



Carbon capture and storage: Frames and blind spots



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HIGHLIGHTS

- Absent much public debate, experts alone have framed CCS; yet serious biases exist.
- Powerful interests in the EU took advantage of a positive global framing of CCS.
- A hegemonic framing of CCS in the EU caused it to bypass rigorous evaluation.
- Claims regarding energy security and other benefits of CCS in the EU are dubious.

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ABSTRACT

The European Union (EU) carbon capture and storage (CCS) demonstration programme stands out for the speed with which financial support was agreed to, the size of this support, and its unusual format. This paper sets out to examine CCS policymaking in the EU by analysing the way this technology was framed. It draws up a simple model of technology framing with two variants. The first one describes the creation of “mainstream frames” of technologies in policymaking. The second one explains the effects of a “hegemonic frame”, namely the weakening of evaluation criteria and the increased salience of “blind spots”. On this basis, this paper explains the global mainstreaming of a CCS frame and its transformation into a hegemonic frame in the EU. Finally, the paper reviews the blind spots in this hegemonic frame and their impact on EU policy.

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1. Introduction

The European Union (EU), with its Member States, has been one of the most generous funders of carbon capture and storage (CCS) research alongside the United States (US). The EU case stands out for the speed with which financial support was agreed to, the size of this support, and its unusual format.

CCS first appeared in EU political documents in 2005. During 2008, a “Climate and Energy Package” was rapidly negotiated and passed, with a view to influencing that year’s UN Climate Convention negotiations. Among other measures, it contained an EU Directive enabling large-scale CCS activities as well as amendments to the EU Emissions Trading Scheme to account for and fund “CCS demonstration”. As of 2012, the EU and its Member States had promised an estimated US\$10 billion in public support for CCS (SBC Energy Institute, 2012). The lion’s share of this funding for CCS was to come from the EU level, which was unprecedented: European supranational institutions largely base their legal force on regulatory, not fiscal powers (Majone, 1994; Deloitte, 2012). Furthermore, the technical characteristics of CCS

do not make it, a priori, the most obvious low-carbon technology to be supported at the EU level. At this stage, CCS would have few or no cross-border issues. Finally, even under optimistic future scenarios, CCS use would be heavily concentrated in just a few EU member states (DG Environment, SEC, 2008 54).

The literature on the politics of CCS in the EU explains that introducing ambitious policies for climate change mitigation and energy security was part of an attempt at reinvigorating the EU project after the failure of its constitutional process (Claes and Frisvold, 2011: 211). There is, however, little questioning of the concrete arguments that drove policymaking on CCS. There is even less questioning why specifically CCS was so suddenly discovered in the EU as a crucial technology for tackling these problems (Claes and Frisvold, 2011; Fischer, 2012; Brockett et al., 2008; Radgen et al., 2009; Bradshaw, 2009; Chiavari, 2010; Von Stechow et al., 2011; Scott, 2013).

Since there were no cost-cutting breakthroughs or novelties that can easily explain the sudden increase in interest for the technology (Marchetti, 1976; IPCC, 2005), this paper focuses on the effects of “framing” on CCS policymaking in the EU (Scrase and Ockwell, 2010). It describes how a global “mainstream” frame of CCS, selected by major politico-economic trends, became

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“hegemonic” in the EU. This “hegemonic frame” has largely persisted even after its plans for CCS deployment and funding in the EU failed to materialise (Selosse et al., 2013; Bellona Foundation et al., 2013; DG Energy, COM, 2013 180; European Parliament, 2013/2079(INI); DECC, 2014).

Section 2 below describes the materials analysed and develops two heuristic models to interpret them. Section 3 presents and discusses the results of analysing the framing of CCS globally and in the EU. It ends up by examining the “blind spots” of the EU frame for CCS. Section 4 draws conclusions and provides policy recommendations.

2. Materials and methods

This paper is based on a discourse analysis (cf. Scrase and Ockwell, 2010; Curran, 2012; Cotton et al., 2014) of the promotion of low-carbon technologies in the EU, with a special emphasis on CCS. A corpus of texts was analysed to ascertain the framing of CCS in the EU during the Climate & Energy Package (C&EP).

The corpus is centred on legislative, institutional and corporate documents cited in or relevant to the C&EP. Primary documents were collected through full-text searches of all EU institutional documents on the Eur-Lex engine using terms such as “carbon capture” and “CCS”. This set of documents was expanded by following the initial documents’ internal system of references, which also point to external sources (e.g. the Stern Review, European technology platforms, International Energy Agency). Finally, the corpus was contrasted for completeness with the academic literature.

