That and the following year brought many surprises for the public eye. In this chapter I concentrate on analysing those crucial turning points in the process – the events as such, the societal discourses, and finally how the legitimation was ostensibly held with changing arguments over the changes in the context of the decisions.

5.2. For climate and the economy

> *The opposite of reason is not feeling, the opposite of reason is irrationality. And the opposite of feeling is unfeelingness. And every human being possesses both of these.* (Interviewee, translated.)

5.2.1. Establishing the basis for inevitability

For participants of the Finnish nuclear power debate but also for all others acting with issues of energy production, these years since the political kick-start for nuclear builds have been turbulent due to growing pressures from international and European Union level that concern emissions' deductions for climate change mitigation. The Finnish political game on nuclear new builds began in 2007 when the public audience received the initial news about plans for new applications for nuclear plants. It tells a complicated story of economic, natural, place-related, globally informed, and in all senses ethically coloured confusion of what happens when different needs clash in a society. As the interviewee (above) described the debate, it also included a layer of battle over what is rational and wise – a battle that directed how the contents of the argumentation were interpreted by other actors. And as former research indicates, nuclear power is such a grand political question in areas of economy, national industries and overall energy policy, that debaters can often be sceptical about decision-makers' motives and the honesty behind nuclear power decisions (Yli-Kauhaluoma & Hänninen, 2012). Thus, trust was also an important factor and towards the end of the studied period some decision makers and company actors had largely lost it not only in the eyes of formerly critical actors but also in the eyes of some former political supporters and of the wider public. By 2008 the EIA processes of all three applications – from TVO, Fortum and Fennovoima – were in full flight when the MEE opened

the circulation of a proposal for comments to the EIAs that had been prepared for the ministry a year earlier. The same year the National Climate and Energy Strategy framed additional nuclear power openly into the national strategy but with a statement that nationally produced nuclear energy that would not be for export purposes, thus, at least symbolically limiting the financial possibilities that would see a change in the final studied stages in 2013-2014:

> *In constructing our own capacity, priority will be given to plants that do not emit greenhouse gases, or ones with low emissions, such as combined power and heat plants using renewable fuels, and financially profitable and environmentally acceptable hydro and wind power plants. Furthermore, we will prepare for constructing additional nuclear power.*
>
> *According to calculations, in terms of sufficient electric energy, a decision-in-principle as per the Nuclear Energy Act on the additional construction of nuclear energy generation would be necessary in the next few years, i.e. during the current Government term, to facilitate the replacement of condensing power capacity causing emissions, with capacity with no emissions, and to improve the self-sufficiency of electricity sourcing. The consideration concerning a decision-in-principle will be based on the premise that nuclear power will not be constructed in this country for the purposes of permanent export of electricity.* (MEE 2008, extract from English summary, p. 5, emphasis added.)

The original commitment was strongly framed in national terms both in need and limitations: there was almost a future shortage of electricity and the future capacity would be reserved for Finland. This framing established the ground for further argumentation for the following years although the premises of the arguments changed. Under various pressures, how did the decision makers further argue their agenda on nuclear power? The events raised questions of short-termism and partiality among those interested in energy policy in general. On the other hand, the contextual changes taking place and the simultaneously persisting belief in the need to proceed with Fennovoima's project in particular despite the almost impossible-looking challenges that created a picture of an inevitable continuum of new nuclear in Finland. In addition, being explicitly or implicitly unclear about the backgrounds of such big decisions, it seemed for many actors that the decision-making processes were for their part establishing and retaining positions of power, for example the hearings were repeatedly considered as 'legitimation theatre' by the side of those (especially environmental organizations and locals at new Fennovoima site options) who had tried to present critical points on them (cf. Bickerstaff et al., 2008). An extreme and concrete case of this was when the local community demanded four times over the years (2007, 2009, 2013, 2014) for the municipality to organize a referendum on whether or not the citizens of Pyhäjoki would want the nuclear plant in the municipality

but it was never organized, which gave Fennovoima the possibility of marketing the full local support of the project based on the decision of the local council to support the project[9]. In the analysed case two layers of legitimation processes – the official administrative and political – and ostensibly the public discussion overlapped partly but sometimes seemed to be totally different discussions, for example, concerning how the issues, such as the whole energy system and questions of specific technology, were dealt with.

The process, after rounds of the EIAs and DiP applications, were proceeded quickly by the current Minister of Economic Affairs. The parliamentary elections were close (2011) and it was estimated by many that the minister wanted to take care of the DiPs well before elections. For one interviewed company representative, the political process was a one-time blessing that would indicate societal support for the project. For this person, national politics, and general politicking over the topic too, should be then drawn out of the further process when the project would become something internal only for the company making the investment. The interviewee saw nuclear projects as technical issues in which the central thing would only be the ability to take care of legal and safety-related responsibilities and the sole goal of producing electricity. However, s/he refers to the strong political, and not, for example, technical, dimension of the initial political acceptance of nuclear new builds. Thus, for the speaker the division between layers of political and administrative/technical were clear and the following quote hints that technical things should not be politicized:

> *But somehow in this discussion the starting point is that the DiP is the permission to build. Well, it is not so. But it is green light for moving from such political consideration to this technical and economic consideration, this project. And by that, that it goes to the Parliament, those who want to proceed with such a project, want to be sure that it has political acceptance, and that the political viewpoints don't affect to the further decisions. Because if we fulfil all the legislative requirements and all kinds of economic issues are in order and so on and so forth, then we can proceed with the project. But the hard decision is the investment decision. We make a decision on four to six billion investment. It is not exactly a very small decision.*

> *[…] in nuclear there is this overall good of the society, that is widely… it does not have any clear rules how to define it when giving the political DiP decision. […] For example in our case we could not affect the political decision making in any way. But there were viewpoints of regional politics and industrial politics. That is, politicians make these decisions fully independently, not for the company's benefit but for the industry's benefits, region's benefit and for labour questions, and maybe because of regions where they are supported. […] The decision making was not very much*

9. The local municipality has the ultimate right of veto to decide whether or not a nuclear power plant can be built in the municipality. The decision is in the hands of the local council and they do not have to organize a referendum even if it is demanded by the local residents.

> *guided by how well environmental issues, safety issues or waste issues were defined in the applications. When following the final discussion, when it authentically turned political, I don't really think these issues were really present in that.*
>
> *[…] Because in fact we are in Nordic markets, widening to European markets. When you look at that market, it doesn't really matter who produces that electricity but how much of it comes to the market. Right? It matters how much there is, not who produces. In practice, who produces comes relevant in terms of whether that actor can take care of all of its obligations and so on. Here it is quite obvious that we have actors who all can take care of these obligations.* (Company actor, translated.)

Thus, from the beginning the logic of decisions was controversial also to the companies themselves. At the same time when emphasizing the crucial nature of technical competence – and nothing else as the basis for the permissions – it was clear that it is not the innermost name of the game. Similarly, the DiP was considered as fundamentally legitimating a political seal for the NNBs, further politicization was seen unnecessary due to the DiPs – which implicated the belief in the necessity for new nuclear capacity once this had been raised. In the above quote, the speaker resolves this controversy by aiming to limit the political part to the first, to the DiP stage, of the process. However, the subsequent years would show that politics could not be dismissed even in the business sense.

5.2.2. Knowledge and participation in the process of initial legitimation

The administrative and subsequent political process (the borderlines of these two is also discussed) is based on the idea that such considerable projects with long-term effect need to be widely ruminated based on best possible knowledge and discussed to reflect the surrounding societal needs. This collective reflection takes a variety of forms from the abstract societal level to local details. For example, in the processes discussed here, the stakeholders raised questions, for example, on the lack of life-cycle perspectives, some technical details and the immediate surroundings of the planned plant sites. These issues were among the many raised by a variety of stakeholders on the original DiP application documents, which are open to public for comments. The critical stakeholders often felt that even the most decorous questions did not receive answers from the applicants. This became apparent in a variety of official and unofficial discussions, face-to-face and in public, over the years in which I collected the data. The disappointments and bitterness was often tangible – people who had formerly relied on parliamentary and administrative processes felt betrayed. The pro-nuclear actors kept to argumentation that invoked climate change and the economy. In the background trust in the economic reliability of the projects was also built around Fennovoima although it had currently no concrete business activities – trust was essential in evaluating the financial possibilities. For

example, in one of the subscribed reports, the financial situation of Fennovoima was evaluated as the following quote alludes to the trust of the owners at that time. Such trust is crucial in these kind of long-term wide-scale projects whereby the original participation is partly a promise of participation in future costs according to the contracts. However, this trust and support was marketed as something that would guarantee the financing of the relatively large costs of a major scale project such as nuclear new build – an issue which was repeatedly criticized over the years.

> *The starting point of the Fennovoima project is that the delivery of the plant is prepared in detail with the shareholders and the supplier before the construction phase starts. This reduces risks and improves the reliability of the budget. Flexibility of Fennovoima's financing is based especially on the willingness and ability of the owners to support the planned project. According to our understanding, the project is strongly supported by the owners. In particular, the strong economic interest of the owners support the possibly needed additional funding.* (Danske Markets Corporate Finance final report on financial possibilities of applicant companies, 23 March 2010, p. 18, translated.)

Enabling a wide participation of stakeholders is part of democratic ideals and legitimation of the new builds. However, the covered documents are not often able to concretely show *how* the participation affects the process, or to which issues it could affect and this part of analysis lies in the documented experiences of participants. In addition, choosing always takes place in terms of what to include in the final document when the application is represented to the minister for governmental and parliamentary voting. The legislation affecting nuclear projects requires large amounts of different technical data and the ministry concerns itself separately with the evaluation of the economic effects. The critical voices acted as a watchdog of possible problematic issues. However, these issues and their critique are often limited to societal aspects as, for example, nuclear technology often requires specialized knowledge for plausible argumentation. In terms of commenting such issues in a 'language that administration speaks' requires major voluntary resources from critical stakeholders with minor or at least less technically specialized organizations. However, in technical safety terms the statements of STUK are also available on the MEE website and thus, the possible safety related needs for enhancements are open for all to read. Another question is whether lay people are able to get the necessary information from cursory summaries in political documents (quote below) or, on the other hand, from detailed technical documents provided by STUK. This dual nature of technical supervision of the projects creates possible knowledge asymmetries between actors.

> *None of the presented plant options does not as such fulfil all the safety requirements. The nature and scale of alterations change significantly*

> *between facility types. Some require relatively small technical, some need wider structural alterations.* (Fennovoima DiP 2010, section on technical requirements based on preliminary safety report by STUK, translated.)

The division happens at this point, after the technical and administrative requirements are fulfilled according to the evaluation of the supervising authorities: the decision is political and the technical side is 'just' something that is taken care of by the applicant and supervising authority. After two years of evaluating the EIAs and technical capabilities of the applicant companies, the decisions themselves emerge as being political by nature. With background reasoning over the needs of electricity markets, employment and the general good of the economy, the decisions came out with a statement over whether the projects would be supported based on the evaluation of the overall good for society – detached from the technical discussions of the capabilities of the companies:

> *The building of a new nuclear power plant and the nuclear facilities needed for its operation, at the proposed power plant site at [name of site], in such a fashion as the application proposes, is [not] for the overall good of society* (Positive for TVO and Fennovoima, and as negative for Fortum DiPs 2010, [not] for the latter, otherwise texts are the similar.)

The formal justifications in the three – two positive, one negative – DiPs (only the decision outcome quoted above) followed the same lines (see also Appendix 3). The overall good of the society was discussed in terms of functionality of electricity markets, availability of electricity, environmental impacts of electricity production, a reasonable electricity price and energy independence. In addition to electricity questions, structural change of the Finnish economy (especially the forest industry that had formerly held a significant foothold in large-scale, i.e. nuclear, electricity production due to its interests in it) and its effect on declining energy usage was raised in the main arguments – but peculiarly followed by statements of an expected rise of electricity need. A maximum of two new units were repeatedly estimated as the reasonable and required amount of new nuclear power. Technical and other capabilities of the applicants, selected sites (which only in the case of Fennovoima was new whereas both the two other sites were already in nuclear energy production use) were all considered suitable and sufficient to build and maintain a nuclear reactor and plant. Considering the nuclear waste issue, which is required to be solved or planned believably, TVO and Fortum had their co-owned company Posiva building already the final repository in Olkiluoto, where also TVO's former units are located. Fennovoima's application stated that it plans to solve the issue with these other two companies. However, owners of Posiva did not welcome this idea, which raised questions in the public of how reliable such a plan can be.

5.2.3. Behind the scenes of decision making and the opposition beyond

As it was quite clear that the decision would not be technical but political, selling arguments and what happens behind the scenes would make the difference. According to all my interviewees, long-term and intensive lobbying had already taken place before the official processes started. In this case lobbying took the form of offering favourable information on issues that were to become relevant in the process (especially the economic needs of national industries) and also building reputation – for TVO and Fortum based on experience and for Fennovoima as an actor, which could boost the entire energy markets and do this from the far northern areas of Finland that did not formerly have their 'own nuclear'. In policy questions defined through democratic processes, lobbying is crucial for various societal actors, such as industry interest groups and non-governmental organizations (NGOs), as different political interest groups have very diverse goals and values connected to the certain issues (Gullberg 2008; Holtbrügge et al. 2007). The nuclear power question activates varieties of groups but only for the applicant company, the question is of 'life and death' – a defeat means at least a term-long delay to the project (normally at least having to wait until the next governmental term of office as the new government often states its position on new nuclear decisions in the government platform), which is also a peculiarity of the industry. Contrary to the former notions of other company representatives, for some the important politics (even over the technical abilities) of nuclear power seemed central in terms of which issues were considered at the political level:

> *I guess the number one thing was that how much electricity is needed and who needs it. It was probably quite crucial that metal and forest industries were in the background, and for whom they wanted to guarantee electricity in competitive price and whose prerequisites of production wanted to be guaranteed, that jobs would remain. I think it was clearly over this safety [issue].* (Company actor, translated.)

The critical voices that were thus positioned against a dispersed pro-nuclear hegemony were claims of technical capabilities that were intermingled with marketing speech. Nuclear power around time of parliamentary voting in summer 2010 was exceptional in terms of mobilizing people to protest. For example, the demonstration in front of the Parliament gathered a large group of people (in Finnish demonstration terms, large-scale at that time – since then, larger demonstrations over other topics have taken place more often due to growing contradictions between decision makers and some groups of citizens), some few hundred people although the OL3 voting a few years earlier gathered a substantially bigger crowd. Previously, at least for some couple of decades, Finnish people have been relatively 'lazy' to demonstrate (Grönlund 2006: 81). Thus, such action was exceptional and indicated something of the meaningfulness of the topic. People do want to participate, partly because media and social media

have become such light channels in distributing information on events around the world and in mobilizing people. Such information, unfortunately, is not always unbiased or able to create the required basis for an informed consensus on political decisions linked to important scientific questions (cf. Gamson & Modigliani, 1989). Thus, such opposition is often doomed to stay on the level of public representations whereas actual influencing happens, for a case like nuclear power, in very different, elite-driven, forums. This is also related to the asymmetry of the information and knowledge available.

On the other hand, the organized opposition (environmental organizations and their issue-specific coalitions especially) also aimed to lobby and spread knowledge for their part with counter information, in addition to public campaigns with relatively simplified messages. This opposition, especially the Pro Hanhikivi association, participated actively in commenting on the EIAs and DiP applications through written commentaries and by participating in the hearings. However, the official legislation-based participatory process was experienced by the critical participants more as 'legitimation theatre' (as described by many) than as a forum with an authentic possibility to influence – once the participation was there the rules had been followed. This was widely discussed, for example, in the official comment of Pro Hanhikivi already on 15 June 2009 – long before the decision took place. The picture was polished also by voluntarily organized events at which 'information' was distributed and the process was referred as dialogue:

> *Already the fact that we apply for the DiP from the Government and the Parliament means that we need the political, societal acceptance. More important thing is how much the company widens [the responsibility] it, what are the current practices and what does the law say. How much the company takes responsibility by itself. We have done it a lot. Local informing. It's an important part of our social responsibility, has been from the very beginning. We've had a local office there. And in addition to the statutory hearings, we have organized our own events for informing. All the time we do much more than what is required from us. It's the same thing with the administration. We keep everyone informed even about issues that one would think belonging only to the company. We want to share that information […] It's meant for all interest groups. Informing the citizens. Meetings, with STUK, with the Ministry, and of course informing the decision makers. We brief members of Parliament. And local actors, companies. Development initiatives, development working groups. Chamber of Commerce. We prepare then for the project. […] The dialogue has gone really well. Of course we disagree. But we've had the connection all the time. We can sit around the same table. They are welcome to all the same events. Sometimes there is even debate but it works really well. They are citizens as any others. They have equal right to speak their opinion*

> *and to contact us. It's not different, they are not outside this responsibility.* (Company actor, translated.)

In this specific case, the speaker refers to the critical stakeholders as 'citizens as anyone else who have an equal right to state their opinion' thus putting the company in a situation whereby they would be in a position to somehow allow people to use their citizen rights or not. In addition, considering that the interviewee knew that I was also interviewing 'the other side' and following a variety of other information sources, s/he described the 'dialogue having gone really well'. Considering the descriptions of contrary experiences, the statement made me ponder how trust in the legitimacy of the projects was also internally important for the applicant companies in a situation whereby large resources are in use a long time before the actual project.

Participation is a democratic value as such but the wider and abstract national interest appeared to be more important and the decision seemed to be already made (cf. McCombs 2004). Trust in offered knowledge on nuclear questions is always an issue as organizations offering the information are connected to further interests in one way or another. For example, the controversial information of the health effects of radiation is a good example (Elliot 2013: 88-92). Also in the studied case, the gulf was predetermined to some extent. At the same time dozens of closed[10] parliamentary committee hearings representing different views remain a mystery to lay people, and also to researchers. Two of the interviewed NGO representatives from organizations that had been active in building a larger critical lobby movement, saw the process and the related processes around it (national climate strategy) as longer term projects of the industries but also some state actors sold the idea of nuclear new builds to the decision makers:

> *But I guess we were too late. Industry had done it [lobbying] for ten years and we jumped in six months before. Sometimes we were able to show that there are other sides in issues. Still, the worries of for example employment questions were so deep that we could not affect those associations. […] it was quite a lot throwing ideas in the air based on current vibes. 'Industry needs cheap electricity.' Yes, we know that. Even from an engineer perspective the public debate was of poor quality and we saw that with the Parliament members. For example, many of them did not know that there is no national markets for electricity but that we are in Nordpool.* (NGO actor, translated.)

> *Now that the climate and energy strategy is prepared in MEE. They have not agreed to hand over the documents although they should, based on the law on publicity[11]. We have made requests and Greenpeace summons MEE because of that. But that MEE is really dark, a black box from our*

10. Parliamentary committee hearings are always secret, not only in the case of NNBs.
11. Act on the Openness of Government Activities, in Finnish 'Laki viranomaisten toiminnan julkisuudesta' 21.5.1999/621, in everyday use 'julkisuuslaki'.

> *perspective. And at the same time we believe that the industry has good relations to there and they can feed their own figures to the calculations and so on. But of course we cannot know. We have no proof that the black box would be open to other directions. But I don't know about STUK except that it was quite interesting that Laaksonen [former director general of STUK] went to Russia [Rosatom] to work.* (NGO actor, translated.)

The quotes indicate the suspicions over the functioning of the overall process that would continue and strengthen over the years as events took new turns. Not only the process itself was experienced as a failure but also the structures and networks of key actors as such seemed as impenetrable for the critical stakeholders.

