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<http://www.tandfonline.com/doi/full/10.1080/09644016.2012.692936>

The constrained influence of discourses: the case of Norwegian climate policy

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Abstract:

Norwegian climate policy has been marked by several shifts with regard to adopted targets and measures to reduce emissions of greenhouse gases. Three knowledge-based discourses – respectively a tax discourse, a quota discourse and a technology discourse – have been influential throughout. By tracing the development of Norwegian climate policy from 1989 until 2008, it is shown, however, that while significant in early phases of policy-making, the discourses lose influence in the phase when policy solutions are designed and implemented. Those ideas and ambitions which characterize the ruling discourses in Norwegian climate policy are not necessarily materialized in actual policy.

Key words:

Norway, climate policy, discourses, taxes, emissions trading, technology

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Introduction

Here I analyse the development and influence of knowledge-based discourses on Norwegian climate policy. Discourses are claimed to cause specific policy outcomes by generating political ideas and hence actions (Hajer and Versteeg 2005, Schmidt 2008). By tracing the development of Norwegian climate policy, I show, however, that while they may be influential in early phases of policy-making, discourses lose influence in the phase when policy solutions are designed and implemented, with the result that the ideas and ambitions that characterize the prevailing discourses in Norwegian climate policy are not necessarily reflected in actual policy.

Norwegian climate policy has been marked by several shifts with regard to adopted climate targets and measures to reduce emissions of greenhouse gases (GHG). I expose the development of three ruling discourses which are embedded in distinct knowledge-bases throughout this process – respectively a tax discourse, a quota discourse and a technological discourse. Norway started as a forerunner, as one of the first countries to adopt a target for CO₂-emissions reductions, which was subsequently expected to be fulfilled through economic measures, firstly green taxes and later emissions trading. In recent years, however, the political focus has gradually shifted towards technological solutions. By tracing the design and implementation of the discursively promoted measures, the analysis further exposes how the realizations of the chosen measures diverge from the premises inherent in the ruling discourses on key issues. As such, the case of Norwegian climate policy illustrates the *constrained* influence of discourses as the issue has been dominated by discourses whose effect on actual climate policy has been restricted.

Previous research have addressed *specific parts* of Norwegian climate policy, such as CO₂-taxes (Kasa 2000), the gas debate (Hovden og Lindseth 2004, Tjernshaugen 2007), carbon capture and storage (Tjernshaugen 2010) and political actors (Gullberg and Skodvin 2011), or they are more *comprehensive* studies of the climate policy-making process (Bolstad 1993, Sydnes 1996, Reitan 1998, Nilsen 2001, Andresen and Butenschøn 2001). This article contributes to the existing literature on Norwegian climate policy by the focus on ruling discourses and their epistemic basis. Further, it covers a more comprehensive period (1989 - 2008). Throughout this period an extensive climate policy has developed, integrating climate concerns in a number of related policy areas. Here, however, I focus only on measures initiated for climate concerns.

The use of discourse analysis

My analytical point of departure is that policy-making is embedded in broader discursive processes. Discourses are shared ways of apprehending the world (Dryzek 2005). Based on Foucault (1972) discourse analysis then refers to the relationship of language to other social processes, which affects the construction of the world. In policy studies the use of discourse analysis is linked to the ‘argumentative turn’ of policy analysis and planning (Fischer and Forester 1993), which depicts policy-making as discursive struggles over problem definitions and their framings as well as their underlying ideas. Subsequently these create shared interpretations of the world which guide actor’s actions. Hence, discourses are expected to take effect by shaping “(...) what can and cannot be thought, delimit the range of policy options and thereby serve as precursors to policy outcomes” (Hajer and Versteeg 2005, p. 178). As such, discourses may limit the choice of alternatives available to policy-makers and influence their preferences for certain solutions over others. Analyses of discourses is then regarded as an appropriate way to illuminate how certain definitions and interpretations of problems and solutions gain influence not just through linguistic practices but also by being embedded in power/knowledge relations which form a social framework through which ideas are converted into political realities. As a method, it is therefore applied to “(...) illuminate the social and cognitive basis of the way in which problems are constructed” (Hajer 1995, p. 15).

As a point of departure to capture the key discourses in Norwegian climate policy, I trace the measures which are debated and subsequently transformed into policy. Attention is further directed at specific elements, recognized as indicators of discourses, which are formative of how the discourses are developed and applied. The indicators are inspired by the tools introduced by Dryzek (2005) for analyses on environmental discourses, but are adjusted to the case study in question.¹ Firstly, the discourses differ with regard to how the problem of reducing GHG-emissions is interpreted and hence *defined*, both as an environmental issue and a political problem. This is closely interlinked with the *framing* of the problem according to contextual factors, which includes the linkage of the climate issue to other policy areas. These questions are decisive to the specific strategies and policy instruments presented as feasible *solutions* to the problem. To expose the discursive character inherent in these indicators

¹ Whereas Dryzek analyses environmental discourses independently of the national and political areas, I am concerned only with discourses limited to Norwegian climate policy.

arguments used to authorize the problem solution as well as *key terms* or concepts which characterize the discourse are emphasized. Finally, the *knowledge-base* of the discourses is analyzed as an input to the indicators, taking into account how discourses are dependent on an epistemic base activated by experts.

