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Empowering markets?

The construction and maintenance of a deregulated market for electricity in Norway

Thesis for the degree of Philosophiae Doctor

Trondheim, March 2012

Norwegian University of Science and Technology
Faculty of Humanities
Department of Interdisciplinary Studies of Culture



NTNU – Trondheim
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Preface

*Caesar defeated the Gauls
Did he not even have a cook with him?*

-Bertolt Brecht

Trying to write the preface to this volume and failing repeatedly, I got to thinking about what really goes into a Ph.D. thesis. On the surface, it is an easy question to answer – with a clear project description the brave candidate ventures forth, collecting data and writing up the results for publication in prestigious journals, suffering occasional setbacks but persevering nonetheless until finally with only a slight delay the final product is delivered in the form of a thin volume of text, to be discussed in a dissertation process and then conscientiously shelved in the university library, never to be read again. The newly appointed doctor philosophiae can now move on to an illustrious career, having passed one of the obligatory hurdles of academic life. It's an age-old story.

However, that story is a gross simplification. The last paragraph hides more than it reveals. Can a three-year (and then some), multi-actor, multi-site process be summed up in eight lines? Hardly. We need to ask what is left out of the account: where is the cook here? Or, to put the question in more pertinent terms, what *really* goes into the production of a Ph.D. thesis?

I can start by taking seriously the admonishing of some central theorists discussed later on to never forget the material basis of reality. What is this thesis made of? In printed form, the thesis is made of paper, which is wood chip that is steam-heated, impregnated with lye and sodium sulphide (produced by reducing sodium sulphate with coal), cooked under pressure for several hours, depressurised and washed, bleached using first oxygen, then ozone, then lye, then alkaline peroxide and then finally sodium dithionite¹ before a series of process chemicals (surfactants, anthraquinone, emulsion breakers, defoamers, dispersing agents and fixation agents, among others) are added to make the paper pulp. The pulp is then fed into a paper machine, formed into a web of fibers, pressed free of water, blow-dried and finally rolled onto large rolls of paper which can then be cut to size. To make the final product, ink (carbon black, varnish, drying agent, methanol) and glue (ethylene-vinyl acetate or styrene-butadiene hot melt) are applied to paper according to a complicated procedure involving much complex machinery.

Of course, this is only part of the picture. The text has been produced on three different computers², made from a large list of materials, some of them tied to very sensitive issues of resource depletion, environmental degradation and geo-political controversies³. The list of technical objects required for me to be able to get to work, sit in a heated office building and

¹ Itself derived from sodium bisulfite, often used in winemaking, fruit canning and – until a series of deaths in the US in the 1980s – to preserve the green colour of salad.

² Apart from the odd notes taken (on paper) using a ballpoint pen (plastic, metal, ink etc.)

³ For example, China – mostly, the Inner Mongolia region of China – produces 97 % of all rare earth metals, some of which are crucial components in modern computer technology.

type this⁴ is almost indefinite. Those calling for a material description of social life must have a very specific type of materiality in mind.

What about the other things needed to produce this work? Clearly, there are other factors involved. For example, to produce these pages I have read an estimated 12 877 pages of research publications⁵, a ratio of pages read to pages produced of about 100:1. I have made 85 PowerPoint slides directly connected to the topic, travelled an estimated 60 400 km to present at conferences and conduct interviews (that's about 1.5 times the circumference of the globe) and created 28 separate computer folders for my thesis materials, just to name a few. There are more, many more. On the economic side, the work is paid for with money from the Norwegian Research Council through its RENERGI programme. They get their money from somewhere else.

The private factors involved? Those are for me to know and you to forget about. But we must not forget about all the other people without which this could not have been produced. I want to thank wholeheartedly all those somehow involved in the production of this thesis, but especially Margrethe Aune for direction, Kari Bergheim for sanity preservation, Terje Finstad for commenting, Åsne Lund Godbolt for co-production, Anja Johansen for life improvement, Aina Karlstrøm for friendly rivalry, Erik Karlstrøm for spirited discussions, Nina Karlstrøm for teaching me the value of correct search parameters, Stewart Russell for bike and supervision, Marianne Ryghaug for supervision, Knut Holtan Sørensen for supervision under all thinkable conditions, and of course everyone else who have been part of the material, economic or social basis of this process.

Trondheim, December 2011

Henrik Karlstrøm

⁴ Not all these objects are for the better. To understand this, start with Paul David's "Clio and the Economics of QWERTY" and then move on to the literature on standards and lock-in.

⁵ This is estimated only from the work cited in the dissertation. The real number is probably a lot higher because of all the reading that does not get cited, even if I allow that I have not read every single page of the whole books cited here.

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Chapter 1: Introductory essay

Introduction

Since the high point of state-centred social democracy in the 1970s, deregulation of markets and the introduction of market-based thinking have been on the rise in Western democracies. One by one, areas of the economy previously thought to exclusively fall within the jurisdiction of the public authorities have been exposed to market competition and the logic of economic efficiency. This tendency to reconfigure more parts of the economy in terms of market transactions and free competition has profound if not necessarily easily visible consequences. Among those that are easily recognisable we find such old debate points as internationalised production and trade of goods, services and capital, the weakening of labour organisations within increasingly de-industrialised countries and a move towards more supply-side, monetary economic policy instead of the previous focus on varieties of Keynesian demand-side economics. Among the less discussed consequences are the changes to how we view the role of political debate in society and the importance of key infrastructure sectors such as transport, urban planning or the topic of this thesis, electricity. What are the consequences of reducing the space for policy-making to give more room for market actors? What kind of governance is needed to make deregulation successful?

The relative lack of interest in these kinds of questions is also reflected in academic approaches. Aside from the obvious concern for market deregulation within economics, what is often considered neo-liberal market reforms have been the subject only of some academic analysis within other social sciences. Examples are anthropology's micro studies of changing consumption patterns (Shove, Trentmann, and Wilk 2009), political science analysis of voter behaviour in relation to market orientation (Kaustia and Torstila 2011) and sociological critiques of the assumption of rational behaviour behind much economic theory (Levin 2008). However, it is my claim that this is an area that has received surprisingly little attention, considering the comprehensive effects of market deregulation on the organisation and performance of some of society's central institutions and the modern way of life. In this thesis I aim to contribute to filling this gap by analysing the electricity system, a major infrastructure of society. I shall show how the study of deregulation of the electricity market not only raises issues related to particular economic designs but also involve a multitude of political issues, such as the way scientific expertise shapes the construction of specific political solutions, how

different policies configure various market actors differently, how public debates about the causes and effects of systemic failure create problems for policy-makers stripped of regulatory instruments, and the perception of the system among everyday users of electricity.

Theoretically, the thesis mainly engages with non-economic theories of markets and their stated and unstated visions of democratic politics. It takes as its starting point the view that markets do not simply appear out of thin air when a public service is deregulated. Markets must be constructed. While a lot of economic sociology has been concerned with the way economics tends to presuppose perfect markets from the outset, there has been surprisingly little attention paid to the significant amount of work that goes into making the markets in the first place. Traditionally, discussions of market deregulation have tended to be of a quite technical nature. The technical literature has tended to avoid discussing the underlying political aspects of deregulation, focusing instead on measuring such things as price elasticity and supply/demand curves before and after deregulation (Tishler and Woo 2006). When it comes to politics, this mode of thought has little to offer, even if the seeds of political critique often are found in dry statistics. As a consequence, I turn to work done within science and technology studies (STS) and economic sociology regarding the way scientific expertise influences the production of politics, exemplified by the recent work on the concept of performativity. This approach deals with how economic theory shapes market actors' behaviour in amongst others financial markets. My aim with this thesis is to use these theoretical perspectives as a starting point for exploring the political aspects of deregulation without resorting to *a priori* assumptions about the desirability of deregulation or the hidden agenda of the actors who engage in it. Instead, I wish to show how political decisions affect a wide variety of institutions and individuals, and point to a strategy for analysing these effects by probing some problems inherent in a theory of performativity without human actors.

In short, the thesis raises two concerns: firstly, it examines specifically the current configuration of Norway's electricity system and the changes it has been through during the last two decades. Who did the work necessary to change the system so radically, and what efforts are made to maintain it? To what degree does a system so central to the functioning of modern society work according to the original intention of its design? How has it been received by household users of electricity, and how has the reform been framed in public debate? This forms the basis of a more general inquiry into politics and the process of market

deregulation, the voluntary reduction of regulatory power undertaken by politicians in the name of freedom of choice and efficiency, and the differing opinions about this process. This way I wish to point to the controversial consequences that may follow even quite uncontroversial political reforms. Using insights from recent economic sociology and STS, I seek to bring attention to those controversies that frequently arise but are seldom put in context. This allows me to discuss such phenomena as market adaptation and policy reception using methods and theoretical approaches not normally found in academic treatments of these issues. Hopefully, this will pave the way for a new understanding of how electricity markets function and how users of electricity, policy-makers, experts and the public are deeply involved in designs supposedly of a purely “technical” nature. On the one hand, the electricity market is nothing but an aggregation of everyday life decisions regarding heating, lighting, appliances etc. On the other hand, the aggregation process is often rendered opaque, which may make deregulation into a slippery object. This has to be analysed.

As already mentioned, the thesis studies empirically the deregulation of the Norwegian electricity system that started in late 1991 and continued with the expansion of the Nordic electricity exchange throughout the 1990s. This was one of the first complete deregulations of an entire electricity system in the world, and is to this day held up as a good example of how such processes should be handled. The deregulated Norwegian electricity system in many ways appears to be a success story. Based mostly on hydroelectric power from the country’s many waterfalls, Norwegian electricity is abundant, clean and above all cheap to produce.⁶ After World War II, the Labour Party-dominated government prioritised access to electricity at a reasonable price for everyone by constructing new hydro dams for tax money whenever the demand for electricity threatened to approach the current supply. However, by the 1980s the Norwegian electricity system was having some problems. After several decades of constructing large hydro power stations, the government was facing a situation of large production surpluses and increasing popular resistance to further development. At the same time, excess power in years of rich rainfall was sold dirt cheap to Norway’s neighbouring countries. This was bound to raise questions about the economic viability of the current setup: why not let prices be set through market interaction and leave investment decisions to companies making calculations about supply and demand?

⁶ 99 % of the nation’s onshore electricity comes from hydro power (Statistics Norway), at production costs about 60 % lower than other electricity sources (Enova).

In response to these questions, the Norwegian Ministry of Petroleum and Energy asked a group of economists at the Norwegian School of Economics to come up with a new design for the national system of production and distribution of electricity. The research team, headed by professor of economics Einar Hope, produced more than 60 reports discussing different aspects of a projected market based electricity system, from the minutiae of electricity price futures trading to the limitation of natural monopolies. In the end, they had designed what from an economics point of view was a complete market based system for the production, distribution and sale of electricity in Norway. This design was too market oriented for the Labour Party government that originally had commissioned the work. They were looking for something more in line with the existing system, but with tweaks to overcome the inefficiencies of the large centrally governed system already in place. However, the presentation of the new market design coincided with the ousting of the social democrats from power and the introduction of an 18 months short intermezzo of a centre-right coalition in the national election of 1989. Just six months after the election, the economists' original design was taken into law almost without changes. From 1992 onwards, Norwegian electricity users have been allowed to choose their electricity supplier freely while prices are set on an hourly spot market.

The adaptation of the new market design went surprisingly well, compared to experiences in places like California and the UK when making the same transition a few years earlier. There were no rolling blackouts, and most electricity customers did not notice any radical changes to the way things were run. The Norwegian system was quickly expanded to encompass the neighbouring Nordic countries to create the first international power exchange, Nord Pool, where electricity was freely traded across borders. This model was seen as so successful that the scientists behind it began travelling the globe advocating similar reforms in other countries, most often in emerging economies where the electricity sector was not as entrenched as in the most developed ones. Still, the Norwegian deregulation process did not take place without difficulties. After about a decade of operation, some problems were cropping up for the new regime. While prices for end users of electricity had initially dropped in the first years of the nineties, by the early 2000s they were up to their previous levels, but with increased price fluctuations (at the time of writing, electricity prices are at their lowest

since 2000. A year ago they were double this level.⁷) Virtually no new power plants had been built since the introduction of the new Energy Act – partly due to the existing surplus of electricity, partly due to the possibility for importing electricity in times of high demand, but mostly due to the very low price of hydroelectricity. While this in itself could not be called a problem, it meant that when demand finally caught up with supply towards the end of the 1990s and Norway at the same time through EU agreements committed to increase its production of renewable energy (in itself somewhat paradoxical, considering that the country's electricity production was about 100 % renewable already), government found itself unable to entice investors to build new power plants. Also, it turned out that household customers did not really make use of the possibilities to buy from the cheapest producers present in the market design. Very few actually change supplier in a given year, and most consider it not worth the time and effort to go through the necessary paperwork and price comparisons.

None of these problems are insurmountable. New regulations can be introduced to regulate prices more strictly, incentives for investment can be set up in order to meet international requirements and barriers to market engagement such as information deficits can be lowered. In fact, much has been done towards these ends already. The regulations are continuously tweaked to counter inefficiencies, especially in the part of the system that is counted as a natural monopoly, the distribution grid. However, there is a difference between this new system and the way things were handled before. Because decisions in the old system – mostly about yearly electricity prices and new power construction – was controlled by politicians in Parliament, the old system tended to be cumbersome and slow to respond to changes in the use patterns of households and industry. On the other hand the system was also subject to democratic control, and parties were in principle held accountable for the choices made. Under the new regime, the power to act on specific problems that might arise was relinquished in exchange for efficiency gains and - lest we forget - increased income. Judging by the yearly agonising over winter electricity prices we see in the media, these gains have come at the expense of the public support of national electricity policy. Now, there is a certain tension between citizens' expectations of low and stable electricity prices and the reality of prices that fluctuate in response to changes in parameters such as temperature,

⁷ NordPool Spot: <http://www.nordpoolspot.com/Market-data1/Elspot/Area-Prices/ALL1/monthly/>. Read 02.12.2011

precipitation, the demand for electricity in neighbouring countries and the available supply of electricity from as far away as Germany.

This thesis attempts to conceptualise the political tension described above by paying attention to some factors that are not usually included in discussions of matter of electricity or markets. Much work has been done on deregulation of electricity systems, and the Norwegian process has been the subject of several studies, from historical (Thue 1996) to more network oriented (Olsen 1996) approaches. Some of the principal designers of the reform have themselves been active in the debate around the reform (Hope 2000, 2001, 2006; Bye and Hope 2005). The thesis owes much to the descriptions and perspectives from their work. However, I find that previous studies have tended to discuss only one or two factors in their dealing with the subject matter, focusing on the actors behind the reform or studying the development in prices and market transactions. The electricity system involves a large number of actors, and it is difficult to get a full picture by studying only one facet at a time. This thesis is an attempt to broaden the perspectives somewhat, by analysing a larger part of the system. Using a variety of data from sources such as government documents, interviews with experts, a representative survey of electricity users and hundreds of newspaper articles, I examine the Norwegian electricity system from several angles: the designers of the reform, the politicians who made the design into law, the suppliers of electricity and its end users, as well as the public discussions around the electricity market. These are all important factors in understanding how political reform impacts the larger society, and how the changes are received by the public. The guiding questions have been: How and by whom is a new market created? Who does the work necessary to create markets, and what work is required to stabilise and maintain them? How was the reform received and incorporated by everyday electricity users? In what way was the debate around deregulation cast in these terms? I believe that examining a larger set of issues connected to the deregulation process will increase our understanding of how such policies are constructed, maintained and debated.

The thesis is structured as follows: in the next section, I give a brief summary of each of the four research papers that make up the main part of the thesis, explaining the theory and methods used without going into too much detail. Then I present previous research into electricity deregulation, which has tended to focus less on the types of questions asked above and more on technical issues such as price elasticity and energy systems modelling. In order to

move beyond these technicalities, I present the theoretical framework that informs my analysis of the system. I start with a presentation of theories of the connection between scientific expertise and politics, the so-called co-constructionist perspective, before diving into the current attempts at conceptualising markets in recent economic sociology and STS. I then move on to a description of the methods of data collection and analysis. Finally, the four papers are included, where the real meat of the thesis lies. In turn, they discuss the construction work done by economists in designing the market deregulation reform, the way policy-makers invest everyday users of electricity with certain morally laden characteristics, the way electricity users have adapted to the new free market for electricity and the public debate that arises when the administration of the system runs into supply problems.

Deregulation in diverse contexts: a summary of the papers in the dissertation

Contrary to some claims, deregulation is not just a technical affair, but encapsulates a range of political and social changes to a system. The four papers that comprise this thesis explore some of these changes empirically through interviews, reading of policy documents and public discourse as well as a large electricity user survey in order to capture as much as possible of the affected surrounding areas of deregulation. Theoretically, it debates some notions of how individuals are affected by and supposed to react to the emergence of a new market in addition to the question of how important scientific theory and advice is to real-life policies. While there are a myriad of ways of presenting this quite diverse material, I have chosen to frame it by highlighting three themes: the professional background of the people implementing deregulation, the changes in expectation of how users of electricity should behave and the uncertainty that arises when there are problems in a system that is supposed to work without regulation. The first of these themes, dealt with in the first paper presented, is in line with classical political science and institutional sociology. In order to understand how policy comes about it is not enough to just study the documents that are passed in parliament – one must also look at who is passing them, who drafted them and who is responsible for implementing the policies contained within them. Often, professional interests or specific institutional arrangements can impact the end results in otherwise transparent procedures.

The second theme deals with the configuration of users of electricity. A tenet of neoclassical economic thought that has been much criticised is the idea of the rational, utility-maximising actor who carefully calculates returns before taking any action. While serious economic theory is beginning to move away from this vision of human action, there is no denying that market liberalism relies on the considered choice of informed consumers to govern companies in competition. Deregulating, moving from political governance to market governance, requires users of electricity to adjust their expectations and actions according to a new set of parameters in their buying of electricity. In short, they must learn to become consumers, weighing prices and switching supplier frequently to take advantage of the benefits of free competition. The second and third papers deal with different aspects of this learning. The third theme and fourth paper focus on the allocation of responsibility and the handling of potential problems in deregulated systems, as well as the role public debate plays

in sensitising people to the difficulties in managing large systems. The paper asks whether a system that provokes large and never-ending debates can be said to be working stably.

Paper 1: Economisation - between economics and economists

This paper addresses the link between the policies that are brought up in governing and legislative bodies and the designers of these policies. It discusses a theory known as economisation that is currently fashionable within science and technology studies (Caliskan and Callon 2009; Caliskan and Callon 2010). Economisation takes as its starting point the idea that increasingly, parts of society are subjected to the logic of modern economic theory, and tries to conceptualise this development by examining how economic theory moves from the desks of economists into policy. The novelty of the theory lies in its view of this movement as not solely reliant on the conscious action of human agents. Rather, it claims, we should look at the material basis for market constructions, such as the computers traders use to calculate prices or the sites of circulation of goods.

In the paper I point out some of the criticism this theory has already come under, among them that leaving human actors out of the picture makes it difficult to understand the ways in which the theory comes into being and how it moves around. I also take Callon and Caliskan's lead in trying to figure out how an economisation study might look when put into practice, and use Keller's (2009) model of how to follow scientific proposals from initial agenda setting through legislation and into final implementation to examine the introduction of the new law proposal and how and by whom it was received in the process. The goal is to ask in what way the possible new system was first conceived and how it could make its way into law.

Empirically, I trace the theoretical beginnings of the deregulation of the Norwegian electricity system from the first modest attempts at addressing some of the problems present in the old system to the final passing of the new free market system. This is done by analysing interviews with a number of scientific experts, policy-makers and general movers and shakers involved in the deregulation process and/or the analysis of it. The deregulation starts out as a purely economic concept produced by economists through rigorous theory construction in a number of reports and models. However, I also observe that the fate of the theory lies in the hands of a variety of groups with potentially differing objectives and stakes in the matter. In the case of the Norwegian deregulation process, the fact that trained economists held key

positions in all institutions relevant to the process seems to have played an important role in the theory's successful transition into practice.

Paper 2: Consumers as professional and political constructions. On the performativity of energy economics

This paper looks at the way official policy documents and policy-makers have constructed an idea of the typical consumer of electricity through 30 years of official policy on electricity consumption. By examining official discourse it is possible to gain an impression of the way consumers are expected to behave (and think) under the new policy regime. This is studied from the point of view of Michel Foucault's idea of governmentality, which claims that people are primed for self-control and self-audit through the construction of an understanding of individuals as solely responsible for their own conduct and the results thereof within a particular field. We also discuss the performativity view of economic theory, which supposes that once a suitable economic theory for a field has been formulated it will tend to have an effect on the practice of that particular field.

The paper examines background documents and the parliamentary debates in preparation for the introduction of three key policies related to electricity in Norway. In the time since 1975, three distinct ways of conceptualising the household consumer is identified. The first, a result of the international oil crisis of 1973, is actually two conflicting constructions in one: consumers were seen as economically rational in the policy documents, but the policy-makers did not completely trust them to be so and kept invoking knowledge and moral deficits in the parliamentary debates. There was relatively little controversy regarding this framing. The second period, starting with the deregulation process in the beginning of the 1990s, dispensed with the moral sheen of the previous period and adopted a more pure framing of consumers as economic actors. This increased controversy among policy-makers adhering to different ideologies. The last period had to do with the "electricity crisis" of the winter of 2002/2003, after which policy-makers were more interested in technical adjustments to the system. To the degree that consumers were mentioned at all, it was as invoked support for whatever goal the politicians had in mind.

The paper finds that policy-makers work hard to simultaneously rescind responsibility for the results of deregulation and construct an idea of consumers as thoroughly moral individuals, complete with an obligation to make use of the possibilities of the new policy. Also interesting is the contrast between the idea of consumers inherent in the policy documents

themselves – as standard *homo economicus* – and the morally laden way politicians speak of consumers in the debates surrounding deregulation. Finally, the performativity theory is called into question, as it seems that neither policy-makers nor consumers were ready to completely adopt the economic viewpoint in dealing with the electricity system.

Paper 3: From user to consumer? How households' use of electricity is affected by market deregulation and environmental concerns

This paper discusses the implicit understanding of market deregulation that users of electricity will learn to become competent consumers through the introduction of economic incentives for active participation in the marketplace. This consumer competence consists of an interest in monitoring one's electricity consumption on a regular basis as well as the ability to compare prices in the market and switch supplier accordingly. The assumption is that an orientation towards market solutions also entails an interest in using electricity efficiently, that frugality in a way naturally follows the market. If the assumption holds true, this would amount to an example of what Sørensen (1996) calls social learning, the process where new technologies and their corresponding habits are incorporated into everyday life.

In the paper we describe how this form of learning to be a consumer might look after two decades, and attempt to test the assumption of social learning by asking a representative selection of the population about their attitudes towards and actions pertaining to the free market for electricity in Norway. The survey consists of answers from 1500 respondents from different backgrounds and areas of the country. We construct a market orientation index by combining several of these responses and see whether respondents have to some degree adopted the role of consumer. In general, we find that people are not very market oriented, preferring to stick to their existing electricity supplier and refraining from actively seeking price information. They also claim to be well informed about the price of electricity, but do not see it as worth their time and energy to actively hunt for the lowest price at any given moment. Even those households who claim to be generally in favour of market solutions are not significantly interested in energy efficiency. We do, however, find that geographical distribution matters in the general market orientation towards the electricity market, where high price regions are somewhat more market oriented than the rest. This is an indication that the highly varying prices Norwegian electricity consumers pay for electricity according to where they live plays a role in how active they are.

Against the assumption of market orientation we put a competing theory of environmentally informed electricity consumption, hypothesising that electricity users might be interested in a more efficient use pattern due to environmental concerns rather than economic efficiency. We find that while many already see themselves as being as efficient as possible in the use of electricity, to the degree that some see the need for a more energy efficient lifestyle it is more informed by environmental concerns than economic ones. This environmental framing of electricity consumption is worth looking into for authorities interested in more efficient use of electricity in the future.

Paper 4: When a deregulated electricity system faces a supply deficit: A never-ending story of inaction?

This paper discusses the implications of reducing direct political control over the supply of electricity by deregulation. Simultaneously leaving investment decisions for new electricity to reluctant electricity companies, opening up new power-demanding industrial activity in a region with an already existing electricity deficit and delaying decisions to build grid transfer capacity into the region, the Norwegian government set themselves up for a potentially serious supply deficit. When a cold winter followed a dry fall in 2002/2003 leading to an extreme spike in prices, public debate about the policy choices that had been made flared up.

In the paper I analyse the media debate that came in the wake of this “electricity crisis” in terms of the different positions taken by various actors in the debate and how the concept of a crisis in the supply of electricity became a handy tool for those advocating changes in the current system. A reading of 341 papers that appeared in both local and national newspapers as well as more special interest media showed that there were three dominant factions in the debate, each arguing for different versions of the truth and advocating a different solution to the perceived problem. The Gas Alliance used the opportunity of a supply deficit to argue for the rapid deployment of new gas power plants, regardless of the eventual environmental costs of this. The Renewable Alliance latched on to the same worry of a deficit, but held up new renewable energy as an alternative to gas. The Blame Alliance seemed less worried about the outcome of the deficit period and more concerned with assigning the blame for the situation arising in the first place. Others arguing for a more technical fix or even dismissing the problem out of hand were noticeably less vocal in the debate.

What was particularly interesting about this debate was the inability of the governing bodies to not only do something about the situation (like deciding to build new power plants, shutting down industry or rushing the construction of new power lines) but even to give an impression that they were doing something. Instead, the most common response was to say that people should use less electricity while crossing their fingers and hoping more cold winters would not come around. In light of the outrage the situation created, this non-action is illuminating: the debate caused by a regional supply deficit highlights the at least partial disintegration of responsibility that follows in the wake of deregulation.

Deregulation as a multi-dimensional issue

As shown above, the individual papers that constitute the core of the dissertation each raises a specific concern that is analysed by use of diverse theoretical resources. However, taken together, they should be read to provide a concurrent perspective on deregulation that above all has the construction and maintenance of a market as the main focus. Rather than considering markets as purely economic designs, the papers show how we may ask about the provision of economic knowledge, about the underlying political perception of market actors like households, about the actions and perception of such actors, and about the public processes of engagement and sense-making with regard to the operation of the market. To pursue this analysis, a theoretical framework is needed to allow a more profound analysis of the issues.

The scope of this thesis is quite large. It is an attempt at describing and discussing some of the many aspects of society that are involved in a deregulation process that are not normally included in policy discussions. This entails considering both the surrounding institutional landscape of a particular regulatory reform, the effects with respect to the end users (households) and the public discussions around how to solve certain societal challenges regarding security of supply of (cheap) electricity. As can be seen from the paper summaries above and the papers themselves later, the deregulation process has gone more or less according to plan, albeit with some hitches along the way. The papers deal, in turn, with questions of how economists, politicians, households and electricity suppliers conceptualise the deregulation. Here, I ask how we can use current research into these issues to get a better understanding of the reason why controversies tend to arise. In what follows I present theoretical perspectives that I believe fruitfully inform the analysis of the empirical data I have gathered, along with an explanation of why I think these perspectives fall just short of providing the analytical tools we need to gain this understanding. Most of the theory discussing specific aspects of my findings is presented in the papers at the end of the thesis, but the more overarching themes that form the frame this whole discussion happens within deserves a closer presentation.

Before I get to the theoretical framework I use to analyse the deregulation of the Norwegian electricity system, I start with a review of current research into the theme of electricity markets and deregulation. Most of the work done on electricity focuses either on the technical aspects of the matter, e.g. measuring energy efficiency in buildings or load

capacities in the transmission grid, or on aspects related to consumption, such as household electricity use and price elasticity. My claim is that while this is both useful and interesting work for those looking to understand how different technical solutions produce different types of use or to what degree and under which circumstances a more efficient use of electricity is feasible, it is not sufficient to understand the political complexity I attempt to tackle in this thesis. That is why I attempt to bring the more technical considerations into a wider context by considering theories about the importance of examining the role of scientific expertise in the formulation of politics as well as theories relating to how market designs have a profound influence on the political sphere⁸. I discuss the theories of the interaction between science and politics by looking at theories of the co-production of science and politics (Jasanoff 2004), a recent attempt to explain how these two fields interact and co-create each other. Co-construction as a concept offers a reason to look closely at how policy is designed by policy-makers with input from experts, because design choices tend to implant specific modes of thought and actions at later stages. I then look at one current attempt to use this type of thinking to understand economists' influence in policy matters, the concepts of economisation (Caliskan and Callon 2009; Caliskan and Callon 2010) and performativity (MacKenzie, Muniesa, and Siu 2007). I discuss how these concepts depend on a very specific idea of what a market is, and why this is not necessarily useful for all types of markets. At the end of this last discussion I present what I believe needs to be amended to that theory to make it work as an analytical tool for understanding how deregulation comes about and what it results in.

