Policy Invention and Entrepreneurship:

Bankrolling the Burying of Carbon in the EU

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Abstract

This article presents the case of a policy invention where various kinds of entrepreneurship and a window of opportunity played important roles. In 2008 the EU adopted a new Carbon Capture and Storage (CCS) policy with an inventive funding instrument at its core: the NER 300 fund, based on revenues from the auctioning of emissions trading allowances. Thus far, the literature on policy entrepreneurs has focused more on success factors that enable particular persons to be especially influential than on the defining characteristics of entrepreneurship. We contribute to the literature on entrepreneurship and windows of opportunity by distinguishing two entrepreneurial techniques – framing and procedural engineering – and two categories of commitment – 'tortoise' and carpe diem. We conclude that 'tortoises' who contributed to creating the broad and general climate policy window paved the way for issue-specific carpe diemers who promoted the more specific NER 300 policy invention. Furthermore, we distinguish and discuss four different entrepreneurship mechanisms that may influence policy invention processes.

Keywords

EU

Climate policy

Carbon capture and storage

Entrepreneurs

NER 300

1. Introduction[1]

Very rarely are new policies or new policy elements *invented*. Policy invention is widely seen as an inherently disruptive process, resisted by defenders of the status quo (see Jordan and Huitema's review in this volume). In this contribution, we offer a nuanced understanding of policy invention, highlighting how entrepreneurship can contribute to policy invention. Such invention entails the development of something entirely new – but new ideas are always inspired by existing practices, never emerging *de novo.* We assess the development of an EU climate financing mechanism for Carbon Capture and Storage (CCS) and renewable energy, the 'NER 300' fund, a policy that was arguably both internally and externally inventive: innovative compared to earlier EU policy *and* to the policies of main economic and political competitors.

Political science has a long history of attributing policy inventions to entrepreneurs (see Sheingate, 2003, p.188; also Huitema and Jordan, this volume). The invention of NER 300 illustrates how entrepreneurship may facilitate, but not control, climate policy invention. Back in 1984, John Kingdon argued that entrepreneurs who effectively used windows of opportunity had high impact on US federal policymaking (Kingdon, [1984] 2011). We explore how entrepreneurship can contribute to opening such windows, and how some actors perform entrepreneurship directed at exploiting policy windows successfully. Actors with differing motivations and commitments may perform entrepreneurship that contributes to policy invention: what we call deeply-committed *tortoises* may help to create and shape a policy window, whereas *carpe-diem*ers, with shallower commitment and a more short-term

[1] Our warm thanks to participants at two workshops in 2012 (in Amsterdam and Cambridge) and particularly chairs Dave Huitema and Andy Jordan for very helpful comments to earlier versions of this manuscript. Thanks also to two anonymous reviewers and to Susan Høivik for language polishing,

approach, are more active in exploiting policy windows. Further, entrepreneurs may combine various techniques – for example, 'framing' and what we call 'procedural engineering'.

The key question is then: *in what ways did entrepreneurship contribute to the invention of the NER 300 fund?* NER 300 was initially launched as a funding mechanism for CCS[2]: 300 million allowances were set aside within the EU Emissions Trading System (ETS) New Entrants Reserve for funding CCS demonstration projects. This formed a central part of a rather unprecedented direct EU engagement in funding large-scale carbon-abatement technology projects.

The development of the EU's CCS policy was decisively shaped by actors who seized the opportunities for radical climate policymaking that emerged when the EU started preparing for the Copenhagen climate summit in 2009: in 2007, EU leaders embraced the goal of stimulating the construction and operation of up to 12 CCS demonstration plants by 2015. To increase acceptance for CCS funding, also renewable energy was included when the EU created the NER funding mechanism (Boasson and Wettestad, 2012). Somewhat paradoxically, the mechanism has proven far more important for renewables than for CCS: in the first of two financing rounds, only renewables projects were financed.

In the next section we present our analytical approach as regards the focused role of entrepreneurs, and outline our methodological approach. Section three discusses the main characteristics of the policy output to be explained here. Section four offers a brief chronological overview of the fascinating story of how NER 300 was invented and adopted. In section five, we discuss how entrepreneurship shaped the case and its outcome, and present conclusions of relevance to the literature on policy invention and policy entrepreneurship.

[2] CCS consists of a suite of technological processes that involve capturing carbon dioxide from the gases discarded by industry, and then transporting and injecting the CO_2 into geological formations (European Commission, 2008a).

2. Exploring entrepreneurship and windows of opportunity: conceptual approach and method

Many political scientists have drawn attention to how entrepreneurs influence policy development and policy invention. Entrepreneurs have been seen as actors 'essential to the process of policy making' (Roberts and King 1991, p.147), 'central figures to the drama' (Kingdon, 1984, p.189), 'individuals who change the direction and flow of politics' (Schneider and Teske, 1992, p.737), 'change agents' (Huitema and Meijerink, 2010) 'who specialise in identifying problems and finding solutions' (Polsby, 1984, p.171) or who 'aim to induce authoritative decisions that would not otherwise occur' (Moravcsik, 1999:271). Kingdon further describes entrepreneurs as 'advocates who are willing to invest their resources – time, energy, reputation, money– to promote a position in return for anticipated future gain in the form of material, purposive, or solidary benefits' (Kingdon, [1984] 2011, pp.179, 181). All these statements and observations direct attention to actors who engage to a greater extent, or in other ways, than required by their formal roles.

