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New Dawn for Electricity?

EU Policy and the Changing Decision Space for Electricity Production in Sweden

a CANES Working Paper

Måns Nilsson

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mans.nilsson@sei.se

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Abstract

The European Union has taken an increasing interest in governing the energy sector in its Member States. However, EU still competes with national-level policies as well as sectoral organizational fields with sticky institutions, norms and knowledge. Therefore, despite its high ambitions in the energy field, for instance in the promotion of renewables and market reform, it is not clear whether the EU really exerts a strong influence, and if there is such an influence, the processes of influence and 'filtering' through to national political and industrial structures are not well understood. This paper examines a recent strategic change amongst national actors in Sweden in the energy sector; the decision space for investment in electricity. It examines the influence of European policy change, national political and policy change and organizational field-level developments on this decision space. It finds that European policy has rarely been very coercive, partly because Sweden has been a forerunner both on electricity market reform and renewable energy promotion, but that its influence is notable both directly through its emissions trading directive and more indirectly through signalling its intentions and long-term goals. Still, it appears that domestic developments, both cognitive and normative structures in the organizational field, and national policy change remain more instrumental determinants of the changed decision space.

Key Words

Energy, institutions, organization, EU, European, governance, electricity

Orders to:

Fridtjof Nansen Institute
Postboks 326
N-1326 Lysaker, Norway.

Tel: (47) 6711 1900
Fax: (47) 6711 1910
Email: post@fni.no
Internet: www.fni.no

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1 Introduction

Over the last 10-15 years, the EU has progressively enhanced its ambitions to influence how the energy sectors in its different Member States are governed. At the same time, the policy area has a strong national tradition, and policy styles, institutions and cultures in the sector stand strong, as do institutionalised ties between, for instance, national regulators and energy-producing industries. For instance, the attempts at harmonising policies for the promotion of renewable energy has been an explicit objective of the European Commission for at least a decade, but attempts at harmonisation have so far been unsuccessful (Nilsson et al., 2009). Therefore, despite its high ambitions in energy policy, it is not clear whether the EU really exerts a strong influence, and *if* there is such an influence, the processes of influence and 'filtering' through to Member State political and industrial structures are not well understood.

This paper studies the implications of European policy change on the energy-producing sector at the national level. The objective is to examine the respective roles of EU and national-level governance on industrial change but also to identify and discuss generic pathways and mechanisms of influence of European policy. The energy sector is an important case in this respect since it is central to very highly prioritised European policy agendas, including climate change, energy security and the liberalisation of the internal electricity and gas markets.

Although very little has been published about energy policy in the European-oriented political sciences, different strands of the generic literature offer leads into examining these processes. The framework in this paper is developed to address two important debates. One concerns the relative influence of European versus national policy on economic activities. Europeanization advocates suggest that as the EU 'integration project' is advancing, the European Commission in particular is exerting an ever-stronger influence, either directly or through Member State policies converging with European norms and strategies (Knill and Lenschow, 2005). Many analysts however contend this and argue that the Commission's stronghold that was witnessed in the 1990s is today significantly weakened, and Member State governments are turning against it – and override it (see eg the Economist, March 14 2009, p 32: *The European Commission…is adrift in this economic crisis*). A second important debate concerns different modes of governance and their relative effectiveness (Knill and Tosun, 2009; Schout and Jordan, 2008). Here, governance scholars have studied the Commission's shift from coercion to market-based governance and through to voluntary, information-based and network approaches and instruments. Also this shift is a matter of debate; although the intention of these softer mechanisms was to enhance policy effectiveness through better ownership, shared knowledge and dialogue, many analysts have concluded that these "softer" governance modes have been largely ineffective and advocate a return to regulatory standard-setting.

The record of EU influence on energy policy in Member States is indeed mixed, but a superficial look suggests that, on the whole, EU policy has

recently begun to cut more ice – in particular on the policy domains associated with the climate change agenda. This has occurred through different governance measures, ranging from coercion to voluntary and information-based approaches. The European Emissions Trading System (ETS), imposed as a binding directive in 2003 (CEC, 2003), has of course profoundly affected the market framework conditions across all Member States. Other policy developments such as the establishment of national frameworks for promoting renewable energy, such as tradable renewable energy certificates (TRECs – implemented in for instance Italy, UK and Sweden) were less directly linked, but there was nonetheless an informational connection to EU-level policy deliberations, which identified the need for certificates trading in the late 1990s (CEC, 1999). As regards goal-setting, broadly speaking, a few years back many countries set out national climate and energy goals and policies irrespective of what the EU decided, but more recent commitments on climate change mitigation and renewable energy have tended to be aligned with the EU requirements, suggesting that most Member States now follow the European agenda on policy targets as well as instruments rather than staking out its own course (CEC, 2008a). Adding to this trend, the ever-stronger embrace of energy and climate policy at the European level, and the top-level attention it nowadays receives at European Summits, it appears likely that current developments in national energy policies and systems will be quite strongly aligned with EU objectives and regulatory approaches.

This paper looks in-depth at systems change in the electricity production field in Sweden as a result of EU policy. Sweden can be considered a most-likely case, where we would expect to see strong correlation between EU policy and the development of the sector, for several reasons. First, Sweden has traditionally been swift and obedient when it comes to aligning domestic policies with EU requirements (Nilsson and Persson, 2008). Second, Swedish energy policy has also in the past correlated quite closely to European energy policy – although not necessarily in a causal way. For instance, in the 1990s, the deregulation of the electricity market in Sweden and the other Nordic countries was occurring in tandem with an increasing European internal market orientation (Midttun, 1996). Third, Sweden considers itself a leader in climate mitigation and renewable energy policy in a similar fashion as the EU overall. Fourth, Sweden operates in a competitive regional electricity market between the Nordic countries, which is today held up by the European Commission as a model for other parts of Europe (CEC, 2007b). The Nordic market creation was possibly inspired by an early European policy discourse but also in some ways leading the way for it. The 3rd internal market package, with ownership unbundling (the administrative and managerial separation between network operators and electricity producers to improve the conditions for competition), was presented in 2007 and has been hotly debated at the European level, but such unbundling was effectively implemented already in the early 1990s in Sweden.

The starting point of this paper is the substantiation of a notable development at the national level. This change, discussed in more detail in Section 3, concerns a strategic re-orientation during the last few years in the energy sector in Sweden. It appears that electricity expansion is

quickly moving up on the political and industrial agenda. Ambitious development plans have been set for wind power expansion, and both industries and politicians have declared an interest for and begun opening up the regulatory framework for the establishment of new nuclear reactors. Despite the economic crisis in 2008 and 2009, there are massive plans for investments in new production up to 2020.

Although it is too early to measure the actual investments – as they will unfold over the next decade – this paper is concerned with detecting the associated shift in the *decision space for investment in electricity production*. The decision space, explained in more detail below, can be understood as the field-level application of the company-level concept of investment opportunity. By decision space is thus meant the perceived attractiveness of investment at the sectoral field level.

If there indeed is a shift in the decision space for investment in electricity production, what might explain this shift? Several sets of factors in policy, markets and organization are potentially crucial. For instance, have decision makers taken on a different perspective and outlook for the future? Is this a question of responding to purely market-based changes, to new regulation or a shift in knowledge and norms? Is it a response to changes in European policy – such as the market packages, the ETS or the new renewable energy policy targets? Or is it related to national political change such as the change of government in 2006 or the implementation of new national support measures?

The next section introduces the analytical and theoretical departure points in more detail, and presents the research design. After this, the empirical analysis is presented in three sections. Section 3 examines the empirical evidence for the change in decision space. Section 4 analyzes the causes behind this reorientation. This explanatory part presents evidence from three different perspectives, and discusses to what extent they have played in to shape and drive the changing decision space for electricity investment. First, it looks at changes in organization, institutions, and cognitive and normative aspects in the energy-production field. Second, it looks at national policy and political change. Third, it looks at key developments in European policy since the late 1990s. Finally, it examines the potential role of three external factors; current and expected energy prices, demand projections, and technology cost developments. Section 5 discusses the findings. Section (5) sums up key findings and discusses what has been learned from the three perspectives respectively.

2 Analytical Framework

The framework draws upon new-institutionalism and European governance literature, and organises variables of interest to help identify important institutional relationships that may contribute to the apparent shift in decision space for electricity investments in Sweden. Primarily used as a heuristic aid, it however also allows positing against each other different explanatory perspectives.