Nyyssönen (2013) analysed the public debate during the former decision-making process of nuclear new build in 2002. At that time TVO applied and got permission for one new unit, today known as the unlucky still ongoing Olkiluoto 3 building project. She describes a controversial debate in which questions of environment, economy, and (inter)nationality were raised. The role of economy in society was present especially in the context of welfare and the Finnish welfare state – and in the end in disagreement of what 'welfare' means (Nyyssönen 2013: 79, 171). Thus, even when raising 'rational' arguments we could say that through time on a fundamental level strong value-ladenness directs the discussion in such historically burdened topics as nuclear power. In addition, in 2010 the battle was not only whether or not to go for more nuclear power but who would have the possibility to do it and on what basis. Over the years, the frustration over the laziness of the Finnish media to discuss different dimensions of the issue became apparent in a variety of discussions in which I participated. Although, the closer the date came, the more clear it became that the decision would be political, which became apparent after the responsible minister announced his decision. Still, the media did not discuss the normative nature of the issue in-depth or did not principally take clear positions beyond the invited comments. For example, Helsingin Sanomat mostly reported on the parliamentary process in a fairly neutral way. A day before the voting it took an open position in its editorial, writing:

> *Helsingin Sanomat has placed itself to defend excess building of nuclear power because energy production is an essential question for competitiveness of Finnish industry. Transition to information society does not necessarily reduce demand of energy – maybe the unlike happens. Now Finland imports over ten per cent of the electricity from Russia and coal-fired power plants have to be replaced with other production' […] 'The political process ends tomorrow. If permissions are given there might be only one criteria in the process of final permissions for nuclear power plants: nuclear power plants can be built and be mobilized only when all the safety aspects related to them are uncompromisingly fulfilled. Problems in building Olkiluoto 3*

> *plant have already aroused questions of the know-how of Radiation Safety Centre in the international debate.* (HS editorial, 30 June 2010, translated.)

Thus, the legitimation also in the media was also built around the notion that problems were acknowledged but only after the major statement of economy was put forth. Stronger viewpoints and critical analysis of the process were yearned for by the critical stakeholders who experienced that counterarguments, no matter what type, were silenced or pushed aside. On the other hand, the topic might have not been in the interest of the media in a wider sense at that point in time – as one (NGO) interviewee put it in 2012 the overall situation of journalism around energy issues in Finland was:

> *[…] it feels that Finland is a weird corner where nobody follows anything. All, Spiegel, Financial Times and so on, pump out all the time analyses on energy issues, and then it comes to Finland after a year or something. And as vitiated versions. One would think that it would be quite 'fair game' for the journalists to follow a little bit what happens out there in the world. But I don't even know whether there is a journalist in Finland who would have specialized in energy issues.* (Translated.)

5.2.4. Rationalizing the economic good

Based on the official decision making documents there seemed to be a large set of background assumptions without further discussion (although there were aims to raise such a discussion throughout the years) on the reasoning behind the claims of electricity need and its meaning in relation to national welfare. Disappointment in the discussion repeating the need for cheap electricity was obvious among critical stakeholders who felt that the debate did not go further or deeper. On the other hand, the original 2010 DiP for Fennovoima already includes a notion that seems to be in contradiction with the specific claims on a new actor coming to the markets. This notion takes the perspective of the wider Nordic markets and similarly hints that the supply of energy is the core question in the decisions, not the politics – of who produces the electricity – behind them:

> *The electricity prices are determined at the electricity markets, depending on the real-time electricity needs, theoretically on the most expensive production type's variable operating costs (fuels, emission rights, other variable costs and gross margin). Principally this has been charcoal condensate power. The more generation with lower variable operating costs are coming into the markets, the more will be moments when charcoal condensate power does not determine the price and overall market prices decline. Therefore, nuclear power production can decrease electricity market prices at Nordic electricity markets. In this respect, the projects do not diverge from each other.* (Fennovoima DiP 2010, p. 127, translated.)

At least somewhat tense relationships between actors and lack of trust did not ease the situation which again points towards the political nature of the issue. Strauss (2011) connected the nature of Finnish energy decision-making to the welfarist tradition of the country. The idea of welfare is strongly connected to economic equality in addition to basic indicators of equality such as the ability to participate (Strauss 2011: 44-45). The nuclear energy decision-making becomes naturally part of this culture as it concerns the very wide-scale and long-term crucial issues of energy supply in the country. Traditionally, the benefit and necessities of industry have been considered as being a benefit for Finland (Kettunen 2008: 99-100, 220-221). This tradition was one crucial element of what was also experienced by critical opposition. The nuclear new build question does not become authentically political as its essentiality to the country is pre-defined 'before politics' (see also Palonen 2003). The official political exterior of public hearings and possibility comment was a public shield ostensibly opening the topic for public discussion and political reflection whereas authentic alternatives did not really exist in the big picture of the national nuclear programme.

Reading the official reports on the economic effects of the nuclear new builds, there seemed to be a greater belief in the background that the expected competition in the electricity markets would be achieved exactly through increasing nuclear energy production. This expected competition along with the promised low electricity prices would guarantee the welfare of the nation. In the beginning the role of the electricity price (see quote below) was more central than in the later stages, after internal changes in the TVO and Fennovoima projects (see 5.3), and the special Finnish way of organizing the ownership of power companies was at the core of the legitimation, although indirectly. The price argument, however, would see a crucial change over the years when also the estimates of future electricity prices changed and especially Fennovoima's Mankala price was more settled down from 2014 onwards subsequent to the new ownership arrangements and the decision of commissioning a plant, which was not indicated in the original application.

> *They probably also have better means than pocket calculator to estimate whether it is profitable. Now that we have in Finland this Mankala principle in which the owners can buy electricity practically at cost price, it must be one element that makes nuclear power profitable. Probably shareholders of TVO and Fennovoima see that as good business, that they themselves can get very cheap electricity from it. And if we return to the very beginning, this price of electricity was one big discussion. When we need to cut the emissions and we have cold Finland and cold winter. Here the price of energy is high and price of electricity is high and so on.* (NGO actor, translated.)

During the process over the years, the DiPs became to appear as *politics of unconditionality* no matter what happened even in terms of this economic aspect, which was repeatedly raised, although in different forms. They reflect

also the wider process, which resembles the first nuclear decisions in Finland from the 1950s to 1960s when despite numerous technical, economic, and not mentioning the political problems, the reactors were finally bought from the Soviet Union (see Michelson & Särkikoski 2005). For example, despite the overall changing economic situation, the confidence could be seen in how the company representatives saw and see the role of energy in society:

> *[Maarit: So how does the economic situation affect…?]*
>
> *From our viewpoint in terms of energy independence, that we have our own energy production. That Finland has own, reasonably priced and most of all production that supports climate targets. Because we can't use anymore those old forms, that we have sufficient own energy production. The meaning of it becomes emphasized enormously. For example, for the competitiveness of our shareholders, the price of energy and the availability of own energy are key issues. It means that in a world where everything is unpredictable – which we have seen during last years in the economy that no one saw coming. Three years ago no one could have imagined that there would be a recession coming and the US crisis does not affect us. And that when you look at Europe, in what kind of situation we are in, then everything that we can handle by ourselves, to which we can create predictability, competiveness with our own means. Because there is so much that we cannot affect, that globalization means that crisis in US is crisis in Europe. Not that we make only big investments but also that we secure reasonably priced energy supply, let's say that it is an actual question of destiny*. (Translated.)

Such representations of energy production as something that is above other kinds of questions exists tightly in the current discussions. However, this major topic has a variety of 'sub topics' often borne from the critique over specific projects. Juxtaposition, questioning and alternative options in a wider energy mix remain on the surface of the discussion as the process itself is built for legitimating the carefully prepared applications for which many different resources have been used by many actors. However, three new units seemed to be definitely too much and thus, two approvals would be possible. Even some pro-nuclear actors considered one new reactor being enough in the current context of economic decline. The applications of the established actors (TVO and Fortum) as such did not differ in their contents, which made the decision purely political, stepping outside the technical issues and beyond alternative electricity sources. One cynical commentator who had participated in the process described the extremely heavy and long administrative and political process as 'nuclear plant lottery' (cf. also Lampinen 2009 on the former 2002 NNB decision). The hegemonic belief in nuclear power had already set the question in the DiP process – which was concerned in the end in only how many new reactors there would be – whereas the parallel public debate of other alternatives only hid the power in order to

set those 'right questions' (see e.g. Kettunen 2008: 200; Gramsci 2012: 12-13). For the companies, the core questions were different – for them it was a factual need for new nuclear power, although one interviewee raised it also as a question of fairness, that is who can own and benefit from the new nuclear power – which, again, was in contradiction with the previously presented views on the insignificance of *who* produces the electricity:

> *We had to justify ourselves from the very beginning. Not only technically and economically, that have capability and resources to realize this project as required but also… Somehow it is a moral basis for why third actor is needed. Which again relates to questions of fairness in a sense that for example our shareholders who haven't had possibilities to get their share on nuclear power. So there is kind of… Of course growing competition, but also the fairness and equity that everyone in this society has equal opportunities to act economically and profitably.* (Company actor, translated.)

All applications in the studied case often relied on general arguments about the overall good of society based on the challenge of climate change, energy independence, and technical reliability. Other industry organizations welcomed this argumentation in all stages of the process from EIA to DiP. Such argumentation has been identified in former research on the public debate over nuclear energy (e.g. Teräväinen et al. 2011; Morrone et al. 2012) and is strongly based on the idea that 'everything goes well'. However, as the overall good of society seems to have many faces, for example environmental organizations and some states close to Finland (who have an official status in Finnish nuclear energy DiP processes) noted that unexpected situations, extensive life-cycle evaluations, and long-distance future impacts of, for example, unsolved nuclear waste questions were not discussed in detail at any point. Still, in my follow-up interview in autumn 2015 with an administrative person, s/he considered theoretically the possible solutions for the future as sufficient from a technical viewpoint.

All applications were also based on estimates of considerable growth of energy consumption at a time when actually energy consumption in Finland was decreasing. The estimates mainly did not discuss alternative energy sources in depth. In addition, Fennovoima and TVO made their DiP applications prior to the EIA process being concluded which disappointed many stakeholders who claimed that the companies undervalue the possibilities of societal stakeholder groups to critically discuss the applications. Some official public hearings also failed due to unsuccessful invitation processes that were reported both in the interviews and in various other discussions. These issues were corrected only after the Ministry of Employment and the Economy had requested so. However, the report on 'Energy system, electricity market and economic studies on increasing nuclear power capacity' ordered by the MEE from the VTT unambiguously summarized the growing nuclear capacity as an essential issue for growth goals or at least maintaining the Finnish economy:

> *Addition of nuclear capacity lowers electricity import demand, affects level of electricity price decreasingly and decreases shortfall of installed production capacity. Substantial additions of nuclear power capacity and generous import supply have disadvantageous effect on profitability of combined heat and power production. The development of import possibilities depends on progression of difficult-to-estimate balance between electricity consumption and production in the neighbouring countries.*
>
> *[…] Investments on nuclear power increase national product during the construction phase. Growth of employment is also rather significant, especially during the construction phase. In the long term permanent jobs will be created too. Increase of employment is held back by increasing real wages, but it is though evident that consumer purchasing power is improved due to these nuclear power developments.* (Forsström et al. 2010: 5, summary.)

Although nuclear power was framed in the Climate and Energy Strategy as one of the key emission-free technologies, the outcome of the VTT report noting that additional nuclear energy will not affect the national emissions, was not raised in the summary pages. The scenarios also show that additional building of nuclear power in Finland does not have the claimed positive effect on CO2 emissions due to the internationalization of energy markets (See Forsström et al. 2010: 24). In 2014 the same issue was revisited by the VTT with new scenarios and calculations that still did not show any expected significant change in national emissions regardless of additional nuclear. However, it was noted that with other measures Finland would be able to reach its goals set by the EU level, and by not adding new nuclear would guarantee emission deductions through actions and investments that follow from growing electricity prices (Lehtilä et al. 2014: 22-23). Does this society-level estimation, hence, pull the ground from under the foundations of the applicants' feet in their argumentation on emissions-free electricity? Not quite exactly, as the applicants framed their promise around the idea of supplying *emissions-free electricity production* to their owners. This is an organization's promise to another organization although it was put in the wider context of climate change. In the following, some major arguments from the introductory parts of the DiP applications are presented for comparison:

> *The Fennovoima nuclear power plant project meets the needs of Finnish society, Finnish businesses and Finnish households. Industry, trade and service businesses in Finland need electricity at a reasonable and stable price to ensure their competitiveness and their potential for investment and employment.*
>
> *Fennovoima will improve the functioning of the electricity market by increasing supply and by introducing several new actors into the electricity*

> *production sector. The increased competition will benefit all Finnish end users of electricity.*
>
> *Finland's energy supply is based on a decentralized and diverse production system. One particular strength of the Fennovoima project is that it will decentralize Finland's nuclear power production geographically, in terms of ownership and in terms of organization. […]*
>
> *The nuclear power plant project has been launched because there are compelling social and business reasons for it. The price of electricity is an important competition factor for the metal industry, food industry, building product industry and retail trade companies involved in the project and also for local energy companies.* (Fennovoima DiP application 2009: 2.)

Fennovoima's own legitimation for their project was largely based on decentralization of electricity production leading to greater competition in markets but also to geopolitical issues – both topics essential also in the final DiP and thus governmental legitimation for the decision. As TVO has a partly similar ownership structure, it relied on partly similar argumentation but also referred to abstract social reasons that I have interpreted as actually belonging to the same category as the mentioned business reasons. However, as the application (in general) also referred to the wider good, it could be suggested that there was an assumption of economic benefits turning into general societal welfare:

> *The nuclear power plant project has been launched because there are compelling social and business reasons for it. The price of electricity is an important competition factor for the metal industry, food industry, building product industry and retail trade companies involved in the project and also for local energy companies.* (TVO DiP application 2009: 1.)

The state company Fortum, on the other hand relied strongly on their technical know-how and reliability (the Loviisa plant has been the top nuclear power plant in international comparisons during most of its history) and strong economic situation. However as one interviewee commented, (above) technical and financial stability issues are not at the centre of the *political decision* but they have to be fulfilled in any case:

> *Fortum has produced electricity with nuclear power for over thirty years in Loviisa. In terms of safety and availability, the nuclear power plant is one of the best in the world. Fortum has over 600 people working in its nuclear operations in Finland.*
>
> *Fortum is a strong and experienced Finnish nuclear power expert; it has the know-how and resources to implement a demanding nuclear power project that adheres to high quality and complies with all Finnish and international safety requirements. Fortum's strong financial position*

> *enables the project to be implemented without public financing.* (Fortum DiP application 2009: 1.)

Considering the diversity of argumentation of different actors, the 'overall good of society' seems to have many, often vaguely defined, faces in terms of implementation although the two issues were repeatedly mentioned – the climate (strategy of Finland) and the needs of the economy (in terms of market benefits or through ownership structures). The idea of consideration of equal good is noble but becomes problematic when the political process is mainly build on the principal estimate-based technical future evaluation, which is disconnected from the organizational reality of those companies that actually implement the project and produce electricity for the following forty-sixty years and eventually decommission the plant. On the other hand, as the one unaccepted application shows, even fulfilling the technical prerequisites is not enough for the political seal:

> *I don't think it would be a bad thing at all that many other issues would be discussed in terms of overall good of the society. Now that is only requested from nuclear power. And anyway it is, as many other modes of energy production it causes harms and many other fields of industry cause harms. But if it goes well, whether the decision maker has all the needed knowledge. It's always a problem whether it becomes more of something else, a question of opinion. Someone gets more votes in next elections or something. Whether they [the questions] stay in the substance. I think that is the weakest link in decision making; whether there is all the needed knowledge and interest. Or does it come from somewhere else. Companies always hope that it would be based on facts.* (Company actor, translated.)

At the same time when the core actors stressed the needed rationality for the decision, the irrationality was also apparent to them. However, the discussion hardly ever proceeded to the level of reflecting the overall rationality of building the future electricity production capacity by nuclear power whether in terms of climate, economy, let alone in a moral sense. This inevitability was not only in the discourses but also in the foundational structures of energy policies and Finnish industrial, technocratic logic.

5.2.5. The structural foundations of inevitable nuclear decisions

In the case of Finnish energy companies, the ownership structures and/or financing of nuclear projects is not quite something that could be described as *private* but they are in different ways dependent on public funding. Fortum is a state company and TVO and Fennovoima are companies based on the Mankala principle and they also have a large amount of public ownership – whether from the state in the case of TVO and from municipal electricity companies in the case of Fennovoima, which also later on became dependent on Russian state funding

subsequent to Rosatom ownership (described in section 5.4). The ownership structure of relevant Finnish nuclear energy actors is also highly concentrated. In addition to this, the former research has shown the concentration and longevity of certain actor groups in the decision-making processes and the reliance of technical knowledge superiority towards corporate actors. This was the original point of Fennovoima; it pleaded to the fact that its owners use up to thirty per cent of electricity in Finland (these owners included both industries and local electricity companies) but are highly dependent on the electricity market. In addition, all its possible sites were in national development strategy areas which gave extra legitimacy to claim the diversification of energy actors if the application would be successful. At the time, the Centre Party (sometimes referred to as the 'agrarian party' because of its background) held the post of Minister of Economic Affairs and thus was the deciding minister for nuclear issues in the Ministry of Economy and the Employment. A promise of a nuclear plant in the regions outside economically dominating southern Finland was a promising great boost for a wider geographical distribution of economic welfare. This setting particularly made the DiPs a very little question of nuclear power as such but more as a question of economic and regional policies.

In such a setting, for example, critical voices have been said to have mainly a 'window dressing' role in the process even if, for example, some environmental organizations do have an official status in the opinion giving stage (Stoett 2003; cf. Banerjee & Bonnefous 2011) as is presented as the experience of many critical stakeholders of especially Fennovoima, who participated in the official commentary rounds and used other official administrative channels to question the project. Similarly, industries possess major resources, economic and personal relations, directed for lobbying activities both in the formal stages and in informal stages (media debates and other more or less public forums). The company argumentation in the process refers repeatedly to overall advantage but when looking at the basics of the industry, it is clearly stated that the energy is produced for the (private) owners, which is sometimes also referred to as the source of wider good. It can be said that through the complex processes of employment and general wellbeing the Finnish economy can offer this advantage. However, this creates a gap when the preliminary reports and years of research have not been able to direct these effects in an unambiguous way.

At the same time the dominant technical speech seems to be in contradiction with what has generally been understood as companies' responsibility. Issues concerning social and environmental issues are left to the political process in the marketing-like application documents, after which the companies and regulating instances concentrate only on technical questions of safety. In moral common sense, in case of future accidents, the responsibility of companies could be expected to be unlimited, however, there are a variety of financial restrictions to this such as the fact that private insurance companies do not insure nuclear power plants for accidents as they insure any other industrial sites (MEE 2012b). However, in practice the questions are: is this possible for companies in reality

and can some values raised during the initial debates be defined in monetary sums? As the public debate strongly concentrates on the initial stages before any nuclear plant is even built, the stakeholder communication in case of the functioning nuclear plant concentrates on competitive prices and claimed low-carbon energy production (See also Stoett 2003; Dawe & Erwood 2012.).

In the case of nuclear power the hegemonic economic discourse has some special characters in the preliminary stages whereby premises are based on assumptions and expectations. First of all the long-term costs of nuclear power are very hard to estimate because of both internal issues (e.g. problems in the construction stage) and external issues (e.g. the decommissioning and accident related funds have been dependent on the world economic situation for decades). A concrete example of unexpected costs is the unexpectedly long accumulated decommissioning costs of Three Mile Island plant that thus has maybe become a much bigger economic disaster for the society than it was as a nuclear one (Martin & Schinzinger 2005: 138). Examples of this economically problematic future are that some energy companies or even countries have turned to other energy sources whether to old fossil technologies or to investments in renewables. Similarly, the prices of other energy sources have closed some well-functioning reactors merely because of comparative costs. A question of in whose interests the nuclear new builds are, was raised repeatedly especially when the policy making environment changed in radical ways.

The neoliberalized discourse understates the kinds of logics and claims irrationality and unrealism of contradictory argumentation. It must be noted that mostly meta-level debates over *what should be included when evaluating the overall good of the society* actually did not take place at all as the applications (see quotes above) were originally based on straightforward assumptions of the wider good that would follow from new nuclear energy. In a wider sense, such arrogance could be criticized for its blindness towards its basic assumptions of economic growth and general status quo and their negative sides – an argument that interestingly divided the basis of the critique for years (See also Weisskopf 2014). In the studied case, the neoliberal logic widened outside its customary fields, economic and social policies – to geopolitical and material infrastructural questions. Although the argumentation refers to the economic good created by companies through affordable energy production and competition, such wide-scale projects are at least indirectly dependent on public support (e.g. infrastructure) and in these cases also financially through the state ownership of Fortum, which was originally already an owner in TVO, but subsequently in 2014 it became owner of Fennovoima too through an arrangement with Rosatom and Gazprom.

