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Insufficient climate policy integration in EU energy policy: the importance of the long-term perspective

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Abstract

This article assesses and explains the level of climate policy integration (CPI) in the EU's energy sector, and challenges the widespread assumption that a high level of CPI has been achieved in this sector. We introduce a conceptualisation of CPI and outline an analytical framework to explain levels of CPI, drawing on Environmental Policy Integration (EPI) literature and on theories of European integration. We thus add conceptual value by bringing strands of EPI literature together and situating them in broader theories of European integration. We analyse CPI in two cases of energy policy: the EU's renewable energy (RE) policy and EU policies on gas pipelines. We argue that even in the relatively climate-friendly RE case, the level of CPI remains insufficient to reach long-term climate policy objectives. CPI has been virtually absent in the EU's gas import pipeline policy. The lack of CPI may remain hidden without taking a long-term perspective. The explanatory framework helps us in understanding the insufficient levels of CPI and the differences between the cases. We argue that serious consideration of long-term climate objectives in the policy process is fundamental for the occurrence of CPI.

Keywords

Climate policy integration; environmental policy integration; EU renewable energy policy; gas import pipeline policy.

There is growing discussion at national, international and European levels on climate policy integration (CPI), based on the expansive body of literature on environmental policy integration (EPI) (Kulovesi, Morgera, & Muñoz, 2010; Mickwitz, et al., 2009). Yet, only a limited amount of such research has focused on CPI at the EU-level (see, for example, Dupont, 2011; Dupont & Primova, 2011; Rietig, 2012).

The vast body of EPI literature, which has grown since the Brundtland commission highlighted the importance of sustainable development in 1987, understands and examines EPI from different perspectives – as an overarching principle, as a policy process, as a policy outcome. Few examples of truly comprehensive explanatory frameworks have thus evolved (Jordan & Lenschow, 2010; Persson, 2004). Governance theories (von Homeyer, 2006), learning theories (Nilsson & Persson, 2003) and theories of bureaucratic politics (Jordan & Lenschow, 2010) have been deployed to explain parts of the EPI story.

With regard to CPI at the EU-level it may be assumed that the 2009 climate and energy package shows evidence of CPI into the EU's energy sector (but see Adelle, Pallemaerts, & Chiavari, 2009). However, such assumptions are often focused on a limited number of cases of energy policies and are rarely based on explicit criteria and a clear standard for CPI.

In this paper, we develop a systematic framework for assessing and explaining the level of CPI, and then apply it empirically to the EU's energy policy. We proceed in four steps. The next section establishes a benchmark standard of CPI that makes use of 'strong' interpretations for measuring CPI in both the policy-making process and its output (i.e. the resulting policies). Drawing on general theories of European integration, this paper will then introduce three key factors that can help explain the level of CPI found in both the policy process and output: (1) the nature of the functional overlap with climate policy objectives; (2) the level of political commitment to climate policy and to CPI; (3) and the institutional and policy context. In addition, the extent of CPI in the policy process may contribute to explaining CPI in the policy output, as a fourth factor. This general framework is applied to two cases of EU energy policy: renewable energy (RE) and gas import pipelines. The empirical analysis in this paper reveals that even the relatively successful case of RE displays insufficient levels of CPI. The paper then describes how the explanatory factors help us understand these results. Our conclusions point to the usefulness of the conceptual framework; to the need for a long-term (2050) perspective in climate policy (and its assessment); and indicate that serious consideration of climate policy objectives in the policy process is crucial to enhanced levels of CPI.

Conceptualising climate change policy integration

In conceptualising CPI, we draw on literature on policy coherence, coordination, integration, and also EPI. Promoting policy coherence implies ensuring various policy outputs are harmonious, without assigning priority to any particular policy objective or explaining how to balance policy aims. Achieving policy coordination implies using communication and coordination mechanisms to improve efficiency in the policy process (although B. Guy Peters (1998) ascertains that coordination can also achieve efficient policy outputs) (Metcalfe, 1994). Policy integration goes further to take a holistic view of the policy process and the policy output (Briassoulis, 2005; Underdal, 1980).

EPI supports a normative dimension in favour of the environment. Placing an adjective before the term "policy integration" implies assigning priority to one sector's objectives over another (Briassoulis, 2005, p. 23). Some scholars have advocated that environmental objectives should receive "principled priority" in other policy sectors (Lafferty and Hovden, 2003, p. 9). Others have emphasised the importance of taking environmental considerations "into account" in the formulation of policy (Jordan & Lenschow, 2008a; Persson, 2004). We follow William Lafferty and Eivind Hovden's understanding and apply a "strong" standard of CPI in the policy process and output, taking as a benchmark the consensual scientific requirement to limit global temperature rise to 2°C above pre-industrial levels by 2050 (IPCC, 2007). This provides a methodological benchmark against which the real extent of CPI can be measured. Other conceptualisations of CPI have not identified a similar clear benchmark and/or have often been more concerned with promoting CPI than measuring its status quo (Ahmed, 2009; Mickwitz et al., 2009; Urwin & Jordan, 2008).