The first part of the study concerns the analysis and substantiation of the dependent variable: to what extent and in what ways is there a change in

the decision space for investments in electricity supply in the Swedish energy system? From an organizational perspective, the investment space is principally constituted by the organizational decision-makers' interpretation of the long term viability of and returns on an investment. Decision space can be seen as the field-level equivalent, namely an aggregate measure of the perception of actors in the organizational field concerning the attractiveness of investment in a particular area or technology. As the concept of the decision space is capturing both a perception and is an aggregate concept, it is difficult to assign an absolute indicator. In this study, the change in decision space is traced through two main sets of indicators: first the investment plans of the major power companies (derived from annual reports, corporate communications and informant interviews), and second the aggregate supply and investment forecasts made by the Swedish Energy Agency (published every second year).

The second part of the study examines three alternative explanatory perspectives to account for the observed change in decision space. These are situated at multiple levels, from changes in European governance, through national political change and through to changes in the national organizational field.

Our central explanatory perspective is the *European governance* perspective. Its central expectation is firstly that changes in a domestic arena reflect and are related to institutional and policy change at the European level, including the regulations and directives deployed as well as more soft governance measures; and secondly that the level of change is contingent on the 'goodness of fit' (Börzel and Risse, 2000). In our study this perspective suggests that the change in decision space is first and foremost based on European energy and climate policy developments. Not least in view of Sweden's strong track record in implementing EU policy, and the growing attention to energy issues and supply security issues at the European level, it seems plausible that EU policy has been a primus motor on energy policy in Sweden. This part of the analysis traces how major EU climate and energy policies and directives have advanced over time. Furthermore, different mechanisms of influence are examined, by way of examining qualitatively responses, reactions, and interpretations among various actors in the national system. This is done through Swedish committee reports and bills that refer to EU policy change, and in the industrial system of how the industry is interpreting EU policy change, through interviews and published responses.

That European climate and energy policy shape the development of national energy production systems in any significant way can however also be contested, considering that apart from EU policies, there are of course also important influences in the national political systems, be it resource constraints, ideology, interest configurations or past experience (Howlett, 1991; Linder and Peters, 1989). Our second *national-political* perspective examines the change in decision space in relation to changes in national political system which from time to time operate in a mode largely independent from the European context (Olsen, 2002) as well as independent from private actors (Pierre, 2000). Changes in decision space could consequently be attributable to changes in interests and positions and who cuts the most ice in the national politics – for instance due to the

exit of influential politicians, changing political will and bargaining outcomes of the national parliament and elected government. A particular factor to examine is whether the shift from a Social Democratic government with green party support to a liberal-right coalition government in 2006 contributed to shaping the reorientation of the policy agenda. However, national policy and politics may also change as a result of policy-learning processes and new evidence, which may have caused shifts in preferences and subsequent strategic reorientations in the energy sector – fully or partly independent from EU policy change. This part of the analysis traces the national policy decisions over time and connects them to underlying political factors, primarily based on interviews and official responses to policy bills and committee reports.

The final explanatory perspective is the *organizational-field* perspective. Here the expectation is that the decision space will reflect the development of inter-organisational values and institutional logics translating into normative, cognitive and organizational changes in the energy production field.[1] This includes knowledge and perceptions about markets (such as expected returns on investments) and technology conditions (promising and future technologies); but cognitive and normative aspects such as norms and about 'what is good' and what objectives the organization has, what their business is about and what is important to achieve – its 'meaning'; as well as formal and informal rules that shape interactions within and between organizations. DiMaggio and Powell (1983) suggest that change patterns in a field are more likely than not patterns of 'institutional isomorphism'. This means that over time, as a result of actors strategically adjusting to and learning from each other, organizations within a field will come to resemble each other, based on a common set of norms and understandings, a process which is on-going regardless of external impulses. This part of the analysis traces field-level changes in a) norms and knowledge and b) organizational changes amongst major energy producers, analysts and business organizations. Data is primarily gathered from interviews[2], in which respondents were asked to identify and elaborate on the major sectoral or contextual changes and how they have impacted on activities and organisation.

To understand process of influence in more depth, different *mechanisms* for policy to shape outcomes should be discerned. Here, there are two main sets of analysis, the first being the European influence on Member State policy, and the second being the policy influence (European or national) on the decision space. The generic governance literature (Knill and Tosun, 2009; Peters, 1998; Scharpf, 1989; Treib et al., 2005) tends focus on the first set, and revolves around three basic mechanisms of influence. The first is through the provision of strict regulatory framework conditions such as bans and concessions, standards and norms. This may be referred to as hierarchical, coercive or *regulatory governance*. The second is through the design, modification or creation of markets that influence firm's and households investment and consumption decisions. This may be referred to as *market-based governance*. The third is through the provision of knowledge and norms, and procedures that may influence actor's perspectives, knowledges and values, what may be called *cognitive-normative* governance, which include the 'soft' modes of governance which have gained increasing

interest among both policy makers and academics in later years (Busch and Jörgens, 2005; Börzel, 2009; Knill and Lenschow, 2005).

How does one go about tracing the role of these mechanisms? Assessing market-based governance involves the identification of piecemeal development through industry simply responding to opportunities and investment situations and positioning to each other in a strategic and rational way. This can be captured by examining the effects of policies such as the EU-ETS. Capturing the influence of cognitive-normative governance involves identifying instances of organizational learning and reframing of central actors in the public and private spheres as a result either of EU or national political change. This may be captured in two ways: the first is to examine how central economic and political actors are articulating their positions in official communications, bills and reports. The second is to conduct respondent interviews that directly target the elicitation of perspectives and values and discuss whether they display a change over time. Marking the influence of the regulatory mechanism could be drawn from interviews but also from secondary data sources such as larger n-evaluation studies that have examined the correlation between regulatory standards and actor behaviour. Such evaluations are performed by for instance public agencies. In this paper, the examination of the mechanisms of European influence is done by qualitatively tracing how the four policy areas, including both their various coercive and binding elements as well as more cognitive or open mechanisms, have been realised in the Swedish context, and in what ways this may have contributed to a reinterpretation of previous electricity policy. This relies on testimony from policy makers as well as committee reports and other governmental publications concerned with the interpretation and implementation of EU policy.

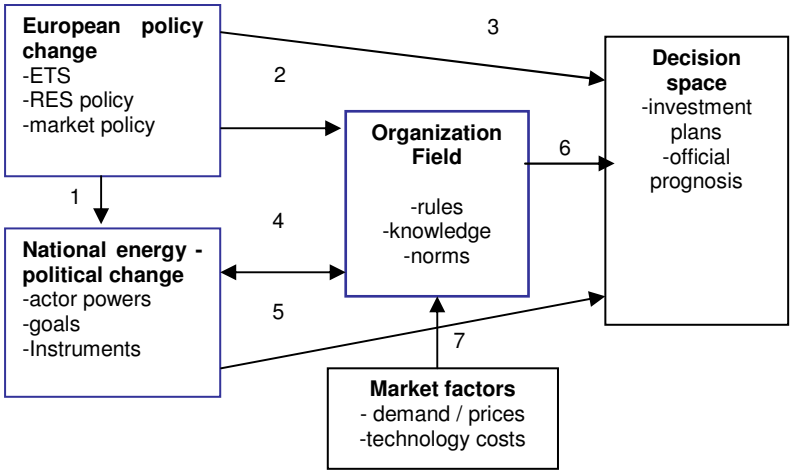


Figure 1 The Analytical Framework

Figure 1 is an attempt at visualising and summing up the analytical framework. EU policies such as the climate and energy package influence national energy-policy frameworks through coercion (forcing the implementation of ETS or establishing binding targets) or through more soft governance modes (1). It may also influence the cognitive and normative

structures within the organizational fields, through for instance communicating intentions, ideas and knowledge (2), and it may influence the decision space directly through signalling intentions or otherwise changing market signals (3). The national political framework affects the regulative, normative and cognitive structures of the organizational field through establishing formal and informal rules and norms for the sector (4). The national policy also affects the investment plans directly, by changing market signals through for instance taxes or instruments (6). The organizational field, developing partly endogenously, will also through its normative and cognitive structure, affect the investment plans (6). Finally, market drivers such as demand growth and price expectations, may affect the field, and investment decisions directly (7,8). Unpacking and examining separately these influences on the decision space will allow us to deduce information about the key factors behind the observed development.