Considering the wider Finnish political development from a (environmental) governance perspective the problems were also related to the new organization of Finnish environmental governance and thus, monitoring lost its resources when the regional environmental authorities were merged with economic and transport authorities (Centre for Economic Development, Transport and the

Environment, see ELY centre 2013) and ended under the administrative branch of MEE whereas the prior regional environmental authorities were under the Ministry of the Environment. These changes happened during a time that can be called the neoliberalization of the Finnish welfare state (Ahlqvist & Moisio 2013). During this development more (moral) responsibility was shifted to economic actors in different ways. These various political shifts have been done mostly in the name of '(global) competitiveness'. In practice this shift has been claimed to weaken regional environmental governance and monitoring also related to the preliminary stages of especially new nuclear sites when already scarce resources have had to be shared with other activities and the monitoring authority is no longer focused on environmental issues but has to consider the dual benefit to the economy and the environment simultaneously.

Palfreman (2006) suggests that policymakers should be able to understand three perspectives in making decisions such as the one for nuclear power. These perspectives are 'the skills to measure the likelihood and consequences of an adverse event (risk assessment); the ability to understand how human beings think about those events (risk perception); and the ability to effectively tell a story (risk communication)' (Palfreman, 2006: 38). Palfreman's three perspectives are technically focused. Understanding the underlying values behind the public understanding of nuclear energy questions becomes important especially when the media raises value-based argumentation to the debate. During the 2010 decisions the media took a relatively cautious stance on the decisions by mostly reporting on the events whereas heated debate took place in many other forums. The following year would test this and change the nuclear question ethic beyond also the welfare of society.

After the 2010 decisions, the topic was visibly raised significantly twice due to the Fukushima disaster in 2011 and because of practical issues in plant decisions from autumn 2013 in particular. The focus shifted more to the argumentation used by different actors in the very often adversarial debate on the need for and the role of nuclear energy. Argumentation took a new direction as the Fukushima disaster brought about value-laden dimensions to the topic. The 2013 debate again brought new foreign policy and technical competence dimensions to the question. Analysis in the following section on events around the Fukushima disaster shows how in public debate the hegemonic technical-economic discourse ('the modern project') was maintained by adding new dimensions of the debate to defend existing institutions that carry with them societal beliefs in economic welfare, upon which the Finnish welfare state was built during recent decades. The change demonstrates the difficulty in societal debate whereby the role of business activity is raised from its mere economic role and technical capabilities to societally crucial activity with a complex value for debates. The triple-disaster in Fukushima had varying effects on the Finnish nuclear scene: it both brought in new discursive dimensions to the wider debate on how society should organize its crucial infrastructure but it did not change the stable core of a historically

strong belief in Finnish exceptionality in technical competence, together with terms of risk.

5.3. The Finnish nuclear peculiarity revisited

> *Nature is like the noble savage of old tales – violent and incalculable, but yet clear and gentle. It is not our enemy, but it will not be our slave, as we thought at one time in our arrogance: wrongly treated it dies or rebels.* (Extract from Natura Finlandiae, part of text read for a Japanese colleague in Pyhäjoki in 2013[12])

5.3.1. Fukushima as the crisis of the nuclear industry….

At the latest, by early morning 12th March 2011 news from Japan had reached the rest of the world. The double disaster of tsunami and earthquake had hit the Fukushima Daiichi nuclear power plant – making the disaster a triple – which is situated on the east coast of Japan and some 250 kilometres north of Tokyo. During the first days the world was following the events and relevant international actors who were organizing help for the victims of tsunami, earthquake and finally the evacuees from the surroundings of the nuclear power plant. Here, I will concentrate only on the international implications seen in Finnish debates and policies although especially the local effects of the other two disasters were at least equally wide in terms of human suffering. The nuclear disaster, however, also had and has wide- and long-term international effects on nuclear technology and policies and following on from these, the economic effects through energy system reconfiguration and renewed safety requirements for nuclear power plants. I do not aim to offer extensive analysis of the disaster which had and has countless dimensions and the process is still ongoing and will be for years considering the processes and effects of Three Mile Island and Chernobyl[13]. I focus on the turns that the Finnish discussion took less than a year after two positive DiPs. (For comprehensive analysis of Fukushima two years after, see Elliott 2013.) After months of almost full silence in the media about the nuclear topic, it was suddenly on the front pages for days, even weeks and with a wider interest from different perspectives:

> *Media wanted comments from both sides. After that [2010] it became fully quiet, it was discussed for six months, and now we are not interested. Nothing went through. And now [2011] it has changed.* (NGO actor, translated.)

12. Odert Lackschéwitz (photos) & Lassi Nummi (text): Natura Finlandiae. Luoma: Oy Photorent Ltd, 1992.
13. For up-to-date information on Fukushima from October 2011 onwards, see Fukushima Update (http://fukushimaupdate.com/) and for description of events and technical details WNA 2015 'Fukushima accident' (http://www.world-nuclear.org/info/Safety-and-Security/Safety-of-Plants/Fukushima-Accident/).

In Finland the main media concentrated on informing on events in Japan and sharing expert analyses on the situation. And as the critical stakeholders were again 'invited' to the public discussion by the established media, the situation hinted towards a need of wider perspective on the nuclear topic. STUK was in alert and commenting and analysing the scale and scope of the disaster to the media. Essential was to tame the fears of radiation – although the radiation levels rose to dangerous degrees after the accident, evacuation measures and safety measures of people working at the disaster site guaranteed mainly safe activities despite the various problems the management of the disaster site faced from the very beginning. For an interviewee representing the high-level governance of nuclear power in Finland, the view of public opinion and media was gloomy after Fukushima. S/he pointed towards the slow renaissance of nuclear, which had been defeated by Fukushima events at the same time as emphasizing the goodness of the Finnish system:

> *We have quite a good background. We have Finnish legislation and everything related to that, simply rules and systems. And then we have Finnish society that acts rationally. And then we push it through. We give certain levels of freedom because that's the name of the game. […] And our aim really is that the society works in a way that we get feedback from the citizens and the NGOs […] This is what these hearings are. Their [opponents] only aim is to stop the project. And on the other hand we won't proceed except according to the rules. And we need to take into account that we get good ideas even from those who wish to stop it. And if they have enough spunk, right or wrong kind of, they can stop it [...] And then the general popularity of nuclear in Finland and in the world, there was discussion on renaissance. So that is all buried, all. The effects of Fukushima are enormous in different areas. […] Now they affect in Finland. If you think how the media has changed it opinion… 'crashing nuclear' weeks have taken place already a long time.* (Administration actor, translated.)

However, although finally technically well managed prevention measures, i.e. after a major disaster had already taken place, the social, political and economic harms were obvious for Japan. Dozens of thousands of people were evacuated and many still have not been able to return their homes, energy policies in Japan and many other countries had to be reflected in terms of safety and public acceptance, and finally economic disaster would continue for decades both due to the disaster itself but also because of taken policy measures on energy system questions. As the quote above refers, the reputation of nuclear in Finland also was getting challenged on a wider scale after an extensive period of one-sided rationalized speech. However, the situation would not last for long and for the companies Fukushima did not change the fundamental basis of their public appearance on the issue. For Finnish nuclear industry actors, the question of

Fukushima was mainly organizational and technical – not something to be considered on a moral level or as a problem built in the industry:

> *Japan showed it to us. It was probably a surprise also to many of us working in the industry. Although you know there is a different culture in Japan. But that the culture was also in the nuclear power. That was a personal shock also to many of us. That how can it work like that, the system. It even looked like it works even in the disaster situation. That the decision making was so hard. That the responsibility was carried by political decision makers. Whereas in Finland, it is the head of the shift who is in charge of what happens in the plant. S/he is the one taking the responsibility and decides what to do and knows what to do. There was a great difference in this functional… that they ask from the Prime Minister what to do now. This is probably the difference. In Finnish culture the responsibility is given to where it belongs. That head of the shift does not have to think about economic responsibility. S/he thinks about the safety. And that's how it should be in nuclear. In Japan they tried to save the units.* (Company actor, translated.)

5.3.2. …but not in Finland

The belief in Finnish exceptionality in nuclear know-how was central when the disaster in Japan became framed as something that could never happen in Finland, as also the quote above suggests. Of course, the administration and industry gave a picture of being active with the topic, which was central also in the establishing document of the National nuclear energy research strategy work in 2013 and the vision presented there: *'Finnish know-how and research ensure the high quality and safe use of nuclear energy and waste management'* (MEE 2014b, translated). Although major disasters are conceded possible, the probability is still extremely low in reality, affecting the economic policy over nuclear disasters. As discussed below, nuclear power plants are not and cannot be insured for the full costs of a disaster. This is due to the major (economic) scale of a possible disaster and the extremely small possibility of such a disaster – three major accidents in the whole history of peaceful use of nuclear power: Three Mile Island in Harrisburg, US, Chernobyl in the Soviet Union, and Fukushima in Japan. The risks are acknowledged but their possibility is so low that preventive measures are considered enough whereas a disaster situation is, by definition, an exception that would be taken care of wherever needed although resources for such action are not readily available (Shrader-Frechette 1980: ch 5). In practice, as Fukushima and other major nuclear disasters show, they become *managed through state intervention*. As any other business, nuclear power production is planned for *normal operation*. Unfortunately, for various reasons, the effects of a nuclear disaster are much wider than what can be compensated by the limits of economic resources and insurances of a private company guaranteeing

short-term profits for its owners. Such issues are at least part of the reason why nuclear power production is so state dependent all over the world and is operated through relatively abstract utilitarian logic of economic good[14]. An interviewee raised the most important effects of Fukushima: first of all, such a disaster is a disaster for the industry itself and for mainly to its reputation which has to be recovered by responding somehow to the reasons of the disaster. Second, the effects are largely social – people do not tend so to want to live in or return to disaster areas as the information is uncertain (except, see e.g. the documentary Welcome to Fukushima that presents the experience of returning people), and people who have had to leave their homes might also suffer from social stigma. Many of the effects of Fukushima stayed undiscussed in Finland as the major debate diminished as to whether or not such an accident could happen in Finland although other dimensions of such events were aimed to be raised by critical stakeholders:

> *Fukushima reminded many of the risks of nuclear. And although it did not have really any effects in Finland immediately, it started a worldwide wave and we start to see the effects now. The French are enhancing the requirements of safety and that's why the unit being built in Finland becomes even more expensive. It did not come to Finland directly but after twists and turns. There was much more discussion in Europe […]*
>
> *Nuclear accidents cannot be considered only as radiation accidents. Normally no one dies directly because of radiation. The actual problem is that the used fuel rods are not only radiating but also toxic. Toxins that then spread all over. In the first place, considering environmental toxics, it is difficult to calculate how many dies because of them because in case of cancer it is difficult to trace the original reasons. There is no very wide medical consensus what substances cause which illnesses. The bigger problem is the amount of evacuated people. In the beginning numbers up to 100 000 were mentioned in Japan. Quite a big area becomes unfit for living. Not because when you walk there, you will die. But because no one wants to live there. There are all the time toxins in your drinking water and in food and in your children's playground and you see that the background radiation is a bit high all the time. You know how the scientists debate […] In practice no one wants to stay there because of the possible danger.* (NGO actor, translated.)

Technical processes are considered especially reliable in Finland – which was reported in a detailed way by Fortum and TVO soon after Fukushima. At the same time, the regulatory framework of safety is considerably tight. However, the critical voices especially have raised the question whether all regulation systems

14. WNN (2015). Can nuclear succeed in liberalized power markets? World Nuclear News 4.2.2015. Available: http://www.world-nuclear-news.org/V-Can-nuclear-succeed-in-liberalized-power-markets-0420152.html

are built by only looking at the technical processes. In the case of the Fukushima nuclear accidents, it was clear that problems occurred at institutional and human levels of processes and not only in the technology itself – in practice irresponsible people create an irresponsible system leading to problems that are outside the technical reliability of the system. I visited Pyhäjoki, the future plant site of Fennovoima, for the first time in August 2013 with the art project in which I was involved. Until then I had kept myself at a relative distance from how nuclear is experienced by individuals. However, during those two weeks I met people who had experienced the Fukushima disaster, one even having to leave her/his home for good due to the pollution. I also became for the first time familiar with a small community that was facing a major-scale industrial project in a situation that was locally difficult (people might lose their recreation area, summer cottages and finally receive a nuclear power plant as their neighbour) within a situation in which the nuclear industry was still trying to find out what went wrong in Japan. From this point on, my personal relationship with the phenomenon I studied started to change and I aimed to include more of the plurality of views – especially in terms of looking at the data whereby decision makers, and others holding crucial power over the decision, commented on the process.

The political processes are, however, built on the estimation that when the process is done according to law, everything 'goes right' both in a technical and human sense when the operator of the plant has once received the licence – what happens during operation is a different question. This is why although the costs of an accident would be gigantic, it is estimated that the likelihood is so small that the operators are not expected[15] to insure the plants for the full costs of a major accident. In Fukushima's case, the nuclear community admitted that the failure happened on many levels – technical (e.g. the plant being situated next to the sea and possibility of the plant to fully loose electricity), human (e.g. actions taken in the initial moments and later on), and finally political (e.g. the overall governance and organization of accident situations, and post-accident decisions). Similarly, the effects of and the knowledge gained from the events concerned all these areas while at the same time clearly showing the multitude of characteristics nuclear power has. For example, extensive safety reviews carried out by the IAEA after Fukushima concerned not only technology but also the management and governance of nuclear technology.

But no matter how safe it has been to operate nuclear power in Finland, Fukushima affected Finnish projects too. Not in a way that some nuclear lobbies have claimed, that is fear and intimidation that would prevent the country to invest further in nuclear – none of the ongoing (OL3) or planned (OL4 or Fennovoima) were stopped or recessed for technical or other re-evaluation. The effect was technical and thus, economic as the interviewee above notes: the growing safety requirements, put in operation worldwide (e.g. through IAEA

15. Normal insurance companies also would not insure nuclear power plants due to costs that cannot be covered by a private actor (on costs see, e.g. Baetz, Juergen 21 April 2011. Nuclear dilemma: Adequate insurance too expensive. Available: http://old.seattletimes.com/html/businesstechnology/2014835560_apnuclearpowerinsurance.html)

and NEA recommendations) or based on national evaluations, cost money and require new planning. It was the decision of the industry itself preparing for not having to face such a disaster anymore. However, it must be noted that not all countries follow the recommendations in the same way, and this is also the case, for example, for the security shields that were added to the OL3 design after 9/11. However, the effects on the national level never reached a very wide-open discussion but one had to be somewhat interested in following what kind of renewals the Finnish nuclear administration and governance faced after Fukushima.

As apparent from the above, the discussion on Finnish technical know-how in nuclear energy questions did not disappear at this time. Instead, the moral discourse was more an additional aspect, sometimes a hidden one, in relation to the same question. Also, the human tragedy of people close to the Fukushima nuclear plant was naturally often separated from the technical debates – they took place in different forums and were discussed by different people. One reason for this that must be noted is that the Fukushima nuclear disaster was only one consequence of the wider earthquake and tsunami disaster (cf. Mickelsson & Oksanen 2011). Frustration over the Finnish willingness to unconditionally in believing in all national projects whatever happens in the world was not a privilege of the obviously critical actors such as NGOs or local critics:

> *Theoretically we could have a more difficult task here. Even if Fennovoima can fall and die, it must be said. To the whole world and to Finland. We should not hush about it.* (Administration actor, translated.)

Whereas Fukushima raised fundamental and long-term debates over the nuclear industry and its vitality in the world, in Finland the debate came to a rapid end in 2012.

5.3.3. Debating the meaning of Fukushima

As the main newspaper in Finland, Helsingin Sanomat took its responsibility in reporting extensively the Fukushima accidents. After the first news on Saturday morning it published, constantly updating its website, on the nuclear disaster under the main title of 'Disaster in Japan'. A couple of days after it created a news feed called 'News from situation in Japan moment by moment' which consisted of short, few-lines long updates from Japan, even on a minute-by-minute basis. Next it published a 'FAQ – frequently asked questions' section in which the science reporters of Helsingin Sanomat answered some critical questions. This 'FAQ' was soon supplemented with a 'FAQ' site on general questions on nuclear power risks. Otherwise, Helsingin Sanomat reported on discussions around the world, the statements of different political parties, expert interviews and of course, the already mentioned updates from Japan. On Sunday, Helsingin Sanomat spoke out in its own editorial:

> *Fukushima accident increases again doubts against nuclear power.* (HS, editorial, 13 March 2011, translation.)

The newspaper had taken an open pro-nuclear stance in summer 2010. Now it took the role of reminding people of the various dimensions of nuclear power that should be reflected in attitudes over and in decisions on nuclear new builds. The Finnish public broadcasting company Yle also continued to report actively through its different channels but did not a take one-sided stance as Helsingin Sanomat. Also many other media kept up a level of reporting on events without taking a single clear position except for individual reporters' texts which often took a perspective of some specific dimension hinting towards the problematic nature of the energy form or supporting the idea of Finnish safety. Much of the reporting remained on a 'factual' level, for example, by referring to specialist comments (e.g. Yle.fi 15.3.2011: 'Fukushima is more serious than Harrisburg', an article that briefed an analysis by a medical doctor working at STUK). The economic newspapers started taking a stance mainly only at later stages of the process, when economic and technical problems became apparent from 2012 onward, although some aspects of the economic side of the Fukushima accident were discussed.

The studied media data implies how the societal belief in engineering and technical knowledge was reconfirmed even while 'softer' issues such as feelings and fears were brought into the public arena through keeping a neutral stance in terms of not opening in-depth discussions in their own more comprehensive analyses. 'Emotional' and fears related openings were explicitly or implicitly considered 'irrational' (cf. Tollefson 2014). The Fukushima disaster however, brought a renewed, although short, ethical dimension to the discourse as the global public required it during the disaster – the events were a reminder that nuclear power includes risks which lead to tightening safety standards and resulting higher prices for operating and building new nuclear. In events and the aftermath of such a scale of a disaster Fukushima showed the vulnerability of carefully organized nuclear management and governance although such discussion was almost non-existent in Finland unlike elsewhere in Europe. The main Finnish discourse did not change as such but the Fukushima events added a new, although thin and temporary, layer to the debate – some fears or preferably suspicions of the superiority of human ability to manage the technology had become true. And as the concrete effect was the re-evaluation of safety standards and technical provision in design, it could be claimed that the industry – or its governance – took the ethical concern seriously although it was hardly ever expressed as such in public. Personally, I participated in various unofficial discussions concerning this question in which the failure of the industry was openly admitted.

Formerly, mainly critical voices in society had raised these complex aspects of morality on the estimations of disaster probability to the debate. Thus, the change took place towards adding a more abstract responsibility together

with engineering discourse – what should be done and by whom in case the technology fails against all odds. But the change did not reach levels that would have concerned other actors. It might have been even possible that the events distanced the 'polarities' of the debate from each other momentarily. According to my experience, the representatives of the nuclear industry have never been enthusiastic in participating in such debates outside their pure technical core competences (however, see the exception of Fortum's questions and answers on the safety of the old Loviisa plant mentioned below). In relation to most other industries and their ethical problems, many of the most crucial problems of the Finnish nuclear industry are hypothetical. (This is also one of the reasons why the nuclear industry is popular among those studying perceptions of risk.) The institution of societal belief in technical knowledge articulated by the Finnish media kept its consensual nature by digesting social and moral dimensions in the reporting in a neutral way. The debate did not reach a level of profound analysis of the system-level issues that exist in all civil nuclear systems whereas in some other countries, especially in Europe, nuclear power was put under close scrutiny both in public but also in policy discussions (Elliott 2013).