Table 1: Summary of the indicators used to identify the discourses

Indicators of discourses:	<i>Problem definition</i>	<i>Contextual framing of the problem</i>	<i>Problem solution</i>	<i>Legitimizing arguments/key concepts</i>	<i>Knowledge-base</i>
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A ‘green beauty contest’ arriving on a stabilization target

In 1989, Norway was the first country to set a concrete target to reduce CO₂ emissions: CO₂ emissions should be stabilized at the 1989 level by 2000. Furthermore, Norway should be a pusher for the establishment of a climate regime. In doing so, Norway simultaneously recognized global warming as caused by anthropogenic GHG emissions. The parliamentary debate before passing the stabilization target has been described as a “green beauty contest” (Brundtland 1998). Representatives overbid each other with stronger targets, and claims varied from the Labour Party’s stabilization target to the Centre party’s 50% cut of CO₂-emissions by 2000. Looking at the arguments behind the various claims, however, reveals how they were coupled with a comprehensive view on the causes of the problem and how they should be solved and hence as prolongations of underlying discourses about the climate issue.

The Labour Party and the Conservative Party adopted what they claimed to be a ‘realistic’ approach by advocating a market approach to the handling of the climate problem. The assertion was that economic growth could stimulate green consumption (Aftenposten 1989a, 1989b). As such, they called for continued growth, but with a renewed content, and for an activation of the market economy in the service of environmental protection. Their approach equaled the Brundtland Report (WCED 1987) which stressed the interdependence rather than the incompatibility between economic growth and environmental protection. The report was a key document in promoting ‘ecological modernization’ (Hajer 1995, p. 26), a discourse which “recognizes the structural character of the environmental problematique but nonetheless assumes that existing political, economic and social institutions can internalize care for

environment” (ibid, p. 25). In consequence, it assesses a positive-sum game between economy and ecology, claiming that pollution prevention pays (Reitan 1998).

The Socialist Left Party and the Centre Party rather stressed the urgency of the climate problem, which they coupled with a claim for changed social structures. “It is a matter of our basis of existence” said the leader of the Centre Party (Aftenposten 1989c), and argued for a politics which prioritises environmental concerns over economic growth. The Socialist Left Party went even further, and called for a new economic system where the market had to adapt to politics, and not vice versa (Aftenposten 1989d). Both parties blamed the free trade, capitalist system valuation of economic growth above the environment, and the general overconsumption of the industrial world. This line of arguing is inspired by green radical thoughts which recognize ecological limits and a political responsibility for greening social and political institutions (Dryzek 2005).

But when it came to the question of concrete measures to fulfill their targets, all parties called for environmental taxes, an instrument which couples market mechanisms with political regulations. Hence, although the overall debate illustrated diverging interpretations of the climate issue and a vast gap in proposed CO₂ targets, there appeared to be political agreement² on taxes as the preferred policy instrument (Reitan 2001). Accordingly, when promoting solutions to the problems, the political establishment turned to common answers. This indicates that politicians derived their practical solutions from a shared discourse which narrowed the range of feasible alternatives of measures to reduce GHG emissions. Hence, unless a measure could live up to the inherent criteria for validation in the discourse it would not be accepted as a likely solution to the problem. Within this discourse, *taxes* were prescribed as the salient solution to emissions reductions.

An expert induced tax discourse

The *tax discourse* is derived from economic rationalism, which makes use of market mechanisms to achieve public ends in a cost-efficient way (Dryzek 2005). The climate problem is interpreted as an external effect of otherwise rational actions, and GHG-emissions must accordingly be priced to be taken into consideration when rational actors choose among alternative actions. The practical solution is to extend the existing institutional system by introducing taxes as a quasi-market instrument which provides incentives to stimulate

² Except the Progress Party which denied anthropogenic climate change.

behavior in a 'green' direction. The authority of the tax discourse in Norway was indeed confirmed with the introduction of a CO₂ tax on oil and gasoline in the national budget for 1991. Norway was by then the first country in the world to introduce a CO₂ tax – with little political controversy attached to it. Soon after, a tax on mineral oil was introduced, and at the close of 1991 the tax also comprised installations in the North Sea.

Environmental taxation had been applied on only a few issues previously (Kasa 2000), whereas regulatory instruments³ formed the main policy response to environmental problems until then. The economic rationale approach, materialized in the carbon tax, therefore represented a break with rather than a prolongation of existing environmental policy in Norway (Reitan 2001). Hence, rather than benefit from present policy legacies pointing towards regulations, climate policy was established as a new policy field based on a tax logic. So why did Norwegian politicians dismiss formerly applied policy instruments, and push for cost-efficiency materialized in a CO₂ tax regime? How did the tax discourse gain such an exclusive influence at this early stage?