The approach depends on tracing processes, reconstructing decision making, and detecting relationships that are highly complex and often motivated by multiple considerations, at both the levels of national policy making and investment planning (George and Bennett, 2004). The framework above is a very simplified representation of these complex processes. For instance, pathways of influences are often reciprocal in reality and several linkages are omitted in this study. Field-level actors for instance will naturally affect the national policy framework (and, to a lesser extent, the EU policy framework). Second, external drivers such as prices will not only affect the decision space directly but also over time affect national and European policy change. However, this influence falls outside the scope of this study. Nonetheless, it is possible to create a robust analysis by way of engaging in a process tracing that involves explicit articulation of data, the systematic collection and representation of these data in the results, and a clear logic to how the qualitative data is interpreted in view of the linkages between the dependent, intermediate and independent variables.

3 The Changing Decision Space for Electricity Investments

The changing decision space, i.e the interpretation of electricity investors in the sector overall, of the opportunities and outlook for new investments, is substantiated below through using the official systems development forecasts and the investment plans by the major electricity producers / associations.

As can be seen in Table 1, the installed capacity in Sweden overall has been relatively stable over the last 10 years. In other words, investments have been modest during this time period.

Table 1 Installed capacity (MW)

	1996	1998	2000	2002	2004	2006	2008
Hydropower	16 203	16 204	16 229	16 097	16 137	16 180	16 195
Windpower	105	174	241	339	442	580	1 021
Nuclear power	10 055	10 052	9 439	9 424	9 471	8 965	8 938
Other thermal	7 795	5 564	4 985	6 363	7 501	8 094	8 027
industrial CHP	*776*	*841*	*932*	*956*	*980*	*1 224*	*1 194*
** CHP*	*2 464*	*2 246*	*2 264*	*2 492*	*2 600*	*2 883*	*2 955*
** condensing power*	*2 842*	*846*	*448*	*1 356*	*2 298*	*2 298*	*2 271*
** gas turbines*	*1 713*	*1 631*	*1 341*	*1 559*	*1 623*	*1 600*	*1 607*
Total	34 158	31 994	30 894	32 223	33 551	33 819	34 181

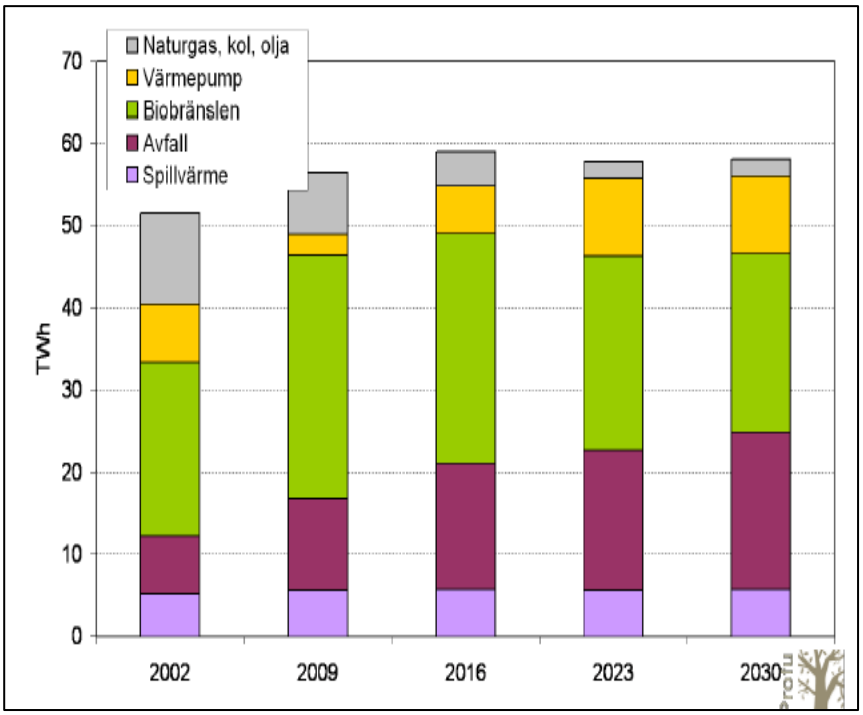
Source: Swedish Energy Agency

If we look at current official forecasts, however, the picture is now rapidly changing. The following production volume data shows this pattern clearly. At the aggregate level, production is today increasingly rapidly in both thermal combined heat and power (CHP), wind and nuclear, the total forecast is 156 TWH for 2010, and leading to export potential of up to 5% of total power production (Energimyndigheten, 2008b). CHP production was is increasing from 13,2 TWH in 2007 to 17,5 TWH in 2010. There are extensive existing plans for more CHP, both from biomass and waste incineration. Wind power production was 1,4 TWH in 2007 and is expected to increase to 3,4 TWh in 2010. Nuclear was 64,3 in 2007 and is expected to be 67,6 in 2009.

Looking at the company-level plans, E.On Sweden, who produced 30,7 TWh in 2008, plans to invest 58 Billion Skr between 2006-2013, which will lead to another 10 TWh of electricity into the Nordic system. Vattenfall, the major state-owned production company, who produced 90,7 TWh to the Nordic system in 2008, aims to enhance production by 17 TWh (normal year) from 2008 to 2011 (Vattenfall, 2009). Vattenfall has also established a target for windpower of 49 TWh by 2030. By contrast, their total renewable production (excluding old hydropower) increased from 0,73 TWh to 2,35 TWh between 2002 and 2008. Their investment budget for power and heat production for 2009-2013 is 158 billion SKr of which renewable investments are 54,3 Billion Skr. By contrast, in 1998 investments in power and heat production amounted to ca 0,900 Billion SKr. Also Swedenergy (the producers' association) fumes with investment optimism. It estimates 300 Billion Skr of investment in power generation and distribution in Sweden from 2008-2020 (Svensk Energi, 2008). There are implications of the economic recession which has depressed electricity prices during late 2008 and 2009 and made it harder to access capital for investments. However, sectoral experts have announced

that this will not affect the long term expansion plans (interview, industry association).

Figure 2 District heating development incl EU policy



Source: Profu

One interesting aspect is the relationship between investments in heating and in electricity, insofar as investor interest have shifted away from heating to electricity. In fact, production in district heating has fluctuated with the heating needs (depending on the weather) but has not shown any upward trend since 1995. The Energy Agency's short term forecast predicts a stable or slightly downward trend in district heating. The same is concluded by Profu's long term scenario (Figure 2). This provides a stark contrast with the scenario on electricity expansion.

Heating demand is also facing a meagre outlook as high prices and support measures are increasing the pace of introduction of efficiency enhancing measures. There is also a certain maturity in the systems and households have been frustrated with the monopolistic pricing. Electricity on the other hand is facing a growing demand in households. The increased use of appliances in households, such as multiple tv sets and computers has pushed up the use of electricity although prices are going up at the same time. Furthermore, the use of heat pumps, which increased exponentially over the last 10 years, has substituted electricity demand for heat demand.

Do market conditions explain the 'new dawn'?

The combined evidence points to a strongly enhanced decision space for electricity investment in Sweden. The first expectation is that this is a natural response to market opportunities. However, several respondents argue that when investment plans are combined, there is little realism for

it, since the demand is not there in the Nordic market, to absorb such volumes. As one of our respondents noted '*It just does not add up*' (interview, academic). Let us examine some basic market facts. Based on our interviews we have identified as key among these a) price developments of energy input and output in the sector, that is fuel, electricity and heat prices, b) demand developments, which in turn is relatively closely correlated to economic growth (keeping in mind de-coupling factors), but also changing demands for renewable energy products, and c) technology cost developments.