Although major public debates were centred on nuclear power and what would and should happen to it in the post-Fukushima era, there were also wider developments that the triple disaster triggered. For example, such major disasters are always also major economic disasters affecting the whole economy of the country or area. The credit rating of Japan was lowered to AA (by Finch Ratings) and the owner and operating company of Daiichi plant Tepco descended into serious economic problems and finally became supported economically under the control of the state of Japan in order to maintain the renovation at the site and to correct other losses. Even nationalization of the company was discussed. Equally, the plans of resigning from nuclear power in the short-term period raised the question of costs of energy production to the debates. Although not widely discussed in Finland, the technological failures lead to much wider questions on the organization and governance of nuclear power in the world. Newspaper Taloussanomat reported the problems the company had had already previously but were only now coming into international daylight:

> *This is how Japanese accident company has screwed up year after year [headline]*
>
> *The Fukushima nuclear power company Tepco has dubious past. Over the years, the company has got caught of radiation leakage, secrecy and forgery of audit reports.* (Taloussanomat 19 March 2011, translation.)

In their own communication, the three applicant companies did not comment on the Fukushima accident immediately but the effect was indirectly seen clearly afterwards. The international, European and national actions in terms of nuclear plant safety and the following reviews and enhancements in technology and management became a priority in the communication. Finland was known for

the safety of its plants and effective governance – for a reason – and this was the image that wanted to be kept. For example, Fortum raised safety at the Loviisa power plant as the first issue mentioned in its press release in the year 2011 and published (as the only company) a separate site including the questions and answers that it had received concerning the safety of the Loviisa plant .

> *The year 2011 was a safe and good production year at Fortum's Loviisa power plant. There were no incidents reaching the International Nuclear Event Scale (INES) of significant events concerning nuclear or radiation incidents.* (Fortum press release, 2 January 2012.)

The major publicly communicating actor during and after Fukushima was the radiation authority STUK to which other actors and media referred repeatedly. STUK reported on the situation in Fukushima, collected reports on the basics of radiation, and finally informed on the actions taken in Finland by national, European, and international actors. The nuclear community was on the move and STUK was the mediating authority and source of information in Finland. (For list of activities taken, see STUK 2015.) STUK has an exceptional nuclear safety authority internationally which would also face challenges as the Government would cut its funding in the following years making also the STUK representatives themselves publicly agitated (in their press releases and in public media interviews).

5.3.4. Return to the Finnish status quo

Altogether, it seemed that the actors were still speaking different languages or even having different discussions: different topics and stressing different dimensions. The disaster in Japan made the media careful in its statements, some of the activists more active (whereas many stopped campaigning against nuclear soon after the Fukushima events), and the companies mainly silent beyond the requested media comments. Individual specialists and decision makers stated their thoughts but mostly in separate discussions (blogs and similar). The difficult abstract questions for operators and builders and governing bodies were, amongst others: Who takes the responsibility when something like this happens? Who takes the responsibility when decision-makers have allowed energy industries to build nuclear reactors and negative externalities that affect the environment? And who takes the responsibility in the future that today's decision makers are not even here to see? For some reason, however, such issues did not rise in any significant amounts into major Finnish public debates even during the Fukushima disaster – the official focus was strictly on the current superiority of know-how and preventive measures.

Thus, during the Fukushima disaster, the leading discourse changed from economic and climate change related nuclear power argumentation towards an increased stress on the internal technical capabilities of countries to govern nuclear power. Whereas 'other' countries became framed as vulnerable for both

technical and institutional unreliability, Finland was seen and was presented as a place where such things could not happen in both terms. Of course, it is the task of, for example, regulating authorities to tame needless fears and communicate on the national competence in acting in such a situation. The nuclear debate in Finland had taken a slight turn towards a traditional debate over the safety of nuclear power whereas in many other countries it became a major policy level question on the energy system, and the *industry-driven internal discourse of Finnish technical peculiarity* strengthened itself – Finnish nuclear power was and would be safe and there would be no reason not to add to the capacity. As mentioned, it is true that the Finnish radiation authority STUK is internationally recognized for its competence (I have been personally thanked for representing such a capable country with such a marvellous radiation authority), and thus, its actions – visible and invisible – probably among the carrying forces for public reliance on nuclear in Finland. In addition, all actors – pro and against – mostly agree that the possibility of such an accident in Finland is extremely small, and, thus, part of the 'disaster hype' was created by the media. But in terms of human suffering even hype should not undermine the ethical questions technology carries.

However, such technical details do not explain the hegemonic discourse of Finnish superiority in operating and governing nuclear in any circumstances and the non-existence of in-depth reflections on the meaning of nuclear power in wider society beyond its expected positive economic effects. In addition, as in many other countries, know-how on nuclear new builds had 'disappeared' after the nuclear hype of the 1970s when most of the currently operating plants were built. By disappearing what I refer to is the fact that, for example, one of my informants pointed to me by saying 'as you can see, almost all of us in this industry, we are grey-haired old farts'. If new nuclear was to be built, the craving for new knowledgeable people was urgent and critical but also much of the educational infrastructure – the basis of know-how – had disappeared. Olkiluoto 3 was already facing major problems, three years later STUK would face a cooperation procedure in order to cut staff resources in crucial research and development activities, and similarly two to three years from Fukushima many other economic and other contextual factors on the decisions would change.

Whereas after Chernobyl – and as well Three Mile Island – the world saw a great decline in interest towards building new nuclear power capacity, Fukushima did not have the same effect except on major policy (discussion) levels in some exceptional countries but in general the ongoing construction projects of nuclear new builds was at its highest in decades, especially in fast growing economies and in newcomer countries (WNA 2013). In Finland the *temporary discursive* change did not mean policy change or change in claims or Finnish superiority in handling even large natural disasters at nuclear plants and the ethical debate itself – if it could be called as debate at all – also rapidly vanished. On the other hand, the nuclear community and nuclear operators continued reviewing and

enhancing safety standards 'behind the scenes'. Only two years later factors external to nuclear power itself would offer a very different kind of change in and challenge to discourses but again without effect in policy.

5.4. Changing the rules of the game

> *We do not make stupid decisions consciously. We make them based on careful weighting, considering the overall good of the society.* (Minister's comment in a newspaper in autumn 2014, translated.)

In a year, Fukushima was forgotten in Finland and also the public debates returned to the *status quo*. Some occasional news reminded about the events but also already the commemoration day of Fukushima in March 2012 only gathered a couple of hundred people with candles. In 2012 new estimations of TVO's former Olkiluoto 3 project schedule postponed the completion to 2015 which however, did not seem to be a surprise even to nuclear authorities. At the same time, Fennovoima lost its major shareholder E.ON – and by concrete implication know-how of nuclear technology – which had reframed its future post-Fukushima strategy to not include nuclear power or participation in nuclear projects in other countries either. However, the project was not buried but Fennovoima continued preparations as normal. For many, such a project without financial or knowledge basis seemed weird, especially after the financial stability of the industry had formerly been emphasized by all applicant companies, for example:

> *Because we have the nuclear power plant project, it is a commitment of one hundred years from the start. Compared to this, the political DiP is a light decision. It just tells us whether it is possible or not. The actual decision is the investment decision. That is made by the company based on economic and business evaluation. No one builds nuclear if it's not profitable. In long term.* (Company actor, translated.)

The belief in the economic viability of nuclear that had been strong started to break down in public eyes. It seemed that the 2010 DiPs projects would fall into their own impossibility before the 2015 construction licence application deadline would come and for which the companies needed strong and knowledgeable organizations. In a relatively short time, from autumn 2013 to the end of 2014, the picture changed both contextually and organization-wise due to external geopolitical issues in Europe and internal financial and technical issues in the applicant companies. At the same time Finland also saw a rapidly growing interest towards alternative energy sources – following many other European countries:

> *Considering Finland, I think that the Government, the companies should get interested on this [energy transition toward renewables] because when huge amounts of free solar electricity starts to come from some Germany,*

> *then also our CHP plants become unprofitable. And many Finnish municipalities almost live on the electricity. For example, in Helsinki it produces significant part of the incomes of the city. One should be interested in how it [NPP] works in such a picture that does not really allow such a big facility with only inflexible base load production.* (NGO actor, translated.)

In summer 2013, after remaining in silence for a long time, the Fennovoima project took a new turn. A Russian nuclear energy company Rosatom came to the Finnish public with an offer of a nuclear reactor unit for Fennovoima. On behalf of Rosatom, the presenter was Jukka Laaksonen, a former director general of STUK who had been recruited to Rosatom shortly before. By the end of the year the deal was sealed and former possible suppliers from France and Japan forgotten. Already during the autumn, Rosatom also expressed their interest in participating in the Fennovoima project as an owner to fill the financial gap E.ON had left. This arrangement was also sealed during the winter. For many, the Fennovoima project started to seem very different from what it was originally and the claims of energy independence from Russia unconvincing in the new situation. Opponents and media speculated that Fennovoima would have fallen after E.ON had left but Fennovoima itself had continued with stubbornness, a well-known basic Finnish character. But there was a window of opportunity that Rosatom had filled, as a surprise to many, as in honest terms loss of such a large financial capital was crucial when E.ON had left the project as one interviewee put it:

> *Here I'm strict and I know they yelp in Fennovoima again. But it's when you say it can collapse, that this can knock it over. Denying it is worthless. Of course, if 34 per cent naffs off, it can collapse, that is a fact. […] 1st of April they still finance the first fourth and they have time until the end of March to find a buyer.* (Administration actor [in the end of 2012], translated.)

The threatening internal financial situation of Fennovoima was over but Finland would also see a rising and renewed state-level commitment to nuclear: in February 2014 Jan Vapaavuori, minister of Economic Affairs signed an agreement with Rosatom's CEO Sergei Kirijenko for a bilateral collaboration between Finland and Russia in nuclear issues. Although the Russian signatory was representative of Rosatom, Vapaavuori stressed that the agreement is between the countries and is not related to the Fennovoima project. A former similar agreement had expired in 2004. In addition to areas central to the agreement, such as research and development, the agreement includes issues related to nuclear liability issues as Russia is not a signatory in the major international agreements on nuclear liability – the Vienna Convention and the Paris Convention. At this time the situation in the Ukrainian crisis leading to war was already becoming heated and

by autumn, for example, the European Union had set sanctions on Russia[16]. The relevant part of these sanctions were about stopping collaboration with Russia in energy issues – a policy that Finland did not follow on policy or business levels.

In late spring 2014, Fennovoima submitted an application for supplementing the 2010 DiP decision. At the same time, TVO submitted an application for an extension of the deadline for their application for a construction licence that was due in June 2015. TVO's need for an extension stemmed from the continual problems at their former project, the Olkiluoto 3 unit. In early autumn, the Government decided to support Fennovoima but not TVO. The estimates of the justification of the latter decision concerned the future possibility of the new government and Parliament (that were to be selected in spring 2015) to make new DiP decisions, for example for Fortum, the third and formerly unlucky applicant. However, the decision on TVO's application caused disappointments especially in the energy sector interest groups and in some other interest groups close to the industries. The support for Fennovoima caused the Green Party to leave the Government as their party platform prohibits them from participating in pro-nuclear governments. In December 2014 the Parliament ratified the Government's decision for Fennovoima only a few days after Fortum had announced it would be investing in Fennovoima – contrary to all previously publicly stated. *Originally a privately led project started to seem more and more as a state project* that would be secured 'by fair means or foul':

> *According to a specialist, interviewed by Yle News, it is clear that there are wider national interest behind the arrangements. Fortum and Fennovoima are competitors, reminded professor of engineering physics Peter Lund, and estimated that the Government enforces its own energy policies through Fortum. The state owns 50.8 per cent of Fortum. […] CEO of Fortum did not want to tell when the negotiations of the arrangements started or did not want to open the process in other ways either. He also did not want to thell about the arrangement to minister Jan Vapaavuori. […] According to Kuula [CEO] it is a coincidence that the arrangement comes public on the same week as the Parliament votes on the supplementation of Fennovoima's DiP. – It is a pure coincidence, this date. It can be hard to believe, but this is how it is, said CEO Kuula. […] With the arrangement, Fortum pursues 75 per cent share of ownership from hydro power production of Russian energy company TGC-1. Currently the main owner of TGC-1 is Russian state-owned oil company Gazprom.* (Yle.fi 2.12.2014, translated.)

All major dimensions (supplier of the plant, nuclear know-how, ownership structure) of the Fennovoima project had changed by the time of the new governmental decision and parliamentary ratification at the beginning of

16. According to Rosatom, these sanctions had not had an effect on their operations by spring 2015 (WNN 28.11.2015. Rosatom feels no direct impact from sanctions, says Kirienko. Available: http://www.world-nuclear-news.org/C-Rosatom-feels-no-direct-impact-from-sanctions-says-Kirienko-28041501.html)

December 2014. In addition, it became public knowledge later on that core ministers, including Vapaavuori, had known of the arrangements mentioned above already in summer 2014. In line with these facts some, although few, Parliament members changed their minds from their 2010 voting[17]. Still the hegemonic, although still vague, discourse stayed the same – claiming for growing energy independence, an unproblematic administrative and political process and finally appealing for the advantages to Finnish industry and the economy through low electricity prices and employment. Equalling counter arguments included the Russian ownership and supply of the new plant, the fact that the law on the DiP process does not recognize updates to DiP applications and the former government decision on not to make new decisions on new nuclear new builds, and finally the large Finnish and Russian state and public actor ownership (in different forms) of Fennovoima. Fennovoima framed their reception of the Parliament ratification in their press release titled 'Electricity generation in Pyhäjoki starts in ten years' time' in the following way:

> *'I want to thank Parliament for the trust they have shown in this important project. The Hanhikivi 1 nuclear power plant will generate emission-free electricity for Fennovoima's owners at a predictable and reasonable price for decades to come. This large-scale investment will create jobs and give a much-needed boost to the economy', Toni Hemminki, CEO of Fennovoima states.* (Fennovoima press release 5.12.2014.)

Thus, from the company perspective, the political legitimation was renewed through a process that had been a surprise in the first place for many. At the same time, the local resistance organization at Pyhäjoki, Pro Hanhikivi, continued aiming to raise partly similar issues – economy, energy system, employment – from different perspective:

> *'Parliament's decision ties Finnish energy policies for years to a solution dependent on foreign fuel and technology. More responsible decision would have been to invest in Finnish work and give a signal to home markets on willingness to move quickly into energy efficient, new technologies and to development of companies exporting that knowledge.', comments vice-chair of the association Hanna Halmeenpää. […] Originally marketed as a project of Finnish industry has become a public sector project. Estimates of the profitability are insecure, solution for nuclear waste is unclear, and land acquisition at the planned site is hobbling. The project also has foreign political dimensions.* (Pro Hanhikivi press release 5.12.2014, translated.)

Those with critical opinions on the project saw the situation as unjust and as including even misuse of power in skewing the legitimation of the project falsely within a largely new situation of Fennovoima's organization and its new

17. It must be noted that the Parliament had somewhat changed during the 2011 elections but many members were the same.

context of geopolitical safety questions and questionable financial basis (cf. Reed 2012; Barnett & Duvall 2008). An economic logic of large-scale energy production seemed to dominate the rationale behind the adamant support for the Fennovoima project at the same time when TVO's possibilities to proceed were taken away possibly in order to open a new window of opportunity for the third applicant, Fortum, to renew their application during the next governmental period. A *discourse of economic necessity* had replaced and sometimes ridiculed the colourful debates over climate change and its solutions, internal problems of nuclear power as such, energy independency, and finally the questions of the actual economic outcomes of the technically uncertain (STUK commented at various stages that the Rosatom design would require major changes in order to fulfil Finnish standards) and economically questionably state (both Finnish and Russian states) dependent funding solutions.

Although it was already clear by the end of 2014 that the Fennovoima project especially was strongly dependent on public support, the legitimating rhetoric included an implicit market-driven mindset and policymaking ideology (Newell 2008). On the other hand, a small minority at the critical end would have wanted to raise the question of an entire need for economic growth boosted by cheap energy production. Many of these discussion strands would have had an important contribution to the wider energy debate but societal confrontations related to nuclear itself often prevent the message from spreading beyond circles interested in participating in the nuclear debate. At the same time, the hectic political situation in and around Fennovoima petrified and argumentatively simplified not only the debate but also the meaning of economic good as good for industry through cheap electricity. Such logic seemed to be based on relatively one-sided economic logic as the project now included, for example, Russian financing with problematic geopolitical features, currency risk, and finally a morally questionable source from Russian welfare funds.

The final period of developments in the studied processes accentuates how the nuclear issue is highly political in a way that opens possibilities to re-negotiate the meaning of good although the legislation seems to set high moral standards for enabling nuclear new builds. As mentioned above, serious meta-level discussion on what 'the overall good of the society' includes never took place although the legislation stating this vague criteria was created already in the 1980s right after Chernobyl. This last case is another facet of the ideological neoliberalization of politics – ruling out different possibilities of development through an economic necessity discourse. While being among the most regulated industries (nationally and internationally) in the world, nuclear power had become again, after decades, an unquestionably 'efficient' and 'economic' way of producing energy in the growing global economy (Stoett 2003). Such arguments pushing only one agenda (that of large-scale economic efficiency) enabled discourses and practices that undermined the ethical spirit of Finnish legislation that requires new nuclear power plants to be 'for the good of society'. For a long time, it was clear – and widely discussed especially in the period of 2007-2012 – that new

plants would not fulfil the national promises that were made originally before the 2010 decisions and thus the remaining benefit comes from exporting nuclear electricity, which could be interpreted as being against the spirit of the law (which states that nuclear waste cannot be imported – exporting nuclear waste can be understood as the same action according to one of my informants representing administration).

In the following final discussion part of the empirical analysis, I recapitulate how the process developed and I aim to show the connections between ideological policy development and the nature of the studied process, which in addition to concretely secure the nuclear plants, also aimed at gaining larger societal legitimation for them. Finally I aim to show what kind of issues were in the background based on the approach taken in the study.

6. Discussion: From economic necessity to technological superiority and to inevitable national commitment

> *So. What was discussed here was that adult men sit in front of TV cameras and quarrelled whether the consumption of electricity in Finland in 2020 is 99 TWH or 100 TWH or is it even 102 TWH. […] Yes, we take that [financial] risk. We don't know how the world looks like in 2030. We take it.* (Company actor, translated.)

6.1. The non-debate of nuclear necessity

Over the years the strong belief and self-confidence of the nuclear power industry towards their projects had assured large groups of decision makers repeatedly despite the, possibly crucial, events in the context and within the two companies who received DiP permissions in 2010. Even the voluntary surrender in June 2015 of TVO, when it decided not to proceed with its OL4 project for the application of a construction licence after it had not received an extension to the application deadline in 2014, did not seem to shake this trust which was shown in the disappointments of industry actors and their stakeholders. The critiques over internal inconsistency of the legitimating arguments often went unheard both in terms of general issues in the energy question and in more specific debates. For example, when the proponents argued for quick solutions to climate change through adding nuclear power capacity, the critique concerned the long investment and construction times, and asked for specifications where the investments would come, to the promised renewables while capital would be tied to ten-year or more projects. It seems reasonable to say that no concrete reasons for impatience in the wider energy discussion were shown whereas significant patience was shown at the same time with the former disastrous Olkiluoto 3 project. The frustration of critical stakeholders because of the discussion that never became profound (in terms of what kind of assumptions are actually at the background of the claims of economic efficiency and its wider societal benefits) was not surprising – it became clear quite quickly to many opponents that the right question in Finland was not anymore whether or not to build nuclear power but who builds it and how. The studied industry has to deal with such

long-term timescales that are not common to many other industries (see quote above) in which uncertainty is continuously present which again is restored by referring to other societal needs for such large-scale investments, as in this study the necessity of economy.

Although some generally and often mutually agreed moral goods were brought to the debates (such as climate change related questions for future generations), the major good was defined in an economized political discourse both nationally and locally – in terms of the need for economic growth and short-term wellbeing (cf. Death 2014). Also employment was an issue that all parties raised regularly in the argumentation throughout the years. Where much of the ideologies seemed to converge, the views on the desired paths to growth of the economy and long-term wellbeing differed; where proponents leaned on traditional and earlier approved solutions of centralized large-scale investments, the wide range of opponents from local people to specialists tried to show the inconsistency of the projects (in especially economic and political terms) and sometimes offered a solution to a new decentralized way of seeing and developing the Finnish energy system. Behind the public debates and political processes, energy companies also made a variety of different kinds of solutions on their own by investing in different projects (e.g. on renewables, research on novel energy production solutions) depending on the hype of energy technology and the current need of production. The political discussion was also a surface of events that constantly moulded the context of the coming 2010 decisions and their continuing legitimation also during the subsequent years. Ideals were partly disconnected from the material and political restraints in which the decision was made and sustained. Defining 'good' in an ideal way became partly useless as the politics had already become limited much before – the starting point was economic good which would not be questioned whatever happened in- or outside the plans (cf. Barry 1990; Suddaby & Greenwood 2005).