Past studies (Sydnes 1996, Andresen and Butenschøn 2001) have pointed to the tension between Norway's green leadership ambitions and its role as an oil producer to explain the direction of Norwegian climate policy. However, what is striking when looking at political debates in 1989 is how climate policy was mainly coupled to the challenges it would bring upon the transport sector and fear of job losses caused by higher energy prices (Bolstad 1993) rather than emissions caused by the oil industry. According to Nilsen (2001, p. 4) an important feature of early Norwegian climate politics was in fact the scant attention paid to the conflict between Norway as an oil producing country and its drive to be a pusher on climate policy.

Throughout the 1980s monetarist, supply-side policies gained popularity at the expense of Keynesianism in Norwegian economic orthodoxy (Tranøy, cited in Kasa 2000). Concurrently, regulatory measures were met with criticism for being ineffective and costly. These trends influenced environmental policy in Norway as well: "Investigating the option of environmental taxation was a direct response to the combined drive for environmental protection and post-Keynesian economic solutions among the top echelons of Norwegian economists" (Kasa 2000, p. 106). Hence, *cost-efficiency* became, so to say, the gold standard

³ The rationale behind regulatory instruments is to use the *law* as a "stick" to prescribe/prevent certain types of behavior.

whereby measures were evaluated. This highlights how the preference for economic measures emerged as a discourse formed around taxes in climate policy debates. However, discourses are not just connected concepts floating around. They are embedded in networks of social relations (Litfin 1994) forming the framework of the policy-making processes. In the case of the uptake of the tax discourse in 1989, the detailed arguments were provided by epistemic communities outside the political setting.

In Norway, when preparing for domestic steps to cut CO₂ emissions, the government turned to Statistics Norway (SSB) – ordering a “(...) professional evaluation of the possibilities of the combination of industrial growth and claims on emissions of pollutants and different conditions for energy supply” (SSB 1989, p. 5, my translation). The assignment was given to economists who treated natural and fiscal resources as equivalent assets (Nilsen 2001), a perception embraced by economic rationalism. Their work resulted in the SIMEN-report (SSB 1989) which became the common reference in subsequent climate policy debates as it was the only macro-economic research report on the consequences of a Norwegian climate regime. As such, it served as a scientific gatekeeper in the decision-making process on legitimate measures in climate policy-making. The report analyzed the possibility of combining an ambitious environmental policy with economic growth. Emissions were portrayed as external effects of actor behavior and consequently taxes were promoted as the proper measure to cut emissions, presuming that they would make it rational to reduce the consumption of fossil fuels:

[t]he decision-makers in the economy must be directed to take into account the disadvantages they indirectly bring upon others in the form of pollution (...). Increased use of environmental taxes will urge consumers and producers to take into account such indirect consequences (SSB 1989, p. 27, author's translation).

The quote is representative of the rationale behind standard economic approaches to environmental problems. Nature is subordinate to human activities, and is only taken into account insofar as it causes inconvenience to human society. To make nature count to *homo economicus*, nature must to be given a price in the form of taxes (Dryzek 2005).

The SIMEN-report concluded that a comprehensive shift towards CO₂-taxation on fossil fuel consumption could stabilize CO₂-emissions at the 1987 level by 2000, and that this was compatible with continued economic growth. Hence, the report contributed to limit the scope for serious *alternative* proposals on climate targets coupled with measures to reduce

emissions, as only supporters of a stabilization target fulfilled through CO₂ taxation could legitimize their arguments with expert conclusions. Further, the report contributed to strengthen the influence of the tax discourse by arguing in line with its premises derived from economic rationalism – with the general support for CO₂ taxes as the most evident outcome. Hence, although the basic ideas behind economic rationalism were not embraced by the entire political spectrum, it appeared as if the policy offspring of the discourse – a target fulfilled through a CO₂ tax – emerged as the only feasible policy option.

However, the CO₂ tax has not been substantially extended after the inclusion of offshore industry in 1991. Hence, one of the theoretical premises for a cost-efficient CO₂ taxation – a full inclusion of all CO₂ emissions in a comprehensive tax regime which ensures that all sectors in the economy face the same price incentive and hence the same marginal abatement cost – has not been implemented in Norwegian climate policy (Gullberg and Skodvin 2011).