On this backdrop, policymakers and lobbyists who merely perform their regular tasks cannot be regarded as performing 'entrepreneurship'. For instance, a politician who adheres strictly to the party programme and acts within the formal rules that regulate a policy processes is not performing entrepreneurship. True, actors who try to follow formal rules may over time unconsciously contribute to changing the rules and hence contribute to policy invention – however, this is the result not of entrepreneurship, but of path-dependent developments or other mechanisms.

'Windows of opportunity' is a concept closely related to entrepreneurship, and central for understanding how entrepreneurs can play into policy invention. Such windows give entrepreneurs excellent opportunities for articulating and introducing new policy ideas into the legislative process (see Kingdon, [1984] 2011; Mintrom, 1997; Finnemore and Sikkink,

1998). According to Kingdon ([1984] 2011), entrepreneurs will constantly be shopping around in search of decision possibilities where they can succeed in getting their policy ideas on the agenda, and will skilfully exploit any windows of opportunity. He defined a 'policy window' as an opportunity for advocates of proposals to push their pet solutions, or to attract attention to their special problems ([1984] 2011:165).

Kingdon employed the striking image of 'surfers waiting for the big wave' ([1984] 2011, p. 165, see also p.181), implying a rather passive view ('waiting') concerning the opening of policy windows. In line with Huitema and Meierink (2010), we argue that entrepreneurship can contribute to opening as well as exploiting policy windows. Although Kingdon saw windows as created by factors beyond the control of entrepreneurs, he also pointed out that 'the window exists in the perceptions of the participants' (Kingdon, [1984] 2011:171).

Rather than trying to identify the individual characteristics of entrepreneurs, we will focus on acts of entrepreneurship. After all, an actor may perform entrepreneurial acts in some policy processes and not in others. Here we are especially interested in exploring how entrepreneurship can contribute to the creation and exploitation of 'windows of opportunity', and focus on two dimensions: entrepreneurial *techniques* and entrepreneurial *commitments*.

Let us first discuss the techniques. Many political scientists have studied entrepreneurship aimed at overcoming barriers in specific decisionmaking situations, such as lack of formal access to decisionmaking arenas or to information as to when, how and where issues are to be resolved. Scholars specializing in studies of networks and multi-level governance have argued that this can be overcome by initiating new networks or alliances (Hooghe and Marks 2001; Roberts and King 1991; Sabatier and Jenkins-Smith,1993). Scholars of bargaining as well as students of EU policy have shown that strategic issue-couplings or other creative ways of changing decisionmaking procedures can be effective (see

Moravcsik, 1993, 1998; Sebenius, 1984, 2009; Niemann, 2006). We will understand these kinds of acts as 'procedural engineering'. By this we mean entrepreneurship that seeks to alter the distribution of authority and information concerning the political issue in question, for instance through networking, bargaining techniques, issue-coupling and initiating new decisionmaking procedures. In short, procedural engineering entrepreneurship is directed at changing 'the rules of the game'.

In other instances, actors may find that the policy in which they are interested is based on norms, values or world views that they consider inappropriate or malfunctioning. Then the problem, as seen by the entrepreneur, will not so much be that the decisionmakers do not have adequate information, but that they systematically interpret this information in the wrong way. In such instances, actors may try to persuade others to change their preferences. Indeed, Goodin and colleagues argue that 'policy making is mostly a matter of persuasion' (see Goodin, Rein and Moran 2006:5). We refer to such persuasion efforts as 'framing', using the term in a rather narrow way: we focus on new ways of defining, presenting, identifying and labelling certain problems, solutions, decision alternatives and decisionmaking situations (see Goffmann, 1974; Tversky and Kahneman 1980; Snow and Benford, 1988). We assume that both techniques may play a part in creating *and* exploiting policy windows.

Turning to entrepreneurial commitment, the classic view promoted by Kingdon is that 'successful entrepreneurs are persistent'; they 'lie in wait in and around government with their solutions at hand, waiting for problems to float by to which they can attach their solutions' (Kingdon, [1984] 2011:165, 181). In contrast, Fligstein has put forward the view that, in order to create large networks, entrepreneurs must possess significant flexibility, and even be willing to adjust their political project and shift their targets (Fligstein and Mara-Drita, 1996; Fligstein, 1997). What does this mean with respect to the creation and exploitation of windows of opportunity? We propose a distinction between *'tortoise'* and *'carpe diem'*

commitments. Entrepreneurs of the first type work like the proverbial tortoise in Aesop's fable: slow and steady, with long-term horizons. This gives them better opportunities for contributing to the creation and development of 'windows of opportunity', i.e. framing a situation and inducing changes in the policy development procedure that allow for policy invention. In contrast, *carpe diem* entrepreneurs have a more short-term approach and shallower commitment to the issue at hand, often exploiting existing policy windows rather than creating them. Even if such actors may have a short history in relation to a given issue, their entrepreneurship can prove just as important when it comes to ensuring that new policy ideas emerge and get adopted at a certain point.