The limitation of the politics to one 'truth' became defined by what has been referred to here as ideological hegemony. Such issues have taken place in the discussions of decision making elites, concentrating on actor-level analysis. However, I have discussed hegemony for the following reasons: the inevitability of the Fennovoima project existed during Parliamentary periods and at a time of financial crisis and the downturn of Finnish industry, and during the international debate on nuclear power after Fukushima; and most importantly, after crucial changes that took place inside the organization and in its financial situation. Such persistence for a project, starting on relatively thin ice although with foreign support in know-how (E.ON), points towards wider institutions and belief systems that support new nuclear in the national, temporal and technical cultures. As said, the fact that the highest political support did not continue in the case of TVO shows, however, that not *everything* is pushed through in the context. On the other hand, the government decision not to support TVO's application to lengthen the deadline for construction licence application was a major disappointment for actors like the energy industry's lobby (Energiateollisuus)

and the conservative wing of leftist political representatives, and some of their stakeholders representing labour in heavy industries. This disappointment clearly represented both welfarist and neoliberal dimensions of the new nuclear hegemony, which was often not dependent on the official political (party) structures but on the newly created belief in large-scale centralized solutions combined with the economized rhetoric behind it.

The story indicates the stable nature, over time, of the Finnish nuclear energy decision at the political level. It also illustrates the interdependency of the nuclear industry with the state and politics. In the beginning it seemed that there would be a new kind of company actor, Fennovoima, bringing a different kind of logic to acting in the Finnish nuclear industry scene, but after various surprising twists over the years this actor became also economically state dependent – and of two states in different ways. Even the world political events bringing war closer to Europe and changing EU policies on energy questions did not shake the Finnish belief in the necessity of the projects except finally in TVO's case where internal impossibilities of the company itself (OL3 project) stopped the political progress for the present. In the final stages, nuclear power remained in the interests of political actors – and those wanting to become one in parliamentary elections in spring 2015. *The growth on nuclear power in the Finnish energy mix had become framed as a necessity because it would be the only way to guarantee the growth of the Finnish economy, which again would be the only way to prevent the disastrous prospects of Finland, it was not something that would be negotiated.* The subtexts organizationally, nationally and internationally were irrelevant when confronted with the principal need. In the table below, I recap the main discursive, material and contextual changes and stabilities over the years studied according to how the different phases were presented in Chapter five above.

Table 3. Summary of different phases of discursive and contextual development.

	Phase 1: 2007-2010 For climate and the economy	Phase 2: 2011 The Finnish nuclear peculiarity revisited	Phase 3: 2013-2014 Changing the rules of the game
Main discursive framings	Economic necessity, climate change targets (CO_2 emissions), public support	Technological superiority, Finnish exceptionalism	National importance, economic necessity
Core actors creating public legitimation	Energy companies	Safety administration, companies	Political actors
Reasoning	Growing need for electricity (esp. industrial), labour, electricity markets	Administrative and technical competence in preventing accidents, continuous improvements	Labour, reliability of the plant supplier/important collaboration with Russia
Context	3 DiP applications vs. 1-2 permissions to be expected, new nuclear energy company in the competition (Fennovoima)	Fukushima nuclear accident	Internal problems of Fennovoima and TVO, war in Ukraine, economic decline

All stages of legitimating nuclear new builds consisted both of materially, through actions taken in changing the legislation and bringing in surprising owner candidates in the Fennovoima case, and discursively, legitimating the concrete actions and determined dimensions. For example, the need for energy production (or alternatively the purchase from abroad) is a definite material frame whereas deciding on the means to produce it includes stronger discursively determined aspects (with which technology, by whom, how it is funded, and the reasoning for each choice). I have placed the political media discussions and political actor statements in a framework of public legitimation of economic activity that has a variety of external societal effects. Public nuclear power discussion is not only an environmental but also energy, safety, labour, and foreign politics discussion. My focus among the actors opposing nuclear power has been on environmental actors and local opposition as they were the most active groups in the debate.

6.2. The discursive power to define

Results indicating the discursively sustained power in nuclear power discussion support the former research, which suggests nuclear power as being in the interests of specific actor groups. The media, the energy industry, non-governmental organizations and politicians have more or less actively participated in the discussion in which almost all arguments can be considered belonging to the *political* sphere in a situation in which Finland had a parliamentary election roughly one month after the Japanese events. In this political sphere, *economics* showed to be a central factor. I have aimed also at capturing the unwieldy

definable operational environment, which consists of political, environmental, technical, legal, and current moral(ly diffused) environments and of the meta-level moral environment, which is connected to all these, in addition to public and media discussions that again create their own picture of the operational environment and moral discourse.

In the experiences of the less-advantaged actors, like un- or less organized local actors with scarce resources, the political (including the administrative preparation) process seems to be resistant to internalizing the multiformity of 'good' in terms of authentically including different views and aspects (Dryzek 2013). This is due to several issues at the starting point of such processes: first comes the nature of nuclear debates noted before, the black and white, yes or no, nature of the debate. Second, good becomes defined in the current political sphere, which is often concentrated in current problems, to which different actors would offer different solutions, and in concrete political limitations of other policies. Thus, the political process as such – as perfect as it is built – is unable to guarantee an equally fair outcome. Another question is whether that is even the goal, for example the Nuclear Energy Act does not itself define in any way how the overall good should be understood (in what kind of processes and through what kind of argumentation, and including which societal issues). Thus, the biggest power in such a decision is in the hands of current hegemony. This hegemony goes also beyond the current Parliament and lies especially in structural key positions (e.g. specific government coalitions, key Minister positions) and in current leading political discourses and the relations of different societal actors. Referential issues could be the allocation of tax revenue in a society (cf. the differences of Nordic and Anglo-American models for historical development of such structural-discursive formations). The process and the debate are explicitly political following or preceding the company argumentation, which is also ostensibly neutrally technical and economic. In addition, if the process enables the dismissal of some critical questions concerning the aspects of justice and fairness in the project (even experiences of such is enough), the question arises whether, for example, only organizing the public hearing and the possibility of commenting (compared to an actual dialogue) is enough to legitimize economically justified projects with claimed wider effects (e.g. Reed 2012).

On the more specific level, there are also many questions that remain to be seen only when the actual building projects start. According to the pre-mentioned report (Forsström et al. 2010: 79-80) the future effect on employment was also unclear as the supply of the plants cannot be clearly reported in the applications. In the beginning of the 2000s, the Olkiluoto 3 nuclear new build was marketed to the public as a project securing long-standing benefits to the Finnish economy through employment opportunities to especially local communities and in general to Finnish people, but the effects have been claimed to be poor considering how the supply of the plant was finally arranged. The originally strong legitimation has deteriorated along the way due to the internal problems of the project (KhosraviNik 2014; Patriotta et al. 2011; Schröder 2013) and has

led to the burying TVO's plans on OL4. In the studied case, critical voices pointed out these issues in order to show the possible disconnection between *planned projects* and *projects in the real world*.

The inevitability of a certain decision in a context whereby specific hegemonies and ideologies take place was shown by the fact that even radical changes in the context or internally in the applicant organizations did not make a crucial change to the leading logic of the decision making. In future, the question remains whether the policy repeat itself due to unwavering official legitimation or shall we see something similar to what happened in Germany where the nation state decided to fully withdraw from nuclear power[18]. Most likely, the latter is not possible in Finland as many stages of the eight-year process show. The story started with the Finnish belief in technical know-how and economic stability, which was contradicted by relatively traditional nuclear debate arguments on values and future generations and with the currently popular arguments of renewables. The Fukushima events forced the media to take the responsibility of informing but did not often proceed to analyse, discuss and question nuclear policies as happened in many other countries. Such discussion was mainly non-existent also in the Finnish political sphere except for the Green party and some representatives in the Left Alliance. In general, also the traditional morally appealing aspect was added to the risk debate but it remained on a general level and did not reach the mainstream debate (cf. Kurath & Gisler 2009). By 2013 the economic situation led the hegemonic discourses relying on technical competence to digest moral aspects into its rationalized argumentation – now the responsibility of the nation was to guarantee economic possibilities for industries through stable electricity production.

Formerly, the discussion of political elites (to which I referred above as a parallel approach to what I have referred as hegemony) in energy policy research has shown polarization in Finnish energy policy decision making. Although the tightly networked nature of this elite was supported by my results, it was not the main focus in the analysis. Policy analysis of nuclear energy questions has shown how the process itself and formal and informal argumentation act as drivers towards goals set by only a certain circle of actors in society (Ruostetsaari 2010a). In the given context of national and international energy policy and sustainability objectives market-driven political decisions question the legitimacy of the decision making processes that include only certain interests and actors (for especially economic drivers in the case of nuclear energy see, e.g. Banerjee & Bonnefous 2011).

6.3. Politicking and legitimating nuclear

For a long time in the studied case, the debate over nuclear power was not in fact about nuclear power as such. The major debates and strongest argumentation were far away from the traditional debates of radiation and nuclear weapons,

18. For Energiewende, see http://energytransition.de/.

although of course minorities of opposition referred to such issues (cf. Barkan 1979; Goldschmidt 1982; Bickerstaff et al. 2008). The question was about cheap electricity, employment, foreign policy, regional policy, then about the possibility of raising the Finnish economy from distress, and finally about the despair of having at least one of the projects started to which so many had already invested so much. In such a situation, for example, local resistance was even ridiculed from the beginning as a not-in-my-backyard phenomenon. Peculiarly enough, the legislation over nuclear power in Finland defines (although loosely) nuclear power production as having a moral obligation to contribute to society also in other means than by taking care of the possible damages (of an accident). But as said, the content of *this responsibility is politically defined in a certain time and political sphere*. This both enables the nuclear power industry but also sets challenging responsibilities to the companies to respond to their role as 'providers' of overall good for the society.

Empirically, although the hegemonic, although partly economized, belief in large and centralized solutions drawing from old welfarist values in Finland holds, the analysis suggests that also highly regulated and powerful industries not only also face challenges on their legitimacy but also that traditional approaches to societal responsibility are not sufficient for highly political and politicized challenges (see e.g. Midttun et al. 2006). In addition, the inconsistency in the studied processes makes it naïve for business actors and policymakers to expect undebated legitimation for such activity whereby politics and economy are tightly connected if the rules alter per actor and during the process and thus, trivialize the countering arguments.

Active resistance was mainly minor as the principal organization of it was in the hands of a local organization with scarce resources. However, it grew and changed in Fennovoima's case over the years and in a changing context as a growing amount of political decision makers started to take a public stance to the economically and geopolitically problematic project. Part of the reason for the invisibility of different forms of resistance could be the laziness or unwillingness of the Finnish media to discuss and analyse issues critically and raise different perspectives and arguments in closer examination. On the other hand, many do consider Finnish nuclear power to be relatively safe and reliable (which is not, historically until now and internationally statistically, a totally ill-found belief) – even in the context of the economically and technically disastrous Olkiluoto 3 new build.

Implications for understanding the legitimacy of these partly private-partly public actors, with by definition a tight connection to political decision making to act in a politically notable way (to start and take care of a major project affecting infrastructure and other crucial social issues) and the background moral and political responsibility, are related to how large-scale infrastructural economic activity may become legitimized in the first place with arguments that hold only with certain world views but do not resonate with the values of all relevant stakeholders or sometimes even with wider knowledge on energy

production. Such arguments were briefed, for example, in the original (2010) DiP for Fennovoima (quote below). Notable is, for example, that the decision referred to nuclear as more environmentally friendly than the undefined 'other options', however it is relatively commonly agreed that solar, wind and nuclear energy production have almost similar environmental effects during operation, and thus the last part of the quote below must refer to economic benefits in relation to environmental effects, not in the environmental effects *per se*:

> *[…] building a new nuclear would aid in achieving the goals of climate and energy strategy: to secure the availability of electricity, keep the price of electricity reasonable, secure the self-sufficiency of delivery of electricity and to keep the environmental effects of electricity production reasonable.*
>
> *- Fennovoima Oy produces electricity at the original cost for the purposes of Finnish trade and industry;*
>
> *- waste from the nuclear new plant can be handled safely, store and finally disposed using already existing or planned methods;*
>
> *- the environmental effects during normal operation of the new nuclear plant are on acceptable level compared to the achieved benefits and are small compared to those of alternative production methods […]* (MEE, Fennovoima DiP 2010, emphasis added, translated.)

In the studied case of economized political logic the economic good, subsequent to new nuclear plants was equalled to the common and overall good in which, for example, the above mentioned environmental effects are inferior in terms of only having a supporting role for the economic argument. Such deduction of other values to economic values could also be seen as undermining the value of, for example, the meaning of the environmental impact assessment at the very beginning of the DiP process. In terms of debate, the resistance had acquired the burden of proof in order to gain its own legitimacy. In such issues, concrete inequities of resources become crucial concerning the starting point of the debate and final outcomes.

Prioritizing economic good is normally considered to belong naturally to business activity whereas in welfarist tradition many would expect (also) other primary valuations from policymakers. I have referred to hegemonic power structures and discourses, their neoliberalizing background ideology and finally policy outcomes in defining overall good of the society – the economic paradigm of the firm has spread to the democratic arenas. A more radical claim would be to say that private economic benefits – referring here to the good of the overall economy – are safeguarded under the cover of ostensibly democratic processes (cf. Banerjee 2008). The more common norm that legitimacy of other kinds of industries is usually assessed on ongoing business, sets a highly complex and long preceding political process of such industries in different positions – the

legitimacy can already be theoretically questioned before any operation is started. Saying theoretically, I mean that responses to the critique were found insufficient by the discursively and resource-wise suppressed stakeholders who aimed at raising alternative approaches to the nuclear project. However, this notion suggests a need for more careful analysis and development of governance processes whereby state actors and private economic actors have exceptionally tight linkages in forming the conditions for the legitimate permitting of activities.

Tight regulation in this case and the interdependence of politics and economy have created a barrier against certain forms of critique and governing bodies, and companies intend to hold to their line of argumentation. If deficiencies of the process were admitted the hegemonic argumentation would lose part of its legitimacy. In practice, in public debate critical voices are procedurally silenced by referring to the high standards of governance, and in this particular case high standards of the DiP process and the democratic nature of the governmental and parliamentary permission as no other industry is required to have such parliamentary political approval in advance of operations. This experienced distortion of genuinely taking into account all perspectives exists on the discursive level of politics and appears as safeguarding the economic neoliberal fetishized technocracy, probably better referred to as expertocracy – referring to the claimed superior rationality in decision making (Gorz 1993). In addition, it is not only a question of concrete governance by political and economic elites but of dissemination of certain kinds of values and governing of collective values by framing the meanings of overall good of the society. Negotiation of common good has shifted from evaluating the economy as such to the stage at which it is considered as a central need of society. In the case of nuclear new builds in Finland, it was repeatedly raised in the debate that alternative forms of energy production were not sufficiently or systematically evaluated or discussed.

If a political decision is made by appealing to the economic good, as the case in this study suggests, it hints towards economically driven neoliberal mindsets whereby the organization of a society starts from securing the circumstances for profit making. Such a thing is of course never explicitly stated as 'neoliberal' by those utilizing such argumentation as it is considered as being an adjective used by the critics of it. The specific nature and effect of economization and neoliberalized political culture combined with belief in technological superiority to overcome difficult challenges of nuclear new build projects point towards an expertocratic attitude in seeing what is best and needed for the wider society – although from an institutionally limited, privileged and utilitarian perspective. These simultaneous developments in values and political culture are partly unconscious, meaning that their existence in speech is not obvious unless seen in the wider context, and that they exist and possibly alter at an institutional level in society. However, the nationalistic belief in large-scale state-supported technological solutions and the traditional welfarist ideals raised in the debate create an ostensibly incompatible overlap that creates a specific discourse, which through a political process leads to and legitimates the materializing inevitability

of the nuclear projects. Thus, the study supports former claims of wider shifts in the Finnish political sphere. The agency of actions is brought to an institutional discursive level whereby those representing current political power reproduce certain beliefs whether or not relevant actors wish to do so explicitly. Critiques in such a sphere are seen as exceptions and irrational demur of the collective good.

The theoretical puzzle of this work lies also in the unequal distribution of economic good and societal outcomes – or in this case the outcomes that nuclear energy production is seen to have on society. The focus has been on political processes that enable these suggested national and global inequalities of policy formation (e.g. Rice 2007). The case of nuclear energy production and political decisions that regulate it are showing a concrete blurring of boundaries between the interests of economic and political actors. If those holding economic power in society themselves are willing to admit political power and responsibility in political arenas, there are also some fundamental questions to be asked. What is actually the relationship between economic, social and environmental politics, and what are they governing as an ensemble and also as (officially) separate political entities? Whose interests are put forth, who are the accepted participants in official decision-making and who are left outside or to position when argumentation is only presented in unofficial forums such as media, social media and physical resistance in its different forms? And perhaps, most importantly, what kind of position are such expertocracy ready to take when considering the relation of markets and the natural environment and related value-laden questions (Newell 2008; Auer 2000; Pattberg 2005)? When these societally perverted structures of collaboration of only certain actors become relevant in cases, such as described in the study, societal confrontation culminates. In this case the culmination was seen in the great efforts of critical stakeholders willing to participate in the political process but who ended up arguing with a different language and to closed ears according to the experience of an in-advance defined good of the society.

The argument is, that despite the ostensibly open and democratic nature of the decision making process of adjunct nuclear power, the status of different actors is not equal during the process (cf. Oberman 2004). The inequality can be seen and is recreated in the limited discourse, which again, is based on the tight linkages between industries and different policies that concern energy issues and economic questions, which creates a similar mindset whereby certain actors agree and support each other during public processes. In the current economic situation and critical energy policy situation, nuclear power has become a glimmer of hope in answering incompatible goals. The resistance appeals to other dimensions of nuclear power and thus, holds a different discourse on the wider societal questions (of economy and climate change). From these differences follow the inevitable experience of injustice in the process. In addition, nuclear power bears as its cross the unforeseeable future that is both technically and ethically problematic to solve in a way that could satisfy the moral responsibility of this generation or future generations. This also makes nuclear power an unavoidable

'yes or no' question in terms that most other industries do not face in a societal context and thus concerns its definite existence. The nuclear power community is not unaware of the particular nature of the industry:

> *[…] there are clear two sides. You cannot really find a compromise. In some other topic, where you could find a compromise, the thing could proceed to some direction. But here, when others want to use nuclear power and others want to finish it, the views are so far away from each other that there is no common topic to discuss or a common issue that would take it [the debate] to somewhere. I agree that the discussion and arguments have stayed almost same. Argumentation hasn't really changed either. And both just aim to show that the other ones' arguments are wrong and find support for their own arguments. Which one's arguments are right is another topic. But all equally consider that they themselves are right. There is no common road there. For example in forest issues where there has been a lot of discussion of what kind of certificate could be used, there was one common issue for which all started to work together and the debate subsided. There were also very sharp positions that can we cut the forests or not. And then common nominator – what could be sustainable use – was found. […] If we could find a solution for future about nuclear that all could accept it but I cannot really see it coming. […] Do we move from fission to fusion – I think those who are against nuclear don't accept fusion either. Then it seen as a thing so close to nuclear that it cannot be accepted either.* (Company actor, translated.)

7. Conclusions

> *The road to Fennovoima is so fancy and expensive that it maybe should not be left as a road for locals' summer cottages in the future.* (CEO of Voimaosakeyhtiö SF, 17 July 2015 in Vihreä Lanka, green party newspaper, translated)

Just societies are ideally built on just politics, decision making is appreciated by all those affected. In a modern globalized economy, politics is inevitably in relation to economy in one way or another. The industrialized world alike is bound to functioning political systems without which the complex economy could not work. All these, to operate in a way they are expected require huge amounts of energy, and from this perspective I have situated the research focus of this thesis within the topic of energy politics. Nuclear power as a means of energy production is a widely studied topic, also in social science[19], and it often cannot be separated from other social scientific studies of energy questions. Similarly, this study widened to beyond the specific internal organizational questions of nuclear energy production.