CPI is defined here as promoting climate policy objectives in the policy process and the output in non-environmental policy sectors to achieve the long-term policy objective of ensuring global temperature rise does not exceed 2°C. Taking the principled priority of climate policy objectives as a standard of policy evaluation (i.e. 'strong' CPI) holds important (methodological) advantages for the study of CPI. This standard, once clearly and transparently established, can facilitate comparison with other research results and enable criticism. It is comprehensive in two dimensions: (1) it covers both the policy process and output and (2) it can reveal the full spectrum from high to low levels of CPI (thus capturing both how full and how empty the proverbial glass is; see also Dupont & Primova, 2011).

With regard to the policy output, full CPI will be achieved if policies are 100 per cent in line with established (scientifically grounded) climate policy objectives. Measuring CPI in the policy output therefore involves investigating how much of the gap between the status quo (business as usual, BAU) and the ideal of CPI is closed by the policy decision in focus. We can then make a qualitative assessment on the level of CPI, applying a five-fold scale ranging from no/very low CPI (BAU) through low, medium and high, to very high/complete (see Table 1 with indicative percentage ranges).

Table 1: Scale to measure CPI in the policy process and in the policy output

Policy process & output	No / very low	Low	Medium	High	Very high / complete
	0-20%	21-40%	41-60%	61-80%	81-100%

The level of CPI in the policy process is expected to affect the level of CPI in the policy output (Briassoulis, 2005). Therefore, CPI in the policy process is both a dependent variable and an independent variable. We assess the level of CPI in the policy process as part of the overall assessment of CPI and this level contributes to explaining the level of CPI in the policy output. We propose two preliminary indicators to measure the level of CPI in the policy process: (1) the recognition of the functional overlap between climate policy and the sector policy objectives in the policy discussions, and (2) (the presence and use of procedures to ensure) participation of climate policy advocates within the EU institutions (such as DG Environment, DG Climate Action, the European Parliament's environment committee) and external climate policy stakeholders (such as environmental NGOs) in the policymaking process (Dupont & Primova, 2011; Jacob, Volkery, & Lenschow, 2008).[1]

Explanatory framework

EPI literature has put forward several factors to different levels of EPI, but these have rarely been linked to general theories of European integration or put into a unified conceptual framework. Different analyses have employed different conceptual frameworks with partial explanatory power. Research focusing on the policy process has employed an institutional perspective (Jordan & Lenschow, 2008), or a "policy learning" perspective (Nilsson, et al., 2007; Nilsson & Persson, 2003), while policy evaluation studies have attempted to assess EPI in the policy output based on lists of indicators (European Environment Agency, EEA, 2005). We develop a more holistic conceptual framework to help us understand the level and variance of CPI in and across policy fields. Our four core factors, discussed separately below, and derived from EPI literature and general theories of European integration, provide a differentiated but manageable framework for the systematic exploration and explanation of CPI (see also Dupont & Primova, 2011).

[1] Our assessment of CPI in the policy process is necessarily preliminary within the constraints of this article. This assessment may be further refined to include additional indicators (such as, the extent to which expert climate knowledge is referred to/sought by policymakers).

First, the nature of the functional overlap between the sectors is an explanatory factor for CPI in both the policy process and output, and relates to neofunctionalist theory emphasising functional 'spillover' as a driver of European integration (Haas, 1961; Niemann & Schmitter, 2009). A certain functional overlap between climate policy and the other policy sector shapes any demand for CPI. The way in which, and the extent to which, the objectives of the policy area concerned affect the objectives of climate policy lie at the heart of the analysis of CPI. Additionally, the type of this functional overlap helps us understand the level of CPI in the policy output and process. Thus, we may account for two different properties of functional overlap. First, whether functional overlap is more direct (policy overlaps are obvious and clear) or indirect (policy overlaps may be more obscure or hidden by other objectives) may have repercussions for the strength of the resulting political demand for CPI: the more direct the policy overlap, the more likely that demand for CPI will arise. Second, whether the functional overlap is more synergistic or conflictive may affect the ease of advancing CPI. The more synergistic the policy objectives, the more likely CPI will be advanced in the policy process and output. As presented in the Table 2, when functional overlap is both synergistic and direct, most favourable conditions exist for CPI; when functional overlap is both conflictual and indirect, it is least likely that significant CPI will materialise.

Table 2: The nature of functional overlap and its potential effect on CPI

	Direct	**Indirect**
Synergistic	++	+-
Conflictual	-+	--

Second, political commitment is a core factor for explaining levels of CPI in both the policy process and output. It fits with a liberal intergovernmentalist perspective of EU integration that focuses on grand political decisions by EU member states, on intergovernmental politics and on member state preferences (Moravcsik, 1998; Moravcsik & Schimmelfennig, 2009). Consequently, we assess the level of political commitment on the basis of the conclusions of the Councils of Ministers and of the European Council of heads of state or government. Two aspects of political commitment are relevant here, namely (1) political commitment to climate policy objectives generally and (2) the political commitment to climate policy integration into the policy sector under investigation. Political commitment in both instances can be qualitatively measured on a scale from low (no/few statements of commitment in Council conclusions) to medium (some statements of commitment) to high (strong statements of commitment, possibly backed up by concrete targets and/or by assigning priority to climate objectives).