Demand developments

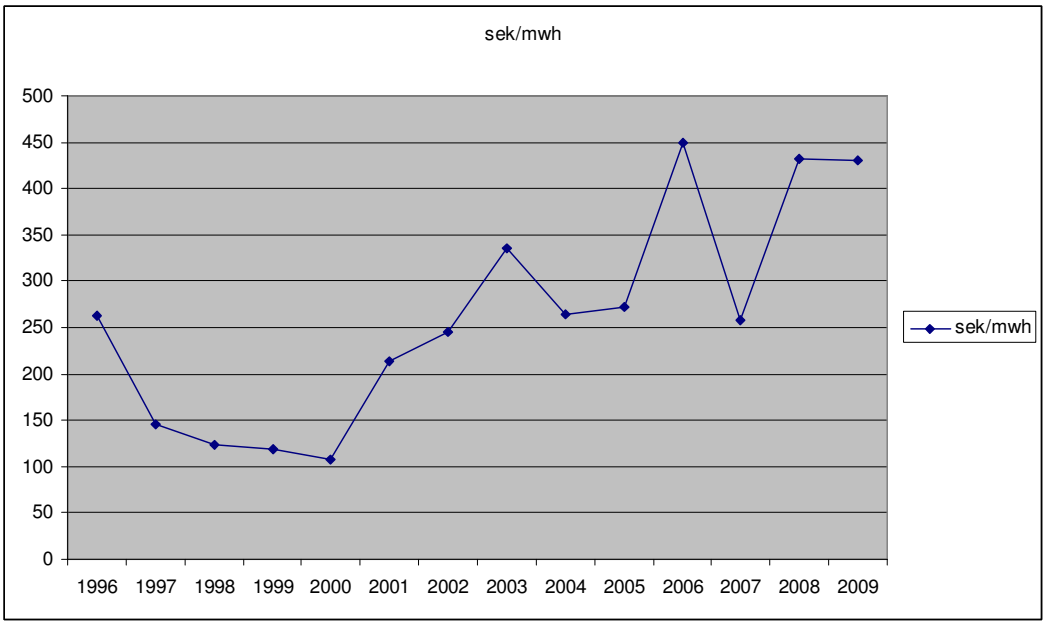
Do demand projections give reason for an expanded decision space for electricity investment? The Swedish Energy Agency's expectations on future demand developments are moderate in the short to medium term. The expectation is a near-zero growth in demand households. Also on electricity use in industry, the forecast give little reason for investor optimism. The recession of course amplifies this meagre demand projection. The longer-term discussions about demand are more optimistic, as they concern increasing energy needs overall, including the transition to electric and hybrid cars, and the fact that environmentally conscious consumers do not use less electricity (Elforsk, 2006). But by and large these demand developments do not account for a major increase. For instance Elforsk estimated that to cover the transport sector's climate goals through electric and hybrid vehicles will require only about 7% of current electricity production. The Nordic Energy Perspectives analysed a vision of 1,300,000 vehicles by 2020 and found that this would increase electricity demand by 1% but would fulfil 25% of the commitment of the non-trading sector.

Optimistic investors instead argue that the risk of entering a situation of over-supply (and collapsed prices) can be dismissed since the plans for international interconnections make it possible for Sweden to become a major exporter of climate-friendly electricity, an attractive scenario for business and politicians alike. The expansion of transmission capacity from the Nordic area to continental Europe could expand the customer base and demand by a significant amount. However, political and institutional barriers are slowing down transmission investments and the time lags in developing this capacity go way beyond the investment time frames for production capacity (Elforsk, 2009a).

Price developments

Expectations on future electricity prices are obviously critical for any investment calculus and therefore contributing to shaping the decision space for investment. However, over the last decade, electricity prices (Figure 3) have fluctuated significantly. Following the start of Nordpool, prices were relatively low. Certain 'dry-years' implied peaking prices, as the price closely followed the reservoir capacity of hydropower in Norway and Sweden.

Figure 3 Electricity price (Skr/MWh) on the Nordpool area between 1996 and 2009



Source: Nordpool

However, several underlying trends such as a) better transmission to European markets, b) household and industrial demand outgrowing supply, c) increasing supply costs for new installations, d) not prioritising necessary interconnections within the Nordic market, have shifted the price structure to what appears to be a permanently higher level: during the period from 2005 to 2008, electricity prices remained high despite well-filled reservoirs. This is clearly a strong aspect of the investor outlook, although fluctuations must be worrying. Thus, a long term realisation of high electricity prices underpins much of the investment expectations. However, at the same time, still current investment forecasts mean oversupply and a price push down in the absence of strong transmission capacity to the European market.

Technology cost developments

Finally, do estimates of technology cost developments give actors reason to expect strong cost reductions in for instance renewable or nuclear technologies? Current cost estimates for new installations actually point to the opposite. Recent estimates show that for instance biomass-fired CHP has become much more expensive, going up from 0.5 Skr to 0.96 öre per kWh from 2003 to 2008 (mid-size installation) in particular due to lack of competition amongst suppliers of these installations but also the fuel price (Energimyndigheten, 2008a). Estimates of the costs of nuclear installations have at least doubled over the same time period (Elforsk, 2009b). Also gas-fired cogeneration and off-shore wind have become much more expensive. An overall expansion of installed capacity internationally for in particular renewable electricity production is driving these scarcities through market conditions. Still, although technology costs for renewables and nuclear are often quite high the marginal pricing model

and the European goals assure investors that they will be profitable anyway – as costs can easily be passed on to consumers. Still, as one respondent noted, there may be flawed expectations about how much it actually costs to build new production capacity. Commenting on the 'BASEL' initiative of Swedish energy-intensive industries to invest in power production; '*I do not think the industry will invest when they see what it really costs […]. They will surely get the opportunity but I doubt if they are interested.*'

In sum, it is clear that the decision space for electricity investment has grown exponentially in the last couple of years and that this development is not motivated by market demand or relative prices. Section 4 drills deeper into organizational, political and institutional factors that may shed more light on the drivers behind the decision space.

4 Why This New Dawn? Three Explanatory Perspectives

Below I discuss, in turn, the role of organizational field developments, national political change and European governance in influencing the decision space. These should not be seen as competing but rather complementary perspectives. Nevertheless, the ensuing discussion will entail a crude assessment of their relative explanatory power. We shall start with the role of organizational field developments that are 'closest' to the decision space, and then move backwards in the framework, dealing in turn with national and European governance perspectives.

The role of organizational field developments

In what ways can the changing decision space be attributed to field-level changes in norms, cognition or institutional structure? Among our twenty respondents, all mention either climate change or market deregulation, or both, as the most important field-level developments in recent times. These have without a doubt fundamentally transformed the field in terms of, for instance, how it views itself, organizes itself and how it invests. Although these issues were on the agenda already in the late 1980s and early 1990s, developments, which may be characterised as processes of institutionalisation and integration, have continued in the 2000s. Below I will discuss how these processes have shaped change in the field and contributed to changing the decision space. Later on we will see whether and how they link up to European and national policy change.

Institutionalisation of the market orientation

The first major field development of interest was the fundamental reconstruction of the electricity sector in Sweden, like in many countries, from a centrally controlled state planning sector to a deregulated business market since the early 1990s (Kaijser, 2001; Nilsson, 2005). One of the initial concrete steps from the state was the unbundling of the ownership of the transmission grid from the power producing agency. The government then formed the two separate companies Svenska Kraftnät and Vattenfall AB. The transformation of Vattenfall to a state owned limited company

in 1991, and subsequent developments of the organization, led to a pure market-based business focus of both Vattenfall and its competitors. State-owned Vattenfall became an aggressive (and not always very popular) multinational corporation with strong business interests in for instance fossil power production in Germany, a constant point of contention in Swedish (and German) political debate.

One manifestation of this market orientation is how energy companies began to see themselves as driven by client demand. But the market orientation also carried with it some of the short-sightedness that the shareholder value paradigm has been accused of: '*What happened in the 1990s was that suddenly cost-efficiency was introduced – the customer. Noone had used the word customer before. That was good I must say, but the cost efficiency was very unfortunate. It stopped certain activities because they were not generating income. Maintenance was very much deprioritised, because of the market – investments were not made.*' (interview, academic)

Another major process was the restructuring of the sector in the late 1990s and early 2000s. This entailed on the one hand municipalities selling off their utilities and on the other a consolidation of the sector with mergers and acquisitions in particular by the three major players on the Swedish market Vattenfall (of Sweden), E.ON (of Germany) and Fortum (of Finland). Up to then, municipalities had had a considerable influence over the development of the energy production and distribution system. The engagement came through ownership of both production facilities for electricity and heat, and distribution networks. However, many municipalities split up their companies into production and distribution. This caused the number of municipal companies to grow from 235 in 1995 to 333 in 1996 (Palm, 2006). Eventually municipalities decided to sell their companies – up to 2002, 51 municipalities sold their grid and 100 sold their 'trade'. The underlying idea was that since electricity was now a deregulated business it was not for the municipalities to be involved in. (interview, government). Today, it is however clear that those municipalities that have retained the electricity production are keen to keep it also in the future: '*Noone wants to sell its power production today! The question is on what and how it is going to focus, are we going to sell services abroad? Are we going to run units in other cities?*' (interview, industry)

A third process was the creation and development of the common Nordic electricity market. The market started in 1997 between Sweden, Finland and Norway. Through the 'Nordpool' market place, electricity is traded through both spot prices and forward contracts. Thus, the major market-based structures and processes in the electricity production field were all initiated in the 1990s. The ensuing period from 1998 to 2008, can be characterised as an institutionalisation of this field development. Prominent politicians who actively worked against the market-orientation when the deregulation was set in motion, such as Birgitta Dahl (former Social Democrat Minister for the Environment) and Olof Johansson (former Centre party leader and Minister for the Environment), exited the political arena. Today there are very few voices that are fundamentally against the electricity market. Indeed, as one respondent notes, the market orientation has become Sweden's position also in the European cooperation: '*Sweden*

is something of a market fundamentalist in the European context' (interview, government)