Systems of industry, markets and regulation are interdependent as science and technological development require stable social institutions. This interdependency necessarily includes power that is often concentrated on actors who hold the knowledge of the systems. The complexity of the systems makes control of them difficult, as does the wide societal and political question that is apparent all over the world (Ravetz 1990: 260-261). This was evident especially in Finland in Fennovoima's case in which the applicant did not have an existing nuclear infrastructure, as the other applicants did, but even more evident is in cases of nuclear newcomer countries that sometimes need to build the entire infrastructure required – from knowledge to physical. In this final chapter I discuss the implications of the study to the relevant theorizations and to the society.

In Finland, nuclear power has remained a national project although taking a different, indirect form in terms of organization, even though the other core project, that of Fennovoima originally was marketed as a project for Finnish industry. Prior to the studied timespan, Finland had become a promised land of nuclear security and thus, it was probably natural for all parties to focus on

19. Discussions on nuclear in natural and technical sciences were not discussed in this study in depth, as I look at nuclear power as a social and societal phenomenon.

other dimensions of the question. The national project became a playing field for economic debate. A variety of parties in the debate emphasized the meaning of economy and its growth but solutions often varied strongly. In between remained a large group of people without any specific or outspoken opinion on the issue despite it hitting the top three topics in the media by 2014.

The research question of this thesis was formulated in the following way: *How is societal good defined in political processes related to nuclear new builds?* The decision making processes were – unlike many other political processes whereby there are different options for solutions on the table simultaneously – that are focused on one internally and externally complex question of whether or not it is good for society. I decided to look closer into the argumentation for nuclear new builds and how they were legitimized repeatedly during the years. The process took a variety of forms and could not be easily described in single terms. As a central issue, the general political sphere guiding the argumentation and rhetoric was revealed to follow two parallel paths that became one: traditional Finnish welfarism and the newer, 1970s-originating neoliberal sphere from which the nuclear debate took some of its crucial ideological dimensions. Neither of the partly contradictory logics took over in the whole process of legitimation but alternated or became used overlappingly – according to the current contextual factors. Over the years the hegemonic discourse which started as a societal necessity, absorbed new dimensions into itself according to the contextual flux. When Fukushima events brought ethical concerns to the table the legitimizing rhetoric turned them into a technical superiority. Later, when the applicant companies faced internal and external financial and technological problems, the argumentation renewed the discourse of necessity but more intensely as a national project that was already bound to its own material limits of pre-invested private and public resources. Another example is the paradoxical development of state company Fortums's role: in the first place it was rejected from receiving a DiP as it was considered too big an actor in the electricity markets and a NBB would have skewed the competition. However, from this market-relying logic Fortum ended up as an investor in Fennovoima's project as market actors were not interested in such an investment. The strong state-driven logic struck back against the original claims of private economic good as the future basis of wider societal good. Thus, the story indicates the stable nature of Finnish nuclear energy decision making over time on the political level but it also illustrates the fundamental interdependency of the nuclear industry with the state and politics.

Originally, my aim was to look solely at the role of organizations executing the new builds in practice. However, it became clear quite early on that such a question as legitimation of nuclear power is borne in a much wider context – in the form of the process and in the surrounding societal atmosphere and events. This also created a theoretical puzzle for studying a multifaceted phenomenon. In addition, historically and contemporaneously, nuclear power is a topic to which one can take numerous different perspectives, as well as the political process it itself takes. I also noticed this during the data collection, which varied from

the original media, documents and interviews to participatory observation in a variety of forums with a variety of actors, and to many more informal discussions that offered valuable understanding of the nature of nuclear power as a crucially societal and political phenomenon. Within the main question, the foci were set in empirical sub-questions leading to the theoretical reflections:

- *How were the decisions made and how were they developed over the years?*
- *How were the decisions legitimized officially and in public debate?*
- *How was the legitimation received/experienced by different stakeholders?*
- *How did the context affect all the dimensions of the process?*
- *What were the critical points and moments in the process?*

Through these empirical questions I have presented above how legitimation was built around the process of defining overall societal good via hegemonic economized political discourse whereby economic good became equal to societal good. This discourse held over time although crucial contextual and organizational premises changed. Theoretically, I was interested in the stability of political will to secure the nuclear new builds despite the political, economic and organizational flux around them. In the following I aim to reflect on the three tightly connected areas that can provide an abstract sense in the seemingly paradoxical development: the ideological development behind how the political process became in terms of legitimation, and finally, the specific features of governing technology in society.

In this final section, I first look through the theoretical contributions of the study. I continue with societal contributions and finish with critical reflections and suggestions for further research.

7.1. Theoretical contributions

7.1.1. On governing good in a neoliberalizing welfarist political sphere

The analysed processes indicate the difficult relationship between formal governance and the moral and political responsibilities of decision makers and other powerful actors. The formal governance institution of industries in Finland is relatively extensive but by nature it has its limitations – especially in the case of nuclear power the ambivalent nature of legislation in defining the overall good, which is left to contemporary hegemonic ideologies and to those that hold the power to decide. The challenges to be governed change all the time as well as the relations between different actors (from the governing institutions to industries and their interest groups). These limitations are related initially to the fact that some, especially ethical, issues are challenging to regulate and thus beyond traditional governance mechanisms (see also Wigger et al. 2014) as in this case of the 'collectively' defined good that remains incomplete and impotent.

It, for example, remains unclear how such problematic issues should be solved in democracies (cf. Landemore & Page 2014). Second, the effect of societal power structures and differing interests skew the fundamental values and which of them are considered important. I have aimed to demonstrate the effect of these colliding values in political decision making and how the problems inflict on discursive and institutional levels (Death 2014; Barry 2001).

Shrader-Frechette (1980) discusses nuclear power policy in the context of ethical equity and its contradiction with economic efficiency. She refers to the classical economic paradigm and the notion of externalities, especially negative ones. She frames the ethical issues of nuclear power in wider questions of energy production choices in which nuclear power is often understood as a cost-efficient option despite calculations in the 1970s that showed that nuclear energy is not needed for sustaining economic wellbeing, i.e. growth (Shrader-Frechette 1980: 108-109, 111). Today, as can be seen in the Finnish discussion around the decisions, the climate change question has come alongside the economic welfare question in the argumentation for nuclear power. For example, Space (2006) sets nuclear power decisions and climate change in a relation that requires systematic valuation of these questions in political discussion. He presents that the energy industry is responsible for deciding whether to build more nuclear power or not (or alternatively other forms of energy production) in order to solve climate change threats. This is interesting, as both questions include a variety of complex ethical aspects that cannot be easily opposed or do not even correlate in any practical amounts. However, it is essential that the (big) energy companies are in the end the ones that hold the power to decide in which production form to invest. Society contributes *in creating institutions that support those production forms it wants to support*. This study suggests that these societal institutions are growingly acquiring the formerly suggested neoliberal logic (Falkner 2003) and hence, integrating ideologies that lead decisions, and finally their material outcomes, that shift the rationale towards economic rationality from a wider definition of rationality that includes societal reflection on appreciating the plurality in the definition of 'rational' (cf. Gorz 2012).

In such a context the framing of the economic good of the country, and especially industry, as the overall good sometimes takes peculiar forms. Such framing is strongly based on economic utilitarian thinking whereby the success of one societal actor is estimated to somehow create direct success for the whole society. In this framing the problematic aspects become trivialized whether intentionally or unintentionally (Schlosberg 2004). In some cases possibly even unintentional claims can seem deceitful in retrospect if enough components of the claim change over time, mainly due to external events, as was the experience of critical stakeholders in the case of Fennovoima's project.

The proponents of nuclear power were and are willing to invest in long-term political processes for building nuclear plants. As the communication of the driving forces of the projects, during the process and in the considering of already active plants, is very much based on neoliberal market discourse, such as

stressing competitive prices and the overall importance of competition in energy markets, we should be able to assume that the nuclear energy business is profitable despite various risks. These risks are mainly technical at the stage of the actual investment to plant sites as the Olkiluoto 3 project has shown. The information of daily production costs is hard to estimate with new reactor models and is not fully public and thus prevents external actors from evaluating future profitability of production sites (Ruska & Koreneff 2009: 27). It can also be assumed that investing companies are willing to commit to nuclear energy despite the possible unfavourable market situation due to national or international regulatory changes in the future (Siedentopp & Söllner 2010: 75). Such megaprojects as nuclear new builds also include a great path dependency factor not only from the viewpoint of the company but also from a state perspective. The length and weight of the preparatory processes require that for such investments, which especially when the first (DiP) permissions have been given, stepping back becomes harder. This phenomenon takes different forms over time but the outcomes are the same – an inevitable nuclear plant building project (e.g. Michelsen & Särkikoski 2005). Internationally, however, the nuclear world has seen even projects that were finalized but never started operation. In Europe maybe the most famous example is Zwentendorf Nuclear Power Plant in Austria which was stopped with political referendum. Finland is for the present an exception in the Western world by carrying a strong belief in the capability of nuclear offering overall economic welfare through the wellbeing of industries, although interest towards new nuclear capacity is growing internationally for different reasons.

This study also tackled the question of ethical dimensions of speech and acts of actors as a politically heated societal question. The division of roles has both positive and negative outcomes. The notion of general discourse concentrating on economic good comes down in this case to the means – production of nuclear power. Governance does not have any such specified goals but it should act as a monitoring body of all processes following the law and other common rules (Van Alstine et al. 2013). The political decision making process mediates the needs of society according to the rules so that in the end all the actors have to obey. As widely claimed and also found in the studies, in cases of some industries such roles, however, are not so clear. This is partly due to the difficulty of creating just frames for actions that are not directly stated in legislation.

The 'actorhood' of politicians and the surrounding political context creates external pressures on goals and differing definitions of common good. The personal popularity, economic interests, ideology and certain dimensions that are difficult to define, and especially often difficult to observe, create flux in the situation – in this case at least three notable times. The principal and the one that has remained throughout the eight-year process is economic foreplay, discussed next, inside the wider political foreplay. Whereas it has divided different actor groups on the specific question, it has also taken a major role in the wider context of energy policy. However, at the same time it has downplayed some important economic questions that remain in all new nuclear projects despite location or

time – such as those of the concrete costs of decommissioning and the actual price of nuclear waste management.

The economized discourse has many voices but it requires a certain perspective for considering them to be legitimized. This has an effect both on the governance processes and on the political processes in which the former is not officially political. However, the state bodies do not act in a value vacuum even if they would not participate in 'traditional lobbying'. The decisions are formulated in certain ways including and excluding different things that are considered belonging or not to them. Formerly, in the nuclear case elite structures that normally share similar values have been identified (Ruostetsaari 2010a). The findings of this study resonate with these notions, although the focus has been on wider ideological structures. As there are no methods that would offer definitive information on the motives of some certain actions (or even the existence of certain actions), the formulations of decision making documents carry valuable information on decisions, especially in cases where the background information is publicly available to everyone, as in the case of Finnish nuclear new build decisions (see MEE website on nuclear power). However, some outcomes of such value-definition processes are not specific to nuclear power but have been identified in other industries and especially in environmentally related governance (Bernstein 2002: 6; see also Charkiewicz 2005).

The concept of responsibility does not *per se* include expectation of benefit, especially economic benefit (e.g. Dierksmeier 2011; Young 2011). Responsibility is independent from its advantages and should be taken in any case and acknowledged from the outset by those holding political or other kinds of power over others. Although moral responsibility is ostensibly voluntary (future generations do not ask anything from us) beyond the legal responsibilities there needs to be a possibility for ethical judgement, whatever this means in practice. In the context in which 'societal' good clashes with individual good (of, for example, local communities at the possible site), only a strongly utilitarian approach can legitimize the greater importance of some values over others (cf. Franks 2014). In the Fennovoima case this faceless utilitarian definition of good has become problematic as it has not been coherent through the process. For example, the argumentation on the good of Finnish industry is questioned because of the latest ownership structure of the company. However, such argumentation was also used to point to irrationality of all kinds over the claims of critical voices whether or not they had a factual basis. A similarly generalizing utilitarian approach can be seen in wider debates over climate change whereby the new ecomodernist movement has appealed to the general good of anthropocentrism in defending nuclear power as a crucial solution. Also proponents of economic growth often refer to 'growing the cake' that would lead to more for everyone. Such blurred argumentation might be a general problem when such large-scale issues are in question.

7.1.2. Legitimating the economic good

The neoliberalization of policy has intrigued a variety of discussions in political economy, environmental governance and finally, also business studies (e.g. Crouch 2011). Currently, governments and other decision making bodies are struggling between warming up a declining economy and at the same time against warming climate – tasks that are not always easy to fit together, especially justly. Energy policy is amongst one of the most crucial arenas of this battle too. In the studied case, the complex political process and the preceding politicized governance process demonstrate the changing role of energy production in society in a variety of ways of which the blurring boundaries of politics and economy is crucial and raises questions of procedural justice in terms of how and on which argumentative basis large-scale societal decisions are made. As the economic questions took a principal role in the studied events, the economic aspects such as increasing competition in electricity markets (especially in Fennovoima's case) and expected lower prices of electricity were important lures for many important decision makers and others industries in taking a stance on nuclear new builds (on competition in Finnish electricity markets in this specific case, see Kilpailu- ja kuluttajavirasto 2010/2012).

This study contributes to the understanding of the role of economy and economic activity in society and current politics. Nuclear power decision-making offers a case whereby values constantly clash. It offers understanding through a special case which is partly 'unnegotiable' due to its special nature as an activity that carries moral responsibilities over generations. The general contribution concerns offering an analysis of one political process whereby welfarist and neoliberal values became one rhetoric that aims towards the legitimation of large-scale industrial projects with strong connections to a societal good (Stoett 2003; see also KhosraviNik 2014; Drori & Honig 2013). The studied case illustrates those value questions that traditionally clash at the intersection of neoliberalism and welfarism but in this case are brought into one discourse through legitimating argumentation over the years with different political emphases. The tension of simultaneous state control and the strife for making nuclear viable in a neoliberal environment contribute also to the understanding of some core problems of neoliberalizing politics ideologically without an in-depth reflection of the plausibility of such argumentation.

The crucial nature of energy policy is based on the fact that energy is critical for many other activities as a constitutive factor of economic welfare. Energy policy builds a strategic link between state and economy and thus, binds them together in a way that other industrial activities are not normally bound to the state: concretely, in a sense of infrastructures and in a market sense through the constant need for a correcting market mechanism. This peculiar nature has been apparent in Finland where marketization of energy started to happen but the system stabilized whatsoever to certain power relations between actors since the 1980s (Ruostetsaari 2010b: 12-13, 238). This is also shown is the studied

case in which nuclear new builds became framed as a necessary and common societal project without which a continuum of welfare would not be possible. The sustained hegemony in the developing discourse reflects the binding alliance of state and economic actors – an alliance whereby the former sustains institutions that support the aims of the latter (e.g. Falkner 2003). The findings reflect the critical notion of the structural connection of economic interests in society (see Wilks 2013).

The process, which reflected traditional Finnish belief in technological superiority with a simultaneous specific economic mindset, created a hegemonic discourse that became an institutionalized discourse – larger than any single actor's views, statements or arguments (Schmidt 2008; Larner 2000). The process did not take place only on a discursive level but many material facts simultaneously supported a stable and changing mindset towards valuing economic good. The government mandate for expropriation of lands by a business actor was exceptional in the history of the governance of business. The studied case offered many unique starting points and possibilities beginning with the length of the political process, which is not possible in many other industries and second the context, Finland, which at the same time already carried an international reputation as a 'nuclear exception' in many ways. During the exact time studied, much of the Western nuclear world was in flux – in considering the renewal of capacity or a full resignation from it – whereas Finland continued in its relatively stable journey towards increasing its capacity.

It has been argued in former research that Finnish nuclear policy is coloured by a strong belief in technical abilities and its knowledge of economy on 'what's best for Finland'. As the societal process enabling the new builds is strongly in the hands of certain actors and simultaneously legally legitimized, it lessens the requirements of the company actors to collaborate with other stakeholders and contribute to wider social responsibility than with their own shareholders in later stages. The approach of other crucial actors in preparing nuclear projects is similar. Thus, the imbalance in power relations at the early stages of the process could lessen the societal legitimatization of questioning the profit-seeking activities of the energy companies despite the fact that legislation requires that nuclear energy is built considering the advantage for the whole society (cf. Fleming & Jones 2013). The whole society becomes defined with simple utilitarian logic whereby the details of the (divided) good do not have to be specified. Such logic is generally characteristic of nuclear power related decision making and argumentation but can take simultaneously problematic forms, such as repeatedly, those that maintain the discontent towards such political processes (cf. Hadjilambrinos 2000).

Ideology becomes invisible to many and its effects become recognized only in the study of the formation of beliefs in political developments. According to Krige (1985: 247), our dominating liberal democratic theory with its ideological discourse veils from us the technocratic ideology. For him the material conditions are inseparable from ideology. The dominating technocratic ideology

(in his study the media representation of, e.g. multinational corporations' role in a developing country) limits one's thinking on the problems at hand. The technocratic rationality concerns only the means to the ends (e.g. economic development) but it does not require 'rational reasoning' for the ends at all, i.e. what is pursued (e.g. is economic development actually what we want and why we would want it) (Krige 1985: 264-265). The same way of reasoning can be seen in so-called economic rationality whereby an uncompromisingly 'economy' endeavours towards one goal – maximization of profit of the producer and utility of the consumer. This is what makes capitalist economy and its mode of production as something that is not value-neutral (see also Patomäki 2009). Although Krige mentions in the end technocrats being the theorists of this 'rationality', I would tend to see all the uncritical holders of the ideology, who also work for its goals, as technocrats (cf. Krige 1985: 271-272). Such a phenomenon has important implications in hearing stakeholders in large political processes and projects. Participation – in all its forms – belongs to democratic values but in official hearings the weakest stakeholders often feel powerless as the decisions seem to have been made already in advance (e.g. Cotton 2013). This was clear in almost all the opinions of the opposition to the Fennovoima project, no matter which opposition group was represented.

7.1.3. Constructing technology in society

In its early days in the 1950s, nuclear power was often a large 'national project' in which decision makers hoped to find a source of endless energy, with the aid of scientists, for the needs of societies hungry for more material good (Bijker et al. 2012). Then the world saw a grand resistance movement that included people from all areas from physics to engineering, from local stakeholders to philosophers, and finally to what partly became the modern green movement. Nuclear accidents, in addition to the history of nuclear weapons, moulded both the industry itself and its resistance. This study shows that parts of this debated nature have remained although on organizational and discursive levels premises have changed a lot (for a connection between creating new forms of governance and discourse, see Larner 2000). Since the 1970s, especially Western countries saw a wave of neoliberalization and a new ideology whereby efficiency, economic issues and boundaries between public state and private economic activity became central goals, purposes and often driving forces of political decision making (e.g. Brohman 1995; for the Finnish case, see Patomäki 2007).

It is not unclear that as a policy question nuclear power remains special in its timescale and scope. This is acknowledged by major international nuclear actors (IAEA, community of nuclear scientists maintaining the Doomsday clock, etc.). The temporally limited people are making temporally unattainable techno-political decisions to which human beings do not have either definite technical nor definite ethical solutions (Cotton 2013). One clear thing that can be stated based on this, is that denying the moral responsibility of the current generation

is unethical. Appealing to partly theoretical solutions to remaining problems does not remove the uncertainties that have shown themselves in history every now and again, and their becoming true (e.g. Perrow 1999). Thus, labelling such worries about future generations systematically irrational is highly problematic in terms of justice on the decision procedures (Smith 2014). Second, I claim that a fair process requires a certain explicit stance towards moral questions.