The corpus thus spans 1995–2014, with the majority of documents clustered around the C&EP negotiating period 2007–2008. Materials before and after the C&EP provide background and contrast. Table 1 below quantifies the sources of documents, which broadly reflect the respective weight of actors in EU climate and energy policy (Jordan and Rayner, 2010; Maltby, 2013), plus a significant representation of international organisations and industry. This distribution ensures a good scrutiny of both institutionalised and more indirect influences on CCS policymaking.

However, framing cannot be inferred from the number of times any one actor mentions a technology. Rather, it refers to the manner in which this actor frames the technology and how this framing is reflected in other actors’ assessments and in the policy outcomes. In order to identify frames and their formation, key passages describing CCS (its role within the EU and in global energy policy as well as its relation to other low-carbon technologies) were found in the corpus through detailed critical reading of an initial sample of documents. Thus, the patterns of reasoning and word collocations that dominated the discussion were

discovered. These reveal the narratives or “story-lines”, which end up constituting a frame (Scrase and Ockwell, 2010). These narratives were then systematically compared across the entire corpus through computerised searches. Sections 3.1 and 3.2 below describe CCS frames that are present globally and in the EU as regards CCS. Section 3.1 draws heavily from the existing literature, while Section 3.2 is mostly sourced from the corpus.

After qualitatively distilling the key frames in the corpus, these were cross-examined for potential blind spots, as expounded in Section 3.3. The cross-examination tests crucial assertions in the corpus for coherence both with other parts of the corpus and with general energy policy data. The intention is not to test whether policymakers were able to “see the future”, most notably the devastating crisis that engulfed Europe after 2009. Rather, the paper strives to contrast the frame with then-available trends and information.

This discourse analysis was carried out simultaneously with and checked against semi-structured, in-depth interviews with experts. Their expertise lay in various aspects of EU energy policy and, in particular, the promotion of low-carbon technologies such as CCS.¹ The experts were all involved in the policymaking and policy implementation around low-carbon technologies. Interviewees were balanced according to need across and within:

- Civil society (WWF and Greenpeace)
- European Commission Directorates General (Energy, Environment, Research, and Trade)
- European Parliament (Liberals, Greens, Independents and committee staff)
- Industry (Alstom, Vattenfall, Eurelectric, EWEA, ULCOS, ESTEP and ZEP)
- International energy organisations (IEA, IEAGHG)
- Member state energy policy institutions (UK, Belgium, the Netherlands, and Spain)

Questions revolved around the policymaking process before, during and after the C&EP. This allowed the research to account for any “behind the scenes” or unwritten issues that may have affected the framing.

2.1. Models of energy technology framing

The framing of energy technologies such as nuclear, biofuels, and hydraulic fracturing has been analysed with a focus on the general public or on media (Delshad et al., 2010; Corner et al., 2011; Cotton et al., 2014). A core idea of this research is that the public is particularly prone to misconceptions and manipulation through said framing. Accordingly, a significant amount of socio-political CCS literature has been devoted to analysing “public perceptions” and “media framing” (Einsiedel et al., 2013; Ashworth et al., 2010; Krausel and Möst, 2012; Riesch et al., 2013; Boyd and Paveglio, 2014). However, in contrast to nuclear, biofuels and so-called fracking, CCS has not developed enough to be debated widely on a national scale in most jurisdictions, with the only possible exceptions of Norway and Germany – both quite fleetingly (Tjernshaugen and Langhelle, 2011; Praetorius and Stechow, 2011). The results of the public surveys cited above confirm that CCS remains a largely experts-only field. However, framing is not limited to interactions between experts and an ignorant public. Rather it affects all forms of communication – not least among experts themselves (Scrase and Ockwell, 2010).

¹ Some are cited explicitly below while respecting their anonymity. The Harvard style is used but with affiliation instead of name, and date of interview instead of year.

Table 1
Distribution of document sources in the corpus by interest group.

Document source	Quantity
Consulting/Research (NTUA, Deloitte, i.a.)	10
Environmentalists (Greenpeace, WWF, i.a.)	14
EU member states (Council of Ministers, UK government, i.a.)	49
European Commission: DG energy	11
European Commission: general/undefined	9
European Commission: other DGs	14
European Parliament (committees responsible: ITRE, ENVI, CLIMA)	31
Industry (involved with CCS: Vattenfall, Alstom, ZEP i.a.)	36
Industry (NOT involved with CCS: EREC, EWEA)	5
External organisations (IEA, G8, GCCSI, IPCC, US DoE, i.a.)	36
Legislation	8
TOTAL	223

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