In the second half of 2000s, a renewed criticism emerged, not against the principle of deregulation, but against the marginal price-based market functionality. The mechanism of marginal pricing of a uniform product, but where different production technologies have very different costs, have resulted in very large profits for those companies that own the low-cost facilities.[3] In particular energy-intensive industries (such as paper & pulp, steel, chemicals, and mining) have been vocal critics. This also led to organizational developments: energy-intensive industries (who collectively represent electricity use of 32 TWh per year) joined hands to form BASEL, a joint-venture initiative to 'vertically integrate' and secure affordable electricity to paper & pulp, steel, chemicals, and cement. They have also made announcements to build nuclear power. The purpose is to work through the Nordpool area to expand the supply of electricity – and to 'flatten' the supply curve on the market.[4]

The new market and its strong profitability have also driven another organizational field development. Although the three 'giants' still stand strong, there is now increasing competition and fragmentation of the actor landscape. New actors have emerged not least in renewable energy, including companies, consultancies and business associations such as Swebio, ETC El, Svensk Vind, and O2. Also, although many paper&pulp industries sold their power production following deregulation in the 1990s, this separation process is now in reverse and forest industry is getting back into power production (Ericsson et al., forthcoming). Thus, as the market orientation has settled, a wider actor configuration is now emerging – all with electricity investment as their main purpose, but with new technologies and new business models and missions. This organizational re-diversification – including new business models (an endogenous change) has contributed to widening the decision space.

Integration of the climate change agenda

The second major field development is the integration of climate change into the core of the energy field which has taken place since the early 2000s. That the relationship of the energy sector to climate change has been changing dramatically not just in Sweden. The gradual normative acceptance of climate change by industries and politicians was documented in policy processes in Sweden from the early 1990s up to 2005 (Nilsson, 2006). Engström et al (2008) showed the proliferation of climate change in governmental energy bills from 1997 to 2005, and how this also crowded out and lead to less focus on other environmental objectives of importance, such as land use, air pollution and landscape. Our industry respondents in all major companies agree that the climate change issue is, together with the deregulation, the major field change over the last two decades.

It is notable, however, that the large industrial players were slow in embracing climate change as part of their reality and as a business opportunity. In the early to mid 2000s, Vattenfall's low profile and level of ambition on climate change was criticized by politicians and NGOs. A

debate ensued that Vattenfall's owners (the government) did not provide guidelines or instructions to the company, and in particular did not instruct it to act according to Swedish policy intentions as regards climate change (Riksrevisionen, 2004). In the last five-six years, rhetoric has however changed quite dramatically, and since 2006 Vattenfall pursues, at least on paper, a vigorous climate vision. The other two giants, E.ON and Fortum, were even slower to adopt the climate change agenda, and did not really act concertedly on it until around 2005-2006 (interview, industry). This slow reaction signals strong path-dependencies in the field: if nothing else, the European emissions trading system (ETS), as well as the certificate system for renewable energy in Sweden demonstrated in very direct ways that policymakers intended to make climate mitigation profitable (see below).

Immediately linked to the mitigation of climate change were the strategies for bioresource-based alternatives, and in particular the agricultural lands and forests as key providers of sustainable energy. This strategic orientation was particularly strong during the Social Democratic leader Göran Persson's time as Prime Minister (1996-2006). Mr. Persson's interest in forestry and agriculture shaped both his overall outlook and his particular take on energy policy (Bergström, 2004). The clearest manifestation of this is the internationally noted 'Oil Commission' which set out to develop a plan for how to phase out fossil fuels in Sweden by 2020 (Kommissionen mot Oljeberoende, 2006). To some degree, this normative orientation towards land and forest played against the field-level decision space in electricity during the Persson rule up to 2006 (see also next section). It represented a partly alternative pathway and vision for how Sweden would cope with future energy demand.[5]

In addition to enhancing the profitability of climate-neutral energy technologies, the climate change policy agenda played into changing the decision space for electricity investment in another way. Starting at around 2006, electricity, including the nuclear type, was increasingly being advocated for in view of its potential for resolving the climate issue in the transport sector. In particular the interest in electrical and hybrid vehicles has exploded – and to many decision makers this looks increasingly attractive compared with both the first and second generation of liquid biofuels (interview, government). In this way, the climate change agenda contributed to a more positive overall perception of electricity in general. As will be seen now, this became part of a larger normative reframing process.

Normative reframing of electricity as a product

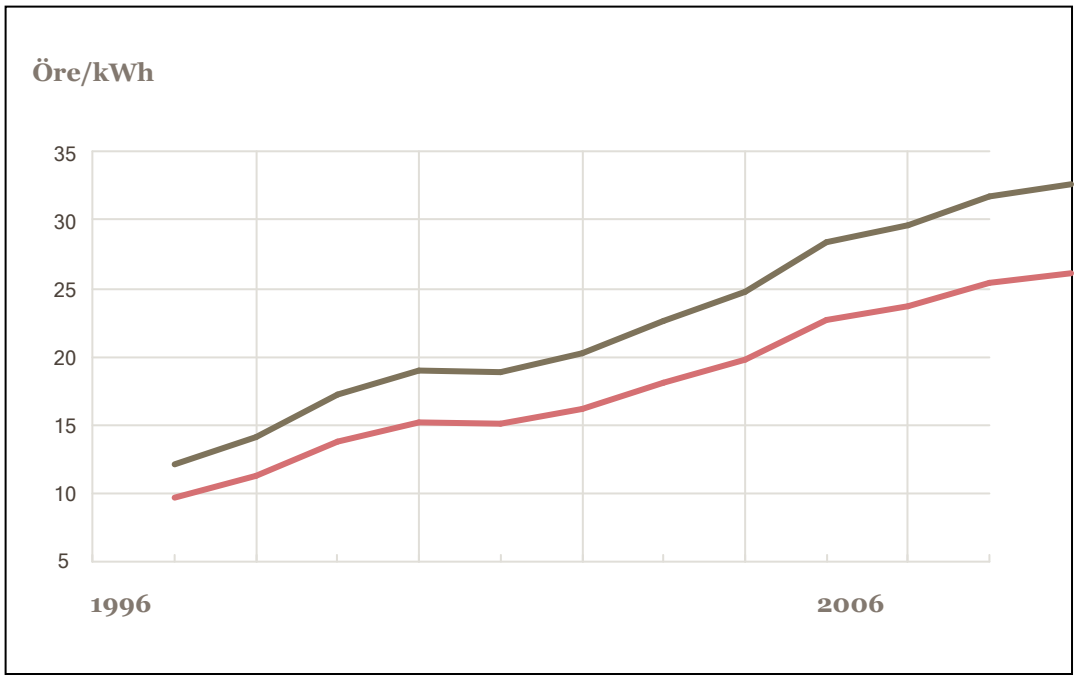
The third important field development, closely linked to the previous two, is the normative reframing of electricity from a problem to a solution which has taken place in the second half of the 2000s. Up to then, a pronounced sceptical attitude, both among analysts and politicians towards electricity was articulated in the debate. A strong rhetoric about the electricity as something nasty and inappropriate was not uncommon. '*Electricity was something ugly, it was wasteful in the production and one should have a wood stove instead.*' *No, there I think the necessity and possibility*

of electricity have been accepted. No journalists today write anything against electricity. We had that before' (interview, government).

Also energy systems analysts wanted to reduce electricity dependence, as it was seen as an inappropriate and wasteful form of energy from a thermodynamic perspective. As one respondent noted, it was generally seen as '*Thermodynamically criminal to use electricity for heating*' (interview, government). Policy analysts followed suit: the normal analytical approach to judge electricity use in for instance life cycle assessments was to consider the marginal power to be Danish coal power (the marginal source in the Nordic electricity market area). This is now widely considered to be an inappropriate methodological approach (Elforsk, 2009c).

Governmental policy also followed suit: to act upon the lingering commitment to phase-out nuclear power (made in 1980 after a referendum) governments for a long time pursued policies to reduce electricity demand by for instance substituting with individual home boilers or district heating expansions. Electricity was also 'punished' through taxation in the green tax shifting implemented between 1998 and 2006. In the green tax shift, designed to substitute labour taxation for environmental taxation, electricity taxes were substantially raised (see Figure 4 and further below).