The final rejection of a cost-efficient implementation of the CO₂ tax was realized by the Norwegian Green Tax Commission (NGTC) in 1996. Instead of demonstrating a fulfilled materialization of the tax discourse as anticipated, the Commission embodied the anticlimax for taxes as a measure to cut GHG-emissions. The NGTC was assigned to report on how taxes could be used both to increase employment and to secure the environment by replacing taxes on work with taxes on emissions. The majority of the commission argued in line with “(...) central principles of economic theory” (NGTC, 1996, p. 164) and proposed a *flat rate* CO₂ tax without exemptions for particular industries⁴, arguing that this was the optimal use of the measure (NGTC 1996, p. 47). Such an extensive measure was further justified by the need to appear as a trustworthy pusher in the negotiations on an international climate agreement. However, the proposals from the NGTC were never converted into binding policy (Kasa 2000). The report was debated in the parliament in June 1998 (NMoF 1998), simultaneously as a report to the parliament on Norway’s follow-up of the Kyoto-protocol (NMoE 1998). But instead of implementing a comprehensive flat rate CO₂ tax as proposed, the parliament overruled advice from the experts - and in effect the tax discourse - when it decided that industries not yet subjected to the CO₂ tax should instead be included in a *national* system for tradable emission quotas while awaiting the establishment of an *international* quota system (StgCoEE 1998).

⁴ The minority, consisting of representatives from industry and the Labor Organization, argued for continued exemptions.

Climate quotas – until then a theoretical model – had become a feasible alternative to taxes as the Kyoto-protocol opened for flexible measures⁵ to fulfill obligations under the protocol. One of the countries most eagerly pushing in international climate negotiations for a flexible regime had been Norway. So how did Norway move from being a pusher of taxes – the first country to implement a CO₂ tax – to become a pusher of tradable climate quotas at the expense of effective CO₂ taxation? The key to the answer is found in the adoption of *international cost-efficiency* which in effect changed the Norwegian discourse on how GHG-emissions were to be cut. Essentially, the term opened for a rejection of both the national stabilization target as well as the measure expected to fulfill it – national CO₂ taxes.

Table 2. Summary of the tax discourse

	<i>Problem definition</i>	<i>Contextual framing of the problem</i>	<i>Problem solution</i>	<i>Legitimizing arguments/key concepts</i>	<i>Knowledge-base</i>
<i>Tax discourse</i>	Consumer and producer behaviour; external effects	Employment; transport	Green taxes	National cost-efficiency; unify environmental and economic interests	(National) economics

Finale of the tax discourse – prelude to the quota discourse

After passing the stabilization target in 1989, the process to form an overall climate policy commenced. As a first step, an Inter-Ministerial Working Group (IMWG) was established to report on feasible measures to fulfill the stabilization target and to prepare Norwegian participation in forthcoming international climate negotiations. The group attained a key impact on Norwegian climate policy as it recommended the introduction of cost-efficiency across both sectors and emissions, and even more importantly cost-efficiency *across nations* as a guiding principle – arguing that global problems require international solutions:

The climate strategy should be cost-efficient across nations. Because the climate problem is of global character the harmful effect of emissions is independent of where they take place. To achieve cost-efficiency emissions reductions should take place where costs are lowest, and they should not be tied by national borders (IMWG 1991, p. 9, author's translation).

A transition from national to international cost-efficiency severely changed the basis for calculating cost-efficiency – and hence the impact area of measures. The epistemic foundation

⁵ Emissions trading, joint implementation and a clean development mechanism.

of this advice can be traced to one of IMWG's background reports administered by SSB; KLØKT (SSB 1992). Like SIMEN, KLØKT estimated national macro-economic consequences of climate policies. But the authors added not just the *use*, but also the *production* of fossil fuels, to its estimations (Nilsen 2001, p.125). The conclusion stated that although estimated *macroeconomic* consequences of the stabilization target were fairly similar to the SIMEN-estimations, the development on *sector level* would be partly very different (SSB 1992, p. 39), especially for energy-intensive industry (ibid, p. 7). Taking this into consideration, the report further concluded that a tax-based *international* climate agreement was a favorable alternative compared to *unilateral* action:

The estimation indicates that an international climate agreement which imposes the same CO₂ tax on all countries will strike Norwegian industry sectors to a lesser degree than a unilateral stabilization of national CO₂ emissions. From this angle, a unilateral Norwegian stabilization is not a natural first step towards an (approximately) cost-efficient international agreement (...). (ibid, p. 55, author's translation).

In effect, the conclusion was fatal to the tax discourse and the related domestic stabilization target as it made it hard to justify a national policy which was *cost-ineffective* within an international regime.

Early in 1990, at the same time as the CO₂ tax was developed, Norway announced the largest licensing round in the petroleum sector since 1965, signaling that extraction of oil would increase radically throughout the 1990s (Nilsen 2001, p. 109) This would eventually spur not just economic growth, but also increased CO₂ emissions from the Norwegian oil industry. The relation was still not highlighted at the time: "The two questions were literarily treated as if they belonged to separate planets" (ibid). The KLØKT-report was however the first assessment which signaled the incompatibility between expected growth in oil production and Norwegian ambitions on being a climate-forerunner through national CO₂ taxation.