Using these conceptual clarifications and suggestions, we will examine the NER 300 case. NER 300 was adopted in a clearly defined policy window and various actors performed different entrepreneurial tasks at different stages in time. This case allows us to examine in more detail: *How and to what extent did the two entrepreneurship techniques and commitments influence window creation and window exploitation when the NER 300 fund was created?* Note that we are not claiming that entrepreneurship will explain all aspects of this case: we use the case to explore in detail how various dimensions of entrepreneurship may influence policy invention.

Our assessment draws on extensive document review and on in-depth, qualitative interviews with 26 actors, conducted on the basis of anonymity. The anonymity clause enabled our interviewees to talk more freely also about sensitive issues. Key actors in the NER 300 process have been interviewed - Commission officials, members of the European Parliament, national representatives from key countries, and representatives from commercial and environmental groups. In addition, we have interviewed actors involved in EU climate policy in general, and other Brussels observers. All the actors we approached were willing to speak with us. The rich empirical material and the very detailed interview accounts have

allowed us to explore how entrepreneurship influenced the development of policy. Further, detailed process tracing has been performed, as well as systematic comparison of the accounts given by the various actors.

Here we highlight the *entrepreneurial* aspects of the NER 300 case: we have discussed the *social mechanisms* involved at greater length elsewhere (see Boasson and Wettestad, 2013). Compared with other EU climate policy cases, entrepreneurship stands out as a key ingredient in the story about NER 300. That is not to say that entrepreneurship will always be as important as it was with the NER 300 case, quite the converse: we regard this as an extreme case, where entrepreneurship is easier to trace and to assess than is usually the case in issue areas that attracting many participants.

The NER 300 case illustrates how various kinds of entrepreneurship may interact and contribute to shape policy invention. Thus it provides a sound empirical backdrop for developing new conceptualizations of entrepreneurship. In this study, we combine deductive and inductive research strategies: we started out with some standard concepts from the literature but came to realize that new conceptualizations were needed in order to develop a more nuanced understanding of how entrepreneurship may play into policy invention.

3. The new EU CCS policy and its funding model

In March 2007, the European Council adopted the goal of having 'up to 12' CCS demonstration plants in operation by 2015 (Council, 2007). Compared to earlier EU policy, the CCS policy developed from 2007/2008 onwards was certainly inventive: CCS had previously been classified as 'dumping' and was in fact prohibited in the EU (see e.g. UCL, 2012).

The main innovation was that, in the EU climate and energy package agreed in December 2008, 300 million allowances from the New Entrants Reserve (NER) were set

aside to help stimulate the construction and operation of up to 12 CCS demonstration projects and projects demonstrating renewable energy technologies: this was the *NER 300 fund* (see Directive 2009/29, Art.10a.8). The NER 300 fund is a 'financing instrument managed jointly by the European Commission, European Investment Bank and Member States' (NER 300, 2012), with the European Investment Bank (EIB) as key administrator of NER money. Hence, the EU CCS model involves more centralized steering than otherwise common in much other EU climate policy, such as for instance EU energy policy for buildings (Boasson and Wettestad, 2013). As noted by one Commission insider, 'we had analogies, but no model to build upon' (interviews in Brussels, January 2011).

NER funding works through a four-stage process: 1) the EIB sells the allowances set aside for the fund; 2) member states nominate CCS and renewable energy projects that fit certain technology categories (the Commission called for pre-combustion, post-combustion and oxyfuel CCS projects); 3) the EIB assesses the proposals submitted by member states against a set of eligibility criteria; and 4) after consulting with member states, the Commission adopts award decisions (Commission, 2010). The first process was finalized in 2012; the second process is now under way. However, all nominated CCS projects were withdrawn – mainly due to lack of domestic commitment and resources – so only renewable energy projects were awarded funding in 2012 (Reuters Planetark, 2012).

There are precedents for technology funding in the EU, particularly through the R&D policy (for a recent relevant overview, see Ruester et al. 2014). Direct funding of technology development dates back to the 1950s and the establishment of the original European Coal and Steel Community (ECSC), although the European Coal and Steel Fund was not established until 2002 (Andrieu and Vannson, 2005). There are also some examples in the field of climate change, like the ULCOS project – the European Commission's contribution to research into new steel technologies with radically lower CO_2 emissions (Wettestad and Løchen, 2013).

But the key element of the CCS funding model seems unique: its link to ETS auctioning revenues.

Taking a more global perspective, we can further specify the inventiveness – and indeed the possible pioneering quality – of the EU approach. Compared to the USA's CCS approach, with the FutureGen Program as the initial flagship (Stephens, 2009), the EU approach stands out as more complex. This pertains particularly to the combination of carbon pricing through the ETS, with the funds available to CCS depending on the allowance price, and the formulation of more specific targets and timetables. Analysts claim that CCS in the USA is now driven mainly by economic concerns for enhanced oil recovery not climate politics (Hunton and Williams, 2012). Still, there is some funding available for demonstration projects (Global CCS Institute, 2011).

However, direct comparison between the size of funding in the EU and in the USA is difficult, partly due to the EU link to a volatile carbon market. As has become clear, the NER funding of CCS will be far more moderate than initially envisaged. But one thing is certain: the USA's CCS funding is not in any way situated within a broader climate policy framework similar to that in the EU. Nor do there appear to be any other major climate policy actors on the global scene with a CCS policy approach similar to that of the EU. Interestingly, central Commission officials have referred to NER 300 as a model that can be used also in other areas (see Delbeke 2013).