Previous studies of electricity deregulation

Tishler and Woo (2006) contend that research on electricity deregulation has been focused mainly on three lines of enquiry: market architecture, economic efficiency and trading efficiency. While these are important questions within the field of electricity economics, they tend to take the deregulation *process*, the messy political and rhetorical work required to make it happen in the first place, somewhat for granted. This is clearly illustrated in the book *Electricity Deregulation* edited by Griffin and Puller (2005), where all contributors are exclusively interested in tweaking the market design when it shows signs of trouble. The deregulation itself is a given.

⁸ As Callon puts it, "the pervasiveness of today's markets is attended by a profound redefinition of the role of politics and its institutions in our societies" (Callon 2007:139)

Available analysis of electricity deregulation processes mainly concern some sort of comparison: either among different regions of the world or by comparing the electricity system before and after deregulation. The papers analyse outcomes of electricity deregulation in particular parts of the world by comparing them to previous efforts in other places, such as recent work done on the feasibility of electricity deregulation in Hong Kong when results from other small countries are dubious (Thomas 2006) or whether there is something to learn from telecommunications deregulations for future electricity deregulations (Pollitt 2010). Or they present comprehensive analyses of regions, such as comparisons within the whole of the EU (Green 2006), the whole of the OECD (Al-sunaidy and Green 2006) or even comparing regions and countries (UK, Norway, Alberta and California, in the case of Woo, Lloyd, & Tishler, 2003). Some work is more concerned with the effects of deregulation, attempting to judge the merits of reform by analysing the situation before and after deregulation. Examples of this can be found for reforms like the ones in Turkey (Dastan 2011), Texas (Zarnikau and Hallett 2008) or the important “early adopter” cases of California (Blumstein, Friedman, and Green 2002) and the UK (Thomas 2004).

These contributions represent different methodologies and approaches to the study of electricity deregulation using a comparative approach. Some of this body of work is quite critical of deregulation; others are more purely descriptive in their treatment of the subject. There is a lively debate on the feasibility of electricity market deregulation itself. However, one thing they have in common is a certain narrowness of scope. There is also a rather technical aspect to much of this research, perhaps following from the concern with changes in prices (Li and Flynn 2006) or problems of market domination (J. V. Kumar and Kumar 2010).

Some effort has been put into tracing the way policies regulating electricity markets and discourses around their implementation shape and influence the process. For example, Hirsh (1999) draws on themes from political science, history and the sociology of technological systems to highlight the way politicians and power utility managers adopt a specific ideological framework to conceive of the electricity system as something that could be split into a natural monopoly and a free market. In line with this, Högselius & Kaijser (2010) identify a set of stakeholders and trace their work in several different arenas to influence the making of the deregulation of the Swedish electricity system. Simmons (2008) analyses the media discourse around a deregulation process in Canada, showing how the media plays an important role in

the legitimising of deregulation. However, even if these are examples of a more contextually sensitive approach to the study of deregulation processes, they remain exceptions to the rule in a field dominated by statistical modelling and price calculations.

One noteworthy factor missing from all this discussion of market design, electricity suppliers and efficient trading is the end user of electricity. There are plenty of analyses of price and income elasticities in households (see for example Dergiades & Tsoulfidis, 2008; Filippini, 2010; Narayan & Smyth, 2008; Silk & Joutz, 1997; Zarnikau & Hallett, 2008), and also work on the relationship between energy consumption, income and prices (Asafu-Adjaye 2000; Yuan, Liu, and Wu 2010). This work, however, is not concerned with how households' perception of the deregulated market might influence their actions in it, nor does it for that matter question the assumption that electricity users are rational consumers making choices based on best available price information. The survey paper (no. 3) is partly an attempt to rectify this by taking into consideration the conceptual framing of the electricity market on the part of the households that actually buy and use electricity.

This is not to imply that no sort of non-technical research into electricity markets exists. On the contrary, there is a rich field of more practise oriented research on household electricity use, focusing on social and cultural explanations of private electricity use. For example, research into everyday electricity users' behaviour patterns (Aune 1997, 2007; Shove 2003) demonstrates how individual definitions of comfort, cleanliness and convenience influence users' consumption patterns and understanding of their own relation to the electricity system. Showering, laundering and indoor climate control are not value-free parameters in a calculation of the optimal use of electricity, but activities that are imbued with meaning and a host of associations related to non-economic rationalities. Similarly, by referring to the concept of domestication (Sørensen, Aune, and Hatling 2000; Aune 2007) these scholars have analysed how our material surroundings affect our willingness and ability to assess our lifestyles and potentially change it. These studies emphasise the non-economic aspects of electricity use, even making a note of how different aesthetic preferences can be more important than economic considerations in these matters (Berker and Gansmo 2010).

The research reviewed so far is useful for understanding how there are different ways of conceptualising people's relation to the electricity market, and that this is not necessarily connected to the more system oriented analysis of the electricity sector. Households make

their own accounts of their use of electricity, often informed by other concerns than those of efficiency or economic rationality. Still, in the study of electricity market deregulation, the anthropologically informed study of everyday habits is a bit too near-sighted for grasping the more political aspects of the matter at hand. A lot of the discussion of deregulation takes a stance for or against specific policies, and have a keen understanding of the consequences of different policy choices, but there is surprisingly little analysis of broader political contexts. Of course, the configuration of everyday life is political, but there are few scholarly attempts to link the diverse dimensions of such large-scale political processes as deregulation reforms: the production of meaning in the media, the professional and political background of those working on deregulation, the parliamentary debates, and so forth.

By studying how economists played a role in the Norwegian electricity deregulation and how this reform was perceived by households and debated in Parliament and the media, I hope to improve the understanding of how deregulation should be understood through its socio-political environment. However, in order to get to that point, we need an understanding of how scientific expertise influences the sphere of politics, and vice versa. In the next section, I will present theories of science and politics that move away from a static conception of scientific influence over policy as a one-way street and towards a more integrated approach, contained in the concept of co-production of science and politics (Jasanoff 2004). The co-productionist perspective has come to be central in much of current STS thought, but I will argue that there is a possible tension between it and the new theory of economisation, which deals with how academic economic work moves into the world of real policy.

Expanding the study of electricity market deregulation

Traditional accounts of how science plays a role in the formulation of policy has tended to accept a linear model of knowledge transfer, where science in a way dictates the possibilities for making policy: “Science would educate decision makers and raise public awareness, and this awareness in turn would lead to informed and rational policy choices – so conventional wisdom asserted”, as Jasanoff and Martello (2004:336) put it. This model seems to embrace the notion that scientific advice is somehow neutral and apolitical, and the linear direction of this mode of thought implies that science is unaffected by politics. Within the STS field, however, there is a long-standing tradition of critically examining such models (Jasanoff et al. 1995). A number of studies have shown that the connection between science and politics is far

more complex (Herrick and Jamieson 1995; Funtowicz and Ravetz 1993). Some of this criticism can be found within other fields as well, like in recent efforts in political science (Keller 2009) or cultural studies (Hess 1999).

The critics of the linear model point out that there is little in the empirical data that supports a linear model of knowledge transfer from the world of science to that of politics. Rather, the exchange is fluid and two-way: scientific questions are often formulated in response to specific political problems or whatever is on the current political agenda, and scientists often serve as advisors on political matters, as members of governmental boards or authors of requested recommendatory papers on various issues. Similarly, scientists are not without political views and priorities. This complicated exchange between the allegedly separate spheres of science and politics requires a more nuanced analysis than a simple linear model, or the idea that science is somehow completely separated from politics and able to “speak truth to power”, as the convention would have it (Jasanoff 2003). A term that can provide such an analysis is the notion of co-production (Jasanoff 2004), which offers a way of analysing the construction and maintenance of political order in terms of the work done by various actors to create and maintain it as well as a sensitivity towards the concrete, material configurations that make this possible. Co-production happens along four pathways, which occur in various combinations and with differing strength according to the context: making identities, making institutions, making discourses and making representations. These pathways play a crucial role in the delegation of power between the various acts of agenda setting and policy implementation that make up modern politics. They all play their part in maintaining the tenuous order established by science and politics in tandem (Ryghaug 2011).⁹ Adopting a co-productionist perspective requires one to examine the scientific advice that is invoked in matters of politics (and what matters are not?) to see how it was produced, who is producing it and in what way it is being invoked. As scientists are increasingly involved in advocating policy themselves, this becomes a question of utmost importance (Hajer 2009). Co-production has proven to be useful in the study of many different phenomena, such as climate change (C. Miller 2004), biomedicine (Felt, Fochler, and Winkler 2009) and the use of science in the courtroom (Jasanoff 1995). Its focus on combining the study of institutions, identities, representation and discourse resonates well with my analysis of the construction of the

⁹ They are not always so well aligned, and there are moments of destabilisation along the way. The so-called “Climategate” controversy can attest to this (Ryghaug and Skjølsvold 2010).

Norwegian electricity market, the surrounding media discourse and representations of electricity users by policy-makers. It is, however, not the only way to conceptualise these interactions.

Co-productionist theory emphasises the reciprocal nature of the relationship between scientific knowledge and political frameworks – in modern society one is impossible without the other. A different take on the relationship between science and politics can be found in another strand of recent STS thought, working with the concept of performativity. This approach considers the influence of economic theory on the operations of markets and connected parts of the world of finance (Callon 1998; MacKenzie 2006; Muniesa, Millo, and Callon 2007; Beunza, Hardie, and MacKenzie 2006; Beunza and Stark 2002). This body of work claims that economic theory may, through building ideal, simplified models and producing analytical techniques that can be transferred to everyday practice, actually help transform the phenomena described by the theoretical models into something more closely resembling the theoretical model. In a way, the theory comes to somehow *perform* reality.

While performativity originally was coined as a general concept in post-structuralist theory, which in STS has been applied to analysis of the effects of technosciences (see for example Latour 2005; Law 2004), it has also been used to study how economic theories have affected the world. One example is MacKenzie's (2006) study of how economists at the University of Chicago in the 1960s took their new theories of the correct valuation of company stock prices into the stock market, setting up trading companies that used these new theories to great effect. Seeing that the economists' theoretical models of optimal pricing were more efficient than the rules of thumb they were using at the time, other traders started to employ the new theoretical tools, which in turn meant that the stock market started to resemble the ideal model that was the starting point of pricing theory. This effect, MacKenzie claims, is at least partial proof that the performativity of economic theory can influence reality.

Here, a question arises: if the performativity thesis describes how a specific scientific theory comes to shape the world it studies, how is this different from a linear model of knowledge transfer from science to society? One way the performativity theorists seek to avoid this problem is to emphasize the material aspects of the process. They claim that economic theorists produce tools of a very specific nature called "calculative devices" (Callon, Millo, and Muniesa 2007). Such devices include the algorithms and technical apparatus of

market exchanges – which are then used by the market actors to conduct transactions and make necessary calculations and valuations. This emphasis squares the performativity thesis nicely with much of STS thought, which is often concerned with exploring the material basis of social arrangements (Garcia-Parpet 2007; MacKenzie 2009). Following market actors around as they trade stock using complex computer algorithms, compare prices at village market squares or test out new economic theories in the marketplace can be seen as examples of such technosemiotic analysis. As Mackenzie points out, “what is perhaps most characteristic of a perspective rooted in the social studies of science and technology is its concern with the *materiality* of markets” (MacKenzie, 2009:2). The latest iteration of the performativity thesis as applied to markets, called economisation (Caliskan and Callon 2009; Caliskan and Callon 2010), goes one step further to call for studies of market interactions without reference to the human actors that make up the market in the first place.

However, even if the performativity thesis avoids the pitfalls of linear knowledge transfer, there is still the question of how it deals with its subject matter, markets. So far, most performativity research has been done with an empirical focus on highly specialised arenas where most of the actors share a common understanding of what the market in question consists of and should be – trading floors, auction houses, securities traders, stock exchanges etc. The question remains whether this type of theory can prove useful in the context of non-technical markets where the involved actors are not trained to take into account the latest theoretical developments or use specialised calculative devices, as is the case with the market for electricity. A look at the discussion of how we should understand markets and market interactions may help to clarify how performativity can help inform the analysis of the deregulation process.

Making sense of markets: Embeddedness, performativity and enactment

What is the role of a market? Depending on whom you ask it can be described as everything from a simple mechanism for distributing information about the current supply and demand of a given commodity, resulting in a price that both buyers and sellers find satisfactory, to an impersonal and unstoppable force that reduces human interaction to mere calculations and conceals unequal power relations. Social science disciplines tend to conceptualise markets in different ways. Economists tend to view them as fundamental arrangements of human

interaction that have been with us since the dawn of human civilisation. Others point out the historical contingency of what we today would identify as markets, and claim that there is nothing “natural” or “eternal” about the market mechanism. The debate is not only about how to characterise the historical nature of markets, but also on what they actually are and do.

In STS treatments of markets there is a tendency to overlook the underlying definition of markets, thereby not questioning some of the basic assumptions about the actors involved in market operations. There is a conscious unwillingness to define what a market, or indeed any part of the economy, really is: “Emphasis is put [...] not on any substantive definition of what “economic” should mean” (Muniesa, Millo, & Callon, 2007:3). In addition to the usual market descriptions of supply and demand, the flow of information and the main market actors, Caliskan and Callon list a whole host of objects to include in the description of market matters: “rules and conventions; technical devices; meteorological systems; logistical infrastructures; texts; discourses and narratives” (Caliskan & Callon, 2010:3), and so on. This makes for a very loose definition of what markets actually do. While it covers all the bases, the unwillingness to prioritise factors means there is a risk of losing sight of the more politicised function of markets in modern capitalist democracies, not least related to the often controversial acts of deregulation. The authors concede that “markets delimit and construct a space of confrontation and power struggles”, but this space exists only within the market transaction itself, “until the terms of the transaction are peacefully determined by pricing mechanisms” (Caliskan & Callon, 2010:3). In a way, they wish to avoid extrapolating questions of power and politics from the market situation itself.

This reluctance to assign political value to the actions of market actors in STS research has come under fire from critics. Miller (2002) claims that Callon is right in saying that economists tend to project their idealised models onto reality instead of talking about the economy itself – therefore, it is up to other social scientists to say something substantive about the economy as such. However, according to Miller the theory Callon puts forth amounts to a defence of the very type of projections he argues against. In fact, rather than economic conceptions being framed by the material aspects of market interaction (the STS position), it is the other way around: The everyday materiality is given meaning because of the framing it receives from a specific ideological system. Without this understanding, the political and ideological dimension of a specific market construction can easily be lost. For

Mirowski and Nik-Khah (2007, 2008), current STS thinking about markets is basically an extension of the neoliberal project by implicitly accepting the understandings of the analysed market actors when the approach of Callon and others just implies a faithful reporting of what is being said and thought by those active in the operation of the market. In this way one risks unconsciously (and uncritically) adopting the language and concepts of a group of dominant actors. Mirowski and Nik-Khah damningly quote Callon on saying "Let us stop criticizing the economists" (in Barry & Slater, 2002:301), but could just as well have cited this statement: "Before the fall of the Berlin Wall, you had market economies, on the one hand, and bureaucratically planned economies, on the other hand. But now I think that we are freed of these dichotomies and of this opposition" (Barry & Slater, 2002:290). Now, there is only the market. In a similar vein, Fligstein and Dauter note that "network theorists and scholars interested in performativity have generally ignored the possible effects of government and law" in market accounts (Fligstein & Dauter, 2007:107). In my opinion, these criticisms pose a challenge to the performativity thesis that deserves to be taken into account for anyone interested in a performativity perspective on market creation.

However, reading the critics one might get the impression that performativity theorists completely ignore the institutional and ideological framing of markets. This is not the case. MacKenzie's *An engine, not a camera* is after all based almost exclusively on interviews with key actors who explain how they worked to change the regulatory system to accommodate the new options pricing theory, and while Callon and Caliskan are mainly concerned with the material configurations of markets, they do not reject the notion that these configurations arise within a setting that is socially defined: "empirical analyses of the complex relation between humans and non-humans [...] must be encouraged and pursued" (Caliskan & Callon, 2009:393). Similarly, they point out that markets also employ "technical and scientific knowledge [...] as well as the competencies and skills embodied in living being" (Caliskan and Callon 2010:3) in addition to the list of objects mentioned above.

STS scholars have mostly focused on financial markets. Thus, arguably, STS theorising about markets is based on studies of a type of market that has enjoyed a large degree of autonomy from regulation the last few decades and where most actors – demand side as well as supply side – are professionals. However, many other types of markets are more closely regulated and, most importantly, the majority of actors do not have a professionalised role.

Rather, like in the case of the electricity market, basically all households are making decisions that at the end of the day affect aggregated levels of demand and thus of supply and prices. Consequently, the number of actors is much larger than in the case of financial markets, their competence in using the material objects of the market should be assumed to be lower, and the motives underlying demand much more related to everyday life concerns and hence possibly more varied than the profit motive that dominates professional markets. This has consequences for how we should analyse electricity markets and the implications of deregulation.

One important issue could be that electricity, like energy in general, easily becomes a moral object due to the frequently moral character of today's discussion about energy consumption. In fact, many claim that markets inherently contain a moral element: regardless of any wishes to keep the view of markets as simple centres of calculation and allocation of resources according to the preferences of market actors, their centrality to modern societies means that markets will inevitably be analysed in moral terms (Hausman and McPherson 2006). This also results from the fact that the basic assumptions underlying economic theory have an implicit moral aspect inherent in the idea of the strictly economically rational consumer as the "good" consumer. Even more important is the explicit moral support for markets within economic discourse (Fourcade and Healy 2007). This support takes various forms, from arguing that trade and commerce are civilising factors ("partners in trade do not wage war on each other") via arguments that markets are a necessary condition for freedom in other areas of politics to the current conviction that economic growth is the best (and only?) road to human progress. Fourcade and Healy argue that the very foundation of economics in its attempt to discuss the implicit (or explicit) cost of various aspects of life is basically moral: "[Markets] play a powerful moralizing role in practice by defining categories of worth" (Fourcade & Healy, 2007:301).

Still, this observation of the moral underpinnings of markets has little to say about the way markets are shaped and in turn shape our interaction with them. Sociological analysis of markets has focused on the way markets tie into existing institutional arrangements. According to this tradition, there are no unfettered market forces with perfectly rational and perfectly informed actors operating in a friction-free world of clear preferences. Rather, the operation of markets relies on spoken and unspoken agreements, personal relationships, a

reasonable level of trust, formalised rules directing market transactions, lawmakers, industrial backers, and so on. In short, markets are embedded within a larger social setting (Granovetter 1985; Zukin and DiMaggio 1990). The notion of embeddedness has, since Granovetter's influential work in the 1980s,¹⁰ led to a fruitful tradition of sociological studies of the way that the larger social setting enables markets to exist and influences outcomes of market transactions themselves (Swedberg 1994). The main idea is that one cannot give a correct picture of markets without considering the way formal and informal networks, government regulation and political institutions shape markets. This means that varying combinations of networks, regulations and institutions will produce different types of markets, a claim that goes against the grain of traditional economic theory (Dobbin 2004). The unevenness of market interaction posited by economic sociology goes deeper than simply saying that markets differ across national borders or institutional arrangements. If actors cannot know *a priori* which strategy and institutional structure will lead to an optimal outcome, they must rely on socially anchored scripts and conventions (Beckert 2009) to provide guidance to market procedures. These conventions reduce uncertainty and lend some stability to a fundamentally unstable arrangement, but also pose a specific challenge to accounts of these markets to accurately describe and analyse what is going on in a specific market setting. This challenge poses a plethora of questions to tackle for sociologists, as indeed they have: What institutions created and sustain markets (Fligstein 2001), what networks are the actors involved in (DiMaggio and Louch 1998), what are the rules of engagement (Edelman and Stryker 2005), and where do actors' preferences come from (Bourdieu 2005)? These are just some of the questions of interest to the economic sociologist, and they point to the core of the problem, namely that seeking to avoid simplification by necessity breeds complication. The increased focus on the wider social context market interactions happen within means that market descriptions become more singular and less useful for cross-contextual analysis. In turn, this complicates the analysis of deregulation, which in the face of such observations should be taken to be a diverse phenomenon.

As with performativity, embeddedness is not without its critics. Some claim that it fails to actually integrate markets in the social setting, instead keeping it as an entity separate from larger society (Krippner 2001). Krippner claims that by focussing on the surrounding context

¹⁰ Which itself draws on, but does not seek to supplant, one of the classics of economic sociology, Karl Polanyi's *The Great Transformation*.

economic sociology has, like the economists it often criticises, taken the market for granted. Gemici (2007) argues that embeddedness as a concept has value as a methodological approach in that it guides scholars towards the ways markets connect to the larger societal context, but that this achievement is also the reason why the embeddedness approach fails to provide an alternative to prevailing economic thought. The market is still a separate bubble, even if it now bobbing in society's bathtub rather than floating in a vacuum. Or, using a different metaphor: "why, we ask, does the sharp edge of embeddedness when used against neoclassical economics become a blunt instrument when deployed within economic sociology?" (Krippner & Alvarez, 2007:221). This is a conundrum that economic sociology has yet to solve, as witnessed by the latest attempt to tackle the concept (Dale 2011).¹¹ However, there may still be some gain in employing the embeddedness perspective to the analysis of the deregulated Norwegian market as an alternative to the performativity approach.

Much of the difference between the STS/performativity and economic sociology approaches to markets lies in their focus: performativity represents a concern with theories and their material outcomes, embeddedness with theories and their institutional representations. Pinch and Swedberg (2008) argue for a synthesis of these two perspectives, a material embeddedness, while making it clear that they see the material part of the equation as the most important concern. Maybe this could be turned around? Considering some of the criticism levied against performativity (Mirowski and Nik-Khah 2008; Mirowski and Nik-Khah 2007; Fligstein and Dauter 2007), perhaps we should explore an action approach. Maybe the synthesis of performativity and embeddedness should redress the obvious lack of actors' perspective in both cases? In this manner, markets would be understood as socio-technical enactments with room for social and political strategies employed by human actors in market interactions (institutions, habits, morals etc.).

To develop such a perspective, several types of questions must be asked. For example, what work is required to transform economic theory into practice and embed theory and practice in social relationships, and who does this work? What is the relationship between economists and other actors? What material and human actors shape supply and demand strategies? What compromises are involved in deregulation activities? The four papers included

¹¹ Indeed, Dale suggests that there might be something to gain from adopting the more Marxian view that society is embedded in the economy rather than the other way around.

in the dissertation attempt to engage with these questions, but only partially. What new insights may be gained from a cross-cutting analysis?

Cross-cutting analysis: beyond performativity and embeddedness

Doubtless, the performativity perspective developed by Michel Callon and others introduces a research agenda well worth exploring. On the other hand, the analysis in the four papers in this dissertation shows that the performativity perspective, especially the strong version where theory is taken to do all the work on its own, cannot account for the observations related to the deregulation of the Norwegian electricity market. When deregulation is framed from the point of view of (strong) performativity, each of the four papers observe a particular form of overflow – to use Callon's (1998) own term – that critically questions the framing. Paper 1 shows how the profession of economists and their political machinery played a vital role in making a theoretical economic design into an actually deregulated electricity market. Performativity theory externalises such influence, without which deregulation would never have happened. In paper 2, we examine how policy-makers resist and transcend the effort to frame deregulation as a purified application of economic theory. The efforts to externalise moral concerns fails, producing a second overflow. A similar overflow is observed in paper 3, which shows how environmental concerns seem more important to induce electricity saving activities than economic motives. The framing of users of electricity as consumers mainly fails because too many other concerns than economics ones overflows the economic human framing. Rationality is more complex. Finally, in paper 4, we observe how the framing of the electricity market as deregulated and thus beyond politics is overflowed because a host of public actors denies the externalisation of political responsibility with respect to security of supply of electricity.

The embeddedness perspective was not explicitly tried out in any of the four papers, but with reference to the discussion above it does not add much to the topic being studied. The findings in paper 1 could be interpreted similarly to the performativity claim, namely that actors' strategies were important and not just an articulation of an institutional logic. Paper 2 observes what could be interpreted as a failure of embeddedness, due to political conflict. Also paper 3 suggests a failure of embedding deregulation among the large social network of household users of electricity, while the observations in paper 4 move beyond those made relevant by an embeddedness perspective. Thus, let us return to the ambition of synthesis.

As I stated in the introduction, market deregulation relies on an economic design. Such designs may be seen as technologies of governance that carry with them implicit assumptions about how it should be implemented and used. In fact, examining deregulation as a political or intellectual technology can offer a fruitful exploration of some of the common themes of the four papers of the dissertation. As a study of a design, the analysis can demonstrate how policies carry with them a specific set of moral instructions that must be followed for them to work. It can also, however, go some way towards showing how the performativity thesis has moved a little away from the more traditional STS analyses of science and technology by refusing to critically examine the theories put forward by scientists, as well as overlooking the importance of how users relate to such theories.

Traditionally, science and technology studies have analysed the design of technology by referring to the built-in instructions of technological designs as scripts or programs that are inscribed into the technology by the designer (Akrich 1992). These instructions are prescriptions about how the technology should be used that the designer tries to build into the design, in a way making choices on behalf of the users of the technology. The roles prescribed by scripts are not set in stone, however. After the design leaves the hands of the designer, its inbuilt script can be resisted by the end user, who to varying degrees stands free to modify or simply discard the functional vision of the designer. In the parlance of STS, they produce an anti-program to counter the original program (Akrich and Latour 1992). The concept of script can be one way of summing up the underlying theme in the four papers I present here. For example, the experts and politicians involved in the construction of the deregulation policy had a clear understanding of how the deregulated market would achieve economic efficiency, as I observe in the first papers. Paper 1 demonstrates how economists built a theoretical model for the design of a new free market for electricity, using the basic assumptions of the dominant economic theories of the day. The scripting inherent in this process was the adoption of a specific type of economic rationality that would ensure the efficiency of the new market construction, based on consumers' willingness and ability to monitor their electricity consumption and the price differences between electricity suppliers. The script could be observed above all from the incentives to encourage *homo economicus* behaviour.

Paper 2 shows how politicians debated the effect of the reform on the behaviour of electricity users, with the party block in government at the time arguing that households

would benefit greatly from the chance to switch between suppliers. The underlying rationality was that competitive prices would provide consumers with the incentives they needed to use electricity in the most economically efficient way and thus induce saving. At the same time, this paper observes that the scripting was controversial, that there actually was a competing moral script, which was not implemented. Moreover, as paper 3 demonstrates, electricity users are not particularly market oriented, and do not necessarily subscribe to a purely economic rationality. The findings indicate that people are well aware of the possibility of comparing prices and are knowledgeable when it comes to the general price level of electricity, but that they generally choose not to interact much with the electricity market, hunting for better deals. In fact, to the degree that consumers use electricity in a less wasteful manner it is probably more due to a different, more environmentally oriented kind of rationality than an economic one. Consequently, the *homo economicus* script is overlooked or resisted. This suspicion is strengthened by the media debate I discuss in paper 4, which shows a lot of opposition to the current electricity regime, even if it seems to be working exactly to plan. While a (continued and heated) debate over the handling of a situation of regional supply deficit does not necessarily imply that there is widespread discontentment over the electricity market itself, it does indicate that not everything seems to go according to script.

Taken together, these papers also demonstrate a need to operate with a larger diversity of rationalities, of which strictly economic rationality is only one. On the one hand, this points to a need to be concerned with a greater diversity of calculating devices being present in the deregulated electricity market. The material underpinnings of the market seem more complex than performativity theory would have us believe. On the other hand, we are reminded that markets may need to become embedded – or, more precisely, made part of – the political contexts from which actors develop their strategies to engage with for example deregulation.