Third, a neo-institutionalist perspective leads us consider the institutional and policy context for CPI (Hall & Taylor, 1996; Pierson, 1998; Pollack, 2009). Past policy experiences and path dependency created by previous policies and institutional decisions may affect CPI in the policy process and output (Jordan & Lenschow, 2010; Pierson, 1998). Actors may learn from past failures or successes and previous decisions may create or undermine a dynamic that facilitates change. Decision-making procedures play a role, as, for example, decision-making by qualified majority may be assumed to facilitate policy change towards CPI.[2] Some external political factors, which can lead to windows of opportunity for policy development (be they favourable or unfavourable for climate protection), may also be subsumed under this explanatory factor (Kingdon, 2003). Windows of opportunity can open due to external shocks (such as energy crises) or specific events in the external political environment (such as climate negotiations) (Nohrstedt, 2005; Wettestad, 2005).

Finally, we expect the process dimension to affect the level of CPI found in the policy output. This factor has roots in both new institutionalist and neofunctionalist theory, which emphasise the role of various actors in the decision-making process (Haas, 1961; Niemann & Schmitter, 2009; Rosamond, 2005). Neofunctionalism, institutionalism (Hall & Taylor, 1996), and EPI literature, emphasise the importance of day-to-day procedures in the EU, including transparency and participation procedures. High levels of CPI in the policy process, evidenced through, e.g. the acknowledgement and prominence of the functional overlap in the discourse and procedures allowing high climate stakeholder involvement, are likely to promote higher levels of CPI in the policy output.

Climate policy integration into the EU's energy policy

The energy sector is crucial to combating climate change. It accounts for almost 80 per cent of the EU's greenhouse gas (GHG) emissions. In line with the findings of the Intergovernmental Panel on Climate Change (IPCC, 2007), the EU aims to reduce GHG emissions by 80-95 per cent in the EU by 2050 (compared to 1990 levels). This long-term objective implies an almost complete decarbonisation of the energy sector (ECF, 2010; European Commission, 2011b, p. 5). Several studies indicate that decarbonising the EU's energy sector by 2050 is both possible and cost-effective (EREC & Greenpeace, 2010; ECF, 2010; WWF, 2011).

Competence on energy policy has slowly been shifting to the European level (Jordan, et al., 2010). Although a specific energy policy competence was only established with the Lisbon Treaty in 2009,[3] the Commission has long been active in promoting further EU-level energy policy development. Even after the Lisbon Treaty (Treaty on the Functioning of the European Union, TFEU), however, important energy policy competences remain at the member-state level, including with regard to determining the conditions for exploiting energy resources, the choice between different energy sources and the general structure of energy supply (Article 194 (2) TFEU). The next two sections explore the level of CPI in two cases of EU energy policy, namely RE and policies to promote gas import pipelines.

[2] Other procedural aspects (such as procedural participation rights and transparency requirements) usually emphasised by neo-institutionalism are incorporated into the process dimension factor.
[3] Art. 194 (1) of the TFEU specifically lists four areas of EU energy policy: (1) the functioning of the energy market; (2) the promotion of the security of energy supply to the EU; (3) the promotion of energy efficiency and energy saving and the development of renewable forms of energy; (4) and the promotion of the interconnection of networks.

CPI in the EU's renewable energy policy

RE policy in the EU has developed somewhat alongside, but also independently of, climate policy (European Commission, 1997; Howes, 2010). Reducing GHG emissions is a major rationale to promote RE in the EU, but it has also been promoted for energy security reasons (Howes, 2010). The latest EU RE legislation is the 2009 RE directive (2009/28/EC), which outlines the policy framework for increasing the share of RE (hydropower, biomass, solar, wind, ocean energy, geothermal) in the EU to 20 per cent by 2020. Importantly, this 20 per cent target is binding under EU law.

To decarbonise the energy sector, a very high level of CPI would see a very high share of RE in the overall energy consumption in the EU by 2050 (EREC & Greenpeace, 2010; ECF, 2010; Heaps, et al., 2009). Depending on assumptions regarding carbon capture and storage (CCS) technologies and nuclear energy, most scenarios for decarbonisation by 2050 imply a RE share of 55-100 per cent (EREC & Greenpeace, 2010; Heaps, et al., 2009; WWF, 2011; ECF, 2010; European Commission, 2011d). CCS technologies, however, continue to be commercially unviable (Reichardt et al., 2012), and nuclear energy is facing strong public opposition in many member states. We therefore argue that a very high level of CPI implies a share of about 80-100 per cent of RE in the energy mix for 2050, as reflected in several studies on decarbonisation (ECF, 2010; EREC & Greenpeace, 2010; Heaps, et al., 2009; WWF, 2011). Such a range is close to the high RE scenario of the Commission's own Energy Roadmap to 2050 that projects a share of 75 per cent RE in final energy consumption by 2050 (European Commission, 2011a, p. 4) – a level criticised by several stakeholders as insufficient (see EREF Press Declaration, 2011; EREC, 2011b).[4]