These circumstances motivated a search for a way out of the newly established climate policy regime. The solution chosen was to focus on the global character of the climate problem rather than domestic GHG-emissions. This became evident already in the revised national budget for 1991, based on pre-reports of the IMWG, when the Government introduced *international cost-efficiency* as a guiding criterion in Norwegian climate policy-making (NMoF 1991). The budget outlined future principles of Norwegian climate policy and

anchored them soundly in the economic approach, framing environmental problems as external effects which must be reflected in prices on commodities and services. The approach echoes not just the recommendations of the IMWG, but also general economic theory on environmental problems. Further, the conclusions from the KLØKT-report which dismissed qualified support of a unilateral stabilization regime, were finally included in the first Report to the Parliament on climate policy: “In the opinion of the Government, it is not possible to prepare for a policy which will secure stabilization of our total CO₂-emissions in 2000” (NMoE, 1995p. 9). No new target for GHG-reductions was introduced to replace the stabilization target.

The process illustrates how epistemic contributions are turned into policy; in this case by initiating a (discursive) shift in the framing of the concept of cost-efficiency from the national to the international level. However, the shift did not imply a change in the basic problem-defining indicator of the discourse – namely that environmental problems are perceived as external effects of human actions. Rather, this appears as having been a condition for the adoption of the new key concept and illustrates how the established framing of the climate problem within economic rationalism mobilized a bias towards policy solutions which could be legitimized by the authoritative framing (Hajer 1995). *International cost-efficiency* continued to be the constitutive guideline to Norwegian climate policy throughout the 1990s; though not in support of the tax discourse applied on an international level, as first intended, but as the imperative principle of the second generation Norwegian climate policy embodied in the quota discourse.

Settling the quota discourse

The quota idea⁶ combines administrative regulation with economic rationalism, and originated as such in the same overall discourse as the tax-measure. Yet despite the close relationship between taxes and quotas as instruments to reduce GHG emissions, they constituted the problem solution of opposing discourses in Norwegian climate debate, activating conflicting actors and legitimations. The idea originated in the US which had introduced markets for tradable sulphur dioxide (SO₂) quotas in the 1980s, and in Norway the possibility of creating a similar market with tradable quotas for GHG emissions was theoretically elaborated early (Hoel 1991). The idea was further addressed in a report

⁶ A climate quota entitles the quota-holder to emit a defined amount of CO₂. By setting a cap on emissions a limited market for quotas is created and a market price is set on CO₂ emissions which will secure that emission reductions take place where it is most cost-efficient.

commissioned by The Confederation of Norwegian Enterprise from the research institutions ECON and the Fridtjof Nansen Institute. They proposed a market for tradable emission quotas between north European states (Nilsen, 2001). The work of Hoel and the report were both presented to the political establishment at the Bergen Climate Conference in 1990 where the idea apparently received “a positive response far within the corridors of the Government” (Bolstad 1993, p. 25). More concretely, the idea reached the Norwegian delegation to the international climate negotiations which was practically an extension of the IMWG as several members were the same. As such, the idea moved through an epistemic community which partly overlapped with a policy-making community.

The quota idea soon formed part of the Norwegian approach in the international negotiations. Their position was formulated around international market mechanisms - so-called *flexible solutions* - which would enable countries to reduce emissions abroad if considered more cost-effective. This was legitimized by arguing that whereas the costs of reducing emissions varies considerably across countries, the benefit for the atmosphere is technically the same, wherever action is taken. The Norwegian proposals were however met with skepticism in the negotiations, as they were interpreted in terms of Norwegian interests as an oil producer and as a way to buy themselves out of substantial domestic actions (Bolstad 1993). It was however not emissions from oil production which stirred the largest debate in Norway. Commercial interests reported plans to construct gas-based power plants from the Heidrun field in 1990, a development which would increase Norwegian CO₂ emissions by an estimated 5 to 6%. Previously, oil and gas policy had not been part of the climate debate in Norway, but with the Heidrun debate a ‘climatisation’ of gas power plant expansions emerged (Hovden and Lindseth, 2004). The plans were criticized by the environmental movement for torpedoing the stabilization target and opinions on the issue were divided even within the Government (Tjernshaugen 2007). The managing director of the industrial powerhouse Norsk Hydro, Torvild Aakvaag, replied to the criticism by stating that “Norway does not have its own CO₂ sky” (ibid, p. 14). He argued that it was beneficial for the global climate if Norway could sell gas-based power abroad and thereby replace more emission intensive coal-based power. This ‘gas argument’ (Nilsen 2001) became a key legitimating element of the quota discourse – and was intimately interlinked with the Norwegian endorsement of flexible solutions in the international negotiations. The reason for this was that a quota market was necessary to credit Norwegian gas export on the Norwegian GHG emission balance. Ted

Hanisch⁷ subsequently proclaimed in a comment on the Norwegian position that “[w]e must unite our environmental and energy interests” (1991). Hence, whereas the tax discourse was legitimated by the positive-sum game between environmental and economic interests framed as employment, the quota discourse was endorsed for its alignment of climate and energy interests.