The script concept has more to offer as a tool of analysing political (economic) designs. For example, there are clearly moral imperatives inherent in technological scripts, as Akrich (1992) and Latour (1992) make clear in their studies of how users of solar-panel lighting are not allowed to alter the lamps or how cars make annoying noises until the passenger puts on a seatbelt. The main point is nevertheless not that technology is morally imbued, but that designs embody strong affordances with respect to how people should act in specific

situations. This is not only analogous to the morality of markets discussed in the theory section (Fourcade and Healy 2007), but as paper 2 demonstrates there is also a clear morality at work in the construction of government policy. Politicians of all stripes repeatedly appeal to the moral obligation of using electricity efficiently. Among its supporters, the deregulated market was seen as an instrument of achieving this, while the opposition is more concerned with the potentially damaging effects of allowing uncontrolled consumption of electricity. Similarly, the findings from the consumer survey of paper 3 show that people affix morality to their actions on the electricity market, even when it is clear that Norwegian electricity is clean. One function of this morality is that it enables later judgment over the course of things: “Because roles and responsibilities are allocated, accusations and trials tend to follow” (Akrich, 1992:219). Whether it is the electricity users or the policy-makers who are responsible for making the electricity use efficient becomes an issue of contention. The different discourse coalitions in the media debate discussed in paper 4, especially the Blame Alliance, echo this point. A large number of the actors in the debate engaged in the assignment of blame for the electricity supply deficit rather than propose specific solutions, a sign that the type of morality discussed here played a part in the controversy.

Another reason to bring up the script concept here is that it is an example of an approach that has been central to the field of STS since the 1980s. The idea is that complex systems of policy, scientific expertise and technology should be studied by moving between the various parts of the system: the designers, the users and those responsible for the framing the context of design and use. This way, no single perspective is allowed to dominate the analysis. The four papers in this thesis are in line with this approach through their diversity of perspective. Not only those who design a policy are studied but also those who implement it and the diverse actors of the new market construction, above all the suppliers and the household customers of electricity. In light of this, the performativity thesis appears as an ironic new development of STS theory. True, as I show in paper 1 on economisation, performativity is an interesting inroad to study the influence of scientific (economic) expertise on policy matters, but something seems lost on the way. Rather than resist the tendency – often criticised by STS – of presenting scientific knowledge as something that comes into the world as a complete package, performativity takes economic theory as a given and studies its effects instead. This is unsatisfactory.

In a way, performativity seems to be a part of an intervention in the sociological study of science. Callon and Caliskan are preoccupied with what they see as sociology's tendency to "sociologise" all the phenomena it comes across, making itself into the "queen of disciplines" (Caliskan & Callon, 2009:381). This, they claim, achieves nothing more than transforming the problem of how to analyse market into the problem of how to analyse society, a much fuzzier concept. This may be a valid critique of the embeddedness approach, but as we have seen, the argument is less helpful than asserted. The main reason is the lack of reference to a theory of action, shared by post-structuralist performativity theory and structuralist embeddedness theory alike.

Performativity theory should be credited for making economic theory into an object that – together with a host of other material objects – is part of the socio-technical construction of markets. Deregulation is clearly an effort to redesign exchanges of for example electricity, and thus may be considered to be a socio-technical development. However, it is a central tenet of STS approaches that such developments are in the hands of the users, be they policy-makers, producers of electricity or consumers. While this would not be overlooked by such concepts as scripts or programmes, it seems to be lacking in recent developments within the field. I believe this perspective deserves to be re-introduced into the theoretical fold of STS.

Methodology

In this section I present the type of methods I have used to gather data and analyse it. It is a more over-arching presentation of the methodological considerations behind the choices I have made in the course of my work with this thesis, and the specific details on the methods used are relegated to the four papers in the back. Studying the deregulation of the Norwegian electricity system presents some challenges when it comes to choice of methodology. These challenges are related to the sheer amount of information about a very large, very public process lasting for more than two decades, but also to the complexity of the system involved. As Dür (2008) notes when discussing the challenges of measuring the influence of various policy groups within the EU, one way to study a large complex of issues is to use different methods on a variety of phenomena related to the larger issue, what he calls “method-shopping”, in order to capture some of the complexity. The point is that it is impossible to capture this kind of complexity with a single methodological approach, hence the need to shop around, applying methods across the whole spectrum in order to attack an issue from several angles. If this is done with a sufficiently large amount of data, the advantages to such an approach will outweigh the disadvantages of not having a uniform methodology. I find “method-shopping” to be a good description of my approach in this thesis, and believe I have gathered enough data to support my claims regarding the deregulation process that is the subject here. The concept has a lot in common with the well-known idea of methods triangulation, but to me triangulation has the feel of something too controlled, too closed-in-advance for a constantly evolving project.

Any study of this size must necessarily make some hard choices, as there is no room to include everything that could have some relevance to the questions at hand. One way of informing these choices can be found in the theoretical framework of the study. Since it makes use of perspectives from the fields of STS and economic sociology, this has consequences for choice of methods. On the one hand, it discusses the influence of economists and economic theory on the deregulation of the electricity market, making it natural to spend some time both on the way economic theory is formulated in relevant policy documents and public and political debate of these as well as the work done by economists to promote the theory. On the other hand, I try to maintain a focus on how those affected by the deregulation reform interact with various aspects of the electricity system, for example by examining how electricity users relate to the new free market for electricity or in what way politicians deal

with problems in the supply system. Similarly, it is important to remember that the type of political work the deregulation requires does not stop at any given time, but rather is a continuing effort to produce and maintain deregulation. Consequently, a study of a process rather than a specific point in time must take into account some of the elements preceding the deregulation, such as the work laid down by experts and political actors in order to make it a reality. Similarly, as the deregulation is now twenty years old, not giving some description of how things have developed since would greatly limit the value of the project.

Extended networks are immensely complex, but as a system the electricity market is extraordinarily so. It touches in some way nearly all human activity. All households participate in the market, as well as all industry and enterprise. It is one of the central infrastructures of modern society, and as such an important matter of concern for many different societal groups. Not having a very direct relationship with electricity is nearly inconceivable, at least in the richer part of the world. In dealing with such complexity, Urry advocates combining a systems and a process oriented approach, entering into “a dialogical engagement with involved social actors seeking to transform social systems” (Urry 2005:10). In this work, I analyse four separate (and yet connected) aspects of the electricity system. They are only a small fraction of all the possible entry points into the subject of electricity deregulation, and yet they are different enough to warrant very differing treatment. The four aspects can be described as the institutional aspect, the framing aspect, the user aspect and the public aspect.

The institutional aspect deals with how the legal and political framework for a policy comes to have the shape it has. Looking at the political process before and during the deregulation, I interview politicians and experts who worked on the deregulation itself about their role in the process, including legal and economic experts’ opinions on the way the system functions now. The goal was to see what the prime movers and shakers of an important political change thought the meaning of this change was supposed to be - what was its point? This is a traditional approach, identifying key stakeholders and unravelling their stories of what transpired. I have, together with a colleague, conducted interviews with 15 experts, politicians and public servants engaged in the deregulation process or its aftermath. These interviews, which are qualitative and semi-structured, are used in the paper on economisation to examine the thinking behind the design of the electricity market.

Effecting large scale change requires a lot of work, not least in regular electricity users' mental adjustment to now being consumers of a good like any other. The second aspect I examine is the way official government documents and parliamentary debates try to frame this new entity, the consumer, in order to transform them from recipients of a public service to shoppers of electricity. While this is very hard to pinpoint with any accuracy, looking at how consumers are constructed as moral subjects (are they wasteful or careful, do good consumers conserve electricity or buy a lot of it? These questions are also discussed in Fourcade & Healy (2007)) gives an insight into how the market as such is seen as a system from those responsible for putting it into place. I have done a review of government white papers and legal preparatory notes from the first period of energy efficiency legislation in the 1970s to the last such discussion in Parliament in 2006, and subjected these to a standard document analysis. These are used primarily in the paper on governmental constructions of consumers, but also to some degree in the paper on the supply deficit of Mid-Norway.

The two aspects mentioned so far have in a way been easy to pin down, as they deal with institutional configurations that have to be considered when attempting an analysis of a system. Other aspects, such as the role of users of electricity, are more difficult to grasp. The first challenge is figuring out what is unique about the consumer relation to the deregulated electricity market. How to get to their understanding of their own relation to the new free market for electricity? In order to map out how electricity users make sense of the situation of choosing electricity supplier on a free market, I have with the help of a call centre conducted a consumer survey containing a series of questions about their market behaviour. It deals with everything from how often they change electricity utility to their thoughts on what an acceptable price for electricity is to what the ideal level of government intervention in a necessity market should be. The survey is a representative, quantitative survey of 1500 Norwegian electricity users and their preferences and attitudes relating to the market for electricity. Using the survey data, I construct an index of Norwegian electricity users' market orientation and run an ordinary least squares regression analysis against a set of background variables to examine in what way electricity users can be said to have learned to act according to the expectations of the market designers. This type of study is by no means comprehensive, but it does offer a way of accessing everyday opinions and self-reported behaviour that is not easily discovered through interviews, media analysis or direct observation.

The public aspect has to do with how the public understands the rationale and effect of deregulation. In order to examine how potential problems with a deregulated system are made into public issues, I have done an analysis of the media debate concerning what was dubbed the “electricity crisis” of the Mid-Norway region, a sudden and large rise in electricity prices. This paper is mainly based on a reading of 341 newspaper articles about the so-called “electricity crisis” of Mid-Norway in the period 2001-2007. Following issues of public debate is not simple, but I landed on an analysis with a basis in discourse analysis. Although this approach can have some problematic implications, most importantly the tendency to see discourse as an obfuscating strategy for what actors *really* mean, I believe looking at the statements made by actors in public media to be a valuable resource for anyone seeking to understand the various positions on political matters. The reason for choosing a reading of the media discourse is not to prove that there is necessarily anything wrong with the deregulated market as seen from an economic point of view, but rather to examine what happens when a supposedly self-preserving system designed to function without political intervention runs into politically charged problems. Can the deregulation stand up to public debate about the high prices of electricity?

These four aspects of the electricity system are by no means all there is to this system. Ideally, the large industrial buyers of electricity should be represented to give their account of the adjustments to negotiating new types of electricity contracts. Likewise, the technical aspects of deregulation – how grid investments are handled, for example, or what increased international transmissions mean for transfer capabilities – should be explored. And the bureaucracy in charge of upholding the rules and regulations. And the anti-trust competition authorities, and the international treaty negotiators, and so forth. Similarly, there is nothing to say that these methodological approaches are the only (or the best) fit for studying just those aspects I have chosen. Consumers can be interviewed in focus groups or studied using household electricity consumption statistics, political processes can be examined through documentary analysis, public debate can go through many different channels and the thoughts of politicians can be expressed in interviews as well as parliamentary debates. The list can go on almost indefinitely, but in the end there are always constraints that make exhaustive accounts impossible. In my cases, I feel I have obtained valuable information that informs my analysis of the system as a whole.

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Chapter 2: Economisation – between economics and economists

This paper explores the new theoretical concept of economisation – the view that more and more parts of society are considered to be natural objects by economic analysis and governed accordingly – and its possible application to specific empirical contexts. Looking at the deregulation of the Norwegian electricity sector as a possible economisation case, I discuss to what degree it fits the bill and whether economisation is a fruitful concept for studying economic policy processes.

Keywords: Economisation; market deregulation

Introduction

What happens when a vital societal infrastructure previously seen to be the sole responsibility of one type of technical system is reconfigured and put into a different one, moved from being an arrangement of engineering to one of economics? This question is central to a growing strand of economic sociology, exploring the increasing influence of economic theory in the organisation of modern market based economies. The expanding influence of the economics profession in shaping the social and technological configurations of modern society can be approached from a variety of angles, for example by looking at the institutional basis of economics' influence or the networks that different economic actors are enrolled in. One recent attempt utilises the concept of economisation – a process where more and more parts of society are being reconceptualised as “economic” – to analyse processes where an institution or a policy area previously thought to be outside the workings of the economy is transformed into a natural object for economic analysis. With the theoretical transformation complete, it can subsequently be subject to political transformation.

The economisation literature is relatively new, and little empirical work has been done within its framework. While few will disagree that ideas have practical consequences, it is still hotly debated in what way they actually do so. The crucial discussion of the economisation thesis, the outcome of which will decide how well the theory fares, is about how theoretical concepts influence reality. This paper asks how economisation might actually look, in what way it happens, how it is *done* in a specific context, in order to see how the theory fares when it

meets concrete reality. The context in question is that of the deregulation of a previously highly centralised and technically complex electricity sector in the Scandinavian welfare state of Norway. It asks in what way the production and distribution of electricity, a central part of society's infrastructure, was constituted as an economic object, and how this contributed to paving the way for large-scale reform. It does so by examining how the prime movers and shakers of the reform came to see the electricity sector in terms of economic efficiency and contrasting this with the developments that have transpired in the two decades since the deregulation.

I also discuss whether economisation is a fruitful concept at all, or whether alternative framings of the way economic theory was utilised in the deregulation process might provide a better understanding of the complex interactions between scientific concepts and policy decisions. Particularly, it is interesting to see the contrast between older attempts at conceptualising these issues as a matter of translation work done by actors and intermediaries in scientific and political institutions and the newer strands implying that theory moves in a more autonomous way into reality.

Making theory real

Caliskan & Callon (2009; 2010) argue the need to study the process whereby spheres of society such as organisations, institutions or simply behaviours are established as being "economic". Drawing on the term "economisation" (Callon 1998), the idea is to examine the way such areas of society are included in specific sets of concepts that belong in the field of economic discussions: "rather than asking what 'the economy' (noun) is, there has been a shift towards defining observable criteria which enables one to say that an activity, behaviour or institution is 'economic' (adjective)" (Caliskan & Callon, 2009:371). In this way, it becomes possible to define things as one or the other, within the reach of economic analysis or not. The underlying thesis is that more and more areas of society are coming to be seen as natural economic objects, a point shared by among others Habermas (1984) and also made by sociologists such as Bourdieu, who sees the economic field as "a cosmos obeying its own laws and thereby conferring a (limited) validity on the radical autonomisation which pure theory effects by constituting the economic sphere as a separate world" (Bourdieu, 2005:5-6).

According to Callon, the process of economisation is a key feature of recent political developments, one where ever more parts of the societal organisation are encompassed by

the logic of economic efficiency. This is important because the economic imperative of efficiency has political implications. By focusing almost exclusively on how economically efficient a societal organisation is the economist seeks to weed out the impurities that come with politics, such as distributive concerns or populist subsidies. The best way to achieve this is to isolate those areas of society that can be left to market operations (which are by default efficient), and remove political control over those areas. It is the politics of no politics, bringing with it its own set of challenges associated with technocratic visions of society. In many ways, it takes on a moral flavour: “The moral questions arise when the categories of the powerful become the taken for granted; when policy decisions are layered into inaccessible technological structures” (Bowker & Star, 1999:320).

Setting the lofty political philosophy aside for the moment, what happens in economisation? The process of economisation requires some mechanism for it to get going. According to the economisation theorists, this is done, at least partially, by the mechanism of performativity, where reality is described in such a way that it comes to shape the way actors engage with reality, with the effect that reality becomes more like the initial description of it. An example is found in MacKenzie (2006): theories of efficient markets, describing how an ideal market would arrive at the correct price for a company’s stock, were developed by economic researchers in the 1960s. These were then taken to real-life stock exchanges in the early 1970s, and worked so efficiently they soon moved the way trading was done towards the initially ideal description of market operations. Since it happened in an already thoroughly economic field this process can hardly be called economisation, but it makes a good example of how economisation can be described in other fields.

Callon and Caliskan list three “key agents” to follow when examining economisation: the theories of the economy, the institutional and technical arrangements that allow for economic action, and the very things of value themselves (Caliskan and Callon 2010). While the description of these key agents is somewhat vague, it can be seen as an attempt to conceptualise what concretely is in play when rules, regulations and practices involved in a particular societal sphere are changed to reflect the fact that this sphere is now thought of in economic terms. What is interesting about this list is the absence of actors, or at least other actors than the economists who construct the theories of the economy in the first place. Rather, we should look only at the sites and objects of economic action, assuming the theory

moves of its own accord. This means that using the economisation framework entails trying to identify traces of economic theory in for example the legal framework and the daily operations of economic action without necessarily making reference to the actors that are carrying these operations out. This marks at least a partial departure from previous attempts at describing in what way scientific knowledge is transferred from its originators into new spheres. One of these is the translation literature that Callon himself was one of the active proponents of a few decades ago (Callon 1991; Callon 1986; Latour 1987), which made use of concepts such as intermediaries that must be enlisted as support for specific theories to explain how theoretical concepts gain foothold.

Still, performativity is not a concept completely void of actors. MacKenzie points out that these theories do not simply move themselves into the world. They require work done by actors wishing to promote the theories against other, competing ones. In the case of the stock traders these were academics who were willing to stake their own money on their theories, as well as stock exchange managers who, seeing a possibility for new profits, were willing to lobby for politicians to allow the ever more complicated and potentially risky trading systems to proliferate. Any attempt at an analysis of economisation in a given situation must therefore take into account the actors working to make the economisation a reality, or, in the language of economisation's sibling theory: who is performing it?¹²

Potentially, there is a more concrete problem with this lack of actors. Keeping MacKenzie's timely clarification in mind, the economisation thesis still operates with precious few actors. Granted, it can be shown that stock market traders are quick to incorporate new economic developments in their daily workings, but this is a very limited area of expertise. Even if economic theory is able to spread in these highly specialised circles of economically trained traders, shifting public policy is a wholly different proposition. To take a more traditional political science approach into account, Keller (2009) notes that scientific expertise must move through several stages to make it into concrete policy change, starting with setting the agenda and ending with the actual implementation of the proposed changes. Describing the successful journey of scientific propositions from the ivory tower to national policy requires not only an account of its champions, but also of the possible obstacles to be surmounted – who was against the proposition, and what was done to defeat them? Only by

¹² This question is not hard to answer for everyone: "financial markets have a very safe way of predicting the future. They cause it" (George Soros in Der Spiegel 15.08.2011)

taking note of *who* is doing the work can we avoid the wholesale transfer of economists' own presentation of the way theory works into our own accounts. But once this is done, it is not entirely clear what is left of the economisation thesis. After all, the notion of performativity must rest on theory having some sort of effect in and of itself and not just relying on the usual suspects with their networks and institutions to lobby for it to happen.

The question remains, though, of why we would need a separate concept for the economisation of society, in contrast to similar developments in other fields – to name one, the increasing influence of the legal profession, so-called judicialisation (Sweet 2000). Critics of Callon (most notably Miller, 2002) have pointed out that the economisation thesis gives too much credence to the economists' world views, by accepting their basic assumption that the economy is the central factor of the organisation of modern society and that economics is our best tool for organising the economy (an example of this view can be found in Lazear, 2000). Without the proper caution the economisation researcher risks becoming a part of that very process by portraying economisation as an unstoppable development towards *societatis oeconomicae*, the thoroughly economic society. As Weszkalnys puts it: “[Economisation] accounts focus on technical detail but leave out the messy realities of historical, cultural, social and political conditions with which the theory inevitably articulates.” (Weszkalnys, 2011:346)

Even given these theoretical reservations, the economisation thesis clearly catches some important aspects of the increasing importance of economic reasoning in policy and public discourse, among them the ideas that are necessary to enable changes in the economy in the first place. While this would hold true of any policy field, the study of economics is an important area of research due to the specific features of the economics field. The first of these features is that one of the key influences of economics lies in the way it transforms the analysis of the world through its use of simple yet powerful concepts. Economic analysis can be sophisticated and complex, but is usually based on some very basic assumptions which can be applied to a large range of situations. This allows economics to quickly produce idealised models of the situation at hand and make recommendations based on this. A second feature is the uniquely normative function of economics. Where other fields of research such as political science or sociology have laid to rest their dreams of engineering society, economics has retained its interventionist outlook (Santos and Rodrigues 2009). One of the most potent concepts for this normative analysis of society is the concept of economic efficiency. It gives

economics a prescriptive rather than a descriptive capability: that which is inefficient must be made efficient. Finally, one last point is worth noting: economists are inherently employable, and frequently are, by all branches of government and other areas of public interest. This very fact can lend credibility to the notion that the economic worldview matters in accounts of the workings of the modern state.

Having looked at the concept of economisation as it stands in theory, it is time to ask how economisation might look in practice. While the notion of performativity might look straight forward in theory, actually identifying cases of theory moving reality proves difficult in practice, as noted recently by MacKenzie (2009). Apart from very specialised cases, such as especially trained traders utilising the latest options pricing theories, it can be difficult to establish the relationship between theory and practice. Still, it is not impossible, and MacKenzie in his chapter on carbon emissions markets (MacKenzie 2009) points to the legislative process as one possible place where the influence of economic theory makes something uneconomic, in this case the emission of carbon into the atmosphere, into something economic.

With this in mind, I have attempted to analyse the deregulation of the Norwegian electricity sector as an economisation case by studying how economic theory informed the design of a new system for electricity production and distribution, and then by looking at how this design moved through three phases of policy adoption as presented by Keller: agenda setting, legislation and implementation. This way, it is possible to trace certain economic concepts in their way through a complex process of negotiations and obstacles to the final goal of implementation.

Method

There is a question of methods pertinent to economisation: in what way might economisation be identified? If it can be demonstrated, in what way does it manifest itself? Presumably, there is a mechanism by which something moves from being not economic to being so. One possible answer to this question might be found in looking at how economics frame economic questions: What is the first thing an economist looks at in order to decide in what way a phenomenon adheres to the logic of economics? If economics is the study of preferences in a world of scarce resources, then economists' chief interest lies in deciding on the most efficient use of these resources, in order for them to be available to a maximum of people or at least to

the largest degree possible. Thus, efficiency concerns must lie at the core of any economisation process. This allows the economisation researcher to attempt an identification of economisation processes by looking at where the argument for economic efficiency has been made. This can be done in a number of ways, for example by looking at research or policy documents, the public debate around particular issues or by following the work of specific economists as they take part in public debate. The point is locating instances where an issue is cast in economic terms and following the repercussions of these.

Even though a central tenet of economisation is that it is economic actors that perform economisation, the presence of economists is not the only necessary ingredient: “An examination, even superficial, of the process of creation *ex nihilo* of new markets, in which everything needs to be invented – from the characteristics of the goods to the algorithms of pricing or the delimitation of the agents concerned, etc. – shows that neither economists nor the usual economic agents can accomplish this gigantic task alone” (Callon, 2009:539). Following this, it is necessary to look at the many different factors that feed into a candidate for an economisation proves. Legislation is a handy object of analysis. In contrast to many other processes, the long and arduous process that leads up to a law being passed leaves a long paper trail that is both clearly argued and full of references to academic work. It is with this framework in mind I have chosen to look at the deregulation of the Norwegian electricity system in the early 1990s. The case is interesting as an example of an explicitly economics informed reform driven by people who were mostly economists by training. This does not, however, mean that it is necessarily an economisation case. To establish this, we need to trace the deregulation work done, from the first formulations of the very idea applying concepts of economic efficiency in the administration of an infrastructure of national importance to the point where it became law.

In order to identify the possible economisation of the Norwegian electricity sector, this article is based on interviews with people with relevant expertise on these matters: economists both within research and in government, politicians who were part of the deregulation process, and professors of law who have had issues with the legal design of the reform. This is a strategic selection of people, chosen for their ability to say something substantive about the issue at hand: some were central in the process around the deregulation, others have qualified opinions about the issues involved. This is not to say that

everyone involved have been interviewed. As the deregulation happened twenty years ago, not all the relevant actors from that time were available for interviews. Still, I believe the present respondents give an adequately accurate picture of where the thinking around the reform stands as of today, not least because the accounts are so much in agreement with each other. All in all, fifteen people were interviewed in the period from February to December of 2009, using semi-structured interviews with a loose interview guide revolving around the respondents' engagement with the deregulation and its consequences. This included eight economists, two legal experts, one hydro systems engineer, two previous Ministers and one public servant in the Ministry of Petroleum and Energy. Those respondents who are quoted are given a further introduction where their quote appears. The interviews were done in collaboration with my project partner, Åsne Lund Godbolt. This is not a large selection, but I believe their responses give adequate information for the issues at hand. The interviews were analysed using simple qualitative content analysis to establish the overarching themes of the paper as described in White & Marsh (2006). Together with an examination of the different regulatory documents attached to the Energy Act, this should present sufficient information about the different considerations that go into the construction of an important piece of regulation.

Designing a market for electricity

What does economisation look like? My case for discussing this issue should fit the bill perfectly: a market deregulation based on model work done by economists. Here, I shall provide a fairly brief description of the deregulation of the Norwegian electricity system (see for example Bye & Hope, 2005; Hope, 2000; Olsen, 1996; Thue, 1996 for more detailed accounts). Until the 1990s, Norway's electricity system was centrally controlled and regionally administered. Parliament made yearly investment decisions and set prices, but each county had its own electricity utility responsible for local supply and required to guarantee electricity for their area. Prices were held constant throughout the country by cross-subsidies, i.e. the cost of new power plants were partly covered by profits from older, more profitable plants. The policy was to ensure a surplus of production at any given time, in order to avoid supply problems in times of little rainfall, a problem for a system dominated by hydro energy. This led to production expansion whenever the demand for electricity approached the available supply. There was no end user market for electricity. Electricity utilities were horizontally integrated, with the same company responsible for production, transmission and sale of electricity to

consumers who had no choice in the matter. However, due to the fickle nature of hydro power, susceptible as it is to changes in rainfall and cold winter temperatures, some utilities would invariably find themselves unable to cover local demand of their own accord, and had to resort to importing electricity from neighbouring counties. A system for trading in “emergency” power was set up, and by the 1970s a small-scale internal market for electricity, both between counties and across the border to Sweden, was in operation.

In 1980, a commission was set down to redesign the Norwegian electricity sector based on market principles. The mandate was wide, and the work lasted for the whole of the decade. In late 1988, the commission presented their first draft to the social democratic government, a rather modest reform mostly concerned with merging the large number of small utilities into larger units. However, Parliament refrained from passing the bill before the general election in the fall of 1989, in which a new centre-right government took over. They immediately commissioned a reworking of the proposal, with a stronger focus on market economic principles. The reworked Parliamentary Bill arrived six months later, and contained some small, but significant, changes.

The new law proposal relied heavily on work done by a group of economists at the Centre for Applied Research (SAF) at the Norwegian School of Economics and Business Administration in Bergen. The Ministry of Finance had, together with the Ministry of Petroleum and Energy, commissioned Professor Einar Hope to develop a model for a market based system of electricity distribution, with a mandate to “analyse the possibilities for increasing efficiency in the existing Norwegian electricity distribution system by developing a market based distribution system, with economically rational actors and public regulatory principles and instruments adapted to the special technological economic circumstances of production and distribution of electricity in a hydro based system” (Hope 2006:50). In the scope of less than a decade, SAF produced more than 60 research reports on the deregulation issue, and were “heavily involved” in both the preliminary research and “in a consulting capacity” in the implementation phase (Hope, Rud, & Singh, 1993:2).

Hope’s work was a description of how a market system for the production, sale and distribution of electricity might look after a deregulation process. It set up a theoretical model for segregated production and distribution capabilities, as well as a model for introducing spot and futures markets for electricity into the system. The spot market would function as the

main pricing mechanism, while a futures market allowed market participants insurance against fluctuations in price and quantity. Most important of these were the proposed construction of a new market for electricity, with possibilities for different types of contracts in both the long and short term and for a futures exchange, and the forced separation of production and distribution capabilities into separate units. This was meant to introduce better price signalling to consumers and an improved basis for investment decisions, as well as strict income regulation for the distribution monopolies.

Taken together, the changes proposed in these reports meant a fundamental shift in the rationale for the electricity system. Where it had been seen as a vital infrastructure best organised like other functions of government, it was now being reconceptualised as a commodity like any other, and hence better handled by the market. Issues of security of supply and political control were placed in the background, both in their omission from the new law rationale and in a more strictly economic sense found in the reports: there was overinvestment in the current system, and a new system would have to have safe-guards against price-distorting and incentive-destroying populist policies adopted by always changing political configurations. Most of the proposals in these reports were taken into the final law, to little protest from politicians both left and right.