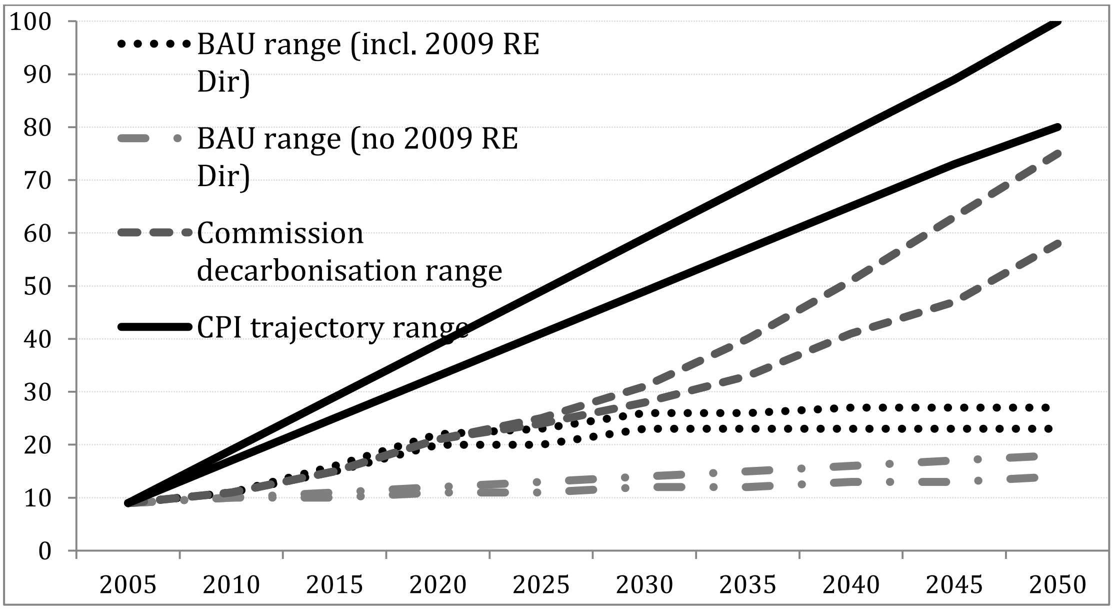
A share of RE of 80-100 per cent by 2050 implies an increase in the share of RE by about 8-10 percentage points every five years, on average, from 2005. In 2005, the share of RE stood at 8.6 per cent (EEA, 2008, p. 44). It may be argued that a linear trajectory is unrealistic because it does not take account of high upfront costs for increasing the share of RE. Accordingly, the RE industry calls for slightly less early action than a linear trajectory would imply, namely a minimum 45 per cent share for RE by 2030 towards an almost 100 per cent RE system by 2050 (EREC, 2011a; EREC & Greenpeace, 2010). It can also be argued that maximum early action is required since energy infrastructure built today will still be in place in 2050 (which might imply even greater increases in the RE share earlier on) (European Commission, 2010, p. 5). We thus assume that full CPI integration should result in an increase of (close to) 8-10 percentage points every five years from 2005.

Available evidence suggests that without policy intervention, very significant increases in the share of RE in the EU would be unlikely (Howes, 2010, p. 124). Between 2000 and 2005, RE share increased by 1 percentage point (European Commission, 2011c), and the BAU scenarios of the European Commission have consistently arrived at future increases of not more than 1-2 percentage points per decade (European Commission, 2006, p. 7; 2011c, attachment 1).[5] The gap to be closed for a high degree of CPI is thus between a

[4] The Energy Roadmap provides no scenario combining high levels of energy efficiency with high levels of RE, which together could pave the way to full decarbonisation (EREC & Greenpeace, 2010, p. 12).
[5] Commission reference scenarios in 2011 (i.e. after directive 2009/28) showed an average of 21 per cent share of RE in 2020; 24 per cent in 2030; 25 per cent in 2040; and 25 per cent in 2050 (see European Commission, 2011c, attachment 1), whereas scenarios before directive 2009/28 suggested between 10.4 and 12.6 per cent RE share in 2020.

baseline of an increase in the RE share of up to one percentage point every five years and a required increase of 8-10 percentage points every five years (see Figure 1).

Figure 1: Scenarios for development of RE share in total energy consumption in the EU to 2050



RE share in %. Source: ECF, 2010; European Commission 2011c; EREC & Greenpeace, 2010; Heaps, et al., 2009; WWF, 2011; own calculations.

From a long-term perspective to 2050, we thus conclude that the current target of a RE share of 20 per cent by 2020 reflects a (high-end) medium level of CPI in the policy output. A very high level of CPI would lead to a RE share of 30-40 per cent in 2020. Without directive 2009/28, we may assume the share of RE would have increased to 10-12 per cent by 2020. Current EU RE policies close about half the gap between BAU and what would be required for effective climate protection (taking the lower end of the 30-40 per cent range as a point of reference).[6] This suggests a medium level of CPI. Taking into account that some time is needed for new RE policies to have effect and the change of course towards decarbonisation implicit in the 2020 target, we may specify that this is on the high range of a medium level of CPI. From a long-term climate policy perspective, the 20 per cent target for 2020 cannot be considered ambitious enough (see also Adelle, Pallemaerts, & Chiavari, 2009).