4. The EU CCS story: From 'Nerdy' Issue to 'Name of the Game'

4.1. 1997–2004: CCS emerges as possible EU climate-policy solution

NER 300 is closely linked to the history of CCS in Europe. This technology has a prehistory that dates back to the 1970s, but, unlike carbon taxation and pricing, or renewable energy and

energy efficiency, it was not debated as a possible climate-policy solution in the first wave of EU climate policy initiatives in the 1990s (Boasson and Wettestad, 2013). In the 1997 Kyoto Protocol, the European Community took on a commitment to reduce specified greenhouse gas emissions by eight per cent by 2008–2012. This Kyoto target created a need for more EU climate policy, but offered little guidance as to which measures to adopt (Jordan and Rayner, 2010: 65). As a main theme, the Kyoto Protocol established the development of market measures, and hence the promotion of least-costly climate mitigation – *not* the development of new, large-scale technological solutions like CCS.

CCS was not included in the EU's first, more elaborate, response to the Kyoto Protocol (Commission, 1998). Then, in March 2000, the Commission announced the establishment of the first European Climate Change Programme (ECCP I), a multi-stakeholder programme involving actors from industry, member states and NGOs as well as independent experts (Commission, 2000a). The final ECCP did not concerned with CCS – the final report mentioned the technology only briefly (Commission, 2000: 11; 2001:48). Nor was CCS mentioned as a possible abatement option in the 2003 Emissions Trading Directive (Directive 2003/87). Our interviewees note that EU officials scarcely paid any attention to CCS at that time; indeed, a civil society representative mentions Commission officials from DG Environment who claimed that CCS was an unrealistic and somewhat 'crazy' idea.

In the early 2000s, the R&D units of European oil corporations began exploring CCS possibilities (Boasson, 2005). Due to the significant size of their technological units, and their prior experience with enhanced oil recovery, it was engineers from the oil industry who came to develop the technological foundation for CCS. By around 2005, the European oil corporations had recognized climate change as the most pressing social issue confronting the industry, but corporate headquarters promoted emissions trading as the key policy solution (Boasson et al., 2009). CCS was an issue mainly for the R&D departments, and was discussed

primarily in relation to petroleum exploration and processing, not as a way of mitigating emissions from stationary energy production. As for environmental organizations, Greenpeace was opposed to CCS; with the exception of Norway's Bellona Foundation[3], no environmental organizations actively supported the development of an EU policy on CCS.

On the whole, the governments of EU member states saw CCS as an R&D issue, not one of policy. Germany, the Netherlands and the UK initiated CCS research initiatives, (Meadowcroft and Langhelle, 2009; Praetorius and von Stechow, 2009, pp. 139, 146–147; Scrase and Watson, 2009; Vergragt, 2009), but elsewhere in the EU, CCS was basically a non-issue (Buhr and Hansson, 2011; Costa, 2011; Jankowska, 2011).

Eventually, a series of global developments provided incentives for the development of CCS. In 2001, the Conference of the Parties to the UN Climate Convention requested the Convention's Intergovernmental Panel on Climate Change (IPPC) to assess 'the scientific, technological and socio-economic aspects of CCS' (Coninck and Bäckstrand, 2011, p. 371). Also the International Energy Agency became involved, hosting CCS conferences and issuing several CCS reports. Moreover, the USA emerged as a firm proponent of CCS (Helm, 2009; Stephens, 2009; Coninck and Bäckstrand, 2011). The George W. Bush administration launched a CCS project – FutureGen, aimed at constructing the world's first large-scale zero-emission coal-fired power plant. However, as noted by one EU official we interviewed, 'CCS had a credibility problem (…) The Bush initiatives were more negative than positive for the EU process, because the environmental camp was against everything that Bush was for.'

CCS was emerging as a possible climate-policy issue, but not much pointed towards the development of an EU funding mechanism. Neither can we find much entrepreneurship in this direction.

[3] The Bellona foundation was established in Norway in the late 1980s, eventually establishing an office in Brussels with a specific focus on CCS.

4.2. 2005–2010: Climate hype underpins CCS entrepreneurial action

A window of opportunity for climate issues – including CCS – was created at the start of this period. Negotiations on an international successor agreement to the Kyoto Protocol began in 2005 and the IPPC fourth assessment report was issued in 2006 (Andresen and Boasson, 2012). The Commission responded with insistent calls for climate action (see Oberthür and Pallemaerts, 2010, p. 46). It used strong language, seeing the swift development of an encompassing climate policy portfolio as crucial. Tellingly, a 2005 communication from the Commission was titled 'winning the global battle against climate change' while a 2007 follow-up was called 'limiting global climate change to 2 degrees Celsius' (European Commission 2005, 2007). As a central EU Commission official interviewee pointed out, 'it is important to understand that the "new drive" did not result from pressure from any specific member state (…). Rather, the Commission was responding to what was in the wind.'