The question of rationality and the reliability of the Finnish political process of nuclear new builds was finally in the end raised as being suspicious by many actors. Those opposing felt repeatedly that the seemingly deliberative processes did not authentically include minor stakeholders in the discussions. For those, it seemed that there were such strong interests in the background that the possibilities for government and then Parliament not supporting the new builds were 'one in a million'. It was not enough to offer an alternative route to economic growth and employment when the faceless hegemony had decided the path in advance (Beetham 2013). However, also the proponents saw the process as exhausting – the long-awaited new builds would happen only after years and dozens of different procedures. Although the new builds gained official political legitimation at least, the process itself did not – whereas the final disappointment was largely shared, the reasons were not (cf. Smith 2014). By the end of the studied time period suggestions for fully renewing the Nuclear Energy Act was already mentioned. These findings support the notions of the difficulty in appreciating a pluralistic understanding of knowledge in technological decisions (Kurath & Gisler 2009; di Norcia 2002).

The effect of different actors, actions and activities is not straightforward or even possible to track to a single actor, action or activity. The legitimation and discursive changes became a complex and over-time developing process of producing 'good'. During a momentary crack hegemonic discourse, e.g. during the Fukushima disaster, did not make any change to the final inevitability of the project. Similarly, concrete problems and obstacles did not have a major effect on the renewal of Finnish nuclear power (cf. Wynne 2002). The challenges of the Fennovoima project especially and its survival showed how alternative and surprising paths of solutions and events came to save the principal aim of a nuclear new build. The rise of alternative discourses was also claimed to be tamed by the unwillingness of the Finnish media to discuss certain issues.

Although it often seems that nuclear debates divide actors into two simply separate groups: pro and against, the picture and roles and opinions of actors are much more versatile. The division between proponents and opponents is one possibility and neither offers much interesting information on the power relations as such (Barnett & Duvall 2005). Of course, there are traditionally pro-nuclear 'groups' such as industry, and industry and trade interest groups (including some trade unions) as well as anti-nuclear 'groups' such as most of the environmental NGOs. But when looking deeper, the homogenous picture fragments; the overall societal goals of opposing groups might be close to each other as well as potentially differing radically inside the 'groups'. This was

especially evident in the rhetoric of growth and employment that was used down the line (Barry 1990; Suddaby & Greenwood 2005). Following this, the powerful pressure for adding nuclear power is not a phenomenon in a vacuum – it is surrounded by other strains and powers, for example, for renewable energy technologies, on the one hand and on the other, an independent phenomenon of diminishing industrial production in Finland. All of these once more are results and outcomes of a variety of policies and histories of which some are not even directly related to the issues, such as land use policies and global trends of the escape of industries to the third world. The co-creation of nuclear legitimacy was on one hand a process guided by a relatively coherent, although often implicit, ideological push shared by many varying actors, and on the other hand, when looking deeper, a complex network of collaboration and collisions at levels of institutions and also actors (cf. Falkner 2003).

The multifaceted economic logic of the legitimation of the nuclear new builds 'hijacked' also the traditional Finnish engineering logic with its discourse of 'good' especially in terms of climate change rhetoric; new nuclear power would not only be efficient in an economic sense but also a necessary solution for the EU 2020 and 2030 targets on CO2 emissions' cuts. This development somewhat changed the debate from the traditional nuclear debate towards economic rationality. Such a simplified conception of societal good has been identified more widely in the analysis of the neoliberal and economized policymaking discussed above (cf. Monk 2009).

7.1.4. Contribution to discussions in social studies of nuclear energy

The study also contributes to the wide and multidisciplinary field of social studies on nuclear energy although that literature has not been discussed separately in its own field due to its dispersed nature. Finland as a country saw a major societal change in the 1990s in a variety of ways whereas nuclear power held its 'reputation' within these structural and other policy changes (for the Finnish context in the last couple of decades, see Heiskala & Luhtakallio 2007). Nuclear power is not a new research topic for social scientists; a lot of valuable research has been done to add knowledge to the public participation in different nuclear related processes (Wynne 2011; Strauss 2011), debates in general and comparatively (Death 2006; Barkan 1979; Bickerstaff et al. 2008; Teräväinen et al. 2011), nuclear in the media (Monk 2008; Culley et al. 2010; Gamson & Modigliani 1989), risk perception (Yli-Kauhaluoma & Hänninen 2013; Wynne 2002), on ethics of future generations in nuclear waste issue (Shrader-Frechette 1980), and without even mentioning the countless studies produced for understanding Fukushima events. The position of this study is situated somewhere close to or following Lampinen (2009), Litmanen & Kojo (2011) and Stoett (2003) in aiming to understand the topic from a procedural, historically and contextually informed perspective.

The socially debated nature of nuclear power has made it a different industry compared to many others. It is either built or not, there is no midway option. In

many debated industries improvements can be made if they are problematized by governance or civil society. Although everyone probably agrees that, for example, a safer nuclear power plant is better than a less safe one, the only acceptable nuclear power plant for critics is a non-existent plant. Deliberating on an acceptable plant is not possible for the extreme opponents of nuclear power. However, this division – to have or not a new plant – also relates to the internal infrastructures of nuclear industry. The know-how is often relatively specific and the current generation of nuclear specialists in Finland has largely been 'in the business' since the first plants were built in the 1970s. The OL3 project, started in 2005, brought a boost to the Finnish nuclear industry and also created both a need for renewing the knowledge base but also , possibilities for other new projects after the 1993 defeat when the Parliament did not support TVO's and IVO's (Imatran Voima – now Fortum) collective application to build a fifth reactor. Thus, without nation-wide investments in nuclear knowledge, the industry does not have a continuum. Such interdependencies and large-scale concentration of resources have been also seen negatively as blocking the political possibilities and development of smaller scale or decentralized energy sources. More and cleaner energy needed appears to be the shared starting point. How is a different question especially when financial resources are in question.

Nuclear power is still mainly built in regulated electricity markets and as state-led projects (e.g. China, United Arab Emirates, India and South Korea). Such activity is possible only for actors – as states – who can wait for long periods for returns and long-term small costs after grand start-up investments in nuclear projects. The Finnish Mankala principle is kind of an exception to this although it seems that it also requires strong state support. Along with this, the argument for the good of (private) economic activity remained throughout the years. Similarly, Finland makes an exception to the core question: whereas in many other Western countries the question is whether or not to build new nuclear, in Finland the main political question is who can build it. These outcomes are in line with further findings that point towards the inevitability of Finnish nuclear projects (Litmanen & Kojo 2011; see also Sunell 2004).

Similarly, the Finnish political 'obstinacy' is seen in the betrayed promises of leading politicians that the state would not participate in nuclear projects during times of economic problems. During one single year a promise was made and broken through an arrangement whereby a state company decided to participate in a project that was originally marketed as 'industry's own project'. The geopolitical situation in the case of Russia and Ukraine did not make a difference to Finnish collaboration over the nuclear question despite the European Union suggesting that all member countries opt out from energy project collaboration with Russia during the crisis. Such events again reflect the 1960s nuclear projects in Finland whereby the country decided to act in different way from all other Western countries. My point here is not to claim any inferiority of Russian nuclear know-how but to point out the peculiarity of Finnish logic of decision in making such large-scale industrial projects.

Considering the public debate, the critical voices were often ridiculed as 'mush' although a variety of technical and economic argumentation was used by a variety of different critical actors from politicians to civil society. The problematic issue in such ridiculing, in addition to panning out the meaningfulness of public discussion, is that it covers the actual underlying moral asymmetries of power and the division of who can and who cannot speak is created. It has been argued that such processes should include explicit deliberation also on the moral question (Taebi et al. 2012). This study has shown that such deliberation does not fit into the Finnish economized technocratic discourse. At the same time, it seemed that the resistance to, for example, wind and solar power gained legitimacy although many of the opposing arguments relied on similar issues as in the case for nuclear.

According to Elliot (2013) political orientations seem to have a connection with nuclear policy: 'Pro-nuclear views tend to be associated with right-wing or authoritarian positions' (Elliott 2013: 68-69). Although the division of positions between political parties over the nuclear power question was clear in 2010, this orientation was the only one unbrokenly held in the renewed 2014 voting in Parliament. However, unlike in many policy questions voting in the exceptionally polarized nuclear power issue was 'a question of conscience' for the representatives whereas often they would comply with the official position of their parliamentary group (Mickelsson & Oksanen 2011). The good was not defined by ethics but through a political process that seemed different to the different participants of the process.

In this process, the economic good has many faces. A variety of actors both for and against appealed to economic reasons, throughout the years of debate, in different ways. For example, economic growth was popular at both ends of arguments but the means for it have been presented as very different. Both nuclear and renewables have been defended as the best way to reach so-called 'green growth'. They both have been framed as a sustainable path to new jobs, national energy security, an economically sensible solution, and finally as a solution for climate change (Bickerstaff et al. 2008). This debate continues in many countries of which among the Western ones, Finland seems to hold the strongest pro-nuclear high-level political stance.

In general, the studied processes began as 'normal' nuclear power debates but over the years proceeded towards fundamental economic, geopolitical and overall welfare questions. The technical was bit by bit swept out of the discussions, except by some critical actors. It can be assumed that reasons for this were the embarrassing problems in the former new build project at TVO's Olkiluoto 3 site and the technical problems of the Rosatom reactor model offered to Fennovoima. Partly this is understandable as a relatively few are able to discuss the technical details of nuclear reactor models. However, costs and timespans were apparent to all. Thus, at the same time two discourses existed – one being Finland as a promised land for new nuclear and the other was the inevitable problems of nuclear new builds with current safety requirements. It can be said that at least in official documentation and public framing, the legitimation was

based on marketing speech instead of careful technical-economic reflection (cf. Palfreman 2006; Culley et al. 2010). The economic and technical outcomes of the single (until now) surviving project, Fennovoima, are of course only to be seen.

7.2. Revealing the political in nuclear – backgrounds for the never-ending debate

One of my goals has been to show the political nature of nuclear power – as being something much more than a merely technical question, and thus why it offers a rich source for understanding the modern political sphere. This short section leads to the last – societal – contributions of the study.

Energy itself is a highly political question. In modern and modernizing global society it is amongst the most valuable resources. Production of energy, natural resources needed for it, distribution and also smaller questions are extremely important for a sense of wellbeing, economy and finally, societal and even concrete global political power. Oil is probably the best example of the last issue. In developing countries energy is a crucial question in terms of equal development and even in Europe the so-called energy poverty is not a strange question anymore to some. In inter-state politics energy acts as a powerful tool of pressure as, for example, the Russian-European gas pipe Nord Stream shows. This aspect has become clear throughout this study and there are others to which I will briefly return to below.

'The moment you start to think that nuclear is safe, it becomes dangerous,' stated one nuclear safety specialist in an event I attended. The whole nuclear safety question is based on this precautionary attitude and carefulness. But safety is an evolving thing. It took a decade by the Russian nuclear industry, but also rest of the nuclear community, to learn a new safety culture after Chernobyl. The nuclear accidents have maybe taught most of what we today consider as everyday routines in the industry. A large amount and decades of international work have been required before both technological and regulatory issues have come to the stage they are now. Another perspective to the safety of technology is, for example, that of Charles Perrow's on the history of accidents. He notes in his analysis of the Three Mile Island accident: 'Here we have the essence of the normal accident: the interaction of multiple failures that are not in a direct operational sequence. […] most normal accidents have a significant degree of incomprehensibility.' And some of the reasons will stay unexplained. This unexplainable factor relates to humans and this problem is very hard to correct with technological improvements as the human problem lies always in human created systems (Perrow 1999: 4-5, 19, 23).

Throughout the years I have discussed with all kinds of people with all kinds of backgrounds and knowledge on nuclear issues and with all kinds of opinions about it, a great majority has denied the connection between nuclear power and nuclear weapons. In their announcement of the new Doomsday clock time in

January 2015 the editors of the Bulletin of the Atomic Scientists stated amongst the most crucial issues why the 'doomsday' is closer again:

> *[…] global nuclear weapons modernizations, and outsized nuclear weapons arsenals pose extraordinary and undeniable threats to the continued existence of humanity, and world leaders have failed to act with the speed or on the scale required to protect citizens from potential catastrophe. […] the United States and Russia have embarked on massive programs to modernize their nuclear triads—thereby undermining existing nuclear weapons treaties.* (Bulletin of the Atomic Scientists 2015.)

In practice, the statement refers to a very actual issue and not something that was a problem in the Cold War. The production and use of nuclear materials binds the peaceful use of nuclear together with weapons of mass destruction. For example, some one third of the IAEA staff is working on monitoring nuclear materials – a lot of this work is done on site for peaceful use. Globally, the scale and workload is huge. Production, transport, storage, and finally waste are all sources of misuse of nuclear materials. Similarly, the diffusion of technologies is a crucial question but a different kind of thing to supervise. The nuclear materials trade of where to buy the fuel from and what kind of fuel, storage and final recycling and repository questions are directly in connection with the peaceful use of nuclear.

Climate change and CO2 emissions from energy production have been a buzzword in the latest nuclear debates. Strangely enough, this has created a situation whereby some groups have even taken a seemingly critical stance against, for example, pro-renewables' policies or what they call the traditional environmental movement as they are seen as a threat to positive nuclear development (see e.g. Cravens 2007: 246-256; Partanen & Korhonen 2015): the same stance, which formerly only many pro-renewables actors took towards nuclear energy. At a political level, this has happened too and only a few countries have had a balanced energy strategy that includes both nuclear and renewables. As there seems to be controversial knowledge on how we should solve the climate change issue, such a polarized debate is very problematic when it comes to be a state- or inter-state and, finally, an international level problem. However, this is not the topic of this thesis but the climate change question certainly abounds all the time in energy policies.

The nuclear waste issue divides people. It creates a major gap between defenders and opponents of nuclear power but it also divides people who work daily with the waste issue according to my own experience working with them in different forums. It is undeniable that nuclear waste is a special technological and ethical question that continues over so many generations that we cannot have purely technically rational estimations on the effects. In addition, the technical solutions to nuclear waste are still mostly theoretical and even if the technical solutions were here right now, in practice few societies are willing to store dangerous waste

for thousands of years in their ground. This fact makes the legacy extremely political. Based on past generations mistakes in not thinking about what to do with the waste, the general expert opinion is that before any new nuclear project these issues should be carefully thought through. Finland, compared to almost any other country, is in a *relatively* good situation but it does not take away the responsibility of keeping the unanswered questions on the agenda. As I have been concentrating only on the relatively abstract pan-generational moral responsibility linked to the overall political process, it is worth mentioning that there is a separate longstanding tradition for nuclear waste issues in social studies (Solomon et al. 2010). For example, specifically in Finland, Tapio Litmanen and Matti Kojo (see e.g. bibliography of this thesis) have studied the waste issue in-depth from the perspectives of, for example, public involvement, deliberation and communication around nuclear waste's final disposal, which are crucial topics in the field (see also e.g. Sundqvist & Elam 2010; Seidl et al. 2013).

These all are international issues that concern those countries with nuclear power (and some with weapons) but also those who do not. All these issues have an effect on Finland and Finnish nuclear policy. All of them might not be everyday questions on operating a nuclear plant but in the bigger picture they cannot be avoided. The debated issues on nuclear power questions vary. They include technical considerations, political issues, and pan-generational ethical questions. Some are wider societal issues (economic, energy system related) and today often have something to do with climate change and energy policies. Others are tightly related to the inner nature of nuclear power, such as questions of technical safety (technologies over time, development, differences in different countries) and the (used) fuel problem (radiation and other health effects). The ethical questions are connected to all of these (see e.g. Elliott 2010). Thus, these things remain debated and there is not one single truth. The focus in my analysis was how these and a variety of more local issues were taken into account in the processes and how they were discursively constructed and legitimized by different actors at different stages in an also otherwise changing political context. I have also aimed to reveal how a globally meaningful event and the subsequent mainly nationally relevant economic factors that change the whole setting of given nuclear new builds change the national perceptions on the topic. Where the technical argumentation on these nuclear plants has not changed in any significant way, the context of the decisions have been in fierce fluctuation.

I have argued that the case illustrated a hegemonic creation of one limited understanding of 'rational' and the acceptable rationales behind large societal decisions. For example, Chiara Bottici started with the often popular assumption (in political philosophy) of politics as the action of rational individuals. Bottici suggests for a more realistic picture of politics that takes into account the irrational dimensions of politics. She sees this nature, what she calls 'political myth', as a process that becomes to be through the narratives that give it the meaning that we are looking for from politics (Bottici 2007: 1-2, 8, 179; see also Smith 2014). Even today, in times of rationality, political myths occur when and

because rational means are not available (Bottici 2007: 246-248). By following Wittgenstein's idea of language games, Bottici describes political myths as something we need for understanding and for finding meaning from politics, as language games, the meanings, are not only saying but doing (the things we expect from politics) (Bottici 2007: 85, 86). This is how politics was seen in this study – as myths, discourses, and the debates for the many of those involved but with a sometimes painfully close connection to reality.

7.3. Societal contribution

> *[…] but somehow it's not on very sustainable grounds that tax payer needs to pay for the energy company so that it can produce unprofitable electricity.* (Company actor, translated.)

On a societal level the research contributes to the understanding of the current situation in Finnish nuclear energy politics and also to the understanding of the general political sphere and its possible future developments. Considering the economization and neoliberalization of politics, the study adds to an understanding of the changing role of the economy, and its carrying structures for energy production in society and especially in politics. I have analysed how national processes in the context of the neoliberalized political landscape and the international environmental and how economic challenges formulate the understanding of activity driven by economic interests in the wider political context and vice versa. This research offers a deeper understanding of the special nature of the nuclear energy industry as a core material necessity for modern society for which possibilities are limited – at least politically. Although law and subsequent regulation (governance) can often be understood as the best contemporary official representation of collective moral understanding of societal activities, societal debate reveals the gaps between governance and overall moral understanding. Thus, this study can offer new perspectives for all participants of nuclear power debates.

The private experience of nuclear influence takes special forms in the nuclear debate. The history of nuclear battles has seen a variety of trancelike scaremongering, ridiculing of other's arguments and simply false claims from both sides of the debate. In this sense the majority of the Finnish nuclear debate around the 2010s and, according to some other studies, partly already in the earlier debates in the early 2000s and 1990s reached a relatively sensible mode by both camps of debating actors. However, mud-slinging was not unfamiliar even at the highest political levels and as a tragic fact: especially at local levels, the division of opinions has created major harm in people's social relations. As commented by one close observer of a local debate: 'The damage has already happened whether or not the plant will be built'. Overcoming such issues beyond repair will remain a question for better decision processes at all levels.

By engaging in nuclear energy, society commits itself to the long-term development of questions on the entire energy system. With this commitment, companies have an important role as they are the suppliers of the system and carriers of the development. This raises the question of who holds the power in the system and especially for the subsequent responsibility as the political decisions have, prior mentioned, long-term and wide-ranging effects on society. For example, considering the natural environment as something that commonly belongs to us and also to future generations are we willing to give power to decisions that consider the welfare of natural environment to actors whose interest is to utilize the environment in order to primarily create private benefit? These are the questions often raised by especially critical voices in societal nuclear energy debates. Thus, the decisions are not only officially legitimized in official governmental processes but also discussed and debated in public forums, such as the media. These official and unofficial discussions interact by moulding knowledge, opinions, feelings, beliefs and even values of societal stakeholders (Gamson & Modigliani 1989). Some of these perspectives were raised, for example, in the public debate on Finnish nuclear power decisions during the Fukushima disaster's media communication but not during the original decisions in 2010.

The presupposition of nuclear being a solution to climate change due to its alleged fewer CO2 emissions compared to fossil fuel-intensive sources is based on the knowledge and assumptions of normal plant operations. However, the various economic, security, health and environmental problems of nuclear power are under-reported and under-discussed in media although there would be a good scientific basis for this. On the other hand, many risks of nuclear are hypothetical, as I have presented, but still not ethically irrelevant due to the unexpected consequences and the large scale of possible failures. In the international scale, the 'victims' (due to siting decisions and similar) of nuclear power are often in different ways disadvantaged people who are also already victims of various other environmental injustices (Culley et al. 2010). In Finland, such problems have been considered as being something that the participatory process settles while the good of economy and industry are the leading concerns. By looking more closely, it becomes clear that such disadvantages also exist in rich welfare countries, such as Finland, but take different forms, for example in terms of geographical distance and the realities of siting by the decision making centres (i.e. the capital of the nation).