In the policy process, the extent of CPI is high. Such a level is due to the prominent consideration of climate policy objectives in the policy process and the active involvement of internal and external climate stakeholders based on established procedures. The co-benefits of achieving RE and climate objectives were clearly recognised from the beginning of the policy discussions, with the Commission opening its proposal with the statement that RE "contributes to climate change mitigation" (European Commission, 2008, p. 2).

[6] Even with strong assumptions about the use of CCS and nuclear energy and thus lower shares of RE in 2050 of 55-65 per cent, a linear trajectory should lead to about 25 per cent RE share in 2020.

As directive 2009/28 was negotiated under the ordinary legislative procedure, normal consultation and participation procedures were in place. Inter-service consultation in the Commission and inter-committee consultation in the Parliament allowed opportunities for climate voices to be raised. In the Parliament, the industry, research and energy committee drafted the first reading opinion on the Commission proposal, with Green MEP Claude Turmes as rapporteur and the environment committee as co-drafter.

External climate stakeholders, such as Greenpeace, the European Renewable Energy Council (EREC) and the European Wind Energy Association (EWEA), were active in attempting to influence the policy output. These climate stakeholders generally praised the final output (Greenpeace, 2008; ENDS Europe, 2008). Stakeholders' satisfaction, with the output and with their involvement in the process, is an indication of the high levels of CPI in the policy process. This high level acts as an explanatory factor for the level of CPI in the policy output (discussed in the next section).

CPI in EU policy on gas import pipelines

Importing gas into the EU is an issue of concern to the EU as a whole. After the 2006 and 2009 Russia-Ukraine gas crises affecting supplies to (mainly Eastern) Europe, awareness of gas supply security issues grew. One of the EU's energy security strategies is to diversify its sources of natural gas (e.g. from the Caspian Sea region). Such ambitions require infrastructure, whether pipelines or LNG terminals. Natural gas has been hailed as the cleanest fossil fuel, yet it is a major source of GHG emissions. Promoting further gas pipelines carries the risk of "carbon lock-in" to fossil fuel infrastructure, which has an expected lifetime of about 50 years (or more).

Among EU-level policies supporting gas import infrastructure are the European Energy Programme for Recovery (EEPR, Regulation 663/2009), and the trans-European energy network guidelines (TEN-E, Decision No 1364/2006/EC). The EEPR, agreed in 2009, assigns four billion euro to electricity and gas projects in the EU. A 2012 report of progress describes the importance of this policy for pipeline projects, naming several pipelines (including the Nabucco pipeline from Turkey to Austria). The report states "any sign of a weakening EU support to these projects would send the wrong signal to the gas producers" (European Commission, 2012, p. 5).

The 2006 TEN-E guidelines outline the criteria for supporting certain projects. Projects supported by the EU include the Nord Stream pipeline connecting Russia to Germany through the Baltic Sea (operational in 2012 with a capacity of 55 billion cubic metres, bcm) and the Nabucco pipeline (now called "Nabucco West") in the so-called "Southern gas corridor", which aims source gas from the Caspian Sea region (capacity between 10 and 23bcm, negotiations for gas ongoing) (Decision No 1364/2006/EC, Annex I). These projects were given the label 'project of European interest', assigning priority for financial and political backing from the EU (Article 8). As of 2012, the 2006 TEN-E guidelines were under review.

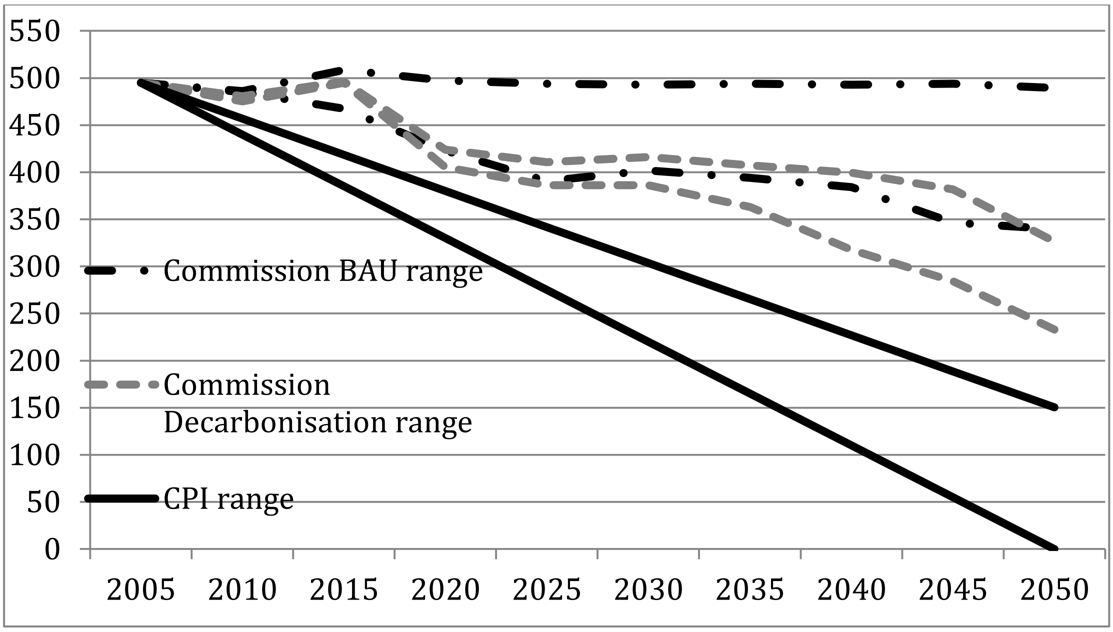
To assess the level of CPI into EU gas import pipeline policies, we need to know: (1) what are the expectations for gas consumption in the EU under decarbonisation scenarios, and (2) how much gas import infrastructure will exist in 2050. It will then be possible to assess whether new gas pipelines are needed.