Another interviewee noted, 'I believe the international negotiations were important for the change in the Commission approach to CCS: this was the only way to deal with the challenge. Many [Commission officials] came out as CCS supporters at the time.' Another external factor working in the same direction was the IPCC special report on CCS (IPCC, 2005; Meadowcroft and Langhelle, 2009, p.6). The UN engagement and the scientific backing made it easier for climate-policy officials within DG Environment to frame CCS as a credible measure – particularly useful, since Bush's CCS advocacy had given CCS somewhat of a bad name in the EU.

The Commission's internal shift in attitude was also related to the growing attention to energy security. This heightened focus was closely related to the EU's energy-policy relations with Russia (Commission, 2006). DG Environment had been internally split on CCS, and our interviews with EU officials indicate that this split persisted: 'there was a majority backing CCS in the Commission overall before there really was a positive majority within DG

Environment', according to one interviewee. Climate-change officials were fairly positive, but officials dealing with resources and water were more negative, because of potential problems with storage and leakage, among other things. Eventually, CCS supporters managed to create consensus on the importance of ensuring strict control of the storage processes.

So it appears that some key actors within the Commission were beginning to see CCS as a policy ingredient that could promote EU climate ambitions as well as improve the EU's global economic and technological competitive position. For instance it seems that Mogens Peter Carl (then Director General for Environment) and Jos Delbeke (then Director of Climate Change and Air) helped to make it appear appropriate to include CCS in the EU climate policy debate. They did not *initiate* the NER 300 model – they only ensured that CCS was on the agenda.

In February 2005, the Commission announced a second European Climate Change Programme (ECCP II), noting that particular attention would be directed to CCS (Commission, 2005, p.11). A CCS working group was established; it produced a report that underscored 'the *urgent need* for the development of a policy and regulatory framework for CCS', and recommended that the Commission should outline a proposal for an EU CCS regulatory framework (Commission, 2006, p.7). In April 2005, Energy Commissioner Andris Piebalgs declared that Europe should take the lead in developing the technology (ENDS Daily, 2005).

DG Research now initiated the European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP) (Claes and Frisvold, 2009), involving various branches of industry (utilities, oil and gas, equipment suppliers), scientific and research communities, and environmental organizations.[4] Bellona had been given the role as secretariat of the ZEP, and used this position to encourage ZEP to launch proposals for EU policy. In 2006, ZEP

[4] ZEP industry members are companies, not industry organizations or other umbrella organizations.

launched a strategic deployment document that recommended, among other things, the creation of EU regulations on CO_2 storage and the creation of 'an early mover funding mechanism to support the development of 10–12 large-scale CCS projects which demonstrate a diverse range of infrastructure, technologies, fuels and storage locations' (ZEP, 2006, p.2). The document did not specify whether funding mechanisms should be created by the EU or its individual member states. Our Brussels interviewees agree that, of the nearly 40 technology platforms, ZEP assumed an extraordinarily proactive role in the development of EU climate policy.

The UK now took a more proactive position. Political consensus had emerged concerning national governmental funding of CCS. However, we do not find a similar rise in CCS interest in other member states, although the issue of on-shore storage had spurred some controversy in Germany.

In January 2007, the Commission called for a range of actions and policies to strengthen climate policy and to support an independent target of 20 per cent reduction in GHG emissions by 2020 (Commission, 2007). Key new EU climate targets were then adopted in March 2007 – the 20/20/20 targets. The Communiqué from the European Council was a clear indication that member states had increasingly begun to board 'the CCS train' set in motion by the Commission (Council, 2007). First, the Commission was asked to establish a legal framework for CCS, to allow CO_2 to be safely stored underground. Second, and particularly important, it initiated a policy to 'stimulate construction and operation by 2015 of up to 12 demonstration plants'. However, the Council decision did not mention the development of any specific funding mechanisms to ensure realization of these demonstration plants.

In January 2008 the Commission then launched its package of policy proposals, which included a draft CCS directive (Commission, 2008b) and a revised EU ETS for 2013–2020

(Commission, 2008c). However, this climate package proposal offered few incentives for member states to promote CCS construction, besides proposing that power plants should be 'CCS-ready' where technically and economically feasible. An accompanying Commission Communication discussed obstacles to establishing up to 12 demonstration plants by 2015 (Commission, 2008d). It was increasingly realized that the ETS would not offer a carbon price high enough to underpin and justify CCS, and it had been indicated that successful CCS development would require the creation of an additional and specific support mechanism (Commission, 2007, p.6). In the ETS directive draft, the Commission mooted the general idea of setting aside ETS allowances for climate mitigation purposes, such as CCS (Commission, 2008c, Art.10.3c).

The Commission called for swift deliberations on the package. According to one well-informed interviewee, already in April/May 2008, and before France had formally assumed the presidency, it was decided to get the package adopted at the December 2008 European Council. The rationale was that the EU needed to finalize its internal climate policy quickly, in order to maintain its leadership position in the run-up to and at the Copenhagen climate summit in 2009. As decisions in the European Council are made by unanimity (due to its traditional role as the venue for 'history-making decisions' in the EU), this had important implications for the whole decisionmaking dynamic (Peterson, 1995; McCormick, 1999, p.16). Instead of the full co-decision procedure (see Haigh, 2011), trialogue talks involving the Commission, the Parliament and the Council were to sort out any main disagreements in a more rapid, *single* round.[5]

At this stage, the UK-based environmental investment management firm Climate Change Capital proposed that a certain number of allowances should be set aside from the

[5] For information on the trialogue procedure, see http://ec.europa.eu/codecision/stepbystep [accessed 20 February 2012].