So, was the deregulation of the Norwegian electricity sector a case of economics performing in such a way as to change reality to look more like theory? The answer depends on how the end result is judged. On the one hand, the deregulation was clearly a result of a new interest in economic perspectives on the energy infrastructure at the time. Through a combination of increased professional interest in energy economics and the proliferation of trained economists in the state bureaucracy a new electricity system was set up quickly and with a very narrow goal in mind. One of the central tools for “economising” the electricity sector is one of the cornerstones in the economics profession – the concept of economic efficiency. It reduces complex interrelations to a single measure, allowing for easy comparison with other scenarios. This again means that arrangements that are originally impossible to conceive of in monetary terms, such as pollution or security measures, can be transformed into measurable items through the universal measure of money. The main impetus for the electricity sector reform came when economists started to consider the electricity system from the vantage point of economic efficiency. Working from the conviction that a market through

the price mechanism will always produce the most efficient matching between supply and demand, economists were quick to attack the monolithic and technical nature of the established electricity system.

In a sense, this can be seen as the fulfilment of the purpose of technocratic economics. The electricity sector was no longer subject to politics. From this perspective, there is a clear case for calling the deregulation an example of economisation. However, there is also good reason to ask whether the whole story is told simply by noting the way economic concepts pop up in policy documents. Stating that theory moves by itself into other spheres is a rather strong claim. If we are to take Keller's (2009) three-part model of policy implementation seriously, there is reason to ask whether a policy is really implemented the moment it is formulated. In order to get a better picture of how these policy processes work, we must ask what other aspects were part of the deregulation process. A good place to start might be to look at the professions involved.

Getting the design implemented

The post-war electricity system of Norway was governed after an engineering logic. The system was technical in nature, and any problems were seen to require technical solutions. The regulating bodies were staffed by engineers, and they were responsible for making supply and demand calculations as well as projections about suitable locations for future hydro dams. If demand was approaching the available supply of electricity, the obvious response was to increase supply by constructing more hydro dams. There were plenty more rivers. Pricing was of secondary importance, and more a result of necessity than an instrument in itself. Prices were set as a function of the very low cost of producing an extra kWh of electricity and the construction cost of a new power plant.

Even as this system was at its most influential in the 1970s there were groups who were not too happy with the system as it worked, and most vocal were the economists. They saw the centralized and price-insensitive electricity system as inefficient and wasteful. Why not let the prices be set in a market, where they would reflect the true cost of electricity production? Competition would ensure that anyone demanding exorbitant prices would be undercut by other suppliers willing to go lower for the same product. There was also dismay at the subsidised prices power-intensive industry was getting in order to keep Norwegian industry internationally competitive in the face of high wage costs.

Professor of economics at the Norwegian School of Economics and Business Administration (NHH) Lars Mathiesen took an interest in energy economics in the early 1970s, and publically challenged the engineer-dominated system with a series of discussion papers in 1976. “We pointed out that the prices used were far lower than the real price of electricity”, says Mathiesen.¹³ He was interested in the electricity system’s integration in the general economy rather than as a separate technical system. “We saw that this did not add up, from an economist’s point of view [...] and this was more or less the consensus among economists.”

These efforts were not well received by the engineers, who felt threatened by what they saw as an encroachment upon their territory from a rivalling field. “Two days after our first article we received a letter from three heads of industry summoning us to Oslo to defend our views. [...] Present were 200 engineers who booed every time we said anything”, says Mathiesen. Professor of economics at the University of Oslo Finn Førsund confirms this view: “There were a lot of engineers who were afraid that economists would ruin everything, ruin the entire system.”¹⁴ As it turned out, the engineers quickly overcame their scepticism, and finding an engineer critical of today’s system can be difficult. Part of the reason is that the technical arrangement of the system has largely been left as it was – a system for buying and selling electricity had after all been in place long before the deregulation. This made the deregulation transition much easier since it could build on already existing infrastructure.

Simply describing an alternative system does not mean it will be implemented – economics is not that performative. The academic economists needed sympathetic allies in the right places, allies who were able to appreciate the thinking behind the insistence on economic principles. Luckily for them, the Finance and Petroleum and Energy Ministries employed a lot of economists, many of whom had trained under people like Hope and Førsund. In fact, it was deputy minister of Finance Tormod Hermansen, himself an economist from the University of Oslo with several economic publications to his name, who first commissioned Hope to start the work on modelling a future electricity market. Hermansen later went on to lead the work with deregulating the Norwegian telecommunications sector. Similarly, an important person in coordinating the work within the Ministry of Petroleum and Energy was Sigurd Tveitereid, who is still working with energy issues in the same position. As he stated himself, “we would argue

¹³ Interview with Lars Mathiesen in March 2009

¹⁴ Interview with Finn Førsund June 2009

the way an economist argues, with an eye for efficiency matters and such concerns”.¹⁵ According to Minister of Petroleum and Energy at the time of the reform Eivind Reiten, Tveitereid was “much more central to the reform process than he is willing to admit”.¹⁶ He helped coordinate the work between the academic economists and those working in the two responsible Ministries, as well as aiding the work to refashion the law proposal after the government change in 1989.

Even the politicians responsible for the reform process were economists by training. Minister for Petroleum and Energy before the change in government was Labour’s Arne Øien, who held a master’s degree in economics from the University of Oslo. He was sympathetic to the proposed changes, and convinced his colleague in the Ministry of Finance Gunnar Berge to accept most of the proposed reform. As Berge puts it, “In reality, it was only in connection to a single paragraph that Labour was opposed to the proposed changes”.¹⁷ When the Labour government was replaced by a centre-right coalition, Øien was succeeded by Eivind Reiten, who also holds an economics degree from the University of Oslo. Reiten worked as deputy Minister of Finance in the early 1980s, where he got to know Tveitereid. Reiten was surprisingly candid about his ambition to use economics as a tool to change things when in government: “We weren’t exactly trying to hide what we were after. The belief in efficiency in this [was strong], it was best promoted through competition [and the] disassembling of local monopolies”.¹⁸

On top of so many central actors having a background in economics, it did not hurt that the reformers had the *zeitgeist* with them. The late 1980s seemed like the perfect time to implement large scale changes in the electricity system. Not only were almost all the key actors trained economists and thus primed to think in terms of markets and economic efficiency, but there was a general public interest in economically liberal policies all over the Western world. Norway was not unique in this sense. In the process of designing the market, the economists looked to similar processes in other countries. As Hope puts it: “Things were

¹⁵ Interview with Sigurd Tveitereid in February 2009

¹⁶ Interview with Eivind Reiten in April 2009

¹⁷ Interview with Gunnar Berge in December 2009

¹⁸ Interview with Eivind Reiten in April 2009

happening in Chile [...] and later, the UK and New Zealand had the seeds of electricity reform".¹⁹

Clearly, the professional status of many of the actors played a role in facilitating deregulation. As it turns out, most of them were trained economists already primed to understand economic reasoning and accepting of its policy recommendations. This means that while the new economic design might have been agenda setting on its own strength, it still relied on translators and intermediaries to make it through the legislative phase, to stick to Keller's typology. But there is one part left: what of the implementation of the reform, its entry into the factual world? As it turned out, even the presence of a host of economists in the process and a time of free-market optimism was not enough to ensure legislation. Rather, it required extensive legal and regulative work to achieve a form that was palatable for politicians and regulators alike.

After the fact: evaluating deregulation

After the reform had taken place, there was still work left to do. After dropping initially, prices quickly rose to previous levels towards the end of the 1990s, but now with much higher volatility and some extreme peaks of upwards of 300 % change (Byström 2001; Woo, Lloyd, and Tishler 2003). Some years later, problems with the supply situation in some areas of Norway meant consumers were paying different prices depending on where they lived. This led to some debate about whether the old system might not have been better, and economists had to step in to defend the deregulation. Hope wrote a general media article claiming that prices would have been even higher without deregulation (Hope 2001), and an article for an economics journal with a somewhat more moderate message (Bye and Hope 2005). Economist Odd Erik Løseth and engineer Kjeld Rimberg wrote in a newspaper debate in 1996, after a dry autumn and rising prices: "The development so far demonstrates that the Energy Act has had a positive effect on the administration of the electricity system. Those who want systemic change have little or no proof that more regulation leads to lower prices".²⁰ Almost a decade later, Løseth wrote again: "Have the politicians learned anything at all from twelve years of a free market for electricity? Are they speaking against their better knowledge?"²¹ He went on to claim that consumers have saved large amounts of money on the deregulation. This defensive

¹⁹ Interview with Einar Hope in March 2009

²⁰ *Dagens Næringsliv*, 13.12.1996

²¹ *Dagens Næringsliv*, 24.01.2003

work was not necessarily well received by economists. “It has been a great political strain, it’s very demanding explaining that the system is rational”, said Sigurd Tveitereid, “but it’s actually quite necessary”. Bente Halvorsen, energy economist at Statistics Norway, agreed: “Actually, rising prices demonstrate that the market is working [...] but this is very difficult to explain, almost impossible [...] it requires some understanding of markets. And nobody wants to listen”.²²

One thing is the public perception of the reform. After all, the changes to end users of the system were almost imperceptible, and most consumers quickly adapted to the new regime. One group that *did* have misgivings were the legal experts. The Energy Act was a strikingly bold statement of economic purpose, stating in no uncertain terms its vision of a market based system of electricity production and distribution. It was also barely a legal document at all – there were no provisions for handling potential conflicts in the law text itself, and even the supplementary regulations were bare-bones in scope. According to professor of environmental law Hans Christian Bugge the Energy Act has very little to say about energy: “Basically, it is not an Energy Act at all [...] There are large problems with development of new renewables, lots of conflict and long processing time”.²³ Similarly, there are no provisions for the conservation of natural areas, for example limiting the impact of damming rivers. The lack of concrete regulations in the law gives a lot of power to the regulating bureaucracy, the Norwegian Water Resources and Energy Directorate. “There is not a single word on the criteria for obtaining a construction concession from the government”, continues Bugge: “It might work as a market law, but for regulating the production of energy, it is no good”. Not all legal specialists interviewed were this sceptical. Professor of law Ulf Hammer was content to say that things were slowly being adapted to the different legal problems with the Energy Act. “New investments [in electricity production] were not initially part of the picture. There have been few new projects in the years after reform [...] But there are law changes in the pipeline, they are not passed yet, but I believe they will come.”²⁴

What can we learn from the development after the deregulation? That it is not enough to move theory into policy proposals. There are several obstacles to overcome as the theoretical models make their way through the agenda setting, legislative and implementation

²² Interview with Bente Halvorsen in April 2009

²³ Interview with Hans Christian Bugge in February 2009

²⁴ Interview with Ulf Hammer in May 2009

processes. The most important of these can be glimpsed in the continued work of economists to justify the deregulation after the fact, with long-standing debates over the effects of deregulation and heated disputes over counter-factuals and the history that never was. The fact that much work has to be done to assure the public that in fact the market is working well and that things would have been much worse without deregulation is an indication that economics do not operate in a vacuum. With ongoing work to solve regulatory problems such as how to decide the right earnings levels for distribution companies – natural monopolies, in economies – or how to achieve compliance with regulations coming from a European area with a very different electricity system, it is difficult to see when we actually will arrive at this promised land of depoliticised economisation.

With these caveats in mind, it is difficult to claim that the deregulation of the Norwegian electricity sector constitutes a pure economisation case. Even though it is clearly a main influence for the deregulation, economic theory cannot be said to have travelled unchanged through the policy and legal bureaucracies. On the other hand, something *has* been made economic that was not before. This indicates that there is a room for an economisation thesis, but this thesis must take into account the amount of work done by human actors to transform the theory into political instruments. As it stands, economisation theory needs to develop a better understanding of the institutions within which economic theory is constructed, transported and implemented as well as an extension of the key agents of Callon and Caliskan. .

Conclusion: Towards an action-oriented theory of economisation

The concept of economisation proposes that economic theory has had a significant impact on the governing of modern market society. This notion is hardly controversial in itself. What makes it so is that the concept goes further than this to claim that theory does so more or less of its own accord, without having to be mediated by actors with specific agendas in mind. As MacKenzie and others have shown, economisation and its sibling concept performativity have proven interesting tools for analysing developments within specific spheres of the financial sector of today.

This paper attempts to use the concept of economisation to shed light on the different context of a large-scale economic reform, the deregulation of a government-controlled system of electricity production and distribution. I use Keller's (2009) three-phase model to look at

whether economic theory managed to in turn set the agenda, become part of legislation and then get implemented. Looking at the work done leading up to the reform, the economisation thesis seems to explain fairly well the movement of economic theory into official policy proposals. The work done by leading economists into the design of a new market for electricity was implicitly accepted by those responsible for producing the white papers in advance of the reform. However, when it comes to transforming the proposal into actual legislation and then implementation, the picture is not so clear. Following the actors reveals that a lot of work was done to make the new market design a reality, and that the construct required continuous work from the original designers. Even so, the design did not move unchanged through the policy process. It built on a foundation laid by non-economists, and was subject to the limitations inherent in the old system. Similarly, there were legal misgivings as well. Due to the limitations in the wording of the Energy Act, many issues were made into a legal matter from the very point the law was passed. From then on, disputes over the administration of the electricity system were moved from Parliament to the courtroom.

These reservations make it difficult to accept economisation as a general development rather than a handy description of processes happening within highly specialised spheres of society that have the capability to implement theory of their own accord. For the rest of us, a lot of work is needed to complete the transition, and it never happens without interference from actors and institutions who would have their say in the process. It is a weakness that the generally limited influence of scientists is taken for granted within economisation. In order to capture the full scope of the highly complex processes behind changes in regulatory regimes I see two possible roads forward for economisation theory. One is to go back to some of the work done by Callon and others about translation and intermediaries that was so central to science and technology studies of yore. However, for some reason Callon is careful not to cite his old work on these exact theories in his economisation articles.²⁵ The other possibility is to include some of the perspectives coming out of recent work within institutional sociology and political science on policy change. The economisation thesis could gain a lot if it was coupled to the more traditional view of theory being mediated by middle men with their own agendas and interests. If this were re-incorporated into Callon's work, those vexing snags in the deregulation process I have described here – the legal experts complaining over the difficulty of regulating this area, the continued debate over the value of the deregulation, the

²⁵ In one way, it is tempting to ask what "old" Callon would have made of "new" Callon.

professions that feel left out of the process – would make a whole lot more sense for those trying to figure out what has been going on here. This could form the basis of an action-oriented theory of economisation.

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Chapter 3: Consumers as professional and political constructions. On the performativity of energy economics

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The paper discusses Michel Callon's theory of the performativity of economics, the idea that economic theory shapes economic action so that it comes to resemble the original theoretical assumptions. It does so by examining the way in which Norwegian policy-makers have domesticated economic theory when dealing with official policy for energy efficiency in households and the economic efficiency of the energy system. We examine government white papers and corresponding parliamentary debates and legal documents to see in what way Norwegian households have been conceptualised in relation to the market behaviour anticipated by economic theory and the relative role of professional economic knowledge and political experience. We observe how the construction of energy users changes over the course of three particular phases of Norwegian energy efficiency policy and how the various constructions elicit different controversies among policy-makers, and conclude that Norwegian energy policy-makers have engaged in the making of ambiguous, vague and shifting constructions of consumers and their anticipated market behaviour. The findings do not support any strong versions of the performativity of economic theory. While economists played a vital role in designing a deregulated market for electricity in Norway, only for a while did a majority of policy-makers trust the new calculation devices of a liberalised market to achieve a balance of supply and demand in the way economic theory assumes.

Keywords: Energy conservation, consumer construction, governmentality, market deregulation, domestication, performativity.

Introduction

In the recent efforts to develop a sociology of markets, one promising approach pioneered by Michel Callon (Callon, 1998, 2007; Caliskan & Callon, 2009, 2010) has emphasised the role of economics and economists in the construction of markets. Central to this approach is the assumption that economics is performative in the sense that it shapes economic actions in the image of economic theory. The idea that economics is performative has been criticized for making untenable assumptions about economic behaviour (Miller, 2002) or overstating the actual influence exercised on economic actions (Mirowski & Nik-Khah, 2008; Santos &

Rodrigues, 2009). Nevertheless, Callon presents some new perspectives that deserve further discussion. This paper explores the economic sociology of Callon and his performativity thesis in a new context. Previous research about the performativity of economics has largely focused on financial markets or other markets where professionals dominate the supply as well as the demand side (MacKenzie, 2006; Muniesa, Millo, & Callon, 2007). In these settings, economic models are introduced and used by market actors largely at their own discretion. However, many types of markets are constructed through legal means by political bodies. Markets for energy and in particular electricity are interesting examples, not least because in the last couple of decades, these markets have been deregulated through efforts of economists to design liberalised markets for electricity (see for example Bye & Hope, 2005). Still, it is parliaments that decide to implement such designs. If the performativity thesis is to hold, the debates and the making of policy with respect to politically constructed markets should reflect economic theory or at least a belief in economic theory by policy-makers. The influence should come from professional economists rather than political handcraft. To what extent is this true?

We shall engage with these issues by examining the development of Norwegian energy policy with a focus on issues related to energy efficiency and the economic efficiency of energy use and the energy system, particularly related to households. We do so by analysing parliamentary debates in Norway about energy efficiency measures directed at households between 1975 and 2008. During this period many changes in policy measures took place, among the more important a liberalisation in 1990 of the market for electricity. The relatively long time period and the radical policy shifts taking place should make this case into a well-suited occasion to explore how economics perform on policy-makers.

The Norwegian Parliament's concern with energy efficiency/energy conservation started in the mid-1970s, in the wake of the so-called oil crisis of 1973. An increasing concern over the future supply of energy led to the introduction of a particular Norwegian conceptualisation of energy efficiency policy making called 'energiøkonomisering', usually referred to through its acronym ENØK, which literally translates into "energy economisation". The term was meant to combine concerns related to energy conservation with a preoccupation with the economic efficiency of the energy sector. Arguably, this amalgam of policy concerns emanates from Norway's situation as a country rich in energy resources and

economically dependent on a high level of production of energy. To emphasize the particularity of this aspect, we use the Norwegian acronym ENØK rather than the fairly general English translation to denote this fairly specific set of policies (see also Ryghaug & Sørensen, 2008).

The political debates about ENØK and the resulting policies came as a response to several White Papers presented to the Parliament in the period, with shifting suggestions of what instruments should be applied to support ENØK goals. Over time, economic instruments were emphasized relative to institutional and technological ones (Sørensen, 2007), which suggests that economic theory played an important role in the formulation of ENØK policy. In 1990, the Norwegian Parliament passed a new Energy Act intended to transform the Norwegian electricity trade from a government-controlled to a deregulated market. This act was also discussed as a part of ENØK policies, but it represented a much more outspoken application of economic theory than previously (Bye & Hope, 2005). During the last 5-6 years, we have observed yet another change through a renewed interest in environmental issues, in particular human-made global warming. This has resulted in a resurgent engagement with energy efficiency and efforts to stimulate a shift towards so-called climate neutral sources of energy, reflecting environmental concerns as least as much as economic ones.

The analysis in this paper is focused on households, or rather, on the way that household energy consumers have been constructed by professional economists and policy-makers in official policy documents and debates, and how these constructions and the related policies have been influenced by economic theory. As suggested above, we have identified three main shifts in the constructions, each related to a particular time period. The first came about in the wake of the international oil crisis of 1973, when ENØK was introduced as a goal in Norwegian energy policy. Through several government White Papers and the related discussions in the Parliament in the wake of the crisis, the ENØK perspective was developed (Sørensen, 2007). The second shift occurred at the end of the 1980s, with the introduction of the proposal of a new Energy Act with the aim of deregulating the electricity trade. The third change came with a crisis in the supply of electricity that occurred during the winter of 2002/2003. May we understand these changes when drawing on Callon's idea of the performativity of economics?

The next section introduces our theoretical approach. We then move on to the empirical analysis, which is based on a survey of pertinent Norwegian policy documents from the period 1975 – 2007. The documents include all relevant Government White Papers and minutes from the debates of these White Papers in Parliament. All quotes from these documents used in the paper have been translated by us into English.

On economisation and the performativity of economics

Economic sociology analyses markets in terms of networks, institutions or performances (Fligstein & Dauter, 2007; Fourcade, 2007). Here, we pursue the latter idea, that markets are made or constructed through the performances of a variety of involved human and non-human elements. From this perspective, a market is no longer a natural, autonomous mechanism that balances supply and demand through prices. There is much more involved. Actually, markets are made through the efforts of economic, legal and other experts as well as a diversity of sociotechnical devices to facilitate the calculations that underpin market actions (Callon, 1998; Callon & Muniesa, 2005; MacKenzie, Muniesa, & Siu, 2007).

Thus, a main point is that markets are affected by advice, proposals, analysis and comments from experts as well as policy-makers, journalists, etc. Another important observation is that actual market behaviour cannot be taken for granted. The textbook image of suppliers as instinctively maximising profits while consumers are geared to optimise their utility is a misleading simplification. Suppliers and consumers have to be shaped and disciplined from particular constructions to make a market 'work'. This requires ideas of what suppliers and consumers in a given market context are supposed to think and do, ideas that in turn may shape the legal framework, the incentive systems and the interpretative resources involved. Market actors do not come ready-made out of textbooks. They have to be formatted as calculative agents (Callon, Millo, & Muniesa, 2007; MacKenzie et al., 2007).

In textbook neoclassical economic theory, consumers are assumed to be *homo economicus*, making rational economic decisions to optimise their utility, based on perfect information about goods, prices and needs. Usually, social scientists consider this representation of human behaviour far too simplistic, but Callon argues in the opposite. *Homo economicus* is simple because s/he 'is formatted, framed and equipped with prostheses which help him in his calculations and which are, for the most part, produced by economics' (Callon, 1998:51). Consequently, runs the argument, consumers have been configured to act according

to economic theory through the designs of economists. This is the strong version of the performativity thesis; that economic theory is enacted, not because it provides a correct description of human behaviour but because markets are engineered to make people behave according to economic theory.

Donald MacKenzie (2006) has proposed a classification of the performativity of economics that presents the modified view that the performativity of economics may vary and be less strong than what Callon proposes. Other scholars have been more critical. Miller (2002) argues that the performativity thesis in the strong form is untenable because it is based on assumptions about human behaviour that are empirically incorrect. Consumers do not act according to economic theory, even if markets are designed to make them do so. Santos and Rodrigues (2009) adds to this criticism that one of the main cases used to argue the strong performativity thesis – the spectrum auctions launched in 1994 by the US Federal Communications Commission – has been misinterpreted. We are more concerned that, largely, the performativity literature has left unexplored the role of governments in the construction of markets. This role may be substantial. For example, the construction of a liberalised market for electricity in Norway was at least formally decided by Parliament, and the decisions involved a lot of legal issues that needed to be in place to implement the designs of the economists (Bye & Hope, 2005; Hope, 2000, 2006). We are particularly interested in two aspects of this situation. First, to what degree may we observe that economics perform on or influence policy-makers, for example through the kind of arguments they use? Also, are they aware that they implement designs made by economists, thus potentially making economics performative? Second, to what extent do policy-makers engage in the disciplining of the population to make them behave as *homo economicus*?

We shall explore the first issue from a domestication perspective, looking at the argumentative practice and the meaning attributed to economics (Sørensen, Aune, & Hatling, 2000). Domestication is the process through which an artefact or a piece of knowledge is appropriated by an audience or a group of users. An important point of domestication theory is that users have considerable latitude with respect to the knowing about a technology or a scientific theory, the production of meaning or the interpretation of this technology or theory, and the practice with respect to using the technology or theory in question (Sørensen 2005). If economics perform on policy-makers to make them implement the designs of economist, this

means that they have domesticated economics in a fairly straightforward and conformist manner. Policy-makers would have to show that they understand, or at least may act according to, economists' advice. Moreover, we would expect domestication of economics in a situation where economics is supposed to be performative in Callon's sense, to result in accepting and positive attitudes. A critical interpretation of economics would on the other hand suggest scepticism towards economic theory and the advice of economists.

The second issue will be pursued as an instance of what Foucault calls governmentality (Dean, 1999). From this perspective, the autonomous subjects of modern societies are assumed to be self-governed but also to be objects of disciplining power. Briefly, Foucault's general argument is that the development of modern societies depends on a shift from direct control of behaviour, underpinned by physical punishment, to an indirect disciplining of citizens by internalizing fairly strict perceptions of 'normal' behaviour. The perceptions of normality are shaped and upheld by the establishment of a series of institutions where the 'non-normal' are confined – the prison, the mental hospital, the general hospital, etc. (Foucault, 1977). Also with respect to markets, the idea of normal behaviour has been encouraged through the continuous replay of public interpretations of the *homo economicus* ideal. Consumers acting in a market are not objects of direct command and control. They are supposed to know how to act the role as disciplined, normal, self-governed individuals buying goods, of which they are frequently reminded, for example by newspapers, advertisements, etc. However, as noted above, from Callon's perspective, consumers are also formatted by all the available market devices that make them into the particular form of calculating agents symbolised by the concept of *homo economicus*.

The dominance of cases related to finance in the new economic sociology may have led Callon to overlook the actual challenges of making consumers behave as *homo economicus*, at least unless government engages in activities that may produce an appropriate governmentality. Daniel Fridman (2010) offers an interesting study of how the last military dictatorship in Argentina (1976-83) used consumer campaigns and the financial press to make the population act according to the *homo economicus* ideal. While the success in achieving this goal was ambiguous, the efforts were strong and outspoken. Thus, disciplining the population to create economic humans does not have to be an easy task.

Governmentality with respect to consumption of electricity with the added aim of achieving efficient use may offer particular challenges. In principle, the aims may be achieved by rendering some forms of behaviour more rational, moral, etc. than others through information campaigns and other forms of political discourse. Incentives, economic or social, represent another strategy of governmentality. In this paper, we are concerned with the way energy policy-makers construct household consumers through policy discourses about energy, electricity, supply and demand. To what extent do these construction and the related policies reflect economic theory? Do we also observe strategies of producing governmentality to support market-based, economic theory driven policy goals? In turn, both issues are indicative of the performativity of economics in the space of policy-making. Not the least, such performativity should be observable in the way households and their consumption of electricity is made sense of and made to shape a particular governmentality of public rationalities and moralities. How do policy-makers construct the rationalities and moralities that are supposed to make people into economically rational consumers and moral citizens that act according to current energy policies? We study the arguments of the policy-makers to identify the rationalities and moralities they produce through their discourse. However, we do not study the actual effects on consumers.

The making of energy-conscious consumers: Economic rationality and moral deficits

What kind of construction of consumers of energy and electricity emerged when the focus on energy efficiency policies emerged in the wake of the so-called oil crisis and the development of the ENØK concept? In the first period we study, from around 1975 until 1989, the electricity market was still regulated. Thus, the initial issue was whether regulations could be improved.

A governmental commission was appointed to inquire into policies of energy use, led by a prominent economist, Professor Einar Hope.²⁶ The Commission's proposals reflected an emphasis on thinking about energy in economic terms and concern with making the use of energy economically efficient. More concretely, they recommended an increase in the price of electricity to curb demand – in this period the price was decided by the Parliament – in addition to information campaigns, economic support of insulation of new buildings and

²⁶ NOU 1975:49 Om tiltak for energiøkonomisering.

stricter building codes. Norwegian citizens should be stimulated to reflect on their energy consumption in economic terms:

It should be emphasized to show what may be achieved by modest efforts without substantial reduction of comfort, but one should also aim to demonstrate the cost of comfort, in order to give the public the best possible basis for considerations.²⁷

Consumers needed to be educated about cheap energy savings as well as the costly aspect of comfort, in order to make them make the right choices. According to the Commission, household energy users ought to be formatted as *homo economicus* with respect to the consumption of energy.

However, when the report was transformed into a government White Paper, only one of the 72 pages of the document discussed the individual household consumer.²⁸ The rest focused on the effects of price changes on industrial and commercial actors. In the proposition from the Parliament's Industry Committee, none of the 19 proposed measures were targeted at household consumers. This focus on large-scale consumers was explained in the parliamentary debate in the following manner by MP Reidar Due (The Centre Party):

[W]e prioritize the following areas: Utilization of waste heat, industrial processes, the construction and housing sector, the transport sector, recycling and re-use of energy demanding products [...] The different measures of ENØK taken up for discussion in the proposition must be seen in relation to the competitive situation for our industry and commerce.²⁹

Labour's Minister of Industry Bjartmar Gjerde summarized why industry and economic development were the important concerns:

A significant portion of the potential for energy conservation comes from the energy-intensive industry [...] The price of electricity to energy-industry is in the eyes of the government in an exceptional position. It would be unjustifiable to set electricity prices without considering the consequences for industry profitability [...] In this context the energy policy must be considered as a general policy instrument and not an overarching

²⁷ NOU 1975:49, p. 62.