First, there are varying scenarios on EU natural gas consumption in 2050. Natural gas consumption in the EU amounted to 448bcm in 2011 (BP, 2012, p. 23). Some scenarios suggest that gas will continue to be required as a "back-up fuel" for intermittent RE electricity generation, and that it will be a key "transition fuel" in the short-term. The Commission suggests gas consumption will rise to 2015 (to about 496bcm) before beginning to drop in 2020 (to 405-424bcm) (European Commission, 2011a, p. 11; 2011c). Other scenarios suggest as little as 52bcm will be required in 2050 (primarily for industrial processes) (Heaps et al., 2009). EREC considers a 100 per cent share of RE for 2050 feasible and argues that there is little need for gas (EREC & Greenpeace, 2010). Eurogas suggests that 462bcm of natural gas will still be required in 2050, and pushes for its continued use with CCS as a "low-carbon energy source" (Eurogas, 2011). The Commission's energy roadmap to 2050 estimates gas consumption in 2050 as 233bcm-320bcm,[7] with a minimum of 202bcm used for gas-fired power generation (requiring CCS technology) (European Commission, 2011c, pp. 68-77).

In line with various decarbonisation scenarios, and taking account of the uncertainties surrounding CCS, (Reichardt et al., 2012), a CPI perspective requires greatly reduced levels of gas consumption in the EU. With the high levels of RE in 2050 (discussed previously), very low levels of natural gas will be required to meet energy needs. Therefore, we assume that gas consumption in a decarbonised EU in 2050 may range from 0-150bcm, with the upper limit being dependent on the deployment of CCS technology. Some gas consumption in 2050 may be required for industrial processes. With domestic gas production projected to decrease to 20-30bcm by 2050 (without taking account of the EU's shale gas potential; European Commission, 2011c), this range implies gas imports of maximum 130bcm. Figure 2 outlines the various trajectories to 2050, comparing the high CPI trajectory range with the decarbonisation scenarios of the European Commission and BAU expectations.

[7] Conversion from Mtoe to bcm at a rate of 1:1.11 (BP conversion factors), own calculation.

Figure 2: Trajectories of gas consumption in the EU towards 2050 (in bcm)



Source: European Commission 2011c; own calculations.

Second, the capacity of EU gas import infrastructure will help us understand if more gas pipelines are required. Table 3 outlines the gas import infrastructure capacity in the EU. The EU imported approximately 311bcm of natural gas by pipeline in 2011, when its pipeline capacity stood at 440bcm (BP, 2012; Energy Market Observatory data). With the Nord Stream pipeline (fully operational in October 2012, capacity: 55bcm), existing pipeline capacity already exceeds 2011 demand for import by just less than 130bcm (BP, 2012; Energy Market Observatory data). Adding the growing LNG import capacity, total gas import capacity reached nearly 627bcm for 2011, when actual imports amounted to about 390bcm (see Table 3; BP, 2012; Energy Market Observatory data; Gas LNG Europe, 2011). Adding LNG import infrastructure under construction as of 2012 (but excluding proposed projects), LNG import capacity in the EU will increase by over a third to about 274bcm by 2020 (own calculations, Gas LNG Europe, 2011). Total gas import infrastructure capacity is thus already moving towards 825bcm by 2020, much of which will still be in operation in 2050 (European Commission, 2010, p. 5). Adding another set of gas pipelines through the Southern gas corridor, which could provide anything from 10 to 63bcm of capacity, depending on the final pipeline decision, adds capacity that is not even required under BAU scenarios (Figure 2).

With capacity in 2020 set to reach 825bcm (Table 3) and with no plans to reduce gas import capacity post-2020, we can assume that much of this capacity will remain in place to 2050. Pipelines have an expected lifetime of 50 years, which can be extended as they are upgraded. LNG terminals have similar lifetimes (about 40 years), but are constantly being expanded and upgraded, lengthening their operational lifetime. A 2009 report highlighted that gas infrastructure in the EU is "young" and expected to remain operational for many decades (European Parliament, 2009). We can thus assume that most existing gas import infrastructure capacity will remain to 2050 - between 600 and 800bcm. While this range of infrastructure capacity does not take account of planned additions, it is several orders of magnitude greater than the requirements under high CPI decarbonisation scenarios (see Table 3). The promotion of unnecessary gas import infrastructure bears the concrete risk of diverting the EU away from a decarbonisation path, towards one of "carbon lock-in", where the infrastructure in place promotes the continued use of fossil fuels. Policies to promote such infrastructure are contrary to the objective of decarbonising the energy system by 2050.