New Entrance Reserve in the ETS, and the auctioning revenues be used to finance CCS pilot projects (Hampton, 2008). The idea was soon taken up by a range of entrepreneurs: environmental organizations E3G and Bellona, the oil corporation Shell, the French power-plant equipment producer Alstom, and the electricity utility Vattenfall (Center for Public Integrity, 2011). A CCS financial-mechanism lobby network emerged, made up of environmental organizations, industry actors, members of the European Parliament (MEPs), Commission officials and member-state representatives. Eventually the core actors gathered under the name 'CCS leadership coalition' (Bellona, 2008).

The growing number of participants in ZEP made it harder to develop common positions. Most importantly, our interviewees point out that utilities were reluctant as regards promoting CCS funding, whereas the oil corporations supported a more active approach.

Mixed feelings as to CCS lingered on in the Parliament, with the Greens as the most sceptical group. Chris Davies, from the Liberal group, was appointed Parliament Environment Committee Rapporteur for the CCS Directive in February 2008. Davies, who had not engaged in CCS previously, summed up his view on CCS in these words: 'I hate CCS…It is just that I hate coal more. We have to promote CCS. China, India and the US need to realize that they will have to pay a lot more if they want to use coal' (quoted in Friends of Europe, 2008, p.24). Davies swiftly started to exploit the policy window for CCS in an entrepreneurial manner. In the first debate in the Parliament conducted in early May 2008 he put forward two main proposals: first, that up to 700 million allowances be set aside in the ETS post-2012, to kick-start CCS; second, that all new fossil-fuelled power plants should be 'CCS-ready': after January 2015, no carbon-emitting power plant should be approved unless 90 per cent of its CO_2 emissions could be captured and stored (ENDS Daily, 2008a).

In early June, Parliamentary Rapporteur for the ETS revision, Avril Doyle, followed up on Davies' call for setting aside allowances within the ETS New Entrants Reserve for

funding CCS. This spurred a dynamic within the Parliament, and in early July the ETS and CCS Rapporteurs proposed that up to 500 million allowances should be set aside within the ETS (Point Carbon, 2008a). The Parliament now emerged as something of a network hub for entrepreneurs wanting stronger linkage between the ETS and CCS policies.

A meeting of the Parliament Environment Committee in September endorsed the Davies–Doyle proposal. On this occasion, Davies also put forward the idea that, after January 2015, CCS should be mandatory for power plants over a certain size. Our interviewees emphasize the importance of the close cross-party collaboration between the two rapporteurs. According to one central actor, 'nothing would have happened if the Parliament had not acted on the issue. Chris Davies was crucial, but Avril Doyle was maybe even more important than Chris: she had the money!' And so, in a tense meeting on 7 October 2008, the Parliament's Environment Committee adopted two important CCS reports. First, the MEPs endorsed an amendment setting aside up to 500 million allowances from the ETS New Entrants Reserve for funding CCS demonstration plants. Second, Rapporteur Davies got almost unanimous support for an amendment proposing CO_2 output limits – emission performance standards (EPS) on power stations built after 2015 (Euractiv, 2008a; International Environment Reporter, 2008).

The Council of Ministers reached a first compromise agreement in late October. In this agreement, member states gave support to the Commission's proposal to make power plants 'CCS-ready' where technically and economically feasible, and rejected the Parliament's call for specific emission performance standards. Furthermore, a majority opposed the Parliament's proposal of setting aside 500 million ETS allowances for funding CCS demonstration projects (ENDS Daily, 2008c). The stage was now set for EU 'trialogue' negotiations, which commenced in early November.

Rapporteur Chris Davies toured the capitals of the EU member states promoting the Parliament's amendments. His efforts were coordinated with those of other CCS promoters who also visited the national governments of major EU member states. Moreover, our interviewees point out that the French electricity equipment producer Alstom lobbied the French Presidency in order to ensure that the Parliament's proposals 'remained on the table' during the high-level negotiations on the climate package. Moreover, the director of DG Environment, Mogens Peter Carl, joined the French Presidency *(Financial Times,* 2011). He had headed the development of the climate package, and several of our interviewees emphasize that he was central in ensuring that the Parliament proposals stayed alive.

Most member states remained silent, without any strong positions on CCS. As one interviewee put it: 'CCS was really such a small thing; few actors paid much attention to it. Many of the other issues in the climate package required much more attention.' Member-state interviewees as well as EU officials note that the UK was the most outspoken proponent of a CCS financial mechanism. In 2008, this was the main negotiating point of the British government in deliberations on the climate package. At this stage, the German Prime Minister Merkel was definitely pro, whereas her environment minister was sceptical. Still, a joint statement from the German ministries of the environment, economics and research in September 2007 had characterized CCS deployment as 'necessary and possible' (Praetorius and von Stechow, 2009, p.147).