The Heidrun debate was settled in 1992 when the parliament dismissed the gas power plant. Shortly afterwards, the Climate Convention was signed in Rio de Janeiro. The formulations in the Convention were vague and included no concrete measures, but stated that “policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost” (UNFCCC 1992). Negotiations on a protocol to the Convention were to proceed over the following years. These ongoing international negotiations resulted in a wait-and-see attitude in Norwegian climate policy debate (Reitan 1998), and the national climate debate was stranded in the shadow of the Norwegian EU referendum in 1994.

In the international negotiations Norway nevertheless continued to promote flexible solutions⁸. They finally succeeded when the Kyoto-protocol was settled in 1997, providing for tradable climate quotas, joint implementation and the clean development mechanism (CDM). Moreover, the protocol allowed Norway to increase GHG emissions by 1% compared to 1990 level by 2008-2012. Hence, the quota discourse finally formed the core of Norwegian climate policy, a position primarily reached through expert-led initiatives and closed negotiations at the international level, and confirmed by the Norwegian commitment to invest in CDM quotas. Norway has since 2007 invested in CDM quotas to over-fulfill Norwegian obligations under the Kyoto protocol by 10% (Lund 2010). This constitutes an important part of Norwegian climate policy, and confirms the influence of the quota-discourse. Nevertheless, both the design and implementation of the mechanism is external to direct Norwegian governance, and has therefore not been subject to domestic discursive processes such as the tax measure and the quota system introduced in 2005.

The Norwegian quota system was introduced following the advice of the expert-dominated Quota Commission (NQC 2000). However, while the commission recommended a national quota-system covering 90% of Norwegian emissions based on quotas auctioned at market price in line with the polluter-pays principle, the quota system introduced covered only about

⁷Director of CICERO (Centre for International Climate and Environmental Research in Oslo).

⁸ Together with Japan, US, Switzerland, Canada, Australia and New Zealand.

10% of emissions. Further, quotas were allocated for free, based on historic emissions. This turned economic experts, who initially pushed the quota idea, into strong critics of the way the quota market was designed and in the end implemented at the industry level. They pointed out that “[t]he proposal of a national quota system for climate gases has throughout the last years been reduced from something which could have become a useful tool in Norwegian climate policy to a puny (but costly) measure with little immediate effect on Norwegian climate gas emissions” (Alfsen *et al.* 2004, p. 52). From 2008 Norway formally joined the EU ETS and emissions trading was extended to comprise 40% of Norwegian emissions. Still, a considerable amount of quotas were allocated for free, and the measure was therefore not regarded as cost-efficient (Hagem and Rosendahl 2007, Rosendahl and Storrøsten 2008). Hence, although expert economists were vital in conditioning the influence of the quota discourse in Norwegian climate policy-making, their advice was not taken in the phase of designing and implementing the measure. This demonstrates the constrained influence of the premises implied by the quota discourse in this decisive phase of the policy process at the national level.

Table 3. Summary of the quota discourse

	<i>Problem definition</i>	<i>Framing of the problem</i>	<i>Problem solution</i>	<i>Legitimizing arguments/key concepts</i>	<i>Knowledge-base</i>
<i>Quota discourse</i>	Consumer and producer behaviour; external effects	Energy policy; Norway in the international negotiations	Flexible solutions (climate quotas)	International cost-efficiency; ‘the gas argument’	(International) economics

New prospects of technology

When Norway ratified the Kyoto protocol in 2002, domestic emissions had already increased 5% compared to 1990 (NMoE 2003). Until then Norway had demonstrated reliance on economic measures to reduce GHG emissions with the CO₂ tax as the driving climate political measure, a position planned to be succeeded by emissions trading. Nonetheless, the *effect* of these measures had been limited⁹, resulting in a search throughout the last decade for policies which could advance *technological solutions* to the climate problem. Technological solutions were in the early years of Norwegian climate policy-making dismissed as immature and did not influence actual policy debates. Moreover, the absence of a technology approach in this

⁹ Bruvoll and Larsen (2002) concludes that the CO₂-tax caused only a 2% reduction in Norwegian CO₂ emissions during 1991-1999.

period can be analyzed in terms of economic rationalism which expects technology to develop as a result of behavior-oriented measures – autonomously of government directives. Consequently, both the CO₂ tax and emissions trading was designed to be technology neutral, leaving decisions on *how* actual reductions are achieved to the single actor.