Table 3: Current and future EU gas import capacity

	2011	**2020**	**2050**
Total import capacity (LNG plus pipeline)	626.5bcm	825.4bcm	Circa 600-800bcm
Actual imports in 2011	390.3bcm		
Ideal CPI gas consumption	440-457bcm	330-380bcm	0-150bcm
Actual consumption in 2011	447.9bcm		

Note: The table takes account of projects under construction as of 2011, but excludes proposed projects such as the Southern gas corridor. Source: Own calculations on the basis of Gas LNG Europe, 2011; Energy Market Observatory data; BP, 2012.

CPI is thus non-existent in the policy output of EU gas pipeline policies. Full CPI in gas infrastructure planning would mean abandoning support for new import infrastructure. Instead, climate-friendly policies would promote a phase-down of natural gas consumption to 2050 (with limited flexibility to keep an amount of gas in the energy mix as a back-up fuel, and for industry) (Heaps, et al., 2009).

CPI in the policy processes in TEN-E and EEPR has been similarly weak. There has been no explicit recognition of the functional overlap between natural gas import pipelines and long-term climate objectives. The potential short-term synergies with climate policy objectives have hidden the long-term conflicts. Arguments favour gas as the "transition fuel" in the short-term (Eurogas, 2011). Energy security concerns are the prime motivation for promoting gas import pipelines,[8] which seems to block climate concerns from seriously entering the discussions. In addition, the negotiations for supplies of gas take place among the gas companies and at member state level, meaning EU-level policy discussions are not the focus. Climate and decarbonisation arguments have, thus, not garnered attention in relevant EU policy discussions.

Second, climate stakeholder involvement in the elaboration of the TEN-E guidelines and the EEPR at EU-level was weak. As policies driven primarily by energy security concerns (with DG Transport and Energy in the lead, and no special relationship with DG Environment), no opinion came from the Parliament's environment committee; neither did a discussion occur in the Environment Council. Internal climate advocate voices were not raised. External climate stakeholders were also not much engaged in these discussions, although they in theory had opportunities to influence the policy through consultation procedures, and the usual lobbying activities.

Detailed consultations on policy revisions of the 2006 TEN-E guidelines took place in the Gas Coordination Group, which consists of representatives of member states, the gas

[8] High-level political actors in the EU (such as President Barroso, who negotiated a visa-facilitation agreement for Azeris in exchange for promises of gas supplies; see Euractiv, 14 January 2011) have actively promoted the energy security credentials of such projects, with no regard to 2050 climate objectives.

industry and customers (European Commission, 2011e, p. 4). The discussions focused on energy security issues and industry opinions. Contributions to the public consultations came predominantly from industry, manufacturing, infrastructure development bodies, government agencies, and financial institutions and the insurance sector (European Commission, 2011e, p. 4). Although public consultation procedures exist, external climate stakeholders have played a limited role. It is unclear whether this is because they lack the interest or capability to become involved, or that such stakeholders are deliberately neglected by policymakers. CPI in the policy process on EU-level policies in support of gas pipeline infrastructure is thus low.

Explaining CPI

Functional overlap. There is a direct and synergistic functional overlap between the objectives of RE policy and of climate policy. Increasing the use of RE implies reducing GHG emissions. The two policy sectors overlap synergistically and co-benefits are large. In accordance with Table 2, since RE and climate policies are directly and synergistically linked, most favourable conditions exist for higher levels of CPI.

Promoting the construction of gas import pipelines overlaps with climate policy objectives more indirectly and conflictually. The continued use of natural gas in the long-term threatens the achievement of 2050 climate policy objectives. Policies to expand the gas import pipelines lock in fossil fuel infrastructure, increasing the pressure to use it. Such a carbon lock-in, although it does not automatically lead to increases in gas imports, hinders the achievement of the EU's decarbonisation goals. In addition, the indirect nature of the functional overlap impedes long-term climate objectives entering the policy discourse, with the short-term benefits of switching from coal to gas masking the long-term conflict. This indirect and conflictual functional overlap constitutes unfavourable conditions for the promotion of CPI (see Table 2).

Political commitment

Political commitment to combating climate change can generally be found in the conclusions of the European Council and scores on the lower end of 'high'. The EU has regularly voiced its commitment to combating climate change, especially since 2005 (Oberthür & Dupont, 2011). In March 2007, the European Council showed commitment when it endorsed the 20 per cent targets to 2020 (European Council conclusions, March 2007). While the economic and financial crises from 2008 onwards shifted attention away from the climate crisis, the EU nevertheless unilaterally agreed to reduce GHG emissions by 20 per cent by 2020. Although this action can be hailed as ambitious, especially when compared to other regions of the world, it is nevertheless insufficient. The IPCC calls for a 25 to 40 per cent GHG emission reduction in the developed world by 2020 (IPCC, 2007), and the EU had already achieved emission reductions of approximately 17.5 per cent by 2011 (EEA, 2012). Thus, the EU can receive a rather 'high' score for political commitment generally (but on the lower end of 'high'), and this is overarching the two cases.