It also must be noted that not all dimensions of nuclear power are unique. For example, the questions of uranium mining are to a large extent the same as for any mining industry. It is not a surprise that mining has a wide range of environmental effects whichever mineral or ore is mined. However, the connection to nuclear makes many battles different – the industry is often defended and opposed in differing ways to others. I am quite certain in saying that hardly any other industry is continually able to stir passions and emotions and no party is free of this phenomenon (cf. Taebi et al. 2012). The general

knowledge learned of the societal legitimation benefits also a wider number of businesses as legitimation of business activities has become central during the last couple of decades with corporate responsibility issues becoming central to almost all businesses. Organizations are forced to do more 'legitimation work' than state actors, for example, and thus such extreme cases can create a new understanding of the societal role of business.

In the case of nuclear power in general, even the upmost souped-up governance is historically unable to tame the critiques that endure over time. This is also a challenge for energy actors as they should find novel ways to react to the critique. Taking this into account and being open about the novelty of the nuclear industry would be the first step. The nature of the industry is very specific and thus, the problematic issues also require a different approach compared to most of the other policy and industry actors – beyond how the governance and administrative processes are at present.

7.4. Critical reflections and possibilities for further research

This study is limited by its specific focus on a specific process of a highly political but also heavily regulated current societal question. However, at the same time the findings open a variety of possibilities for further research in uncovered areas of the empirical phenomenon.

Considering the international scale of the nuclear question and the subsequent issues offers many possibilities for analysis. This specific case itself should be analysed within the wider spectrum of the development in the world political situation and energy policies, especially since autumn 2014 after the EU commission's recommendation for the withdrawal from new energy projects with Russia due to political reasons. It is well known that although societies are highly dependent on energy, energy policy again is highly dependent on the surrounding political situation. Comparative studies of initiatives of different countries would offer an understanding of tensions following from and extending from different situations in national industry structures, general political spheres, and certain sensitive geopolitical events. Considering the official regulatory side of nuclear power, comparative studies with other highly regulated and highly political industries with long-term effects for the environment and, for example, for energy systems, such as the mining industry, would create a value for further understanding of industries that operate in societally crucial businesses.

In more abstract terms, the process of this research raises various questions. This study, as well as many similar ones, illuminates the limitations of the public nuclear debate. The full picture of what happens in the field of nuclear energy would deserve more social scientific perspectives. For example, today when nuclear power is discussed, we think mainly about current fuels and reactor models with their current flaws, risks and problems. However, alternative technologies (generation IV reactors, thorium-based fuels, recycling fuels,

passively safe reactors, etc.) are all the time being developed and they would deserve their place in discussions as they might change, even in the near future, the nuclear question and thus, debates (e.g. de Mestral 2011). A lot of valuable work of different nuclear histories and procedural analysis has been done in social science and on the political aspects of nuclear power (e.g. Litmanen & Kojo 2011; Goldschmidt 1982). However, the science and technology of nuclear power would deserve more attention with a focus on societal and historical context and its effect on our approaches to large-scale political decisions and their subsequent paths.

Fukushima also raised some new questions that will at least arise repeatedly. As countries are now taking different paths in their nuclear policies, it remains to be studied what are the wider effects of those choices and what kind of new policy paths they will create. In addition, currently many newcomer countries are entering the nuclear scene. Most of the countries entered the nuclear realm decades ago when the situation was very different politically and technologically. However, today's newcomers and also those starting to add their nuclear power arsenal are in a very different situation in terms of technology itself (e.g. safety issues affecting building costs and times), national and international administration, and finally politically.

Shortly before and during this study, Finland faced a new era of energy policy. Nuclear was raised yet again as an option at the latest TVO Olkiluoto 3 project that started at the beginning of the 2000s. At the same time, solutions for renewable energy production entered the scene technologically and politically although somewhat later than in equally developed countries. These two rising trends – nuclear and renewables – created their own worlds (of investment schemes, research initiatives, etc.) but also became confronted during the final years of this study. As an example, both were raised in a variety of ways in the parliamentary elections in spring 2015. Local debates took place especially in the cases of wind power and in the case of Fennovoima's project. However, in-depth studies of the interaction of these very different forms of energy production are lacking. Resistance and public acceptance is a much studied area but a wider look at the national energy policy would offer valuable knowledge of the entirety.

Thus, it is easy to say that there is still a lot of work in many areas for understanding nuclear power in society. Technically, even if we do not want to, it will keep many people busy at least for decades – and new battles are only to come. Following that, saying that nuclear power is a highly political question – or even mainly a political question – means that I am not exempt from this fact and such a study can never be neutral. All interpretations and choices of description of such events are coloured by so many background factors that there is no such thing as 'neutral' or 'objective' – words lie, numbers lie and technology is never certain as well as us not being able to ever fully understand our neighbour's motivations. In addition, studies such as this one, can only scrape the surface because of practical reasons – only those active in the process are reachable if the researcher wants to understand the phenomenon in-depth. For example,

quantitatively oriented studies tell an important but a very different story and cannot capture the diversity of a long process as a social phenomenon.

I suggest that there are various empirical and theoretical possibilities for building on this analysis at the core of the process. Empirically, I propose that research on the economic activity in society could more systematically look at industries whereby the preliminary political processes are tightly connected to questions of responsibility. Theoretically, the underlying institutions that define how the moral responsibility of powerful deciding actors is understood in different societal contexts could offer new perspectives for the analysis of the intersection of economic hegemony in political decision making and the responsibility following this material and discursive power (see also Reed 2012). In addition, the paradox of politicized business evident in the study offers various possibilities to widen the understanding of the economy and society nexus beyond the more frequently studied economized politics (political CSR). Such cases can offer valuable sources for further studies on businesses that are reliable on public and political institutions but are still being framed as privately creating societal good.

In the beginning of the study, I was not very fond of working on a topic which I knew to provoke emotions on all sides. I took a path from one extreme to another and found my analytical viewpoint somewhere in between, trying to understand all parties along the way – the curse and the blessing of such a topic. In addition the studied process, even at the end by the publication of this thesis, is not even closed. This might give an interesting nuance when looking at this study later on. However and whatever happens, I think it is fair enough, maybe obligatory, for us to try to make analysis and even judgements also on current events. Finally, the limit between descriptive and normative is vacillating and I believe it is better to admit that whichever political issue one takes under scrutiny, the analysis is only one possible view of what happened and why.

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All www-links checked November 2016.

Appendix I: Specifications of document data

EIA Documents	Document type	No	Notes, record no, date (where applicable)
Fortum	Programme Statements Opinions Report Statements Opinions	5 29 10 6 32 18	8.6.2007
TVO	Programme Statements Statements intl. Opinions Report Statements Statements intl. Opinions	5 35 22 18 7 28 23 64	3.5.2007
Fennovoima 2008	Programme Statements Statements intl. Opinions Report Statements Statements intl. Opinions	7 76 8 151 3 63 10 89	30.1.2008; NB at this point three siting options 10/2008
Fennovoima 2013	Programme Statements Statements intl. Opinions Report Statements Statements intl. Opinions	5 27 82 24 5 27 117 38	9/2013; NB at this point one siting option 2/2014
Total		**1034**	

DiP documents	Document type	No	Notes, record no, date (where applicable)
General 2010	3 VTT reports, 1 Danske Markets report, 2 Fingrip reports	6	
Decisions 2010		3	6.5.2010
General 2014	VTT report	1	
Decisions 2014		2	25.9.2014 (TVO), 18.9.2014 (Fennovoima)
Fortum	General Statements & requests for statements Opinions Replies	5 59 12 3	5.2.2009 (application)
TVO 2010	General Statements & requests for statements (incl. International) Opinions Reply	3 60 12 1	25.4.2008 (application)
TVO 2014	General Statements & requests for statements Opinions	7 42 2	25.5.2014 (application)
Fennovoima 2010	General Further clarifications Statements & requests for statements Opinions	3 14 109 161	14.1.2009 (application); NB at this point two siting options
Fennovoima 2014	General Statements & requests for statements Opinions Reply	2 48 76 1	4.3.2014 (application); NB at this point one siting option
Total		**632**	

Appendix II: Information about relevant Finnish Governments and Parliaments during the studied time

Abbreviations and Finnish and English names of parties

Kok	Kokoomus – National Coalition Party
Kesk	Keskusta – Centre Party
SDP	Sosialidemokraatit – Social Democratic Party
RKP	Suomen ruotsalainen kansanpuolue – Swedish People's Party of Finland
Vas	Vasemmistoliitto – Left Alliance
Vihr	Vihreät – Green Party
Kd	Kristillisdemokraatit – Christian Democratic Party
PS	Perussuomalaiset – Finns Party

Governments 2007-2015 (Ministers advancing the DiPs in bold italics. See below for Parliament decisions.)

No/Name/Prime Minister & Time	Minister responsible of nuclear issues/ Minister of Economic Affairs	Party breakdown
69. Vanhanen 24.6.2003 - 19.4.2007	Mauri Pekkarinen (Kesk) (Minister of Trade and Industry)	24.6.2003 Kesk 8 SDP 8 RKP 2
70. Vanhanen II 19.4.2007 - 22.6.2010	Mauri Pekkarinen (Kesk)	19.4.2007 Kesk 8 Kok 8 RKP 2 Vihr 2
71. Kiviniemi 22.6.2010 - 22.6.2011	***Mauri Pekkarinen (Kesk)***	22.6.2010 Kesk 8 Kok 8 RKP 2 Vihr 2
72. Katainen 22.6.2011 - 24.6.2014	Jyri Häkämies (Kok) 22.6.2011 -16.11.2012 Jan Vapaavuori (Kok) 16.11.2012 - 24.6.2014	22.6.2011 Kok 6 SDP 6 RKP 2 Vas 2 Vihr 2 Kd 1
73. Stubb 24.6.2014 - 29.5.2015	***Jan Vapaavuori (Kok)***	24.6.2014 Kok 6 SDP 6 RKP 2 Vihr 2 Kd 1
74. Sipilä 29.5.2015 -	Olli Rehn (Kesk)	Kesk 6 Kok 4 PS 4

Seats in the Parliament and the results of voting on DiPs in 2010 and 2014

2011-2015

National Coalition Party Parliamentary Group	44
The Social Democratic Parliamentary Group	42
The Finns Party Parliamentary Group	37
Centre Party Parliamentary Group	36
Left Alliance Parliamentary Group	12
Green Parliamentary Group	10
Swedish Parliamentary Group	10
Christian Democratic Parliamentary Group	6
Left Faction Parliamentary Group	2
Parliamentary group Change 2011	1

Parliament voting on Fennovoima's updated DiP application 2014:

115–74, empty: 4, idle: 6

2007-2011

Centre Party Parliamentary Group	51
National Coalition Party Parliamentary Group	50
The Social Democratic Parliamentary Group	45
Left Alliance Parliamentary Group	17
Green Parliamentary Group	15
Christian Democratic Parliamentary Group	7
Swedish Parliamentary Group	9
The Finns Party Parliamentary Group	5
Others (constituency association)	1

Parliament voting on DiPs 2010:

TVO 120 – 72, empty: 2, idle: 5.
Fennovoima 121 – 71, empty: 2, idle: 5

Source: Finnish Government (valtioneuvosto.fi) and the Parliament of Finland (eduskunta.fi)

Appendix III: Excerpts on overall good of the society from DiPs 2010 and 2014

Fortum 6.5.2010 – Negative decision from the Government, pp. 12-13 concerning the evaluation of overall good of the society

> *The Council of State notes that the use of the current plant of the applicant has been safe and the operation of the units trustworthy, and that the applicant fulfils prerequisites to build a nuclear unit according to the application.*
>
> *Council of State finds, considering the following circumstances:*
>
> *- circumstances that would indicate that it would not be possible to safely realize a nuclear power unit according to the application have not occurred;*
>
> *- circumstances that would indicate the planned site unsuitable for the realization of the plan and that the negative environmental impacts could not be limited to a reasonable level have not occurred;*
>
> *- building the new nuclear unit would help to achieve the goals set in the climate and energy strategy: secure the availability of electricity, keep the price of electricity reasonable, secure sufficient independence in electricity delivery and to keep the environmental impacts of electricity production reasonable;*
>
> *- nuclear waste produced at the nuclear unit can be safely handled, stored and finally disposed using already existing or planned methods;*
>
> *- the environmental effects during normal operation of the new nuclear plant are on acceptable level compared to the achieved benefits and are small compared to those of alternative production methods;*
>
> *- Decision-in-Principle of a new unit is not topical considering uninterrupted use of the plant as the operating licences of current Loviisa units continue until the end of 2027 (Loviisa 1) and 2030 (Loviisa 2);*
>
> *- Fortum Power and Heat Oy is a shareholder of Teollisuuden Voima Oyj and through this ownership receives a considerable share of electricity produced at the new units (Olkiluoto 3 and 4) at Olkiluoto nuclear power plant;*
>
> *- Decisions-in-Principle of the other nuclear power plant projects which are meant to produce electricity at cost price for Finnish industry among others,*

that building a nuclear unit according to the application of Fortum Oyj and Fortum Power and Heat Oy or expanding at the Hästholmen plant site is not in line with the overall good of the society.

TVO 6.5.2010 – Original positive decision from the Government, p. 18 concerning the evaluation of overall good of the society (Olkiluoto 3 and 4)

The Council of State notes that the use of the current plant of the applicant has been safe and the operation of the units trustworthy, and that the applicant fulfils prerequisites to build a nuclear unit according to the application.

Council of State finds, considering the following circumstances:

- circumstances that would indicate that it would not be possible to safely realize a nuclear power unit according to the application have not occurred;

- circumstances that would indicate the planned site unsuitable for the realization of the plan and that the negative environmental impacts could not be limited to a reasonable level have not occurred;

- building the new nuclear unit would help to achieve the goals set in the climate and energy strategy: secure the availability of electricity, keep the price of electricity reasonable, secure sufficient independence in electricity delivery and to keep the environmental impacts of electricity production reasonable;

- Teollisuuden Voima Oyj produces electricity at cost price to the needs of, among others, Finnish industry;

- nuclear waste produced at the nuclear unit can be safely handled, stored and finally disposed using already existing or planned methods;

- the environmental effects during normal operation of the new nuclear plant are on acceptable level compared to the achieved benefits and are small compared to those of alternative production methods,

that building a nuclear unit according to the application of Teollisuuden Voima Oyj or expanding at the Olkiluoto plant site is in line with the overall good of the society.

TVO 25.9.2014 – Updated negative decision from the Government concerning TVO's request to lengthen the application time for the construction licence, pp. 13-14 concerning the overall good of the society

Council of State finds, considering the following circumstances:

- circumstances that would indicate that it would not be possible to safely realize a nuclear power unit according to the application have not occurred;

- circumstances that would indicate the planned site unsuitable for the realization of the plan and that the negative environmental impacts could not be limited to a reasonable level have not occurred;

- building the new nuclear unit would help to achieve the goals set in the climate and energy strategy: secure the availability of electricity, keep the price of electricity reasonable, secure sufficient independence in electricity delivery and to keep the environmental impacts of electricity production reasonable;

- nuclear waste produced at the nuclear unit can be safely handled, stored and finally disposed using already existing or planned means;

- the completion of Olkiluoto 3 has delayed. In this situation it is not possible for Teollisuuden Voima Oyj to make important decisions related to Olkiluoto 4 construction licence application during the validity of current Decision-of-Principle;

- according to Teollisuuden Voima Oyj it would be possible to start construction of Olkiluoto 4 unit when Olkiluoto 3 is in stable operation and after planning and construction licence stages of Olkiluoto 4 unit;

- in application dated 20.5.2014 and in account dated 31.7.2014 Teollisuuden Voima Oyj proposes that the new deadline for the application of construction licence would be five years;

[…]

- the existence of a Decision-in-Principle has a significant effect on the operation of electricity markets;

- the decision of the Council of State is based on sufficient knowledge and plans based on capacity of energy production that is in use, that is to be decommissioned and that is under construction or planned. Thus, the Council of State must have also sufficient certainty of the realization of the investment in addition to the new deadline;

- Decision-in-Principle also has a significant effect on the competition in the industry. Thus, in considering a Decision-in-Principle, good method of administration is emphasized;

- in application dated 20.5.2014 and in accounts dated 31.7.2014, 3.9.2014 and 12.9.2014 for the Council of State, circumstances that would indicate that Council of State could have required certainty of the realization of the investment and that application of the construction licence of Olkiluoto 4 could be submitted to the Council of State in the presented new deadline;

- this Decision-in-Principle does not herald the Council of State position toward applicant possible future applications,

that application to supplement Decision-in-Principle and setting a new deadline according to the account to Olkiluoto 4 construction licence application according to the §18 of the Nuclear Energy Act or expanding at the Olkiluoto plant site is not in line with the overall good of the society.

Fennovoima 6.5.2010 Original positive decision from the Government, p. 21 concerning the evaluation of overall good of the society

The Council of State notes that the nuclear power plant project of the applicant is prepared considering the safety aspects and that the applicant fulfils prerequisites to build a nuclear unit according to the application.

Council of State finds, considering the following circumstances:

- circumstances that would indicate that it would not be possible to safely realize a nuclear power unit according to the application have not occurred;

- circumstances that would indicate the planned sites unsuitable for the realization of the plan and that the negative environmental impacts could not be limited to a reasonable level have not occurred;

- building the new nuclear unit would help to achieve the goals set in the climate and energy strategy: secure the availability of electricity, keep the price of electricity reasonable, secure sufficient independence in electricity delivery and to keep the environmental impacts of electricity production reasonable;

- Fennovoima Oy produces electricity at cost price to the needs of, among others, Finnish industry;

- nuclear waste produced at the nuclear unit can be safely handled, stored and finally disposed using already existing or planned means;

- the environmental effects during normal operation of the new nuclear plant are on acceptable level compared to the achieved benefits and are small compared to those of alternative production methods,

that building a nuclear unit according to the application of Fennovoima Oy at the Hanhikivi or Karsikko plant site is in line with the overall good of the society.

Fennovoima 18.9.2014 – Updated positive decision from the Government for the renewed DiP application, pp. 13-14 concerning the overall good of the society

[...]

The Council of State notes that the nuclear power plant project of the applicant is prepared considering the safety aspects and that the applicant fulfils prerequisites to build a nuclear unit according to the application.

Council of State finds, considering the following circumstances:

- circumstances that would indicate that it would not be possible to safely realize a nuclear power unit according to the application have not occurred;

- circumstances that would indicate the planned site unsuitable for the realization of the plan and that the negative environmental impacts could not be limited to a reasonable level have not occurred;

- building the new nuclear unit would help to achieve the goals set in the climate and energy strategy: secure the availability of electricity, keep the price of electricity reasonable, secure sufficient independence in electricity delivery and to keep the environmental and climate impacts of electricity production reasonable;

- Fennovoima Oy produces electricity at cost price to the needs of, among others, Finnish industry. The ownership structure of Fennovoima consists mainly of actors that have registered office in Finland. This strengthens the maintenance and supply security and the steering of energy policies.

- circumstances that would indicate that nuclear waste produced at the nuclear unit could not be safely handled, stored and finally disposed using already existing or planned means have not occurred;

- the environmental effects during normal operation of the new nuclear plant are on acceptable level compared to the achieved benefits and are small compared to those of alternative production methods,

that building a nuclear unit according to the supplementation of application of Fennovoima Oy at the Pyhäjoki plant site is in line with the overall good of the society.

(All excerpts are translated.)

Nuclear power has become one of the most heated topics of debates in energy policy during last few years. Finland has been a forerunner of the Western world in investing to new nuclear capacity. In this thesis I studied how two nuclear new builds became politically legitimized in years 2007–2014 despite crucial internal organizational economic and technical complications and dramatically changing national and international context defining premises for contemporary energy policy. Although nuclear power is exceptional case in many ways, I claim that analysis of it reveals many broader issues of blurring boundaries of economy and society in times of neoliberal ideology and politics hijacking the traditional welfarist values to legitimate the normative economized logic behind decision making processes. This thesis contributes to the understanding how societal good becomes defined before and in politics.

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