²⁸ St. meld. no. 42 (1978-79) Om energiøkonomisering.

²⁹ Forhandlinger i Stortinget no. 187, 1979:2883-84.

goal. Energy policy plays a particularly important role for industrial production and employment.³⁰

Mainly, this discourse reflected the long-term emphasis on energy as a prime precondition of economic and industrial development that had dominated Norwegian energy as well as industrial policy since the beginning of the 20th century. Thus, household consumers would have to adapt to policies made to serve industry. When they were mentioned, consumers were constructed drawing on several models. As expected, we find several MPs referring to *homo economicus* type of properties. However, in their statements they emphasise a limited aspect of this consumer role, mainly articulating a clear belief that people would react to regular price incentives by changing their behaviour when a clear price signal to do so was imparted. If prices were increased, the expected reaction was reduced consumption. Reidar Due of the Centre Party stated that this was the common point of view:

A united [Industry] committee states that it considers the question of electricity prices to be decisive for the efficiency of ENØK. This relates to electricity to industry as well as to regular consumption.³¹

Labour Party MP Tom Thoresen emphasised that:

Personally, I believe prices as a tool will give conservation effects without negative side effects. We know from our own households that there is something to be gained from using electricity more sparingly.³²

This focus on the price mechanism was reflected across the political spectrum. Even Hanna Kvanmo of the Socialist Left Party agreed that “Prices will also dampen any tendencies to waste electricity in most homes”.³³ In such ways, these MPs constructed consumers as economically rational but in a particular manner. While economic theory sees consumers as agents optimising their utility (and therefore not necessarily acting on the price margin but according to their own utility function), the MPs did not. To them, the only rational reaction to a price hike was reduced consumption.

³⁰ Forhandlinger i Stortinget no. 187, 1979:2899-2900.

³¹ Forhandlinger i Stortinget no. 187, 1979:2883.

³² Forhandlinger i Stortinget no. 187, 1979:2889.

³³ Forhandlinger i Stortinget no. 187, 1979:2893.

Probably, this misunderstanding of economic theory was due to the circumstances under which MPs domesticated the theory. Through ENØK policies, they expected to achieve two rather different goals, namely energy saving and economically efficient (read: profitable) use. Moreover, in the final instance, the MPs remained uncertain whether consumers actually would be disciplined through price signals. Several were hinting that consumers were morally deficient in order to explain the difficulties in disciplining them by economic instruments only. In a better world, consumers should have saved energy without being made into objects of strategies of governmentality based on increased prices. However, the flesh was considered weak, and several MPs questioned people's willingness to take on a moral responsibility for conserving energy because they had become accustomed to comfort. This point of view was eloquently expressed by Christian Democrat Odd Vigestad:

Use of electric heating and oil stoves provides the temperature we feel comfortable with all day long. We do not have to do dishes by hand, we have 10-12 sources of light in our living rooms [...] we have colour TVs, we do not have to dry our clothes outside, we do not have to mind the weather [...]. [P]eople's attitude to energy consumption must change [...]. I think that a kind of information campaign must be constructed so that the individual feels shame over wasting energy, and sees it as a moral commitment to conserve energy.³⁴

Kjell Helland, Labour Party MP, joined in:

No one can honestly say that they do not waste energy [...] Much of the increase in energy consumption is in my opinion due to short-term thinking, but also our need for comfort [...] Many of us are very leisurely minded.³⁵

Many of the MPs seemed generally convinced that it would be difficult to make household consumers save energy. To quote Odd Vigestad again: "I want to make clear that it will not be an easy task to guide the Norwegian people onto the energy conservation track".³⁶ Sverre Helland, MP of the Centre Party, emphasized in the debate that "It is in my opinion pretty clear that factors of mass psychology have a strong influence on energy consumption",³⁷ indicating disbelief in the economic rationality of households' consumption of energy. The obvious

³⁴ Forhandling i Stortinget no. 187, 1979:2889-90

³⁵ Forhandling i Stortinget no. 187, 1979:2905.

³⁶ Forhandling i Stortinget no. 187, 1979:2890.

³⁷ Forhandling i Stortinget no. 187, 1979:2900.

conclusion was drawn by MP of the Conservative Party, Carl Fr. Lowzow, who stated that “Through systematic work and social planning [we can] make use of research to train people to consume less energy and avoid waste”.³⁸ As can be seen, many MPs acknowledged that it would take a lot of work to provide the governmentality needed to make consumers understand that they should save energy when prices were increased. Thus, they seemed sceptical of the simplified version of economic theory that they put forward in the debates, above all the – theoretically dubious – idea that increasing prices unambiguously would reduce demand.

In this manner, it was not assumed that consumers presently would enact the role of the conscientious and price sensitive saver of energy. Rather, to be expected to act according to policy-makers’ goals and their version of economic theory, customers needed to become better informed and educated. Throughout the ENØK debate, the MPs returned to the notion that one of the central shortcomings of the current system was the lack of information and knowledge about energy conservation among consumers. Reidar Due stated that “The Ministry [of Energy and Petroleum] indicates that in order to get conservation among consumers, active participation from the populace is needed; and in order to succeed, more information and training is in order”.³⁹ Johannes Vågsnes of the Christian Democrats took this point even further: “I want to underscore the fact that training in resource management and consumption must have a more central place in our whole educational system”.⁴⁰ From this perspective, one also needed to engage schools to install energy saving governmentality, since this was seen as difficult to achieve. Clearly, Norwegian policy-makers were less optimistic than Callon about the performativity of economics and the impact of various calculation devices.

To summarize, the baseline construction of household electricity consumers was not according to the *homo economicus* model, which would have made them make rational decisions based on reflections on the relationship between prices and utility. Rather, consumers were ideally expected to be price-sensitive energy savers but, as we have seen in the debate in Parliament, actual consumers were constructed as having two important shortfalls; a knowledge deficit and a moral deficit. To overcome these deficits, consumers had to be educated to meet the expectations of policy-makers. However, until the deficits could be

³⁸ Forhandling i Stortinget no. 187, 1979:2913-14

³⁹ Forhandling i Stortinget no. 187, 1979:2882.

⁴⁰ Forhandling i Stortinget no. 187, 1979:2898.

done away with, paternalistic politicians thought that household consumers had to be cared for by providing access to sufficient amounts of energy at reasonable prices.

Seemingly, economic theory did not perform effectively on policy-makers. They did not domesticate the theory in a professionally correct way, nor did the MPs in this period provide unambiguously for a governmentality centred on *homo economicus*. Rather, the two deficits among the public observed in the debates suggest ambivalence towards economic theory. On the one hand, information and knowledge about options and outcomes are necessary to be able to act in an economically rational way. To correct such deficits would facilitate enactment of economic rationality and thus format the population in the image of *homo economicus*. On the other hand, the moral deficit emphasised by several MPs refers to a distinctly different kind of rationality, concerned with virtues and vices. It is virtuous to be careful in the use of energy, to economize in order to save, while it is a vice to crave comfort.⁴¹ To enact *homo economicus* would not be helpful with respect to this kind of deficit. Thus, we believe that the construction of the household consumers found in the parliamentary debates in this period was torn between a price-centred rationality and the virtuousness of being thrifty. On this basis, it was difficult to provide for an effective governmentality.

As already noted, throughout this period, household customers were seen as less relevant to ENØK than industry. Thus, policy-making with respect to household consumption of energy was considered less important. Perhaps the ambiguous construction of household consumers made it seem more rewarding to focus on industrial and commercial actors who were assumed to respond more 'correctly' to economic incentives? However, in the longer run, it turned out to be difficult to neglect household consumers because their share of electricity consumption was large and growing. Moreover, the introduction of a liberalised market for electricity in Norway in 1990 signalled that policy-makers had chosen a different approach to ENØK than in the previous period. Did this pave the way for a construction of household consumers as more singularly economically rational, thus making economic theory more performative? Was the focus on virtue something that lost out at the beginning of the 1990s?

⁴¹ This type of morality stands in opposition to the inherent morality of markets discussed by Fourcade and Healy (2007), which emphasises that good morals is to act in an economically rational way: a market society is also a good society

Construction controversies: Economic rationality meets political care

When the Norwegian Parliament passed a new Energy Act in 1990, thus creating a liberalised market for electricity, they introduced an explicit economic design. Hope (2000) claims that the groundwork for the market reform was laid by a group of economists working at the Norwegian School of Economics and Business Administration (NHH) in the early 1970s. According to Hope, they started with a pure thought experiment to consider what a deregulated market-based system of electricity trade might look like. Consequently, they tried to solidify the arguments in some internal reports, fleshing out the ideas and setting up the necessary rules and basic structure of such a market. Hope further claims that these reports were picked up by the central administration, and they later turned to this research group for assistance in setting up the “rules of the game” for a market reform of the electricity sector. Thus, there was a clearly intended performativity in the design. How did the design and the underlying economic theory influence policy-makers?

A commission appointed by the Labour Party government in the early 1980s to propose changes in the legal regulations of electricity trading had mainly been concerned with organizational issues, for example to merge producers of electricity into larger units. They also proposed a vertical integration of production and distribution, believing that this would result in substantial increases in efficiency:

The aim of managing the power system is to minimize the social-economic costs of all Norwegian supply of energy that may be covered by the electrical power system [...]. With fewer and more resourceful units of power production it will be possible to bring into action more resources to strengthen the supply network and use of modern control equipment to achieve better utilization of the plants of production and transmission.⁴²

Anyway, the main point was to achieve greater economic efficiency in the Norwegian energy system. In this respect, the commission represented a change in the official energy policy – less concern with industrial development and employment and more emphasis on economic results. The reform proposed by this commission was not taken into law, however, and a new commission that was appointed by the new Centre-right coalition government of 1989 proposed a new, more market oriented reform.

⁴² NOU 1985: 9. Energilovgivningen, p. 8.

This shift in emphasis in ENØK policies was even clearer in the White Paper proposing the new Act. Here, energy conservation concerns were definitely backstage. The arguments supporting legislative reform was mainly promising increased economic efficiency of the electricity system:

The present system for trade of commissioned power is not very flexible and thus unsatisfactory with respect to the needs created by varying supply and demand and possibilities for economically optimal use of energy, etc. This is above all due to a distinction between commissioned power and occasional power and some institutional constraints. Therefore, an adaption of legal rules is needed to facilitate a more market-based trade in electrical power, which may give considerable social-economic gains.⁴³

Neither the commission's report nor the White Paper engaged much in any explicit construction of household consumers or reflecting on the need for action that could bring about a *homo economicus* or a virtuous saver mentality. Of course, there was an underlying idea that consumers would appreciate increased economic efficiency of the energy system, potentially leading to lower prices. However, the energy conservation concerns of the previous period were more or less overlooked. Official documents reveal little of how the consumers should be constituted within the new regime, with the exception of an admission on behalf of household consumers: "With the proposed law it might be viable for large customers to buy power from other suppliers. For households this will probably not be a realistic alternative".⁴⁴ The parliamentary proposition only gave cursory mention to consumers' role in the larger energy policy context and was especially silent regarding their role in doing ENØK as conservation of energy. It was just emphasized that they had a role: "Planning and execution of concrete measures must on the other hand be the responsibility of the customers".⁴⁵

It is difficult to observe from the text of the proposition only, but the new Act truly signified a transition from one conceptual system to another (Thue, 1996). This became evident from the parliamentary debate about the proposition. A large minority, comprising MPs from Labour and the Socialist Left Party, still saw consumers as part of a larger regulatory structure in need of particular attention. Several of the MPs from the Labour Party mentioned that the main goal of a new Energy Act should be to take care of consumers' needs. These

⁴³ Ot. prp. no. 73 (1988-89) Om energilovgivningen, p. 1.

⁴⁴ Innstilling til Odelstinget no. 67 (1989-90), p. 29.

⁴⁵ Ot. prp. no. 43 (1989-90), p. 21.

needs were above all related to access to a secure supply of electricity and low prices. For example, Labour MP Ernst Wroldsen commented that “It is customers – especially in rural areas – who will suffer if we cannot obtain reasonable mergers [of electricity producers]”.⁴⁶

There were also worries that the reform would harm an unprepared constituency. For example, Labour MP Astrid Marie Nistad stated that “[W]hat I am concerned about is [...] whether consumers of electricity have had the time they need to understand the scope [...] of these changes”.⁴⁷ Otto Engen, also MP for Labour, argued that “[T]he most damaging consequences of the law must be averted. Only in this way can the interests of the customers be safeguarded in a satisfying way”.⁴⁸ These quotes show how the Labour Party to some extent remained in a paternalist mode, although with a different emphasis than in the first debates about ENØK. The most important point now was to secure a low price of electricity for household customers through government price control. If there should be environmental reasons for raising the price, Labour and the Socialist Left Party suggested this should happen “through the use of particularly designed environmental taxes”.⁴⁹ The paradoxical construction of the consumers that we observed in the previous section had become less outspoken, probably because conservation issues were seen as less important. The moral emphasis upon thriftiness had dwindled.

What about the performativity of the economic design? The arguments employed by the Labour MPs indicate that they had limited belief that the market devices of the new law actually would work – at least not without some political intervention to help household consumers adapt to a deregulated market. The domestication of economic theory among these MPs did not appear to have resulted in a ‘correct’ understanding. Rather, the domestication seemed to be shaped by an inquiring if not outright critical mode with respect to the abilities of households to cope with deregulation. What then about the ruling government coalition, consisting of the liberalist Conservative Party, the Christian democrats, and the Centre Party? The MPs from this block said very little about the role of the consumers. Their focus was mainly on the general societal benefits to be gained from a more economically efficient organisation of the production and distribution of electricity that presumably would be achieved through deregulation. Especially, the possibility of more flexible pricing of

⁴⁶ Forhandlinger i Odelstinget no. 25 1990:363.

⁴⁷ Forhandlinger i Odelstinget no. 26 1990:378.

⁴⁸ Forhandlinger i Odelstinget no. 27 1990:392

⁴⁹ Innstilling til Odelstinget no. 67 1989-90:13.

electricity for export was expected to generate larger incomes to electricity companies. Previously, they were forced to export at the local price, which was significantly lower than the price of electricity in Norway's neighbouring countries. With the new Act, export prices would rise substantially.

The attitudes of the MPs of the majority block reflected the proposition of the Ministry of Petroleum and Energy, which highlighted four main reasons for changing the existing energy law:

1. The electricity market has in the course of the last years changed from a situation with rapid growth in demand and attention to new developments to a situation with rather large trade of electricity at low prices.
2. The demands for efficiency in the production and yield on investments in Norwegian economy have gained more attention.
3. There has been a change in the attitude to society's governance, resulting in a more positive view of deregulation and competition.
4. There is increased interest in market based trade in electricity.⁵⁰

The proposition did mention consumers as part of the main goal statement: "The goals are still to ensure an economically rational utilisation of energy resources, arrange for a secure energy supply, and equalize prices to consumers".⁵¹ However, it expresses a fairly shallow construction of household consumers as mainly needing equality with respect to prices. In the parliamentary debate, the centre-right coalition of the Government only talked about household consumers when challenged by the opposition, and then only in terms of the price effect of the proposed reform. Consider the following response from a Christian Democrat MP, Helga Haugen, to a representative from the Labour Party regarding the price effect of the law reform:

The Labour Party posits that the price of electricity to consumers will increase with the Government's proposal [...]. The majority of the committee is of the opinion that a more rational and efficient organisational structure and market based electricity trade will

⁵⁰ Innstilling til Odelstinget no. 67 1989-90:1.

⁵¹ Innstilling til Odelstinget no. 67 1989-90:1-2.

stimulate a better and more flexible utilisation of the energy resources as well as equalize electricity prices.⁵²

This quote hints at a construction of consumers that draws on the *homo economicus* idea. Petter Bjørheim, MP from the supporting far-right Progress Party provided a more explicit outline of these assumptions:

It is given that the possibility to gain insight into the industry exists, so that the customer – the consumer – may see how the price is calculated (...). [It] is clear that when this law is thoroughly incorporated, the market itself will set the price – not politicians or this house – it is simply a question of buyer and seller (...). [I]n a market oriented system with full openness, any bad investments will be revealed. It will be possible for the consumers to see those producers who do a good job and those who do not.⁵³

We may recognize this construction as a typical neo-liberal understanding of market formation as the guiding principle for policy. Consumers are expected to stay updated on price fluctuations and negotiate contracts and prices with suppliers accordingly. Suppliers on the other hand will take care to invest wisely. If not, they will be punished by the market.

The only person from the centre-right coalition that expressed a similarly clear view was the Minister for Petroleum and Energy, Eivind Reiten of the Centre Party:

Consumers get a larger opportunity to choose with the proposed law – indirectly through a more encompassing wholesale market, directly with the loosening of the compulsory delivery of electricity (...). Our proposal means more independent actors and real freedom for consumers to negotiate prices, delivery conditions, instead of having to pay the bill that the monopolies send them at the end of each year.⁵⁴

The latter two quotes suggest that MPs belonging to the majority coalition had domesticated economic theory less ambiguously and more correctly than those of the parliamentary minority. We observe a fairly strong belief that new calculation devices would bring about greater transparency of the system as well as a stronger engagement of consumers in negotiating prices and conditions of delivery. The lack of reservation also indicates a fairly

⁵² Forhandling i Odelstinget no. 26 1989-90:373.

⁵³ Forhandling i Odelstinget no. 26 1989-90:366-367.

⁵⁴ Forhandling i Odelstinget no. 26 1989-90:385, 387.

strong belief in the performativity of the new market devices to make consumers act according to the intentions. Thus, majority policy-makers did not argue any need for supporting governmentality measures.

The parliamentary debate in 1979, discussed in the previous section, provided ample evidence of deep ambiguities in the construction of household consumers. They were on the one hand seen as economic rational in the sense that they should reduce consumption when prices went up, but on the other hand they had definite moral and knowledge deficits that hampered energy efficiency measures. In this sense, household consumers both were and were not in need of political care. Policy-makers seemed to be in doubt whether measures based on economic theory designs would be sufficient to reach energy efficiency goals. To secure adequate behaviour, consumers needed to be informed and educated. Consequently, according to policy-makers at that time, governmentality measures were needed.

Compared to this, the discussion leading to the new Energy Act demonstrates a shift. A majority now saw consumers as competent economic actors according to the standards of economic theory. While Labour Party MPs remained worried about this competence, the ruling coalition seemed to assume that a liberalised market and its various calculation devices would discipline consumers (and suppliers) to act as predicted by textbook economic theory. It was this new, unambiguous construction of consumers in the image of *homo economicus* that facilitated the decision to liberalise the trade in electricity. When the moral issues previously produced by energy conservation concerns could be set aside, household consumers could be constructed in a simpler way. Also, the MPs of Labour and the Socialist Left Party produced a less ambivalent construction of the consumers than in the previous period. Now, they saw household consumers as mainly needing electricity in sufficient quantities at a reasonable price. However, consumers should not have to enact the role of *homo economicus*, since it could be too demanding and painful to behave in this manner. In addition, this group of politicians also set aside the moral issues of energy conservation and consequently the importance of virtue, so forcefully argued in the previous decade.

Thus, the shared but ambiguous and contradictory construction of the household consumer of the first period was in the second period replaced by a controversy between two competing but simpler constructions, reflecting two different modes of domestication of economic theory. From the parliamentary debate, it seemed that the majority MPs had

appropriated the theory and accepted it while the minority did not. However, neither side proposed measures to produce governmentality to effectuate either 'correct' market behaviour or virtuous energy saving. Probably, the debate in the second period and the decision to deregulate the electricity market marks a shift in the interpretation of energy. What we observe in the debate is an understanding of energy as a predominantly economic good, to be used to achieve economic benefits to society. Perhaps ironically, this reflected a dominance of thinking about energy purely in economic terms. The focus on energy conservation and energy efficiency issues of the first period disappeared. The ENØK concept was still around, but it now signified economization in the sense proposed by Çaliskan and Callon (2009, 2010), namely that the production and use of energy was understood in economic terms. While we cannot conclude that the policy shift from the first to the second period unambiguously signifies a breakthrough with respect to the performativity of economics, at least the proposal of Callon now appeared more viable. However, the more singular focus on economic issues in the energy policy debate could also have reflected the relative disappearance of environmental concerns and energy efficiency ambitions. We shall explore this issue when we now turn to the third period we have studied – a period where environmental concerns with respect to the consumption of energy regained prominence.

Insufficient performances?

As we have seen, the passage of the new Energy Act represented a change from political agreement towards political controversy in Norwegian energy policy. Seemingly, this reform heralded the end of an era where increased supply of electricity was a shared political goal, embedded in a common idea of how to pursue modernity and progress (Thue, 1996). Through the new Act, electricity was made into an object of supply and demand rather than political decision-making. However, as indicated above, the resolution made by the Norwegian parliament was founded on a paradoxical goal. On the one hand, the new Act was supposed to improve economic efficiency in the supply of electricity, leading to a reduction of prices. On the other hand, the act was meant to provide a disciplinary mechanism – the market – which should make household consumers behave according to an economic rationality that should make them use electricity in a more optimal manner and thus induce them to spend less.

However, during the 1990s, there was little concern with this inconsistency. A new White Paper on ENØK confirmed government's belief in economic rationality as the pillar of

energy policy. However, there was a growing concern about the need to install a supportive governmentality. Energy actors, including individual consumers, were seen to need motivation to make decisions about production and use of energy that were profitable from a societal point of view. The government aimed to facilitate that “suppliers of energy and ENØK products *on their own* inform about ENØK and market a more efficient use of energy”.⁵⁵

In the aftermath of the electricity supply crisis in the winter of 2002/2003 changes happened. Due to very dry weather, the Norwegian system of hydroelectric power had very low capacity and electricity prices rose to hitherto unknown levels. The effects were deemed socially unacceptable, and the government advanced a White Paper to discuss measures to cope with a situation where security of supply had re-emerged as an issue. The White Paper mainly focused on issues related to supply, proposing measures to increase the efficiency of the existing system, in combination with support of developing new energy sources. At least to some extent, the market was seen to have failed in providing security of supply. In addition, consumers were no longer constructed as empowered rational actors with freedom to choose among suppliers. Rather, they now appeared as victims of electricity prices that were too high, even if the White Paper also proposed some measures to improve consumers’ relative position in the market, like facilitating the change of electricity supplier and improved settling of accounts.⁵⁶ Actually, the resulting construction of consumers largely appeared to be in line with the construction offered by Labour and the Socialist Left party MPs in the discussion of the new Energy Act in the previous period. The main feature of household consumers was as having the right to buy sufficient electricity at a stable and reasonable price.

When the White Paper was discussed in Parliament, the debate confirmed that policy-makers at this point mainly were concerned with supply side measures. The main preoccupation was to increase the production of electricity and regain a reasonable level of security of supply. The MPs were not concerned with making consumers use less electricity but with stimulating the production of more energy. In this respect, there were considerable disagreements, especially regarding production of electricity based on the use of natural gas. Also, there were substantial differences in the appraisal of the ability of the energy market to cater for the situation. Ingvild Vaggen Malvik, MP from the Socialist Left Party, voiced a critical attitude to the deregulated market and the Energy Act:

⁵⁵ St. meld. no. 41 (1992-93) Om energiøkonomisering og nye fornybare energikilder. Our emphasis.

⁵⁶ St. meld. no. 19 (2003-2004) Om forsyningsikkerheten for strøm m.v.

The Socialist Left Party believes that last year clearly has shown the need to review and revise the Energy Act, not just in relation to security of supply and electricity prices, but also to regain control of the electricity market in order to include environmental concerns in the Energy Act. The act should be revised to encourage people to choose ENØK and renewable energy. The framework conditions must be developed so that water-borne heat and new renewable energy provide sustainable energy and lucrative jobs. In addition, the Socialist Left Party is convinced that such a holistic energy readjustment will be profitable and contribute to a sustainable energy system in accordance with our international climate obligations.⁵⁷

Malvik was suggesting the need for instruments that would make household consumers choose ENØK and renewable energy, but neither she nor any other of the participants in the debate forwarded concrete proposals towards this aim. Probably, she as well as many other MPs were critical of the level of consumption of electricity, as expressed by May Britt Vikhovde of the Liberal Party: “It is not a worthy environmental policy to use something as high-grade as electrical energy to heat houses, when there are so many simple and good alternatives”.⁵⁸ Still, the dominant view was expressed by Labour MP Olav Akselsen:

The Energy Act is now 14 years, and we should be able to conclude that it has had many positive aspects. We have gained a far more efficient [electricity sector], we have achieved a better utilization of production capacity and an improved network, and we have gotten a professionalization of these [electricity producing] companies. Nevertheless, we should also be able to conclude that with respect to one issue, the Energy Act has failed: It has not contributed to develop sufficient new production capacity. One has not been able to secure the amount of energy necessary to be in balance.⁵⁹

Thus, once more, household consumers were not the centre of attention. It was the electricity companies that were faulted. They had not provided the level of investments that they were supposed to, given the expectation of how a ‘free market’ should work. Compared to previous policy debates, household consumers were actually sidestepped, even if there was an implicit understanding that a substantial part of the consumption of electricity could be replaced by other energy sources. However, the responsibility to achieve such a shift was given to

⁵⁷ Forhandling i Stortinget no. 185: 2787.

⁵⁸ Forhandling i Stortinget no. 185: 2792.

⁵⁹ Forhandling i Stortinget no. 185: 2798.

government or energy companies, not to individual consumers. Any effort to install a governmentality to discipline household consumers towards sustainable use of energy was not visibly on the policy agenda.

The White Paper on security of supply of electricity was brought forward by a centre-conservative coalition government. Two years later, in 2006, a Labour Party government advanced a related White Paper with the explicit aim of reducing the consumption of electricity in households. Now, household consumers were placed at the front stage of energy policy. The aim of this policy document was not to help increase the production of electricity, but to shift the demand to other sources of energy or to induce energy conservation. The White Paper proposed measures with respect to three technologies. The government wanted to introduce subsidies to households investing in pellet fireplaces, heat-pumps except air-to-air heat-pumps, and control systems to save electricity. To support this, the government also proposed an information campaign.⁶⁰

The way that the White Paper constructed consumers, drew on the ideal of *homo economicus* as representing the kind of rationality that would make subsidies attractive. However, there was no expectation that many consumers actually would engage in making their use of energy more sustainable. Subsidies would only work on a minority, and even so the White Paper was concerned that consumers had an information deficit. The subsequent debate in the Parliament showed first of all a widespread agreement that the consumption of electrical power in households was too high. Conservation of electricity had now become an explicit issue. MP and Christian Democrat Line Hjemdal expressed this succinctly: “In a situation with electricity scarcity it is sensible to get people to save energy”.⁶¹ Ola Borten Moe, MP of the Centre Party (from 2011, Minister of Petroleum and Energy), summarised the understanding of the issues at hand:

I note that there is a widespread agreement in the House about the realities, linked to the fact that we have over-consumption of electricity for heating, and that most of the parties share the wish to guide it towards other sources of energy to release electricity and in this way introduce new technologies to heat Norwegian households. I am happy with this. I am

⁶⁰ St. prp. no. 82 (2005-2006) Tiltak for å begrense elektrisitetsbruken i husholdninger.

⁶¹ Forhandlinger i Stortinget no. 187: 790.

quite sure that it is decisive that we succeed in realising exactly this shift in the consumption of energy.⁶²

Compared to the debates about ENØK in the late 1970s or about the new Energy Act, the underlying construction of household consumers had changed once more in this third period. Consumers might have information deficits, but they were no longer in need of political safeguarding nor were they supposed to be disciplined in a simple way by prices. Rather, they were assumed to be affected by another type of incentives, as accounted for by then Minister of Petroleum and Energy, Odd Roger Enoksen:

Many households are engaged with the evaluation of alternative sources of energy that may limit the use of electricity. This is one of the reasons why the Government proposes to introduce measures to assist households in making good and conscious energy choices, and these measures are in the current context a support scheme for households and an information campaign for households and industry. The aim of this support scheme is accordingly to provide households with support when they invest in mature technologies that today are not widely used, and therefore the scheme includes pellet fireplaces, heat-pumps in water-based systems and control systems to save electricity.⁶³

Arguably, the idea of a moral deficit had re-emerged but in a different fashion. The policy-makers noted that there was overconsumption of electricity, which was a moral problem, given the fact that it should be profitable to shift to other sources of energy. However, compared to the construction of consumers made in the late 1970s, there were fewer complaints about how difficult it would be to accomplish changes and about the lack of motivation for change among household consumers. On the other hand, it was not so much energy conservation that was put on the agenda as a shift of energy sources. Primarily, people were not expected to save energy so much as to make use of other forms of energy than electricity. Thus, the economisation of energy that dominated the second period was replaced by a construction of energy that emphasised technological diversity. Economic effectiveness was less of a concern than providing incentives to achieve a shift in the sources of energy used by households.