The search for technological solutions to reduce GHG emissions arose out of the same dilemma as the quota discourse; how could Norway sustain its climate ambitions and at the same time continue production of fossil energy? This dilemma was reinforced with the construction plans of gas-fired power plants which dominated policy debates throughout the second half of the 1990s. Whereas emissions trading originally had been introduced as a compromise, the debates surrounding the gas-fired power plants revealed that this was not perceived as a salient measure. Rather, opponents¹⁰ of the construction plans coupled the gas debate with the climate problem by claiming that Norwegian CO₂ reductions should take place *in* Norway (Hovden and Lindseth 2004), whereas the plans would cause a 5-6% rise in Norwegian CO₂ emissions compared to the reference trajectory (Tjernshaugen 2007). In so doing, they refused the prospect of balancing Norwegian GHG emissions solely through emissions trading. The Labour government, however, stuck to the ‘gas argument’, claiming it was good climate policy to build the gas plants. Hence, both sides claimed to represent the most climate friendly solution, but on different premises. While opponents claimed that ‘national action’ matters, supporters ‘thought globally’, maintaining that the place of reductions was insignificant (Hovden and Lindseth 2004).

In the midst of the gas debate, Norsk Hydro unexpectedly submitted an application to construct an ‘emissions-free’ gas-fired power plant, claiming they could use carbon capture and storage (CCS) technology to remove CO₂ emissions from the gas-fired power plants. CCS is an end-of-pipe technology¹¹ developed to reduce emissions by capturing the CO₂ from produced gas and store it in subsea aquifers. The technology used respectively to capture and store was previously known, but was ‘climatized’ – put together with the purpose of reducing GHG-emissions – by the Norwegian scientist Erik Lindberg, who also promoted the technology to both policy-makers and ENGOs throughout the 1990’s (Nilsen 2001, Tjernshaugen 2007). The prospect of applying CCS to gas-fired power plants was followed by a discursive shift in the gas debate, which subsequently focused on the potential of CCS

¹⁰ ENGO’s as well as centre-left parties.

¹¹ While end-of-pipe technologies capture and/or treat emissions from the production process without affecting the production process itself, clean technologies mitigate emissions from the production process itself.

technology rather than on whether one should construct gas-fired power plants or not. CCS simultaneously introduced a perception of global warming as a problem which can be dealt with through technological progress rather than behavioral change. Thus, the problem interpretation of the tax and the quota discourse was clearly changed. In searching for solutions to the climate problem, attention moved from the models of economists to the potentials of engineers.

Still, critics of CCS questioned the maturity of the technology, an issue which eventually contributed to overthrow the Bondevik I-government in 2000, leaving the succeeding Labour government with a tarnished climate reputation. Hence, the process made it politically difficult to discard CCS, and the parliament decided to evaluate different arrangements to impel CCS for the production of gas-based power (StgCoEE 2000). Nevertheless, the gas debate had divided otherwise industry-friendly allies which now emphasized energy demands and climate concerns differently. The response from the Works Council between the Labour Party and Labor Union was to form a Committee whose objective was to “form a strategy to increase the use of natural gas in Norway” while simultaneously promising to “fulfill our environmental obligations” (Labour Party and LO 2001, p. 5). Whereas the Parliamentary initiated Commission to evaluate CCS concluded that such technology was either immature or too costly to be a feasible alternative (NGTechC 2002), it was the Committee from the Works Council which left a lasting impact on later climate policy by promoting arrangements¹² to employ CCS as a compromise between industry and climate concerns (Kasa 2011). CCS functioned as such as *political glue* by making gas-fired power politically feasible (Tjernshaugen and Langhelle 2009), a compromise which has been a driving force ever since.

Towards a low emission society?

In 2006 the Government entered into agreement with Statoil about a financing programme for the construction of the first large-scale CCS plant at Mongstad, claimed to be ‘Norway’s moon landing’ by Prime Minister Jens Stoltenberg. The Norwegian emphasis on such technology is extraordinary in international comparison (Tjernshaugen 2011), both with regard to the amount of governmental financial and political support, but also with regard to the support of NGOs. This support was coupled with a resurgent interest in renewable energy, which is symptomatic of an increasing belief in technological solutions to the climate

¹² Among other things a state enterprise for environmental friendly technology and CCS, later established as Gassnova.

problem. The climate problem generally experienced a massive surge in attention throughout this period due to (inter alia) the Stern Review on the Economics of Climate Change released in 2006, followed by IPCC's Fourth Assessment Report in 2007. Simultaneously the Norwegian Commission on Low Emissions released a report (NCoLE 2006) claiming that Norway could become a 'low emission society' by 2050 by reducing two-thirds of national emissions through the promotion of climate-friendly technologies. The conclusions underlined the break with economically based discourses on the climate problem when they recommended "a small number of mainly technologically based measures, each with a proportionately large potential for reductions" (ibid 2006, p. 11). The NCoLE was in following debates accused by economists of being technology optimists, underestimating the international dimension and not providing sufficient arguments for the links between targets and measures (see e.g. Bruvoll *et al.* 2007).