Figure 4 The electricity tax for households from 1996 to 2006, with and without value added tax



Source: www.ekonomifakta.se

Thus, electricity somehow became the symbol in both rhetoric and policy action for all environmental problems, However, the collective view on electricity then shifted. Today, the consideration of electricity as an inappropriate technology which permeated much of the energy political

debate over the 1990s has dissolved, and more and more positive things are now being said about electricity, by politicians, NGOs as well as energy systems analysts (Börjesson, 2009). And the analytical approach to always look at coal power has been abandoned in policy analysis (Elforsk, 2009c). Bo Källstrand, former head of Swedenergy, sees '*…a change of attitude – electricity used to be the bad guy, now it is often seen as an opportunity for climate-efficient energy), and the future roll of electricity as the saviour of the transport-climate problem*' (interview, 2008) Many of our respondents confirm this; '*I think the recognition has grown that electricity as an energy carrier is the solution, a key part of the technological solution to sustainable development (…) That electricity is not waste, but that it is the key (…)I think this has spread very much. Today I think even the utilities know it, but they were slow in noticing this change. They were(…) traumatized by the nuclear issue instead of looking ahead*' (interview, government)

Summing up, there appears to be a widespread shift in the view on electricity from being inefficient and dirty to a rather neutral carrier of energy. This shift permeates the field from the companies, to the politicians, to the media, to the clients and through to the different interest groups that advocate their concerns in the policy process. The field has become more institutionalized through a more profound common acceptance of the goals across commercial and political actors – this goes for climate change and for market orientation alike. This has positively contributed to the decision space for electricity investments as it has carried with it a de-politicization of the field: unlike twenty years ago, energy policy is not today a contentious issue, the political stakes are lower, the tone about 'good versus evil' is gone, and there is a relatively stable consensus across actors in the field about the sector's objectives and challenges.

The role of national political and policy change

In what ways have national political developments contributed to changing the decision space for electricity investment? It should here first be noted that the overarching energy-political goals in Sweden have been quite stable for a long time. They can be divided into energy market policy and sustainable energy policy. Market policy is concerned with the efficient and reliable markets for electricity, gas and heat. On electricity, the goal is explicitly to enhance the functioning of the Nordic electricity market. Sustainable energy policy is concerned with health, safety and environmental protection, and the promotion of renewable energy. As shown in, eg, Nilsson (2005) these two policy areas have developed relatively independently, although there are connections. For instance, the market policy has certainly influenced the ways in which support for renewable energy sources are pursued. Still, although overarching policy objectives have been stable, developments have been taking place as well. Below, three distinct phases of Swedish energy policy over the last 12 years are identified and discussed separately.

Phase 1: the Centre and Social Democrat deal 1996-2001

The first phase, from 1996 to 2001, had its political base in the Centre-Social Democratic energy-political agreement in 1996 and ensuing bill in 1997 (Prop, 1996/97:84), which included a decision on the closure of two nuclear reactors, R&D and investment support for renewable energy. Also, it introduced a relatively radical discourse and vision about a transformation of the energy system. Prime Minister Göran Person took charge of and led this agreement with Centre party which set the direction for the coming years. The government decided that to implement the transition of the Swedish energy system required its own public agency, and so the Swedish Energy Agency was created (in 1998).

Nuclear power was to be decommissioned, and a law was created about closure (Prop, 1996/97:176). With costly compensation to owners, two plants were closed. To compensate the power shortage, the government decided on a range of policy decisions to actively discourage electricity. This included the green tax shift discussed above which focused on substituting environmental taxation for employment taxation. Not least the Ministry of Finance Ministry was keen to operationalise the environmental tax part through electricity taxation – because it is easy to administer and is a relatively stable revenue source. The government also raised the carbon tax from 0,37 Skr/kg CO_2 to 0,91 Skr/kg CO_2 (in 2000) and subsidised the phasing out of electricity-based heating systems (Energimyndigheten, 2006). For instance, a government subsidy was given for home owners installing a furnace for biomass.

It is clear that the national policy during the first phase of Persson-Johansson energy policy rule (1996-2001) suppressed the interest in investing in new electricity production. The combined effects of these policies, although they were primarily geared to enable the nuclear closure, were not exactly fuelling investor interest in new electricity production – quite the contrary. Furthermore, although the Nordic electricity market was in full swing from 1998, national policies such as tax on combined heat and power production created distortions on the Nordic market, and these actively discouraged investments by shifting production to for instance Denmark. (interview, industry)

Phase 2: Tuning the instruments to EU and markets

A second phase can be discerned from around 2001 to 2006. In political terms, it was very much continuing on the decided path in the previous phase, and the C-S agreement was still underpinning it (Prop, 2001/02: 143). However, it also had some distinct differences, primarily in terms of developing and better tuning policy instruments to the new market context. After the Nordic electricity market was put in motion in 1998, the taxation instrument worked much less efficiently and caused carbon leakage (SOU, 2003:38). The perception in Sweden grew about the need for market-based instruments that did not lead to carbon leakage. In 2002, the government also proposed a change in the CHP taxation (in the budget bill 2002). This was implemented in 2004.

Most importantly, a powerful market-based instrument to promote the introduction of renewables was introduced, which was immune to carbon leakage and competitiveness losses, namely the green certificates trading system. Under this scheme, distributors are required to obtain a certain quota of renewable electricity in their mix. Producers obtain certificates for their renewable production which can be sold separately. The system was presented in a separate bill (Prop, 2002/03:40) and started working in 2004. It grew to be the key influence on the decision space for investment since its introduction. As it is disconnected from the government budget it is was also perceived as relatively stable over time, compared to for instance government subsidies, in relation to the Ministry of Finance's quest for budget cuts. (interview, industry association)

In 2002, the first comprehensive climate-policy bill was presented (Prop, 2001/02: 55). It was relatively weak in terms of instruments but introduced a tougher target than the EU had committed Sweden for (-4 instead of +4%) and as such it surely signalled the Swedes' willingness to go a step further in the climate commitments than the international commitments. Additional policies that continued to boost the sector in general included the implementation of the EU's emissions trading system (ETS) in 2004 (Prop, 2003/04:132); an enhancement of the certificate system in March 2006, extending the time horizon and putting the target at 17TWh by 2016 (Prop., 2005/06: 154). and a windpower bill adopted in June 2006 with the aim to facilitate wind power planning (Prop, 2005/06:143).

This first half of the 2000s was thus marked by on the one hand ambitious domestic developments and on the other hand increasing attention to, and pressure to implement, European policies. The period from 2001 to 2006 may be considered a less active ideological stance politically – basically adapting instruments to fit the market deregulation and EU policy, and innovating to improve the instruments. Sweden had together with its Nordic neighbours already been a forerunner in deregulation and now took a lead also in market-based promotion of renewables and energy efficiency, both key priorities of the European Commission. The electricity sector was now subject to international competition and deregulation, and the policy instrument restricted to the market-compatible certificate system. As the strongly ideological political discourse that was the basis for the C-S agreement, gave way to a more technocratic and EU-implementation-based political process, things opened up considerably, although still following the basic terms of reference laid out in 1997, which laid out that renewable energy, and in particular biomass-based CHP was prioritised. With the help of certificates, investments took place, but primarily for converting existing boilers. Relatively little expansion of overall capacity took place, as we have already seen.

Phase 3: Furthering EU rules and a new turn on nuclear

A government change occurred in 2006, and a Liberal-Centre-Right coalition government was installed. The ministerial and political responsibility for industry, energy and environmental issues was given to the Centre party. This party had of course been part of running the energy policy already for 10 years, through it collaboration on energy issues with

the Social Democrats, but under Maud Olofsson's leadership, the Centre positioned itself much more clearly on the liberal side. First there was not much movement in energy policy, although climate change quickly became a key priority for the government. In fact, energy policy, or at least nuclear policy was decided as one of the areas where the new coalition government would *not* make any advances. In particular, there would be no discussions on the unresolved nuclear issue during 2006-2010, so as not too upset the Centre party organization, which to a large degree still had strong negative sentiments against nuclear. Instead, at first the new government took to fine tune and continue to implement the previous policy.

In February 2009 however a substantive policy change was suddenly, and unexpectedly, signalled. The coalition government reached an agreement to lift the ban on nuclear, and allowing for the planning for new nuclear to replace old reactors. Industry greeted with great enthusiasm the agreement and the political move of the Centre party as a historical moment, marking the end of over 30 years of Centre party resistance to nuclear and national political stalemate – 'the nuclear trauma' as many called it. Others saw it as a natural evolution: nuclear had slowly become increasingly attractive to politicians has the climate change issue become more and more the main concern in the energy sector. Although green NGOs, the green and left parties, and many analysts remained sceptical, it changed the playing field quickly.