⁶² Forhandling i Stortinget no. 187: 790.

⁶³ Forhandling i Stortinget no. 187: 791.

The electricity supply crisis that occurred in 2002/2003 made it very difficult to blame consumers, given the fact that the utility companies made very large profits. Also, the newspapers carried stories, typically of elderly people freezing because they were not sure they could pay their electricity bills. Given this, it was unsurprising that policy-makers targeted the supply side and criticized the absence of investments to increase supply, which in theory should have taken place. Obviously, an effective incentive system and/or governmentality had not been installed in the utility companies to make them act as expected.

However, with the next White Paper from 2005-2006, household consumers were directly targeted, more so than in any of the previous instances. Here, we observe the emergence of a new construction that seemed to be shared by policy-makers across the political spectrum. Household consumers were still constructed as susceptible to economic incentives, but they were seen to be better motivated by investment subsidies than by increases in prices through increased taxes. Probably, policy-makers had during a long period of time observed that the price of electricity was not the effective instrument to produce changes in consumption they had previously thought. The *homo economicus* construct had not been abandoned, but the emphasis was different – consumers were now constructed as potential investors in new energy sources or energy efficiency technologies rather than just consumers of electricity.

Also the moral issue had changed. It was no longer about thriftiness and saving but about motivation to invest. As we have seen, policy-makers were still concerned about deficits, about lack of interest in changes, but the tone was nevertheless more optimistic. Thus, the conflict between the emphasis on economic rationality and moral deficit that was so clearly articulated in the first period had become less outspoken and less problematic. Actually, the shift from a focus on the price of electricity and on the virtue of thriftiness to a focus on investment and motivation for change could be considered as a shift from an ambiguous to a more consistent construction of household customers. At least, the White Paper of 2005-2006 proposed a fairly uncontroversial investment-oriented governmentality to be installed in household consumers. However, the optimism was limited with respect to the effects of the proposed measures, including the extended number of market devices. Seemingly, policy-makers had learnt not to expect strong performativity from the economic designs of the

electricity market nor from public subsidies. At least to some extent, they had lost faith in economic theory as the single source of effective policy-making.

Conclusion: Reconsidering performativity

Michel Callon (2007) argues a fairly strong thesis of the performativity of economics with respect to the design and functioning of markets, while Donald MacKenzie (2006) suggests a diversity of performativities with varying strength. We set out to explore the performativity thesis by analysing how Norwegian policy-makers over a period of more than 30 years have engaged with issues related to the trade in electricity and energy conservation. Did economic theory influence policy-makers? Did policy-makers engage in efforts to support the performativity of economic theory and thus providing for a *homo economicus* as well as energy saving governmentality?

This paper has explored these questions by analysing how policy-makers have constructed household consumers of electricity and how the construction process has been related to energy policy-making in Norway and policy-makers' experiences with the public's responses to the various measures introduced in this fairly long time period. The main idea has been that energy policy in important ways is shaped by the underlying understanding of consumers. Such constructions may obstruct or facilitate the production of policies for sustainable energy, depending on whether a particular construction of consumers may be accommodated by a particular set of policies. In the paper, we have focused on three instances of such construction work. First, through an analysis of the efforts to formulate a conservation-oriented energy policy in the aftermath of the oil crisis in 1973. Second, through a study of the understanding of consumers underlying the passing of the Energy Act of 1990, which produced a liberalised market for electricity. Third, we have explored the construction of consumers in a situation where policy-makers became concerned with security of supply of electricity as well as sustainability between 2003 and 2006.

The construction of household consumers has changed during the 30-year period we have analysed. In the wake of the oil crisis, we found that household consumers were constructed in an ambiguous and potentially inconsistent way. At the outset, they were believed by policy-makers to act according to a simplified (and theoretically dubious) economic rationality, implying that consumers would use less electricity when facing increased prices. Prices were expected to discipline consumers to spend less. However, we also saw how policy-

makers put a lot of emphasis on two shortfalls – a knowledge deficit and a moral deficit. The knowledge deficit would explain why the simple economic rationality might not work, because consumers knew too little about how to interpret prices and what kind of alternatives that were available to save electricity. The moral deficit was actually a competing approach since the arguments implied that consumers would not save electricity even if the price increased because they lacked in the virtue of thriftiness. Members of Parliament saw the need of paternalistic measures towards household consumers, placing government in an educational role, but they were reluctant to act on this. In this way, it was difficult to observe that policy-makers domesticated economic theory to allow it to perform on policy-making or that they actually believed that economic measures were sufficient to discipline consumers.

The debate about the new Energy Act in 1989 demonstrated a change. The previous agreement about an ambiguous construction of household consumers was now replaced by disagreement. The centre-right government coalition behind the proposed law clearly constructed consumers in the image of *homo economicus*, as rational economic actors and expected the new calculation devices to discipline consumers into «proper» market actors. Thus, the majority MPs domesticated economic theory in an accepting manner. The opposition, Labour and the Socialist Left Party, put forward a construction that emphasised consumers' right to buy the electricity they needed at a 'reasonable' price and thus in need of paternalistic care. The deficits, so important in the previous construction, were basically overlooked by both parties. Probably, this was a reflection of the fact that in this debate, energy conservation concerns were hardly present. Seemingly, this absence paved the way for the centre-right coalition's belief that economic theory through the design of the liberalised market for electricity actually could be performative.

The crisis of supply of electricity that emerged in the winter of 2002-2003 indicated weaknesses in the neo-liberal construction not so much of consumers as of suppliers who failed to invest in new production as had been expected. On the one hand, steep price hikes did not produce much of a reduction in the consumption of electricity. On the other hand, capacity on the supply side had hardly increased at all since 1990, even if consumption had grown. In response, policy-makers began turning their attention to the utility companies. However, the next step was actually a White Paper that explicitly focused on how households might be influenced to reduce the consumption of electricity. Here, we observed that the

policy disagreement that emerged in the debate about the Energy Act of 1990 had faded. The controversy between constructing consumers as *homo economicus* or as dependent on political paternalism gave way to a shared construct – the household consumer as an investor in alternative energy sources. Thus, we saw a shift away from the previous focus on price as a disciplining instrument. Instead, information about alternatives was given some priority, but the main measure was to offer subsidies to households investing in preferred energy technologies: pellet fireplaces, water-based heat-pump systems and control systems for electricity.

In this manner, the concerns related to what we describe as governmentality measures changed. In the aftermath of the oil crisis, consumers were seen as potentially disciplined by increased prices but also as resistant due to deficits partly related to knowledge, partly to morality. These deficits made it difficult to act in a consistent way. When the Energy Act was passed, in the second period studied, consumers were believed by the majority of policy-makers to be responsive to price changes and to optimise their consumption accordingly. However, these policy-makers believed that a governmentality based on *homo economicus* was already in place through new calculation devices. The main additional measure needed would be to provide the information consumers needed to make the right choices. On the other hand, a sizeable minority of policymakers constructed consumers as in need of political care, and disbelieved the performativity of the economic theory in the design of the liberalised market in the sense that it would provide appropriately for household consumers.

The shift of emphasis from relative prices of electricity to investments in new energy technologies that happened after the electricity supply crisis, in the third period, meant yet a different construction of household consumers. In this period too a clear focus on economic rationality in the construction remained, but it was linked in a different way with the potential decision-making of consumers. While a shift in relative prices has to be interpreted and, eventually, made into a decision to change heating systems, etc., the investment focus and the offer to subsidise could be seen as more directly linked in with a new core issue – what technologies are used? Arguably, this shift made the previously observed moral deficit less relevant. The aim was no longer to support thriftiness and reduce comfort but to change the technological basis of households' comfort.

These findings do not support any strong versions of the performativity of economic theory. While economists played a vital role in designing the liberalised market for electricity in Norway (Karlstrøm forthcoming), only for a while did a majority of policy-makers trust the new calculation devices of a liberalised market to achieve a balance of supply and demand in the way economic theory assumes. A clear expression of this was the shift in policy focus observed in the last period we have analysed, where the focus on the role of prices of electricity to influence consumers' behaviour was changed into a policy proposing to subsidise particular energy technologies for household use. While it is true that economists designed the liberalised electricity markets as well as the later system of subsidies, household consumers was observed by policy-makers to have responded to the deregulated markets in a different way than expected.

The critique of the performativity thesis raised by authors like Miller (2002) seems to be correct in the sense that the thesis makes untenable assumptions about the way people behave. At least, access to the kind of calculation devices offered by liberalised markets has to be supplemented by measures that install governmentality – maybe also skills – that make consumers use these devices in the prescribed manner. In addition, it is important to note that the influence of economic theory on policy-makers may be importantly moderated by at least three features. First, that economic theory may be domesticated in a manner that results in misunderstandings and misrepresentations. Second, that policy-makers may find the results of policies developed on the basis of economic theory to be inconsistent with theoretical promises. Third, whether competing political framings – like environmental concerns – are present in the decision-making situation or not. At best, we face a context-dependent performativity.

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Chapter 4: From user to consumer? How households' use of electricity is affected by market deregulation and environmental concerns

Henrik Karlstrøm and Marianne Ryghaug

What has been the effect of deregulation of the market for electricity on households' use of electricity and their ways of relating to the market? Does deregulation make households more market conscious in the sense that they are more concerned with price differences among suppliers? How do price issues affect energy efficiency activities, compared to environmental concerns? This paper addresses these issues, based on a representative survey of Norwegian households. A main finding is that the majority of the households only to a small extent enact the role of market conscious consumers as envisioned in economic theory. This means that the effect of 20 years of deregulation has not taught households to become consumers. Also, households that actually say they take on the active role of a market-oriented consumer of electricity are not significantly more interested in energy efficiency measures. Rather, the interest in energy efficiency seems more strongly motivated by environmental concerns.

Keywords: Market behaviour, deregulation, electricity consumption, environmental concerns, social learning

Introduction

IEA (2010) portrays energy efficiency as the most significant measure for solving the climate problem, and the EU directive on more efficient use of energy and energy services (2006/32) states that the member states shall reduce energy use by 9 % by 2016 compared to the average consumption in the five years preceding 2006. This cannot be done solely by improving the energy efficiency of buildings, industries and technologies. Also, patterns of energy use must be changed. In light of this, most industrialized countries focus increasingly on energy efficiency and the demand for electricity of households. To develop an effective policy for energy efficiency as well as demand management with respect to electricity, targeted at households, it is important to know more about how electricity is used in households, how

electricity use is understood, and how households engage with increasingly liberalised markets for electricity.

In this paper, we are particularly concerned with the effects of deregulation of the market for electricity. To what extent have households been transformed from users to consumers of electricity, to become economically conscious actors on the market? Moreover, what is the effect of such a transformation on the concern for the efficient use of electricity and engagement in energy efficiency activities?

The context for our analysis is Norway, which was one of the first countries in the world to completely deregulate the electricity market, a fact that makes Norway an interesting case for studying how and to what extent households have adapted to the role of 'energy consumers' in a deregulated electricity market. Before the deregulation, while there were a number of local production utilities, prices were set by central authorities on an annual basis. Such a pricing scheme was seen as *economically inefficient*, so a system was designed to make the price reflect more closely the demand and supply of electricity (Bye and Hope 2005). This was also expected to put an end to the practice of exporting electricity at very low prices because of over-production, something that only the importing countries stood to gain from. Today, Norway is integrated into a wider Nordic market for electricity and sells its electricity at significantly higher prices. One other rationale for the deregulation was that it would allow consumers to make use of free competition to achieve lower electricity prices, as noted by then Minister of Petroleum and Energy, Eivind Reiten:

Consumers get a bigger opportunity to choose with the proposed law – indirectly through a more encompassing wholesale market, directly by the loosening of the compulsory delivery of electricity. [...] Our proposal means more independent actors and real freedom for consumers to negotiate prices and delivery conditions, instead of having to pay the bill the monopolies send them at the end of each year. (From the Parliamentary debate minutes on the new Energy Act: *Forhandling i Odelstinget no. 26 1989-90:385*, our translation.)

Note that this rationale was the impression of leading politicians and not necessarily in line with the economic reality. Since Norway had much lower prices than its neighbouring countries, an integration of the electricity market would most likely lead to higher – not lower – prices, as indeed it did. It was also the stated goal of those formulating the law at the time to

avoid unnecessary market interference from fickle political majorities (Godbolt, Karlstrøm, and Sørensen 2009).

However, the main motive for deregulating the electricity market was to help optimize electricity use. By creating a market for electricity one wanted, in accordance with neoclassical visions of the market, to have a price mechanism that when working at its full potential would generate an equilibrium where both producers and users are satisfied and one gets the perfect allocation of resources to production and distribution of electricity that people are prepared to pay for. Thus, the rationale for the liberalization of the electricity market was not to reduce electricity consumption or to make people save energy *per se*. The reform itself separated the production and distribution parts of the electricity utilities, opening up for free market competition in the former and formalising a regionally defined monopoly in the latter. Now, Norwegians could buy electricity from any production utility they wanted, regardless of where in the country (and later, the whole Nordic region) the electricity was actually produced. Still, policy-makers (if not economists) also expected that the reform would make households more concerned with their use of electricity and motivated to become more interested in energy efficiency (Godbolt, Karlstrøm, and Sørensen 2009). Hence, a pertinent question here is whether this political goal has come to fruition or not.

The Energy Act has now been in effect for about 20 years, and it is pertinent to ask how peoples' relations towards the electricity market have developed during this fairly long period. If we accept politicians' assertion that electricity users were not necessarily very conscious electricity consumers at the time of deregulation, we can ask whether households have learned to become the market oriented and price conscious consumers that, among other things, were assumed to be consequences of this new construction. Has increased consciousness about electricity as a market good led to increased engagement in energy efficiency? The latter question has historical precedence in Norway. The Norwegian energy situation is characterized by dominance of renewable hydropower and with a large national income from export of oil and gas. Energy efficiency, or 'energy economising' as it has been called in Norway, has none the less been on the agenda since the mid-1970s (Sørensen 2007). It was first introduced by a governmental report in Norway in 1975 as a political strategy to meet the concern of future shortages of electricity. This fear was a result of the on-going shift from an oil-based energy system to an electrical energy system, related to high oil prices due

to the oil crisis (Næsje 2000). In the period from 1975 until today, energy economising as a policy instrument has gone through different stages regarding motives and means, with the basic underlying assumption that users should develop an interest for energy efficiency and energy saving because it was economically rational (Sørensen 2007).

Engagement with energy efficiency may of course be caused by other rationales than those of the market and the focus on economically optimal behaviour. One alternative, which also reflects long-standing public debates, is that households' engagement with energy efficiency may result from an interest in and/or effort to implement more sustainable lifestyle choices as a response to human-made climate change, environmental concerns and energy security. Around 2005 climate issues also entered the public energy agenda with full strength, and the public discourse emphasized the moral obligations of the single individual to act in order to mitigate the climate problem. This was especially voiced by politicians through mass media. Hence, households were supposed to save energy by being economically rational as well as morally correct actors. Thus, after environmental issues gained increased attention in public discourse, it is important to consider the relative importance to energy efficiency of environmental concerns compared to the economic rationality assumed to result from market incentives.

Thus, we ask about the consequences for energy efficiency of these two ways of framing users of electricity: the market oriented or the environmentally oriented framing. In the paper, we explore this first by analysing whether household users of electricity have been transformed into market-savvy, price conscious consumers, and second by analysing to what extent properties of the market for electricity are used as accounting devices with respect to energy efficiency. We then move on to study the environmentally oriented framing by examining whether households are impacted by environmental concerns to make sense of their use of electricity and to engage with energy efficiency.

Explaining energy consumption patterns

In contemporary political discourse, consumers are often constructed to match established ideological agendas (Jackson 2004). For instance, within constructions of enterprise culture, du Gay (1996:77) argues that "consumers are constituted as autonomous, self-regulating and self-actualizing individual actors, seeking to maximize their quality of life by assembling a lifestyle, or lifestyles, through personalized acts of choice in the market place". Understanding and

explaining the energy consumption of households has been seen as an important task for scholars from many disciplines. One standard take has been to focus on an aggregate level and through the use of economic models try to explain the relationship between consumption of the households and other variables like energy prices. This interest has been reinforced by recent efforts to restructure electricity markets. Many of these studies are of course fuelled by the desire to improve the efficiency of electricity markets and reflect policy-makers' concerns about the impact of price changes on consumers (Reiss and White 2005).

According to economic theory perfect market performance will produce an optimal allocation of resources for producing and using electricity, including efficient electricity use (Jochem and Gruber 1990). From the perspective of traditional neoclassical economic theory the decision whether to increase efforts to save electricity or not is determined by its outcome in terms of net utility. Thus, the observed difficulties in detecting a good correspondence between behaviour and price signals in electricity markets have led economic scholars to address the problem as market imperfections and transaction costs. The transaction costs associated with undertaking electricity saving measures are typically identified as the perceived effort in terms of time and inconvenience or the cost of searching for suppliers and completing market transactions (Ek and Söderholm 2010). As a result of this thinking, most new market policies since the deregulation have focused on reducing transaction costs, for example by creating consumer internet portals for easy price comparison or removing supplier fees for account transfers.

One of the main obstacles that have been characterised as such a market imperfection is information deficits (Jochem and Gruber 1990). There is quite a large body of literature focusing on the role of information when trying to influence energy-saving behaviour. The *raison d'être* of information, be it from authorities, interest organisations or energy companies, is often that individuals are responsible for their own energy consumption choices and that it is through influencing these consumer choices that one may create a more sustainable energy system. Lower costs and environmental benefits are thought to be main drivers within this line of reasoning (Gyberg and Palm 2009). A study of Swedish households (Ek and Söderholm 2010) maintains that information about available saving measures that is presented in a concrete and very detailed way is more likely to affect stated willingness to save energy and to alter behaviour than in cases where information is given in a more general way.

However, information in terms of the (potential) monetary savings associated with the different electricity saving activities did not increase the willingness to undertake electricity saving measures further. Several other studies have also been conducted on how informational feedback to customers affects energy consumption (for an overview, see Fischer 2008).

Many researchers have studied the effects of energy prices on energy consumption, for instance by estimating price and income elasticities of energy consumption in G7 countries (Narayan and Smyth 2008), the US (Dergiades and Tsoulfidis 2008; Silk and Joutz 1997), or the relationship between energy consumption, income and prices (Asafu-Adjaye 2000; Yuan, Liu, and Wu 2010). While most of these studies see a direct impact of prices on consumption on an aggregate level, many demonstrate that the price elasticity is quite low among households (Clements and Madlener 1999; Narayan and Smyth 2005; Narayan and Smyth 2008; Zarnikau and Hallett 2008; Filippini 2010), and typically higher within high-income households than low-income households in Norway (Nesbakken 1999).

Explaining energy consumption as a result of consumer choice has been regarded as problematic by scholars focusing on consumption *as practise*. Theories of consumer practice challenge the conventional social science emphasis on consumerism as deliberate choices in a market place, focusing instead on social and cultural explanations of private energy consumption, or 'the cultural and socio-technical perspective' (Wilhite et al. 1996; Shove 2003; P. Jackson 2004; Aune 2007; Berker and Gansmo 2010). Such perspectives often draw upon insights from science and technology studies or anthropology in order to understand how different actors behave and how energy consumption is constructed in relation to everyday life, including technological artefacts and their symbolic aspects. For example, Shove's (2003) work on the social organization of normality highlights how everyday life is constituted through countless daily rituals (like taking a shower and washing clothes) and demonstrates how conventions of comfort and cleanliness are embedded with moral, social and symbolic meaning that in turn will influence energy consumption. What these studies have in common is that they focus on other than economic factors in order to explain energy consumption, or stress that economy is only one of many factors that may explain energy users' or consumers' practices.

How to understand energy use and energy consumption?

Much remains to be done in clarifying what it means for households to be considered consumers of energy, how households understand their relationship to the market, and how this understanding may play out as collective action. In a critique of both standard economic theory and the current sociology of markets, Callon and Muniesa (2005) remind us that a market is a place of calculation, but where calculation is not just a quantitative practice of setting a value to a good and then making a purchasing decision. For a situation of calculation to arise, the buyer must be confronted with different alternatives to a course of action as well as a way to assess the value of the different actions. Only with a workable definition of an artefact and its alternatives can calculations be made, a point also made by Cochoy (2007).

While it may be true that consumers are not the utility-maximising rational actors of economic theory, they are still expected to make decisions based on monetary aspects of certain situations. Thus, market behaviour among users of electricity may be understood as a combination of the way they frame market interactions, how (and if) they choose to gather information about prices and different electricity suppliers, as well as other calculations that are part of these choices. In light of such an understanding of market behaviour, one of the central questions is whether almost twenty years of experience with a liberalised electricity market has made people increasingly behave according to economic theory. Our survey of households' use of electricity and the electricity market behaviour is an attempt to gauge to what degree the reconfiguration of the electricity market has reconfigured households as well. Adopting the Callonian framework of calculations as an interpretative resource to make sense of the data seems fruitful.

Previous research on energy consumption has to a limited degree utilised terms such as framing or regimes of calculation when discussing private individuals or households' relations to the market for electricity. A more common strategy has been to look at the way energy consumption is linked to peoples' individual beliefs, values, attitudes or environmental concerns. The consensus seems to be that while pro-environmentalist attitudes are important in sparking consumers' *intentions* of reducing energy consumption, little correlation between such intentions and their corresponding actions remains (Jackson 2005; Salmela and Varho 2006; He and Greenberg 2008; Curtis, Simpson-Housley, and Drever 1984; Holden 2005; Vringer, Aalbers, and Blok 2007; Gatersleben, Steg, and Vlek 2002). With this in mind a

hypothesis could be that peoples' value systems are to a limited extent framing their energy saving perceptions, and even less their behaviour.

While there are quite a few examples of research on electric utility deregulation, nearly all focus on market functions and efficiency, electricity rates, and supplier trends and efficiency. Very little work has been done on the perceptions and trends of households, and few studies focus on the way people see their role in electricity markets that have undergone deregulation. One exception is Brennan (2007), who concludes that residential electricity users remain reluctant to choose new electricity suppliers. Another interesting exception is Nakajima and Hamori's (2010) study that estimates the changes in price elasticity in the residential electricity market to examine the changes in household sensitivity to residential electricity rates. They find that there is no substantial difference in the price elasticity between deregulated and non-deregulated states for both periods – before deregulation and after deregulation. Based on these findings they maintain that the deregulation of the retail electricity market has not made people more sensitive to electricity rates and that retail deregulation policies are not the cause of price elasticity differences between deregulated and non-deregulated states. However, this study was conducted 10 years after deregulation and it may take longer to learn to become a deregulated electricity consumer.

By looking at market behaviour in terms of social learning (Sørensen 1996; Williams and Sørensen 2002) we bring a new perspective to the study of the energy consumption of households by introducing sensitivity towards temporal change. The concept points to the fact that the properties of a technology or an institution like the market (its affordances and limitations) may not be immediately apparent to and applicable by the user. Rather, one may find that particular productive processes and activities interact through discovery, learning and experience that result in changes in the understanding of a particular object of concern as well as with respect to related practices (Stewart and Williams 2005). As Sørensen (1996:6) puts it:

Social learning can be characterised as a combined act of discovery and analysis, of understanding and giving meaning, and of tinkering and the development of routines. In order to make an artefact work, it has to be placed, spatially, temporally, and conceptually. It has to be fitted into the existing, heterogeneous networks of machines, systems, routines, and culture.

In our case, studying the electricity market and how household users relate to the market through the lenses of social learning theory involves analysing how people understand, give meaning to and develop routines related to the market over time as they gain experience of it. If deregulation has resulted in social learning with respect to market actions among households, we should observe household users that express a clear interest in the price of electricity and have an active market related behaviour for instance related to switching to the cheapest electricity providers. We could also expect changes in behaviour related to increased energy saving because a more outspoken economic rationality and policy should lead to more careful considerations with respect to the consumption of electricity.

Turning to the translation of the notion of “social learning” into measurable variables in order to study differences between respondents in terms of having learnt to be a consumer, we study relationships between a number of relevant background variables and attitudes and behaviour relating to the electricity market in conjunction with the economic rationales underlying the deregulation. Previously, differences in total energy use between households have been mainly explained by differences in income/expenditure (Räty and Carlsson-Kanyama 2010). Seeing how market failure is often framed as an information or knowledge deficit problem, one would expect to find a relationship between education (which may be seen as a more general measure of information or knowledge) and market orientation, so that those with higher education would be more market oriented than those with lower education. Whether level of education can be seen as a valid indicator of information seeking behaviour related to the electricity market is of course not entirely clear. However, this is the best measure that we have available.

Further, if one is to take the incentive models of market deregulators seriously, people with relatively most to gain from realizing savings by switching supplier often, i.e. those with lowest incomes, should be most likely to be oriented towards the market and price mechanisms. This leads to a possible paradox: the levels of income and education are to some extent correlated, yet expected to have opposite effects on market orientation. It can also be argued that low income households have the lowest consumption and therefore the lowest absolute gains from market orientation. Hence, these relationships have to be scrutinized carefully in the analysis and contradictory hypotheses are available.

Another factor of importance that may be derived from a market model of consumer response is the price of electricity, although previous studies have shown that the price elasticity is low. In Norway, electricity prices vary according to geographically determined price areas. Geographical location affects electricity prices due to regional distribution monopolies. People in Mid- and Western Norway often pay markedly more for electricity than people in the eastern region and in the capital Oslo. Based on this, according to the market theory one should expect that people who live in regions where the price of electricity tends to be substantially higher than the rest of the country are more market oriented, as people in these regions have the largest economic incentive to save electricity. These regions have also had more media focus on electricity prices, especially during cold winters when prices soar. Therefore, following classical market based theories, one would expect people living in Mid- and Western Norway to be more market oriented than people living in cheaper areas.

Gender has to a little extent been investigated in relation to the electricity market. However, market studies in the liberalized telecommunication sector indicate that women put less effort in getting acquainted with complicated tariff systems, and that they change suppliers less frequently than men (Clancy and Roehr 2003). If we transfer this to the electricity market, we could assume that men to a larger extent have a market oriented strategy seeking the cheapest option or the most environmental-friendly one and that women will tend to maintain the electricity supplier that they had before the opening of the electricity market

Market orientation cannot be expected to be the sole variable affecting consumption of electricity and market based explanations are not the only available approach. As we note above, many theories of energy consumption focus on other factors and relationships. However, according to the literature mentioned earlier there is little reason to expect pro-environmental attitudes to correlate with reduced consumption. Nonetheless, as people worry more about the climate, we expect them to be more focused on recycling, wasting less energy by adjusting their energy consuming habits and do other incremental changes in their behaviour. In line with this assumption, we expect to find indicators of increasing environmental concern to promote energy saving activities as much as economically related measures in our survey data.

Thus, we have found it fruitful to break the analysis into two “tendencies”. One is tapping into the framing of what we call market orientation, an attempt to measure to what degree Norwegian electricity users act according to expectations of free market behaviour. The other analytic strategy deals with a framing where environmental attitudes are in focus, looking at how respondents reply to questions about environmental concerns and how they relate their actions to such concerns. When taken together, these tendencies may reveal some interesting findings and new insights for the debate around energy markets and the need for reducing energy consumption which will be important for policy development.

Method

The questions and expectations formulated above have been analysed based on data from a telephone survey representative of Norwegian households (N = 1500). The person responsible for paying the electricity bill of the household was chosen as respondent as we consider it likely this person would know most about the household's electricity consumption and behaviour⁶⁴. The survey consisted of 38 questions concerning electricity consumption, market attitudes, environmental issues, security of supply, political control over the energy sector and different sources of energy. Here, we concentrate on the portion of questions related to the electricity market and possible environmental concerns. The findings are presented both in the form of simple frequency tables on responses on market orientation and environmental attitudes and as more detailed statistical analysis.