However, the technology discourse engaged expertise which previously was absent from climate political debates. That same year, the Norwegian Research Council pointed to the increased demand for knowledge on technological solutions for mitigation and political instruments to increase the introduction of climate friendly technology (CoCR 2006). The conclusions were embraced by the technological establishment in Norway, which followed up by presenting their research as a precondition to reach Norwegian climate targets (SINTEF and NTNU, 2007). A climate network which claimed to possess the necessary competence to contribute to solving the climate problem was moreover launched by the society of technical and scientific professionals in Norway (TEKNA 2009).

Following the NCoLE, the Government released a Report to the Parliament on Norwegian climate policy (NMoe 2007). The report recounted the results of NCoLE extensively, but simultaneously stressed continued support in general economic instruments, revealing ambivalence towards technological solutions. Still, the report motivated a 'climate settlement' between most political parties¹³, deciding that Norway should become a 'low emission society', adopting one of the key concepts of the technology discourse following the NCoLE. Concretely, the settlement listed a variety of approaches to promote technological solutions – both CCS and clean technologies (the Government 2008). The settlement furthermore strengthened the Norwegian target for GHG reductions by stating that Norway should be

¹³ Except the Progress Party.

‘carbon neutral’ by 2030¹⁴ and to exceed compliance of the Kyoto target by 10%, simultaneously as two-thirds of the cuts should be domestic. As such, the settlement expressed *ambivalence* about the proper way forward. While ‘carbon neutrality’ relies on buying CDM-quotas, manifesting the persistence of the quota discourse, domestic cuts are dependent on the prospects of a low emission society fulfilled through technological progress.

The technology focus has not yet produced substantial reductions in GHG. Policy-makers have relied on research, development and experimentation, expecting that such investments eventually will cause commercial use, but with weak results yet (Hanson *et al.* 2011). Large-scale CCS has not yet commenced, and the share of renewable energy in Norway *decreased* during the latest decade (Eurostat 2011). Hence, instead of effective implementation, the dividends of the technology discourse have so far been rather meager.

Table 4. Summary of the technology discourse

	<i>Problem definition</i>	<i>Framing of the problem</i>	<i>Problem solution</i>	<i>Legitimizing arguments(key concepts)</i>	<i>Knowledge-base</i>
<i>Technology discourse</i>	Old, emission-intensive technology	Energy policy; the prospect of technology transfer	Climate friendly technologies	National emissions reductions; technology development; ‘low emission society’	Engineering

Concluding remarks

Tracing Norwegian climate policy from the enthusiastic settlement on the stabilization target in 1989 until the equally optimistic climate settlement of 2008 has exposed three distinct discourses which have partly replaced each other and partly overlapped with regard to how the climate problem is interpreted and is proposed to be resolved. These discourses are not just the result of politics; they appear as embedded in and embraced by specific knowledge-bases and related experts. As such, these expert-endorsed discourses have been influential in early stages of the policy process, as they limited the range of legitimate arguments and feasible policy options to policy makers. However, the discourses appear as ideational constructions which are set aside when faced with interest-based politics at the design and implementation stages. Consequently, the transformation of the discursively promoted

¹⁴ Meaning that Norway shall arrange for emission reductions equivalent to Norwegian emissions in 2030.

measures into realized policy has been limited with regard to taxes, quotas¹⁵ and technology solutions. Whereas they have all enjoyed great *discursive* influence, the implemented design of these measures reveals how especially key legitimating arguments of the discourses are dismissed when being translated into concrete policy. The upshot of this is that the anticipated result – reductions in GHG-emissions – has failed to materialize.

The appeal of discourse analysis lies *inter alia* in its ability to illuminate how policies are shaped by the interpretation of problems and their subsequent transformation into practice. In short, it allows one to see how actors may influence the definition of problems (Hajer and Versteeg 2005). That said, these are features which are first and foremost applicable to the early stages of the policy process, when policy is debated and formulated. That is when concepts are contested, issues are framed and actors position themselves by engaging in discursive struggles – all typical objects for discourse analysis. At this stage, discourses appear to operate as mechanisms through which knowledge is transformed into policy as they make certain measures appear as more legitimate or authoritative than others. As such, they limit the range of alternatives that can be applied in decision-making and influence actors' preferences for certain solutions over others.

However, it is through the adoption and subsequent implementation that policies take effect (Jordan 1999). But, as this study suggests, the distance between discursive endorsement and practical governance may be significant. This potentially weakens the presumed discursive capacity to form policy outcomes. Arguments which are decisive to legitimate and create leverage for specific discourses, one primary example of which has been cost-efficiency, are often abandoned when policy is put to practice. This illuminates the constrained influence of knowledge-based discourses when they encounter practical politics. Hence, this analysis highlights how it is premature to infer from the influence of ruling discourses in the promotion and formulation of policies actual influence when policy is adopted and subsequently implemented.

Acknowledgements

Thanks to Sjur Kasa, Anders Molander and two anonymous referees for valuable comments.

¹⁵ Referring to the quota system at industry level.

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