In order to get support from a broader group of actors, CCS promoters introduced a link to renewable energy in the funding mechanism. This was especially important for gaining support from CCS sceptics, and made some governments, like that of Spain, more supportive. Initially, Eastern European member states, such as Poland, were rather sceptical, especially because they did not want funding to be taken from the ETS New Entrants Reserve. Eventually Poland became more positive – and our interviewees indicate that this change

resulted from targeted lobbying that managed to convince Poland that it would be able to get CCS and renewable funding from the financial mechanism.

By mid-November 2008, a significant number of member states had changed their positions, and a majority of the Council supported some kind of CCS earmarking of ETS allowances. The Commission, and DG Environment in particular, argued for a 'sizeable reduction' in the number of earmarked allowances (ENDS Daily, 2008d). The French presidency basically sided with DG Environment and proposed a lower figure, between 100 and 200 million allowances, estimated to be worth between two to four billion euros (Point Carbon, 2008a; Reuters Planetark, 2008). Also the Parliament sought a compromise: Avril Doyle opened up for the possibility of accepting 350 million earmarked allowances, instead of the 500 million requested earlier (Point Carbon, 2008b).

EU officials and civil society interviewees give vivid descriptions of the dramatic last-minute negotiations. These persons were not physically present in the room, but many had text message contact with the negotiating parties. Funding of CCS was one of the last unresolved issues. Discussions had begun with a proposal for 200 million allowances to CCS funding. No agreement seemed in sight, but the parties knew they would have to find a solution before the announced press conferences. At the very last minute, the British dug in their heels and obtained an increase in the number of allowances from 200 to 300 (Euractiv 2008b). So the final figure ended up being 300 million allowances.

As that dramatic European Council meeting took place *prior* to the final plenary meeting in the Parliament, the latter found itself faced with having either to accept or to reject. Here we should also recall that the two committees, and particularly the rapporteurs, had been heavily involved throughout the trialogue process (see Parliament, 2009, p.15). The Parliament chose to accept, formally endorsing the deal on 17 December 2008, and the Council formally adopted the package in April 2009. The special process seems to have been

of direct importance to the CCS funding outcome. As one EU official put it: 'I am sure it would have been shot down if the case had followed the formal procedure (…) this would never have been possible if there had been two readings (…) When it comes to the urgency as such, it certainly did help. I do not think a compromise like that would have been possible in 2010.'

5. Discussion and conclusions

We have seen that several actors performed entrepreneurship in the policy process that led to the invention and adoption of the NER 300 fund. These entrepreneurs were loosely coordinated; they had differing commitments to CCS, applied differing techniques, and were active in creating as well as exploiting the window of opportunity. Initially, we distinguished between two entrepreneurial techniques: framing and procedural engineering – and two categories of commitment: tortoise and *carpe diem*. Our case study has identified a certain pattern when it comes to how the two dimensions of entrepreneurship may be combined. We propose distinguishing between four different entrepreneurship mechanisms (see Table 1).

Table 1. Four entrepreneurship mechanisms that underpin policy invention

Entrepreneurial techniques **Entrepreneurial commitment**	**Framing**	**Procedural engineering**
Tortoise	**1. Window Identification**	**2. Window Engineering**
Carpe Diem	**3. Agenda-setting**	**4. Decision strategy**

First, *Window Identification* denotes the framing of a given situation at a special moment in time. Entrepreneurship will contribute to changing actors' views on the need for policymaking at that particular juncture. In the NER 300 case, we saw that high-level Commission officials, with Mogens Peter Carl and Jos Delbeke as especially important actors, used the approaching Copenhagen climate summit and the international energy security challenge to fuel a shared sense of urgency. These actors argued that the EU needed to develop credible policies swiftly in order to act as a leader in the international climate negotiations. They also argued that CCS would have to be included in the long-term mitigation plan. Their creative interpretation of the international situation came to underpin the creation of a window of opportunity for new EU climate-policy initiatives.

This is not to say that the Commission officials were able to re-frame the situation all by themselves. For instance, the competition between political leaders wanting to be seen as European climate champions also contributed to the creation of the window for climate policymaking. However, it seems clear that the entrepreneurship performed by Commission officials contributed to amplify the feeling of 'climate urgency' at this particular moment in time. They were 'climate tortoises', with a long-term commitment to the climate issue, seeking to persuade others that it was time to act and develop policies, pursuing the broader goal of an overall ambitious EU climate policy, to which they argued that the 'burying of carbon' could make an important contribution.

Second, the Commission officials together with the German and French presidencies performed *Window Engineering*: they altered the formal decisionmaking procedures in a way that boosted the capacity of the political system for efficient, multiple decisionmaking. By initiating these procedural changes, they contributed to create the window and increased the possibilities for policy invention at this specific moment in time. Indeed, interviewee information indicates that, in the CCS case, entrepreneurial success hinged on the special

procedure for finalization and adoption of the climate package. Also important was the fact that the ETS revision and the new CCS rules were to be determined simultaneously. These measures were increasingly developed as parts of the same package – the EU's climate and energy policy package. A procedural window created a foundation for the later CCS-related 'window exploitation' entrepreneurship.