A market orientation index was constructed on the basis of six different questions that were thought to be important according to the theoretical discussions above. It is of course debateable whether this index is a good representation of market orientation, especially as this is a quite underdeveloped issue for study, but we believe it is a reasonable approximation. Ordinary least squares (OLS) regression analysis was used to identify the effects of the different variables on the market orientation index. The questions took the form of statements on different aspects of the market for electricity, arranged as scores on a 5-point Likert scale where 1 equals “strongly agree” and 5 “strongly disagree”.

We contrast this with responses to questions regarding environmental attitudes and their impact on electricity consumption. Taking the findings from Vringer et al. (2007) and

⁶⁴ This does not, however, mean that this person is responsible for the level of electricity use in the household.

Gatersleben et al. (2002) into account, we were interested in establishing an idea of users' environmental attitudes. As good indicators of such attitudes were hard to identify, we tried to contrast self-reported concern over environmental problems with intent to reduce energy consumption and perception of other peoples' willingness to do the same. The environmental behavioural questions deal with electricity consumption reduction, renewable energy, belief in climate change and personal habits in the face of this. As the response categories for these questions were impractical to make uniform, it was not possible to construct an index of environmental attitudes. Instead, frequency tables and correlations are reported.

In the following sections we present the findings from our survey. First, we detail the findings dealing with energy users' market orientation by examining the response distributions to the questions on the subject and then the possible correlations between the additive index scores and various background variables. We then move on to the findings on environmental attitudes, with a collection of response summaries. We conclude with some remarks on what this might mean for the possibilities of further energy efficiency gains.

Market orientation of the households

If the assumptions of the original deregulation of the electricity sector were correct, then following the theory of social learning we would expect to see consumers acting according to some of the basic features of the deregulation, namely that introducing a free market for electricity would provide consumers with incentives for actively seeking price information and switching supplier relatively often in order to get the lowest prices for electricity. Similarly, accurate pricing of electricity would lead to more informed consumption patterns, and hopefully reduced energy consumption. One of the most important instruments of current energy policy is using the price mechanism to achieve this. The principal idea is that informed consumers will exploit price differences in an open market to seek the most efficient electricity companies and limit their own consumption of electricity to match their own utility function of comfort and price.

Actually proving that social learning among electricity users to become deregulated consumers has taken place would require a longitudinal approach. However, using Brennan's (2007) findings as a point of departure, we find it reasonable to interpret the degree of transformation from user to consumer of electricity as an effect of the degree to which social learning has taken place. Also, we believe that the measured attitudes towards the electricity

market provide insights into how well the assumptions of the deregulation fit with existing practise. If the assumptions are correct, we expect a majority of consumers to be market oriented in their relations to the electricity market. We expect them to be following the electricity prices and to be active in the market by switching to the most economic suppliers. To examine this proposition, we started by asking respondents a series of questions about their behaviour and attitudes regarding the market for electricity. The frequency distribution to the statement answers are reported in Table 1. To increase readability, we have collapsed the categories “strongly agree” and “somewhat agree” into the category “agree”, and similarly with the “disagree” categories.

Table 1: Frequency distribution on market orientation (percentages). 5-point Likert scale collapsed into three categories.

Statement	Agree	Neither nor	Disagree
I follow electricity prices closely	36	16	47
I switch electricity supplier at least yearly	6	3	91
It's too troublesome to switch supplier	37	13	49
It's hard to know which supplier is cheapest	36	13	50
I prefer to stay with the supplier I have always used	26	9	65
Electricity prices change so often that switching supplier is meaningless	26	18	57

Table 1 gives a first impression of consumers' market orientation. We observe that a large majority of respondents (over 90%) do not frequently switch electricity supplier, compliant with what Brennan (2007) finds. This is the case even if half of the respondents do not find it hard to know which supplier is the cheapest, and do not find switching supplier meaningless or especially troublesome. If market orientation is taken to mean seeking price information and making use of that information to maximize savings through exploiting free competition, then this is an indication that people are not necessarily market oriented in their behaviour or attitudes.

Taken together, these six statements can give some information as to whether the respondents exhibit what we might call market orientation, being active participants in the market for electricity by comparing prices, switching supplier and generally orienting themselves in the market. Note that these responses do not reflect *actual* behaviour, but rather respondents' self-reporting of how they perceive their relationship with the market. Based on the responses on the statements, we have constructed an index of market orientation. Responses to the statements were scored relative to their agreement with the "market oriented" statements on a scale from 1 (strongly disagreeing with market oriented statements) to 5 (strongly agreeing). Responses were added together to form an additive index. The lowest score is 6, meaning strongly disagreeing with all six statements, indicating no trace of transformation from user to consumer. The highest is 30, which we interpret to mean that the respondent has completely taken on the role of market oriented consumer. Scores in between suggests varying degrees of transformation. The result is a distribution of index scores as presented in Figure 1.

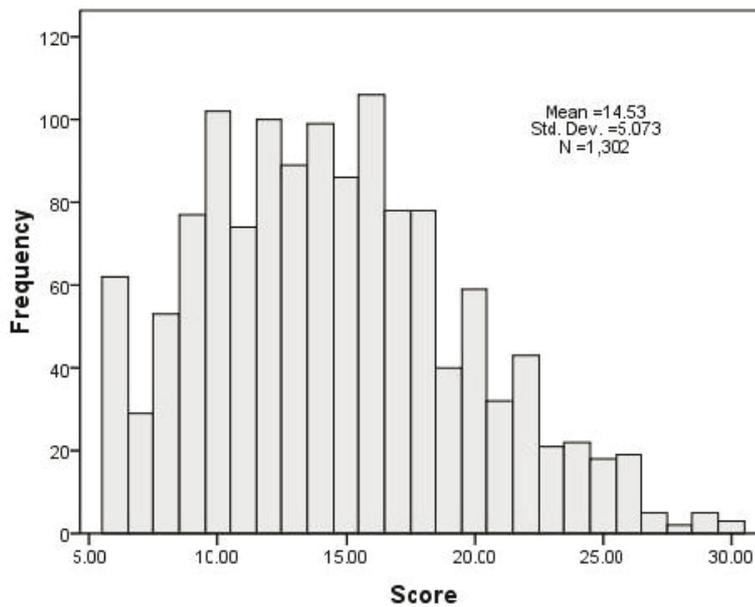


Figure 1. Histogram of market behaviour index.

The general shape of the market orientation index distribution is skewed towards the left, with a mean of 14.5. With an expected mean value of 18, this means that respondents generally are less market oriented and to a lesser degree enact the role of consumer than expected. This outcome might be due to several factors, such as consumers lacking information about how to conduct themselves on the market (although more than half of the respondents report to be fairly well oriented about electricity prices), or transaction costs involved in switching to a different supplier. Norwegian households have a relatively high average income, and even for households with rather high electricity consumption the electricity bill will seldom be a substantial fraction of expenses. For this reason, the time and energy spent on obtaining price information and dealing with the electricity supplier simply might not make it worth the effort. This resonates with Ek and Söderholm (2010) and the literature on price elasticity, in their finding that information about monetary gains of switching suppliers have little effect on actual willingness to do so. However, these arguments assume the existence of a kind of economic meta-rationality, while we believe that the outcome is better explained by a failure of social learning with respect to becoming a consumer.

Regression analysis

For the purpose of examining in what way background factors influence market orientation we have conducted a regression analysis, which allows us to identify statistically which factors influence market orientation, but also which correlations between index score and background variables are spurious. Of the background variables, six turned out to correlate significantly with the market orientation index. The variables were, with values for Pearson's r and p , respectively, in parentheses: sex (-.08, .004), age (-.09, .001), household's income (.12, .000), respondent's education (.09, .001), annual electricity consumption (.01, .006) and size of household (.11, .000).

Table 2: The effect of background variables on market orientation index (OLS regression). Standardized and unstandardized coefficients.

	B	Beta
(Constant)	15,0**	
Northern Norway ^a	-1.6*	-.09*
Western Norway ^a	-1.9**	-.16**
Southern Norway ^a	-2.2**	-.10**
Eastern Norway ^a	-.90	-.09
Female	-.74*	-.07*
Age	-.00	-.01
Income	.15*	.09*
Housing size	.00	-.00
Higher education	.63	.06
R Square	.04	

a Regional dummy variables

* Significant at the .05 level

** Significant at the .01 level

An OLS regression analysing the relative effect of all these background variables on market orientation was done (see Table 2). To cover possible problems with multi-co linearity, a correlation analysis for the variables was done (see Table 3). As none of the correlations were very high, multi-co linearity was not considered a problem for carrying out the analysis with the independent variables included in the regression. Since the regional variable is not on the interval level, the region of Mid-Norway was set as the reference value and the other four included variables were dummy coded. Mid-Norway routinely pays more for electricity than other regions, and is therefore a natural reference variable when testing the relationship between regional affiliation and market orientation.

Table 3: Correlation matrix for test of multi-collinearity

		Sex	Age	Income	Education	Electricity consumption
Sex	Pearson's <i>r</i>	1	.008	-.15**	.03	-.07
	Sig. (2-tailed)		.77	.00	.33	.05
Age	Pearson's <i>r</i>	.01	1	-.27**	-.026	-.13**
	Sig. (2-tailed)	.77		.00	.33	.00
Income	Pearson's <i>r</i>	-.15**	-.27**	1	.35**	.33**
	Sig. (2-tailed)	.00	.00		.00	.00
Education	Pearson's <i>r</i>	.03	-.03	.35**	1	.010**
	Sig. (2-tailed)	.33	.33	.00		.004
Electricity consumption	Pearson's <i>r</i>	-.07	-.13**	.33**	.010**	1
	Sig. (2-tailed)	.05	.00	.00	.004	

** . Correlation is significant at the 0.01 level (2-tailed).

Having reviewed previous research on similar issues, we expected educational level and income to have an effect on market orientation, even if the direction and strength of the effect were unclear. Also, we expected geographical location to influence market orientation due to price differences and differing media attention to the electricity market. In addition, we expected women to be less market oriented than men.

Of the variables tested, three of the geographical values showed significantly lower market orientation than the reference variable, Central Norway, and income and gender were found to be statistically significant variables. We found that people in Northern, Western and Southern Norway were less market oriented than people in Mid-Norway. Individual regression analysis of these variables showed that people in Mid-Norway and Eastern Norway were more market oriented than the average, while people in Western Norway were less market oriented. This could indicate that high prices lead to a higher awareness of the possibilities for market behaviour. However, there is also the possibility that the media attention given to prices in these regions played a part in making them more market oriented (Karlstrøm forthcoming).

Market orientation also increased with income. This is contradictory to the expectation that those for whom electricity made up a larger part of disposable income would have more interest in exploiting market opportunities than others and in line with the contradictory expectation that the higher income groups may have larger absolute gains from saving energy. Income is also related to education which is also probably linked to social learning. Lower income may indicate unwillingness or inability to engage in the sort of calculative practices required to act in the electricity market. Apart from some situations where it is forced upon the consumer, for example when moving to a new house, switching electricity supplier requires actively seeking the places of calculation, such as web pages that collect price information on electricity. For many, this alone is outside their frame of reference of electricity consumption. Women seemed to be less market oriented than men, as assumed.

To summarise: with respect to questions about market behaviour, we observe that background variables to some degree affect market orientation. This includes the region of Norway where one lives. The regional effect suggests that the electricity market to a somewhat greater extent is discovered, experienced and learnt in areas with relatively higher electricity prices than the national average and with much media attention given to the price difference, in line with the social learning perspective (Stewart and Williams 2005). However, this claim is weakened by the fact that the measures of general market orientation gave relatively low scores. This suggests that the process of understanding and giving meaning to the liberalised market as well as that of developing market-related routines indicative of social learning still has quite some way to go before one may claim that the majority of households have been transformed from users to consumers of electricity. To work according to the theoretical assumptions, the liberalised market has to be engaged with mentally and practically by households to a greater extent than it is today. Also, it has to be fitted into the existing, heterogeneous networks of machines, systems, routines, and culture (Callon and Muniesa 2005). In light of this it is interesting to see how the household respondents perceived the situation with respect to concerns relevant to the use of electricity but beyond the economics of the market: did they worry about global warming, did they think reducing energy consumption was important, to what degree did pro-environmental attitudes play a role and how may this be connected to what life style or technical changes they already had done in their homes?

Effects of environmental concerns

As described in the literature on energy cultures, lifestyles and socio-technical systems (Stephenson et al. 2010), the drive to reduce energy consumption could be tied to a whole range of other factors than purely economic ones (Lutzenhiser 1992; Wilson and Dowlatabadi 2007), for example to general concerns over greenhouse gas emissions and general pollution. In order to see whether we find the same pattern as in the literature describing a weak connection between environmental attitudes and environmental actions (e.g. Holden 2005), we have tried to get a picture of how people respond to questions about environmental issues in the context of use of electricity.

When asked how important reducing electricity consumption was for them, about 70 % of respondents answered that it was very or somewhat important to them. Since we have found that people on the average do not enact the role of market-conscious consumers, this suggests that there might actually be reasons for interest in reducing the use of electricity other than purely economic ones. This would be in line with earlier studies demonstrating that private energy use is a result of a combination of activities, preferences, values, technologies and material structures (Aune 2007). Note that there is a miniscule correlation between interest in reducing electricity consumption and score on the market orientation index (Pearson's $r = 0.06$, sig. $< .05$), suggesting that the market oriented consumers are only marginally more interested in reductions than the average user. Also, 70 % of respondents find the threat of anthropogenic climate change to be "very serious" or "somewhat serious" and 60 % say they have made changes in their lifestyle as a result of this threat. Table 4 reports what kind of lifestyle changes they claim to have made.

Table 4: Percentage of lifestyle changes reported by respondents

What changes have you made in your lifestyle?	Of respondents reporting lifestyle changes ^a	Of all 1500 respondents
Waste sorting	39	24
Use more public transport	29	17
Repairing rather than buying new	7	5
Reduce electricity consumption	50	30
Fly less	9	5
Buy organic goods	6	4
Buying second-hand	5	3

^a Percentages add to more than 100 %, as several answers were possible.

As we can see, the largest lifestyle change that people report to have done is to reduce electricity consumption. In a further effort to get an indication of the connection between respondents' market orientation and their interest in reducing consumption, we asked to what degree prices would have to go up for them to reduce their electricity consumption. The results are reported in Table 5.

Table 5. Response ratio to the question “How much could the price of electricity increase before you made a serious effort to reduce consumption?”

Prices could increase up to 10 %	15
Prices could increase up to 50 %	23
Prices would have to double or more	11
I'm already considering reducing consumption	11
I already do everything I can to reduce consumption	32
I'm not interested in reducing consumption	7

Interestingly, 43 % claim they are already doing everything they can to reduce consumption or at least considering it, while a third of respondents would require a price hike of at least 50 %

before taking action towards reduction. The fact that many report that they have already done everything they could to reduce their consumption will of course also be a factor that contributes to reducing the price elasticity or market orientation of the households, confirming previous studies showing that the price elasticity of electricity for households is quite low (Narayan and Smyth 2008).

The above findings indicate that environmental concerns actually are quite important motives to reduce electricity consumption. We observed that the transformation of users of electricity to consumers through the deregulation of the market occurred less frequently than theoretical expectations. In contrast, it seems that users to a much larger extent have become environmental citizens claiming to take at least some responsibility to make their use of electricity more sustainable, maybe as a response to long-term political efforts to link saving of electricity to environmental behaviour. This may seem a paradox, given that electricity in Norway mainly comes from renewable hydro power. However, the political argument has been that Norwegian clean electricity should be used for more worthy purposes than everyday life in households.

Whether environmental attitudes actually lead to reductions is debated and several studies have revealed a disassociation between such attitudes and their corresponding actions (Gatersleben, Steg, and Vlek 2002). Thus, it may be seen as a surprise that as many as 60% of the respondents claim to have changed behaviour due to climate changes. Many also report to have made lifestyle changes. On the other hand, 80% of respondents answered affirmatively when asked "Do you think most people waste electricity?", which is interesting in light of the 70 % who consider reducing their consumption to be important. Overall, these answers suggest that while respondents are confident in their own ability to restrict their use of electricity to a reasonable level, they are not necessarily as confident of their fellow citizens in this regard.

It is difficult to establish a causal relation between the pro-environmental values and actions taken to reduce the use of electricity. However, all together, the findings with respect to market orientation and environmental attitudes suggest that it may be more useful to examine households' framing of their energy use in terms of environmental attitudes and lifestyle rather than as market orientation. Hence, in line with the theories of social learning and calculative actions, we claim that further explorations of how the increased focus on

environmental concern create new calculative framings of energy consumption will prove more fruitful than a narrow focus on price sensitivity.

Conclusion: Consumer or citizen?

Based on previous research on the consumption of electricity, both from traditional economic perspectives and practice oriented theories of consumption cultures, we investigated households' interactions with the market for electricity by examining both their attitudes to typical market behaviour such as information gathering and price calculation and their self-reported behaviour related to lifestyle choices and environmental attitudes.

One of the hypotheses was that households had learned to behave as economically concerned consumers in the deregulated electricity market during the twenty years they have experienced living with the new Energy Act in Norway. However, our analysis has demonstrated that only a small part of the Norwegian population had learned to become active and price conscious market actors. About half of the consumers were attentive to the electricity prices. However, of these only a small percentage operated in accordance with theoretical expectations by switching suppliers and closely monitoring price fluctuations.

Thus, we conclude that the extent of social learning with respect to the enactment of a liberalised electricity market was fairly modest, if social learning had happened at all. Relatively few of the respondents surveyed seem to adapt to the theoretical expectations of what it means to be a deregulated consumer of electricity. The anticipation of competent market behaviour was far from being redeemed. On the other hand, we found that most respondents seemed to have taken on board general environmental values that made them focus on saving electricity from a perception emphasising what would be beneficial to the environment – acting according to criteria of environmental rather than economic efficiency. The analysis showed that most respondents thought they had learned electricity saving behaviour and perceived themselves as 'energy savers'. More than 40 % of the respondents claimed that they already had done as much as they could with regard to energy saving in their household, or considered doing more. Whether this means that environmental attitudes lead to actual change is less clear.

Thus, our main finding is that the deregulated market for electricity has not been very effective in helping to transform users into consumers of electricity. We do not find that the

deregulated market has helped much to develop an energy efficiency mentality either. However, we observe a much more outspoken transformation of people into what we could call environmental citizens. By this we mean that we observe that a majority of the respondents take on a joint responsibility to see the use of electricity within a framework of environmental concerns. This form of social learning seems more prevalent than the one related to market deregulation.

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Chapter 5: When a deregulated electricity system faces a supply deficit: A never-ending story of inaction?

Following the first waves of deregulation of electricity markets that took place in the early 1990s, most of Europe's electricity has been deregulated. This has provoked interest in how deregulated markets handle issues of security of supply and large fluctuations in demand. This paper examines the debate over an electricity supply deficit in a region of Norway, one of the first countries to deregulate their market. Using theoretical frameworks from discourse analysis combined with recent theories about market framings from the sociology of markets, I discuss how a furious debate over what is perceived as an «electricity crisis» can go on for a decade with no apparent solution. Even when alleviating measures are taken with some success, this does not quell the debate. Instead, a circle of blaming and procrastination continues.

Keywords: Deregulation, electricity supply deficit, discourse coalition

Introduction

Historically, the supply of electricity has been considered a public concern, a part of our common infrastructure (Hughes 1983). Norway was one of the first countries in the world to start a comprehensive deregulation by constructing a market for electricity in 1991. Later, many countries followed suit, often citing the Nordic electricity exchange as a “best practice” solution, further limiting political intervention in the production and distribution of electricity. This happened despite the fact that security of energy supply is a perennial source of concern for most governments. With Norway's status as a model for the construction of electricity markets, it seems pertinent to look at some consequences of the deregulation in this country. How is security of supply achieved when the potential of political intervention is limited?

In this paper, I shall address this issue by analysing a nearly decade-long debate about how to balance demand and supply of electricity in the Mid-Norway region. This debate has still not been resolved, even if most participants agree that there is a serious supply problem. How could this be? Partly it is because a debate over an issue does not mean that there is reason for concern in itself, or that there will be a solution at all, but the question remains: What does this long period of discussion stalemate tell us about the effects of deregulation upon the ability of stakeholders to introduce new solutions? Looking at the media debate on

an issue can shed light on one central channel for communication between experts, policy-makers and the public (Stephens, Wilson, and Peterson 2008).

Due to a dry fall in 2002 followed by an exceptionally cold winter, Mid-Norway experienced record prices for electricity in the winter months since most buildings use electrical heaters. This sparked a debate over the supply deficit which was dubbed the «electricity crisis» of Mid-Norway⁶⁵. In a newspaper article in 2001 Minister of Petroleum and Energy Olav Akselsen of the Labour Party warned that “only a rainy summer can save us from an «electricity crisis» next year” (*Adresseavisen*, 19.04.2001). His proposed solution was to start considering the construction of gas power plants to meet increased demand of electricity. This was a controversial proposal in a country whose electricity has come almost exclusively from its own production of clean hydro power. A decade later, county representative to Parliament Alf Daniel Moen, also from the Labour Party, complained about the government’s decision to keep off-grid Norway’s two mobile gas plants, acquired in 2008 as a temporary solution to service the needs for electrical power of a new gas processing plant in the region: “I think it shows helplessness on the government’s behalf when it comes to measures to prevent an «electricity crisis» in Mid-Norway” (*Trønder-Avisa*, 15.10.2010). The response from the Ministry of Petroleum and Energy, now controlled by a government coalition dominated by the same Labour Party, responded that: “Starting up the two mobile gas plants is out of the question at the moment. They are incredibly polluting, and will only be utilised when there is a danger of ordinary houses losing power” (*Trønder-Avisa*, 16.10.2010).

How this supply deficit was framed, and how the evolving notion of an «electricity crisis» fits into a larger picture of concerns to increase production of electricity, are important questions to clarify with respect to effects of deregulation. These effects may also be illuminated by examining the positions taken by the actors in the debate. What topics are discussed, what issues were overlooked? How do these positions fit with positions in already existing contentious issues, such as the construction of new gas power plants? How could the diverse positions continue to co-exist for nearly a decade without approaching a closure?

Before the market for electricity in Norway was deregulated, security of supply as well as most other regulatory issues was a well-defined political responsibility. Parliament decided

⁶⁵ Note that this term only refers to the media debate over the supply deficit, and does not imply that there really was a “crisis” as such.

the level of investment in new hydro power projects as well as the price of electricity. The stalemate debate described above would have been difficult to imagine. Even if there were disagreements about the construction of Norway's system of hydroelectric supply, decisions were made (Thue 1996). What had changed?

If we understand political processes as something more than the simple battle of interests, or rather, political interests as extending beyond their easily identifiable representatives, we may instead focus on the way the arguments themselves develop from the point where an issue is identified and to the point where one framing of the problem becomes dominant. In order to say something about how such fights for discourse dominance come about, it is necessary to understand the context in which the debate arises. With respect to my case, the context was the Norwegian electricity sector, which is dominated by hydro power. Production facilities were almost exclusively publicly owned, and the system was traditionally controlled through central planning. In 1990, the Norwegian Parliament passed a new Energy Act effective from 1991, through which a liberalised market for electricity trading was established (for details, see Bye and Hope 2005). This was not a complete privatisation of the sector like seen in the UK around the same time. Even with a liberalised market in place, public ownership of electricity companies prevailed.

The law change had several rationales. One was that it was felt that the kind of minute control politicians exercised over pricing and electricity supply was unnecessary. A second rationale was that creating a free market would lead to more efficient distribution of electricity and more optimal investment decisions with respect to production and grid capacity. It was also expected to shift power from politicians to consumers, with consumers able to drive competition through free choice of electricity utilities. The effects of the law change are still debated. After dropping initially, prices quickly rose to previous levels towards the end of the 1990s, but now with much higher volatility and some extreme peaks of upwards of 300 % change (Byström 2001; Woo, Lloyd, and Tishler 2003). However, proponents of the Energy Act claim that the real cost of electricity production had been even higher had the law not been changed (Hope 2001). On the other hand, the passing of the Energy Act marked an immediate stop to investment in new electricity production. However, the development of a Nordic grid that allowed exchange of electricity across borders has been argued to make the lack of

investments unproblematic, even in the face of a substantial increase in the Norwegian demand for electricity (Bye, Bruvoll, and Aune 2008).

Simultaneously, under-investment in grid capacity led to strained transfer capacity between the northern and the southern part of the country. To further aggravate the situation, new power intensive industry was set up in Mid-Norway in the 1990s, most notably the gas processing plant connected to the Ormen Lange gas field off the west coast of middle Norway and an aluminium plant in the same area. These industries require enormous amounts of electricity. As a result, a potentially large electricity deficit appeared in Mid-Norway. Sandsmark (2009:4555), who has studied this situation, concludes by asking: “What is the appropriate level of public interference when deregulated electricity markets experience problems with reliability of supply?” While this is an important issue, this paper is rather concerned with inquiring why Sandsmark’s question has not been asked in the media debate about the potential electricity deficit in Mid-Norway, and why the debate has not provided a clear response to the question. How may this debate throw light on the lack of interest in ‘the appropriate level of public interference’?

My intention here is not to pass judgment on the market deregulation itself, as that would require a different approach than analysing the media debate. Rather, I want to highlight some of the reactions of concerned parties to the effects of deregulation, since they are interesting regardless of the “correctness” of the parties’ analysis of the situation. The paper is structured as follows: first, I present recent research on deregulated markets and discuss some theoretical concepts that may shed light on how these issues are handled in public debate. Then, I present the media debate around the «electricity crisis» of Mid-Norway as it developed between 2001 and 2007, followed by a discussion of how the findings fit into existing theory on the subject and some concluding remarks.

Policy Framings

During the 1990s, Europe went through a wave of deregulation with various attempts at setting up competition in a sector that until then had been strictly regulated (Thomas 2006; Al-sunaidy and Green 2006). In 1996, the EU ratified its first directive on electricity liberalisation, which was strengthened in 2003. It called for member states to allow customers free choice of electricity supplier, but left plenty of room for member states to set up their system in the way they wanted. While the reforms broke up vertically integrated utilities to a certain degree,

separating generation from distribution, the announced start-up date of the directive was preceded by several horizontal mergers across European borders. Paradoxically, in many cases this led to a situation of reduced competition (Green 2006).

Like with the Norwegian deregulated electricity market, there is a clear consensus that deregulation in EU member states fails to provide proper incentives for investment in new generation (Finon, Johnsen, and Midttun 2004). Difficulties in balancing supply and demand across geographical distances means regions of the market might experience supply problems even in periods of surplus, due to under-investment in transmission line capacity. This may leave policy-makers with few alternatives when facing a potential supply crisis: either they risk break-downs in the system or hastily invest in emergency measures for the transmission grid (Sandsmark 2009).

Markets are designed devices. How may we analyse the success of a market design in being accepted as a good way of organising transactions? One approach is through the concept of framing, proposed by Callon (1998) as a way to distinguish between what is supposed to be a part of the calculation practices of a market and what is excluded as outside of market operations. In a way, a market and its material devices (the technologies necessary to carry through market operations) frame a “world of possible choices” (Callon and Muniesa 2005) that actors have at their disposal to guide them in their market transactions. But these worlds of possible choices are seldom explicit in the framing itself. This is a way of allowing the market designers to claim that the problematic outside practices cannot be the fault of the design and thus should not be taken into account when assessing success or failure of the designed market.

Excluded aspects may generate problems – Callon describes this as overflows – that may lead to a questioning of the framing. Put simply, overflows happen when the terrain refuses to bend to the map, or as Callon puts it: “The fact of imposing devices designed to realize a statement causes other worlds to proliferate in reaction to that performance” (Callon 2007:17). Identifying how these framing devices present worlds of choices to market actors is necessary for understanding when the framing suffers from overflows. Much work has been done on the effects of discursive practices in the framing of energy policy problems (see Scrase and Ockwell 2010 for an overview), pointing out that policy discussions cannot be seen as independent of the language used by those involved. Discourse theory is a wide field with

many possible uses (Russell 2006), all of which are not suitable for all types of empirical material. Here, I wish to limit the possible discursive interpretations of the material by sticking to the concept of overflows.