Apart from the nuclear issue, the energy bill presented in March 2009 essentially continued the previous government's policy, with a strong focus on efficiency and certificates-based promotion of renewable energy, extending the programme to 2020 and increasing the quota obligation to 25 TWh by 2020. (Prop, 2008/09:163) Adding to the high electricity prices, industry was thrilled at this political signal. Now much more electricity was demanded to be produced and sold. The opposition parties complained about the new nuclear stance, but the critique was rather weak. Because much of energy policy was now based on the European initiative of the Climate & Energy Package of 2008 (CEC, 2008b), energy policy was more of a technical issue of implementation. This started already in Phase 2 when it became clear that differences between the major political parties were relatively minor, and the direction set out for market development and sustainability were widely embraced from the Conservatives to the Greens. This was a very different situation from the 1980s and 1990s which was coloured by confrontation and conflict in the energy policy arena (primarily on the nuclear issue).

This depoliticization of the energy field was further amplified after the government shift to through a broader governance change – namely how appointments in government are made. The new government set out to change the recruitment procedure for governmental management positions, moving from political appointments to transparent competition based on merit and advertised positions. One respondent clearly saw this contributing to field change: '*New agency heads (Swedish EPA, Svenska Kraftnät, Energimyndigheten, Elsäkerhetsmyndigheten), are now PhDs and engineers and this has changed the climate. We see the difference in*

the political discussion. Not so many uninformed politicians – it is really an expert issue. The knowledge level is increasing…'

Together with the certificate system, this depoliticisation of the energy issue emerges a significant factor for explaining the changing decision space. There has in this process been a consolidating and strengthening push towards renewable electricity but also gradually more positive signals to nuclear. This inspires increasing trust among commercial actors that the investment climate is stable – the general perception of our respondents is that there will be no major changes in energy policy changes as a consequence of shifting majorities in the parliament, although there are key uncertainties within the Social Democrats and their now closely collaborating parties the Greens and the Socialists.

The role of European climate and energy policy

In what ways can we attribute the changing decision space to European policy? In the following analysis I focus on the three EU policy areas that respondents identified as the most important for their activities: the Emissions Trading System (ETS), the promotion of renewable sources of energy (RES), and the internal market policy.

ETS

The European ETS was put in place in the emissions trading directive of 2003 (CEC, 2003) and the pilot phase was carried out between 2005 and 2007. It is continuing through a second trading period from 2008 to 2012, and the EU's Green package adopted in December 2008 lays the foundation for Period 3 up to 2015 and beyond. The ETS is a so-called 'cap-and-trade' instrument through which emissions rights are allocated to industries that are required to have them in order to emit greenhouse gas emissions. These can then be traded on a market: those industries that manage reduce their emissions below their allocated allowance can sell their surplus at market price to industries that need allowances. Up to 2012, the ETS covers two main sectors, the power producers and the energy-intensive industries. Sweden has implemented ETS as a binding directive, but also revised other instruments such as taxation in light of the implementation of the ETS.

The impact of ETS on the electricity prices has been clear[6], and of course changes the investment calculus of electricity industry and the decision space for investments accordingly. The effect of the EU ETS is to shift the whole marginal cost curve upwards and generating so-called wind-fall profits for many utilities (Wettestad, 2008). However, our interview materials suggest that the role of the ETS also had a more cognitive and normative dimension. First, a strong cognitive development occurred through the political preparation processes for the implementation of ETS. Two governmental inquiries were carried out to prepare for the implementation of the ETS (SOU, 2003:60, 2003:120). Both regulators and industries actively participated in and contributed to this knowledge gathering. Earlier analysis has demonstrated that these processes significantly contributed to a learning process among industrial actors and a stronger integration overall of climate concerns into the energy sector

(Nilsson, 2006). Secondly, as many respondents have noted, the ETS directive had a normative mechanism as well. It demonstrated unequivocally that the European regulators were firmly committed to mitigate greenhouse gas emissions in the energy sector, that it intended to be a leader in this agenda globally, and that it was no longer a meaningful option among industries to maintain a 'climate-sceptical' attitude (interview, industry).

Renewable energy policy

EU renewable policy more or less started in 1997 with a White Paper (CEC, 1997) which led to the first RES directive in 2001 (CEC, 2001b). In the White Paper and the preparation of first directive, the Commission tried to push for the development of a harmonised European instrument and their preference was clearly on some type of certificate-based system (Lauber, 2007). However, many powerful Member States had already set in place, or was in the process of setting up, their own support schemes based on Feed-In Tariffs (FIT) and they strongly resisted harmonisation (Nilsson et al., 2009). Therefore, renewable policy remained a national affair although countries were allocated indicative targets.

After a few years, a breakthrough in both climate and energy policy was made in Spring 2007, when the European Council agreed on the '202020' targets, entailing 20% improvements in climate change mitigation, renewable energy production, and energy efficiency by 2020. The Council requested the Commission to deliver a policy package with details about instruments and targets. In December 2008, the second RES directive, as part of this package, was adopted. Again, the Commission had tried to push for harmonisation through a proposed system of trading in Guarantees of Origin. However also this attempt was overturned by Member States and no harmonisation was achieved. The second RES directive instead focuses on national targets for renewable energy overall. The target for Sweden is to increase its share of renewable energy from 40% to 49% in 2020. This target has been mimicked in Sweden's 2009 energy bill (50%). Whether or not Sweden would adopt a similar target in absence of the RES directive is a counterfactual with no clear answer. However, it should be noted first that Sweden's policies have tended to become before the European ones. The increase in renewable energy was put in motion already through the introduction of the CO2 tax in 1990, which markedly decreased the use of fossil fuels in for instance district heating (Energimyndigheten, 2006). The share of renewable energy, today the highest of all member states, increased significantly between 1990 and 2006, from 33,9% to 43,3 % (out of these 43,3%, 18 percentage points are from electricity production and 6 from district heating). Second, the EU still has not devised a harmonised instrument to support RES, although the Commission would much like to see an EU wide certificate system of the kind the Swedes have put in place in 2003. The Commission may have exerted a normative influence from early signals about the preference for trading instruments (CEC, 1999; Åstrand, 2005). However, none of our respondents can identify a strong link from the Swedish development of the certificate system to the European processes.

Although the influence of the EU RES policy, given Sweden's forerunner position, appears relatively weak, today's close alignment of Sweden's RES targets to EU targets suggests an increasing influence, however first and foremost of a cognitive and normative character: the EU setting targets for RES creates spaces for national policy making, and industrial actors see that meeting the (now binding) targets will require investments in renewable production (ca 25 TWh of wind and CHP) as well as balancing power and transmission, reforms of the permitting process and an extension of the certificates system. Indeed much of this was decided on in the 2009 bill, where the electricity within the certificate system is enhanced to 25 TWh by 2020, compared to 6,5 TWh in 2002. (By 2007 it was up to 13,3 TWh.) (Prop, 2008/09:163)

EU's internal market packages on electricity

The European internal market agenda was set in motion in the 1990s, and are today underpinning the European Treaty as a whole. Market-reform policies have been gradually introduced, starting in the mid 1990s and continuing up to today, with the presentation of the 1st, 2nd and 3rd energy market packages, along with guidelines for what types of state aid is allowed (CEC, 2001a). The 1st package, in 1996, included provisions on 'third party access' entitling a limited number of high volume gas and electricity consumers to freely shift suppliers (European Parliament and Council of the European Union, 1996). The second, 2003, package demanded of Member States to set up regulatory agencies (European Parliament and Council of the European Union, 2003). The third package, presented in 2007, asked for independency of these from the government and industry, so called 'unbundling'. (CEC, 2007a)

Have these directives had any significant effects on the decision space for electricity investments in Sweden? First, it is hard to argue for any regulatory mechanism at play. Like on RES policy, because Sweden has been so swift in reforming the domestic energy sector, in terms of for instance unbundling and creating the Nordic spot market, European policy making have rarely been very coercive. Sweden unbundled its power companies already in 1992, whereas the corresponding European rule emerged in 2007. Similarly, the freedom to shift suppliers was institutionalised for all Swedish consumers already in the 1990s.