By identifying two entrepreneurship mechanisms relating to window creation we hope to contribute to a new debate in policy entrepreneurship studies of how and to what extent entrepreneurship may influence the creation of policy windows. Kingdon's metaphor of entrepreneurs as 'surfers waiting for the perfect wave' has gained wide acceptance among political scientists (for an exception, however, see Huitema and Meijerink, 2010). This idea gives the impression that the windows appear 'out of the blue', while potential entrepreneurs are just 'waiting'. However, the case of NER 300 has shown how entrepreneurs may deliberately create policy windows. Moreover, it indicates that a policy window will become more important and lead to more inventive policy decisions if window identification is coupled with window engineering.

Third, we note that *Carpe Diem* actors rushed in *after* the window was created, seeking to exploit it as much as possible. They performed *Agenda-setting*, trying to ensure that a CCS was framed as relevant to policy window and as a solution needed to solve the climate challenge. Agenda-setting has already been given considerable scholarly attention as an entrepreneurship mechanism. It is widely acknowledged that entrepreneurship plays important roles in articulating and introducing new policy ideas into the legislative process (see e.g. Finnemore and Sikkink 1998; Mintrom 1997). Also Kingdon (1984) emphasizes that whether and when a political problem becomes coupled with a specific political solution will depend heavily on someone seizing the opportunity to suggest that authoritative, decisionmaking bodies should link them together.

While the literature does not distinguish whether the actors that perform window creation have a *carpe diem* or a tortoise commitment, this case study has shown that *carpe diem*ers can be crucial for agenda-setting. MEPs, representatives of environmental organizations and industry, generally with fairly short track-records as regards CCS, were specifically important in pushing to get a CCS financing mechanism. CCS was presented as an indispensable climate solution, necessary for the EU to be able to tackle future climate obligations and challenges. Pushing CCS gave the *carpe diem*ers an opportunity to demonstrate their own political vigour and leadership. Of course, also tortoises may perform agenda-setting – but this was not the dominant pattern in the case of NER 300. Bellona stands out as the sole CCS tortoise: the only entrepreneur with a long-term commitment to CCS.

Kingdon's ([1984] 2011, p.165) description of entrepreneurs as advocates who have been lying 'in wait in and around government with their solutions at hand' is not a good description of agenda-setting in the NER 300 case. The idea for the funding mechanism did not emerge until a very late stage, and it was proposed by an actor – Climate Change Capital – not otherwise particularly engaged in the actual process of CCS policy development. Moreover, most of the core actors in the 2008 lobby campaign did their window-stunts at a very late stage, as was the case with the two central MEPs (Davies and Doyle) and E3G. Chris Davies went out of his way to get a CCS funding mechanism adopted, but his main initial motivation was arguably to show that he could set his mark on the outcome of the EU climate package, not to promote any given CCS policy design.

Fourth, we see that the *carpe diem*ers aimed to change the policy procedures that operated while the window was open by performing what we call *decision strategy entrepreneurship*. The two Parliamentary Rapporteurs Davies and Doyle changed the very basis for CCS decisionmaking, by linking the ETS and the CCS issue in a new way and putting up proposals for voting. With their skilled tactics, they succeeded in mustering support

for this issue linkage. Their collaboration was indeed remarkable, not least since they represented different party groups. Moreover, time pressures related to the need to finalize the package gave the rapporteurs greater leeway, forcing the Council to develop compromises.

Note also that CCS lobbyists had a tactical 'stick-and-carrot' plan behind combining the two proposals: the emission performance standard was a negative 'stick' aimed at the polluting industries, intended to make it easier to muster support for the financial mechanism from green MEPs. The financing mechanism was then more of a 'carrot', rewarding large source polluters that invested in CCS. The entrepreneurs included renewables in their proposal in order to gain support from MEPs as well as member states, with Spain following up on this enthusiastically in the very final phase of climate-package negotiations.

Bargaining skills can have an impact on decisionmaking – that is not new to political science. What we argue is that focusing narrowly on the final NER 300 decisionmaking situation yields a skewed understanding of the importance of these tactics. It is only by taking into consideration the full range of entrepreneurship, including window creation and exploitation, framing and procedural engineering, that we can gain a broader understanding of how entrepreneurship may play into a policy invention process. This case has shown how policy invention may come about as a result of the entrepreneurship carried out by a range of different and loosely coupled actors.

The literature on policy entrepreneurship has focused more on success factors that enable particular persons to be especially influential, and less on the defining characteristics of entrepreneurship. In this contribution we have conceptualized two important dimensions of entrepreneurship (techniques and commitment) and proposed four different entrepreneurship mechanisms. It is our hope that this can lead to a more nuanced debate about what entrepreneurship is and how it plays into policymaking. Entrepreneurship has been our main theory focus here, but, again, we do not argue that entrepreneurship mechanisms alone can

give a full explanation to a certain policy invention. In order to grasp the bigger picture, also other more structural and cultural features need to be taken into account. Nor do we hold that all kinds of entrepreneurship will always be successful. However, by introducing more fine-grained definitions of different kinds of entrepreneurial activities we hope to have made the way easier for future studies of failed entrepreneurship.

It should also be noted that the actors that influenced decisionmaking on NER through entrepreneurship have had little influence on the later policy implementation. The case of NER 300 clearly shows how a policy invention may serve another purpose than originally envisaged. Interestingly, to date NER 300 has funded only renewables projects and not a single CCS project, and, indeed, it seems set to remain more important for renewables than for CCS (Commission, 2013).

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