In the case of the «electricity crisis» of Mid-Norway, we shall see to what extent the debate criticized the framing and the calculation practices of the electricity market, or whether the functioning of the market was so-to-speak black-boxed, making the issue purely one of (lack of) political intervention. The supply deficit itself may clearly be seen as an external property, something that was not accounted for in the original design of the liberalised market for electricity.

Deregulation is never “the spontaneous appearance of a mechanism for liberating economic energies”, in the words of Garcia-Parpet (2007:37). As noted above, the deregulated electricity market in Norway was the outcome of conscious economic design. The design built on principles applied in an already existing spot market for interruptible power. Electricity generation was separated from distribution, and the power grid was opened to secure access in a transparent and non-discriminatory way. Further, the network companies were put under regulation to increase economic efficiency (Bye and Hope 2005). This resulted in a system where political interventions were deemed unnecessary. Thus, the role of energy policy-making was rendered unclear, seemingly also with respect to the maintenance and development of the national electrical grid. This was to be the responsibility of Statnett, an independent but government owned company.

Most electricity sector reforms seem to have taken place in economies where a system of supply is already in place, and appears to largely affect distribution of already existing power capacity. In Norway, there have been virtually no investments in increased power capacity or in the electrical grid since 1990, despite growing demand (Bye, Bruvoll, and Aune 2008). Thus, one may ask if the current deregulated system has the ability to manage substantial demand increases.

One would expect such questions to be the subject of public debate, and any analysis of policy outcomes must take into account the way the issues are framed in public discourse (Russell 2006). As Fiss & Hirsch (2005:30) point out, collective vocabularies about political issues “exert influence on actors’ understandings of what actions are legitimate and

appropriate". A reading of the media debate around the appearance of the «electricity crisis» in Mid-Norway will show how such issues were framed, and to what degree they led to concrete outcomes, thus indicating how the deregulated electricity system coped with the situation.

Given that most policy issues are decided without large public pressure to back it, one might ask why looking at the public debate over an issue is important. While it is true that an understanding of the policy process in question might be obtained from studying the way different government agencies and special interest groups use back channels to push for policy outcomes, these channels are often not accessible to researchers of recent history. Also, public media discourse is a site where these factions let their intentions be heard, and may act as a framing device for the corridor debates.

There are many different ways of conceptualising the way media informs and frames public discourse. Gamson & Modigliani (1989) see specific framings as part of "media packages", stories utilising a common set of concepts to signify continuity in the debate. Media packages represent competing interpretations of an issue "constantly revised and updated to accommodate new events" (Gamson and Modigliani 1989:2). The concept allows us to follow the development of a policy issue through different media and over time. The «electricity crisis» in Mid-Norway can be seen as such a package, and a potent one at that. A word like «crisis» conjures up feelings of the need for urgent and decisive action.

Of course, these narrative devices do not come into play independent of interests. Someone must produce the stories and work to multiply them. There are different ways of conceptualising the groups of interests who take part in public debate. One is the idea of an advocacy coalition (Sabatier 1998; Schlager 1995), a group of actors who share a set of normative and causal beliefs acting in concert to influence public opinion. While this is a good description of well organised groups working towards a specific policy outcome, such as environmental NGOs or industry representatives, this understanding of policy also has weaknesses. The most important is that one still assumes that actors in an advocacy coalition share beliefs about an issue and how to go about winning support. However, in reality many media packages can be picked up by anyone and utilised for reasons that might or might not be in line with the intentions of the original person or group advocating a framing. Often, these

actors may not even be aware of or interested in the fact that utilising a media package aligns them with other actors.

Therefore, a concept such as Hajer's (1995; 2005) discourse coalitions seems more in line with the concept of media packages. It describes non-organised and at times non-intentional discursive action taken by disparate individuals or interest groups in response to specific policy issues, but with similar outcomes. This allows a media package, like «electricity crisis», to circulate in media discourse between a wide range of actors advocating different solutions, swift or «responsible» action or assigning blame or responsibility. In light of this discussion, the question is: Who were argued to be responsible for the «electricity crisis» in Mid-Norway and expected to solve the problems, and what solutions were promoted?

As the European electricity sectors have become deregulated, problems related to security of supply and investment levels have emerged. To what extent is a deregulated energy sector able to deal with these issues and how are solutions expected to happen? I shall use the concepts of framing and overflow to study these issues. Through analysing how the «electricity crisis» in Mid-Norway was framed, and what alternatives the frame allows actors, I also hope to identify the elephant in the room of policy: the problems no-one wants to talk about.

However, such an analysis is not straight-forward, since policy framings are never explicitly mentioned. Thus, one must look at how technical and linguistic devices work to shape the thinking about the «electricity crisis» issue. To do so, Hajer's concept of a discourse coalition is useful, as it allows us to follow how catch-phrases and concepts unite disparate groupings in seeking policy outcomes. As much policy debate goes on in the columns of newspapers, the idea of a media package can be brought into the discussion. What better way to identify the ambitions of framings and discourse coalitions than to read it in their own words?

Discourse coalitions in an «electricity crisis»

Turning to the matter at hand, I shall analyse how the media debate around the appearance of an «electricity crisis» in the Mid-Norway region has unfolded in the last decade. The rest of this paper examines media articles about this crisis, selected among 341 such that appeared in regional and national newspapers in the period from 2001 to 2007. The articles were sampled from a national newspaper database, Retriever, by searching for different combinations of the terms «electricity crisis» and «Mid-Norway». I study how a potential problem was framed as

an acute crisis and what measures were proposed, in addition to looking for clues as to why this debate has continued after a decade of cries for action. I have limited myself to print media in order to make the sample manageable, but there is no specific reason to expect different results if other types of media had been included. The sample of articles should give a solid indication of general attitudes of public actors (industry representatives, politicians, environmental NGOs, etc.) towards the topic.

What does a typical discourse coalition look like, and how does it play out in a concrete policy issue setting? In order to advance their positions, coalition members utilise different strategies. With respect to the «electricity crisis», two strategies stood out. One was to advocate specific solutions to the problem, for example constructing gas plants, investing in new transfer capacity, or investing in new renewable energy. The other strategy was to blame someone for the problem in order to discredit political opponents. These strategies were utilised by three distinct discourse coalitions that I have dubbed the Gas Alliance, the Renewable Alliance and the Blame Alliance. These three categories do not represent every possible position in the debate, but rather the three dominant ones. It must be mentioned that a few actors tried to deny the existence of an «electricity crisis» altogether, but they were generally ignored in the debate.

The coding of articles was based on a content analysis of the different articles, being attentive to key concepts expressed in the text. In such a process, it is important to keep in mind that debate participants often take the opportunity to address several points in one article, for example by taking care to assign blame as an aside to arguing for gas plants. In such cases I have taken the liberty of assigning a «dominant» coding. With several hundred articles dealing with this issue it is impossible to quote every single one of them. The chosen quotes are illustrative of the main points of the debate, and reflect the different positions taken. All articles are publicly available in the Norwegian newspaper database Retriever. The starting point of 2001 is chosen as the first occurrence of the term «electricity crisis» reflects the emergence of a new discursive term, and the cut-off in 2007 is chosen in order to reduce the total amount of articles to a manageable size while still including the most active year, 2006.

Once the idea of an «electricity crisis» had taken hold in the public discourse around electricity prices in Norway, the different coalitions formed around different framings of the problem and its possible solutions. The most common coalition, the Gas Alliance, was already

identified by Næss (2008). It consisted mainly of a group of actors concerned for the future of the Norwegian gas industry, advocating the construction of more gas power plants. In opposition to this, the Renewable Alliance pushed for increased investment in renewable energy. The Blame Alliance were more focused on the attribution of blame to other actors, an interesting exercise in light of the fact that all but one party in the Norwegian Parliament had been part of a ruling coalition sometime during the decade.

As I shall show, the coalition categories were useful analytical tools to make sense of what otherwise appeared as a bewildering array of voices, commentaries and public opinion. In theory, such debates may develop along several lines and on several different levels simultaneously. An understanding of how coalitions work in tandem to produce a certain discourse is vital. Similarly, it is important to keep in mind the reflexive aspect of media discourse, where the actors take positions in relation and in response to each other. What is said in one article is picked up by other actors at a later point, becoming part of the discourse of a different coalition. This means that while the «electricity crisis» debate was dominated by different coalitions making use of distinct framings of the problem, I have chosen to let the account of how the debate unfolded have a linear form, so that the temporal dimension is maintained.

So how did the media debate about the «electricity crisis» of Mid-Norway unfold? The story can be divided into three stages: First came the rise of the Gas Alliance. Then the Renewable Alliance entered the fray, and finally, the Blame Alliance. The various discourse coalitions came into play one by one. The first one began by establishing the reality of a crisis and immediately pointing to gas power plants as the only realistic solution. The Renewable Alliance emerged when «green» politicians protested and argued that there were more sustainable ways to produce more electricity. After this, the debate increasingly turned into a blaming competition, with shifting actors taking the opportunity to attack political opponents for lack of action. In the following, I shall analyse the three stages in greater detail.

Stage 1: Arguing for gas

As mentioned initially, the idea of an «electricity crisis» surfaced in public debate in 2001. Politicians from the traditionally industry-friendly Labour Party were quick to frame the problem as a question of the need for more industrial development in the form of gas power plants. Industry picked up on the same note, immediately focusing on the more general

aspects of supply and demand. This can be seen in an article from 2002, where the CEO of local electricity utility Trondheim Energiverk, Jon Brandsar, claimed that «there is a real danger of a shortage in the supply of energy so severe that measures become necessary» (*Adresseavisen*, 28.05.2002). He said he hoped that the market would sort things out: «higher prices will normally mean lower consumption. But it is not possible to consume more than what is produced».

All of 2004 and 2005 were dominated by discussions around gas plants; their placement and whether there should be carbon capture and storage systems installed. One energy company wanted to build a gas power plant in inland Norway (*Teknisk Ukeblad*, 06.02.2004), another on the north-western coastline (*Adresseavisen* 14.02.2004). All but one of the articles in this two-year period cited actors insisting on the need for building a gas power plant. In all the first four years of the «electricity crisis» discussion, the issue was debated by the same actors at the national level that had been debating similar issues for some time already. This is, of course, not to say that the «electricity crisis» was a mere proxy for some other issue, but that it fitted nicely into a larger picture of worries over security of supply and interest in using Norwegian gas resources for purposes of industrial development. One good example occurred in July 2004. In what came to be a discussion between political parties, the Labour representative Sylvia Brustad said plans for a new gas plant were «very positive» (*Adresseavisen* 02.07.2004). She was joined by opposition politician Øyvind Vaksdal of the right-wing Progress Party, who stated that these plans were «fantastically good ideas [...] Finally we can escape the insanity of an energy nation like Norway having to import polluting power». On the other hand, environmentalist groups disagreed, and so did the Socialist Left Party [SV], represented by MP Hallgeir Langeland: «We strongly oppose polluting gas plants [...] The plans for Tjeldbergodden [one proposed location for a possible gas plant] entail a dramatic [emission] increase. We cannot accept this».

Perhaps surprisingly, it was not until August 2005 that the Mid-Norway «electricity crisis» became a matter of regional politics. A local member of the Labour Party, Jon Aasen, wanted to build a gas power plant as fast as possible, regardless of what central politicians might be bickering about. The lead paragraph started out briskly: «[The Labour Party] will not negotiate away a gas plant at Tjeldbergodden; that is out of the question!» (*Adresseavisen* 24.08.2005). This argument was followed up in the first sentence of the article's main text:

«There is no way we will give up this card. We will not be pressured by SV.» He was supported by Conservative Party member and mayor of a municipality where a proposed gas power plant would be located, Knut Baardset: «Statoil must get an answer to their application for Tjeldbergodden. Getting started is imperative.»

Later that year, a coalition of local mayors and industry representatives signed a petition to start constructing at least one gas plant in the Mid-Norway region, taking care to also underline the political nature of the situation: «This [lack of electricity] is not a situation that has suddenly occurred. It is the result of conscious political decisions over a period of several years» (*Adresseavisen* 19.11.2005). The coalition also tried to counter concerns regarding CO₂ emissions: «Even if gas plants are running in Norway without carbon capture and storage for a short period, the global emissions will go down. This is surely the most important issue?»

The year 2006 alone accounts for two thirds of the articles on the «electricity crisis» that I identified. Within the government coalition, gas power had turned out to be one of the most contentious issues in this period. Not only was there discussion whether it would be possible to construct gas power plants with carbon capture and storage, but one of the coalition members, SV, opposed the idea of such plants all together, regardless of their CO₂ handling. This led to several confrontations in the press, as in January 2006, when Centre Party [SP] MPs used the debate created by the petition mentioned above to put pressure on SV: «We want to build this country, not de-industrialise it because the previous government neglected the energy policy. Even SV must understand this», argued the mayor of Hemne municipality, Gunnar Hynne. SV's parliamentary leader Inge Ryan retorted: «In the government coalition we relate to what we have agreed upon in the government declaration. This declaration is something SP have to comment on [...] Right now the weather is wet and the reservoirs are full» (*Adresseavisen* 05.01.2006).

Some days later the parties restated their cases. Minister for Petroleum and Energy Odd Roger Enoksen (SP): «Mid-Norway needs more power production and increased transfer capability the coming years» (*Adresseavisen* 10.01.2006). «We don't like this pressure from the Centre Party», said local representative for SV Erling Outzen, while MP Bjørn Jacobsen argued that «SP are testing the limits of a political agreement, where the pain threshold is, when they press so hard locally. Right now there is a power surplus».

The Gas Alliance framed the «electricity crisis» as a need to build gas power plants in Mid-Norway. Further, the potential lack of electricity supply in the region was translated into a political issue of industrial development and jobs or environmental concerns, not energy policy. When governmental license is needed to construct such plans, it is due to laws regulating construction, established to allow democratic influence and considerations of sustainability. The media articles suggest that government could easily carry out the construction of gas power plant. In reality, they could only grant license, and it was private industry that would have to make the investment. With the development of the Gas Alliance we already see a potential stalemate, because electricity sector actors remain uncommitted. The Gas Alliance was an industrial - not an energy - alliance. Would an emphasis on renewable energy change this?

Stage 2: Renewable energy

Even with the dominance of the Gas Alliance discourse, main policy-makers wanted to keep all possibilities open. While it was a bit late in the coming, several alternatives to solving the problem with gas power were discussed. One of them was increasing investment in renewable energy. Initially, this was a solution centrally located politicians preferred, as it meant killing several birds with one stone: fulfilling renewable energy investment commitments, solving the «electricity crisis», addressing an issue very much in vogue at the time and creating jobs locally. The idea of renewable energy as a sort of omnitool was attractive for politicians looking to avoid gas plants.

January 2006 marks the first occasion where renewable energy is seen as a possible solution. In *Adresseavisen* January 17, Energy Minister Enoksen says that gas power alone cannot solve the «electricity crisis», and that one needs to pursue all avenues, making sure not to exclude gas power as an alternative. «In addition to improving the grid capacity, there are many projects both within wind and hydro power, distance heating and bio energy».

Given the threat of climate change it was to be expected that renewable energy would be promoted as a possible solution to the «electricity crisis». Soon, industry tried to sound out the possibility for government subsidies for renewables. In March 2006 the two largest local electricity producers, Nord-Trøndelag Elektrisitetsverk (NTE) and Trønderenergi, issued a joint statement about the need for government subsidies: «Now the government must remove all doubt about the will to stimulate for more renewable energy. How much is put aside for direct

investment support will decide the tempo of renewables development». Similarly, the government-owned energy utility Statkraft stated: «We see it as very hard to invest in new wind projects before we know what the government is willing to contribute [...] Today's subsidy regulations are not good enough for us» (*Adresseavisen* 01.03.2006). As an example of the attraction of subsidy schemes, some surprising actors entered. The Norwegian Farmers' Union complained that they have not been brought into the discussion of a future energy system: «It's not just gas that can solve a future energy deficit. Agriculture can to a large extent contribute through bio energy, wind power and mini and micro power plants» (*Adresseavisen* 13.03.2006).

At the same time, some government regulators were pushing for more investment in the electricity grid. At the end of January 2006 the owner of the Norwegian national electricity grid, Statnett, issued several press releases announcing the construction of new transfer lines into the region. Some of these projects turned out to be highly controversial, as the power lines in some cases were planned to pass directly through protected wilderness areas. In the summer of 2010, the debate over these lines flared up again, but as of yet they have not been built. Another measure they introduced was so-called energy option contracts, which allowed Statnett to order industry to halt production against compensation in order to release electricity into the grid. The contracts were voluntary for industry to accept, but several companies did.

The introduction of a push for renewable energy through the Renewable Alliance did not help much in terms of investments in such technologies. Less than 1% of Norwegian electricity comes from non-hydro renewable sources, and that level has not changed noticeably since 2005 (IEA 2010). To some extent, this outcome was due to uncertainties with respect to profitability of investments. As we have seen, some framed new renewable energy as climate mitigation as well as a solution to the Mid-Norway «electricity crisis», but this was not good enough. The electricity industry asked for better government support, which the government refused to give. On top of this, plans to improve the grid were not realised. The electricity policy stalemate continued. In light of this, it is not surprising that some actors turned to finger-pointing instead of fighting over solutions.

Stage 3: Blaming as strategy

It was first during 2006 that we observe a number of articles where one actor tried to lay the blame for the «electricity crisis» on someone else. While most of the blame was directed towards politicians for not taking action (or taking the wrong action), few actors were spared. February 17, Energy Minister Odd Roger Enoksen claimed that it was «not acceptable» to let Statnett, the national grid owner, divide the country into different pricing areas in order to let some parts of the country pay more for electricity. Centre Party MP Ola Borten Moe said that «a separate pricing area for Mid-Norway is a measure we cannot accept. Statnett needs to concentrate on solving the problems, and stop talking about the measures they want put in place if they can't solve them» (*Adresseavisen* 17.02.2006).

As the construction of several energy intensive industry facilities was a main cause of the electricity shortage, it was to be expected that some attention was given to industry's role. At a conference in January 2006, representatives of labour unions and industrial associations called for Statoil, owner of the energy demanding gas processing plant on the Mid-Norwegian coast line, to provide gas at reduced prices so that a gas plant could be commercially viable. «If the authorities voice the need strongly enough, and make sure gas plants are constructed, Statoil will just have to jump to it,» said the leader of the industrial association Norwegian Industry Stein Lier-Hansen (*Adresseavisen* 31.01.2006).

Minister for Petroleum and Energy Odd Roger Enoksen also had some unfinished business with industry. «I expect Hydro to enter the scene pretty fast to show they mean to solve the coming «electricity crisis» in Mid-Norway. Hydro are behind the construction both of the aluminium plant at Sunndalsøra and the Ormen Lange [gas processing plant] at Aukra. Hydro is also one of our most important producers of electricity» (*Adresseavisen* 18.02.2006). The same day *Adresseavisen* came up with what might be the catch phrase for the whole situation: «The region is in the process of getting the lead part in 'the story of a predicted crisis'» (*Adresseavisen* 18.02.2006).

As we have already seen, a major argument against gas power plants has been increased CO₂ emissions. To get around this, the Gas Alliance tried to gain acceptance for their solution to the «electricity crisis» by including carbon capture and storage (CCS) in gas power plant visions. Since CCS technology remains immature and not ready for large-scale implementation, some have proposed turning an eventual gas power plant into a test

installation to make Norway a leading nation within the field of CCS: «This is a win-win-win situation», said Conservative MP Ivar Kristiansen, «The climate wins, we solve the «electricity crisis» and we get the world's first and largest pilot project for CO₂ handling» (*Dagens Næringsliv* 09.03.2006). This all-in-one solution of a value chain of CO₂ is underscored in the media, once again accurately analysing the debate. *Adresseavisen* wrote in an editorial: «The oil business has managed to turn the entire CO₂ problem on its head: Greenhouse gases are transformed into a very valuable resource that contributes to extending the lifetime of fields like Draugen and Heidrun» (*Adresseavisen* 09.03.2006).

In March 2006, we find the first mention of building mobile gas plants without any kind of CO₂ handling. According to Centre Party MP Ola Borten Moe, «it is too late for long term and good measures to alleviate the situation. We need rapid response to avoid special prices and rationing» (*Adresseavisen* 14.03.2006). This idea would gain foothold among those counting themselves amongst the «realists» in the «electricity crisis» debate. However, the proposal sparked immediate protests from environmentalists. Leader of Friends of the Earth Norway Lars Haltbrekken responded: «Mobile gas plants are an environmental bomb, much more polluting than coal plants [...] This solution will be costly for both consumers and the environment. It also provides very little energy for the gas fed into the plant» (*Adresseavisen* 15.03.2006).

Nevertheless, in a committee hearing in Parliament the next day, Minister of Petroleum and Energy Odd Roger Enoksen did not dismiss the idea of mobile gas plants (*Adresseavisen* 16.03.2006). Some weeks later he confirmed this position: «Mobile gas plants are definitely not an attractive solution, but we now find ourselves in a situation in Mid-Norway that we cannot solve with the optimal long term solution. We need to take the possibilities that present quick solutions» (*Adresseavisen* 07.04.2006). A few weeks later, the national grid company Statnett was given the green light to construct two mobile gas plants without CO₂ handling. They were to be placed in the Mid-Norway region to counteract potential crises. Construction and final testing was not finished until the fall of 2008, and as of December 2010, the plants have still not been used.

Former Minister of Petroleum and Energy Marit Arnstad, from the Centre Party, partly took responsibility away from politicians by arguing that part of the problem lie with the energy bureaucracy: «What has Statnett and NVE [Norwegian Water Resources and Energy

Directorate] done and not done to prevent a possible «electricity crisis»? I find it positively strange that such public bodies make demands of the government when they themselves won't inform us of what they've done. These institutions have a separate responsibility to help us avoid a crisis.» (*Adresseavisen* 18.04.2006). She also provided an analysis of the debate: «I find that the discussion here in Mid-Norway is too dominated by proxy motives with politicians and enterprises. There is little doubt that the «electricity crisis» is now being used to push for a gas plant».

Even when the motives were clear, the underlying reality of an «electricity crisis» was not questioned. It is the framing of the crisis that is at stake, and the framing continues to be a controversial issue. The Gas Alliance struggled to become dominant but never quite made it, despite their inclusion of CCS to make gas power environmentally friendly. CCS technology developed too slowly to make the construction of gas power plants legitimate. Still, the national priority of CCS left new renewable technologies in the shadows, characterised as too expensive (Swensen 2010). The Renewable Alliance has yet to be able to persuade Government and industry to support large-scale investments in renewable energy in Mid-Norway.

The stalemate situation paved the way for what I called the Blame Alliance. This coalition produced a type of discourse centred on the distribution of blame, giving most of it to politicians. The electricity industry was surprisingly seldom taken to task, and the «electricity crisis» was never framed as a market failure. Politicians were criticized as passive, but nobody linked their inaction to deregulation. The discourse of the Blame Alliance was based on an understanding that supply of energy is a public responsibility and that government has regulatory power far beyond what the legal regime of electricity trading allows. The only branch government could use was Statnett, and as blaming arguments became more widespread Statnett was forced to act. First, to construct the two mobile gas power plants, and second, to start planning a development of the power grid to allow transfer of more power to the Mid-Norway region. To increase production, either by gas power plants or investments in new renewable energy, was beyond what the government could do.

Deregulated policy: much responsibility, few tools

The point of departure for this article was a question: what happens when a deregulated market for electricity faces a radical increase in demand? This is an important question

considering present concerns to reduce the dependence on fossil fuels. A transition to renewable energy and the goal of increasing the use of electricity in transport implies that the production of electricity has to grow substantially. Is a deregulated market system able to cope with such challenges? I have used a case study of the nearly decade-long «electricity crisis» in Mid-Norway to throw light on the issue is discussed. The crisis emerged when industrial developments led to a quick and large increase in the demand for electricity. How did electricity market actors as well as other stakeholder react?

I have used the ensuing media debate as the basis for analysing the perceptions of a possible crisis as well as what solutions that were proposed and how they were implemented – if at all. By employing the concept of media packages (Gamson and Modigliani 1989) and discourse coalitions (Hajer 1995), three such discourse coalitions were identified. They appeared at the stage one after the other. To begin with, the Gas Alliance dominated the scene with proposals to build gas power plants. Then entered the Renewable Alliance, arguing investments in new renewable energy, while when the Blame Alliance entered, they focused on whom to hold responsible that the crisis remained unresolved. The obvious question is why there was no closure of the debate. What may we learn from the fact that the controversy with respect to the supply of electricity could go on and on?

If we return to the framing of the supply deficit, we may begin by noticing how the quick establishing of the supply deficit as a sign of an «electricity crisis» in the region shows the success of a media package. It was adopted by all three discourse coalitions without questioning. This does not mean that the idea of a crisis was particularly strong. The reason that the crisis framing was universally accepted was that there was no competing framing to consider. Drawing on Callon's (1998) theory, the supply deficit in Mid-Norway suggests an overflow that should have challenged the conception of the deregulated electricity market as a well-functioning system. This market was supposed to lead to efficient resource allocation in investment, but no substantial investments happened as a response to the supply deficit. This is not due to slow governmental processing of permission applications. As of January 2011 permission has been granted for the construction of 3500 MW of wind power, yet only 450 MW has been constructed, with 140 MW more under construction⁶⁶. The two gas plants that have been constructed in Western Norway since the media debate, Kårstø in 2007 and

⁶⁶ According to industry organisation Energy Norway: <http://www.vindkraft.no/Default.aspx?ID=181> (read 06.04.2011).

Mongstad in 2009, are designed to produce electricity for local gas purification plants and do not solve the problem of transmission capacity to the Mid-Norway region. Actually, the media debate shows that this overflow has yet to be acknowledged by the actors. Neither is there any discussion of central premises of the market-based design of the current electricity system. Callon's other worlds have yet to proliferate.

What we observed was a debate that did not criticize the framing or the calculation practices of electricity market actors. Nor was there any debate about the question raised by Sandsmark (2009) about what would have been an appropriate level of public interference. There are clearly problems that no one wants to talk about. Instead, what issues were raised? A persistent feature of the debate was calls for political interventions, without any reflections on what policy tools were available. The government was asked to get gas power plants constructed, make available sufficient subsidies to stimulate investments in renewable energy – in short, get the problem solved. What slowly emerged as a response was a patchwork of temporary solutions that kept the lid on any major problems that might arise from the supply deficit situation. Measures included the construction of the mobile gas power plants, small scale upgrades of grid capacity and energy option contracts that allow the electricity bureaucracy to mildly intervene in the system when it threatens to derail. These solutions were Statnett's work, and show their crucial role in mediating between the market, public opinion and political governance. Statnett turned out to be the main tool available to politicians, although it seems they were fairly late in discovering this. This is not to say that Statnett's actions could not be seen as a success story, deftly balancing the inevitable conflict between an ideological commitment to deregulation and the outcomes it produces. However, it makes Sandsmark's point about the lack of public debate over this paradox a poignant one.

It also begs the question of the role of the different parties in the situation. Are we content with leaving vital infrastructure in the hands of a deregulated market, with occasional intervention from the bureaucracy? Even if it has so far managed the task well enough, the quotes above from the former Minister of Petroleum and Energy show a bureaucracy that might be difficult to control politically. This brings us to the observation of what could be seen as a major effect of deregulation: political impotence. As the market mechanism failed to produce incentives strong enough for continued investment in new electricity generation while demands went up, policy-makers found themselves unable to enact measures to remedy a

politically unsustainable situation. The result was a decade spent coming up with provisional solutions that fail to attack the root of the problem.

Why were politicians so passive? Since the question about the appropriate level of public interference was never asked, it is tempting to assume that policy-makers went through a process of learning not to interfere. This may be why they were so slow in discovering that Statnett potentially was a policy tool. Still, this tool does not solve the challenge of how to increase production of electricity.

Was the «electricity crisis» in Mid-Norway a special case? Will policy-makers in the long run find a way to stimulate market actors without intervening to re-regulate? The present case does not give grounds to answer these questions. It does, however, give grounds to raise them in the first place. Since the «electricity crisis» only faced a fairly small region, the problems may seemingly be solved by extending the grid to allow more import of electrical power. If the current political goals of electrifying the offshore facilities of Norway and substantially increasing the number of electric vehicles on the road are to be feasible, the pressing issue of providing substantially more renewable energy has to be dealt with more directly. The problem no one wanted to discuss with respect to the Mid-Norway «electricity crisis» may reappear in a more dramatic form in the future.

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