It appears, again, that the influence of the European internal market has been more cognitive and normative. The European Commission has been a driving force for the market-norm that it should under a generic policy framework be left to the market to deliver on the policy goals. Sweden's policy officials as well as industrial actors have fully adopted this view and it has obviously shaped the development of the certificate system, as well as driven the development of the market reforms in the Nordic system. However, this market norm was not unique to the EU but part of a much broader wave of ideology that originated during the Reagan/ Thatcher era in the 1980s. The normative influence was also reciprocal, as Sweden after its entry into the EU has been an ardent liberal advocate within the Council, a position it has backed up together with Nordic colleagues through proactive action domestically. Thus, the Nordic countries developed the Nordic electricity market much as a model of reform for the rest of the EU.

5 Discussion and Conclusions

There is a markedly enhanced decision space for investments in electricity production. Investment plans at the company level and forecasts at the national level have taken a massive leap over the last few years. In a deregulated market context, the decision space for investment is primarily driven by expected profitability on the investment. Indeed, the very deregulation of the market and its marginal cost-based pricing mechanism generates large profits for the electricity industry and has made electricity a more valuable good than it used to be. Still, the marked change in decision space is somewhat puzzling since neither the formal energy-political agenda nor the outlook on future market conditions has changed that much. Factors such as demand (stable), price developments (sharply fluctuating) and technology (input) cost developments (increasing) give relatively little ground for investor optimism. And transmission grids that would motivate the massive investments on commercial grounds are far from secured and distant in time.

To explain this shift, this paper has examined changes in three arenas; cognitive and normative changes in the national organizational field; political and policy change at the national level, and policy change at the EU level. Starting with the *organizational field*, three major field-level developments stand out. The first one is the institutionalisation of the transition to a market-based logic. The late 1990s contained a period of change as the impacts of deregulation kicked in, then followed a stage of consolidation in the early 2000s, but now it appears to be splitting open again, with many new actors entering and seizing market opportunities. The second one is the integration of the climate change issue as a central aspect of the energy sector, and the overarching problem to be resolved. This has contributed to re-evaluate old positions taken before this threat became understood, such as on nuclear. Third, and linked to the climate change integration, there have been norm changes in the way field actors perceive electricity and its role in society. It is clear that the negative view on electricity that proliferated through the 1980s and 1990s has eroded over the last five years and a more neutral or even positive value has emerged. All these field-level developments are linked and have positively affected the decision space.

Closely linked to these changes of cognitive and normative character, are changes in a *national politics and policy*. The shift in government in 2006 appears in itself to be rather marginal in terms of impact, since the new government did not present a new energy or climate policy until March 2009. But as already noted, over the last years, energy policy has become much more stable, depoliticised and consensus-based, which has increased investor confidence and perceptions of future stability, in particular compared with ten years earlier. When the 1996 energy-political agreement between the Social Democrats and the Centre Party set the stage for nuclear phase-out, converging from electricity to individual house boilers, and development of alternative energy sources, the industry had ‘7 years of famine’ for electricity investment from 1997 to 2003. At the same time as nuclear was being closed down, effective support schemes for alternatives were not put in place until years later. It is clear that the certificate system put in place 2003 has been, and continues to be,

the key influence on the decision space for investment at the national level. This was developed nationally, possibly inspired by but certainly not directed by the European Commission. Investor confidence has been positively affected by all these developments: decision makers perceive these shifts as positive for business and reducing the political risk which has previously permeated the sector.

The role of changes in *European governance* is diffuse and broad. Because Sweden has been a forerunner in policy issues both on market reform and RES promotion, the influence has rarely been very coercive. However, the cognitive influence appears strong. Swedish governments have adopted ideas about market reform and green certificates from the Commission and have implemented them in Sweden long before the rest of Europe. Furthermore the effect of EU policy on market conditions has been profound. In particular the ETS has directly affected the price of electricity, and made it more profitable to invest as well as enhanced the scarcity value of the non-fossil types of electricity that dominate the Swedish system. But EU targets have also impacted markets by instigating a sharp increase in demand for RES installations, which reshapes the supplier market internationally and increases investment costs.

The role of EU in shaping national policy is clear when examining the relationship between the EU's Climate and Energy Package and the 2009 energy policy bill. For instance, the biofuels target of 10% and the RES target of 50% correlate with the EU commitments. However, the counterfactual situation – what that bill would have looked like without EU policy, might not be very different. As noted, the strongest European influence on national policy is predominantly of a cognitive and normative character, although such influences tend to be much harder to trace. Literature on governance and policy coordination (Jordan and Schout, 2006; Peters, 1998) has highlighted the importance of non-coercive mechanisms, the role of 'soft power' and 'open methods of coordination', and how ideas may spread vertically and horizontally through cognitive and communicative processes (Busch and Jörgens, 2005).

Our interviews reveal that EU policy exerts a profound influence directly onto the industrial field actors as well. For instance, investors have changed their outlooks about what the political system 'wants' in the long term, not least through looking at the European policy developments, including the goal setting for RES, the climate mitigation agenda overall, and the further market enhancements. The referral to the EU as an overarching authority permeates most of our data. '*The EU said we must do this so we did…*' For instance, although interconnections have not yet materialised (and will likely take decades to build) many investors appear to count on their promise for Sweden to become a major exporter of non-fossil electricity.

Perhaps most importantly, the emergence of a strong European policy in the field of energy since the early 2000s appears to have contributed to depoliticising the issue at the national level. Nationally, energy policy making has shifted from political bargaining with strong ideological undertones, to debates about how to most efficiently implement and adapt policies adopted elsewhere, making energy policy a technicality more

than a real political issue in the traditional sense. This has made it easier to develop broad agreements and positions, and decreasing the political risk for investors that conditions will change dramatically when there are shifts in majority in parliament. That Europe contributes to such a depoliticization may be an overlooked mechanism of europeanization.

To summarise, all three perspectives examined provide insights on processes driving the "new dawn". An attempt at assigning some relative value of importance is difficult – instead the perspectives complement each other and are highly connected in both direct and in more subtle ways. It is clear that the electricity production field being transformed to a market place with a uniform product is highly sensitive to market signals and market-based mechanisms of governance. These have been activitated at both European (ETS) and national (green certificates) levels. Along with the market mechanism of ETS, the dominant mechanisms of EU policy appear to be cognitive and normative. However, national field level and policy changes appear to have remained the most important determinants in the examined time period. These have include the institutionalisation of the market orientation, the climate change agenda, and the more positive normative view upon electricity as a product (all of which are highly connected), along with the creation of the certificate system. The shaping of perceptions and preferences of both suppliers and clients may be a pathway and mechanism for governance that is more important than what the current policy frameworks at national and European levels suggest.

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[1] The field, initially put forth by French philosopher and sociologist Pierre Bourdieu, constitutes an intermediate level between society and organizations. According to DiMaggio and Powell (1991) fields are structured around stable interactions between organizations, including patterns of domination and coalition building between organizations, exchanges of knowledge and information, and mutual awareness building up around common topics, such as an economic sector or particular product categories. The organizational field actors are boundedly rational and self-serving actors that engage in strategic interactions to advance their own position and objectives – be it in a market or in a political field Fligstein, N., 2008. Theory and Methods for the Study of Strategic Action Fields. paper presented for the 'Institutional Development and Change' Conference, July 16-19, 2008, Chicago, Il..

[2] The total number of interviews was 22, and it covered energy producing industries (12), industry associations (4) academic expertise (2), and government agencies (4). References and citations are anonymous and referrals are only made to these four categories.

[3] For instance, Vattenfall's profits have soared in recent years, from around 12 billion in 2002 to 25-30 billion per year in 2006-2008 Vattenfall, 2009. Annual Report 2008. Vattenfall AB, Stockholm..

[4] BASEL (Basindustrin's elektricitetsbolag), was created in 2004-05 with the purpose to deliver more power. Initially, the idea was to add 10 TWH into the system, but they changed strategy in 2006 and instead formulated the mission as being to own power production in some form. BASEL consists of 22 companies, and Industrikraft, a subsidiary with the mission to develop nuclear power reactor in Sweden, is owned by 5 companies. The change in strategy was because the planned volume addition in power would not affect the price more than margin-

ally. What matters, according to BASEL, is the ability to own and use the resource.

[5] The enthusiasm of the Oil Commission for intensifying forestry and increasing outtake for energy has however been tempered in face of evidence of the difficult trade offs and limited overall potentials for instance biofuels and biomass.

[6] At a price of 23 EUR/tonne (2005), the price effect has been ca 10 EUR/ MWh.

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Fridtjof Nansens vei 17, P.O. Box 326, NO-1326 Lysaker, Norway
Phone: (47) 67 11 19 00 – Fax: (47) 67 11 19 10 – E-mail: post@fni.no
Website: www.fni.no