As regards political commitment to the integration of climate policy objectives into RE policy, the EU displays a more 'medium' level. The European Council supported a binding

20 per cent target for the share of RE sources in the EU by 2020 in early 2007. At the same time, it called for "an integrated approach to climate and energy policy" (European Council conclusions, March 2007, p. 11). However, this does not necessarily imply an ideal level of political commitment to CPI, as the target is not ambitious enough from a 2050 perspective (discussed previously). Rather, the European Council clearly stated that "integration should be achieved in mutually supportive ways" (European Council conclusions, March 2007, p. 11.), implying equal weight to the three objectives of increasing the security of supply; ensuring the competitiveness of energy prices; and promoting environmental sustainability. Therefore, there is an evident political commitment to CPI in RE policy, but balanced against other objectives, with no priority to climate objectives.

However, the political commitment to CPI into EU gas pipeline policy is very low or non-existent. After the 2009 gas crisis, securing supplies of gas was clearly the political priority. In the discussions on the TEN-E guidelines and on the EEPR, security of supply considerations dominated. There is no evidence that long-term climate objectives have been considered in the discussions on the future gas pipeline infrastructure. Political commitment has rather flowed towards the promotion of further pipeline infrastructure.

Institutional and policy context

The challenges of climate change and energy security have provided the Commission with opportunities to push for EU-level energy policy development. The Commission proposed directive 2009/28 under the environmental chapter of the EU treaty, allowing the proposal to go through the ordinary legislative procedure. Thus, legally qualified majority voting was the decision-making procedure in the Council, which enables outvoting individual opponents (even though this was not applied in this case). Moreover, the failure of the EU to reach its 2010 non-binding RE targets pushed agreement on a more robust policy framework. The international climate negotiation schedule (and EU leadership ambitions therein) also facilitated RE policy development in the EU. The adoption of directive 2009/28 came in time for the 2009 Copenhagen climate conference (Wurzel & Connelly, 2011). These institutional and policy developments contributed to an enabling framework for RE policy that was favourable to the promotion of CPI.

In the gas pipeline case, past policy developments and context seem to favour priority for energy security objectives. Policy developments have emphasised the importance of supply diversification and security, to the detriment of climate objectives. The EU has pledged, and provided, financial and political support to new gas pipelines, concretising the security emphasis. Institutionally, both the EEPR and TEN-E guidelines were agreed under the ordinary legislative procedure, meaning voting in Council was qualified majority (although this did not favour CPI in the current case, given the dominance of energy security considerations). The wider geopolitical context also played a role, including US support for the EU's aims to diversify its gas supplies away from Russia through pipelines connecting to the Caspian Sea region. In contrast to the RE case, the institutional and policy context surrounding the gas pipeline case is unfavourable to CPI.

Policy process dimension

As seen above, the recognition of the synergistic functional overlap between RE and climate policy during the policy process, and the involvement of internal and external climate policy stakeholders enabled by firm procedures resulted in high levels of CPI in the policy process in RE policy. Such high levels of CPI throughout the process exert a strong positive influence on the final policy decision, helping explain the medium level of CPI in the policy output.

In gas pipeline infrastructure, decisions have generally been taken without acknowledgement of the conflictual functional overlap between increasing gas import capacity and long-term climate objectives, and without involvement of climate voices. Procedures have not guaranteed climate stakeholder involvement, although they were in place under the ordinary legislative procedure. It is plausible that the short-term benefits of moving from coal to gas may have prevented climate stakeholders from taking a stand against gas. The low (to non-existent) level of CPI in the policy process helps explain the lack of CPI in the policy output.

Table 4: Summary of explanatory factors

Explanatory factor	Renewable energy	Gas pipelines
1. Functional overlap	Direct & synergistic	Indirect & conflictual
2. Political commitment	Overarching to combating climate change: High	
	To CPI: Medium	To CPI: Low
3. Context	Favourable to CPI	Unfavourable to CPI
4. CPI in policy process (to explain CPI in output)	High	Low/None

Table 4 summarises the analysis of the explanatory factors in both cases. Explanations for the (high end of) medium level of CPI found in the policy output, and for the high levels of CPI in the policy process, in RE can be found in: the medium level of political commitment to CPI; the direct and synergistic nature of the functional overlap; the relatively high level of CPI in the policy process (explaining the policy output only); and the relatively favourable policy and institutional context for CPI. In contrast, the lack of CPI in the process and output of the EU's gas pipelines policies correlates with: low political commitment to CPI; the largely indirect and conflictive nature of the functional overlap with climate policy; the low to non-existent level of CPI in the policy process (explaining the policy output only); and the rather unfavourable policy and institutional context for CPI.

Conclusion

This article undertook to assess and explain the level of CPI in the EU's energy policy through a newly developed framework linking EPI literature with theories of European integration. We initiated an investigation of the assumption that a high level of CPI has been achieved since the adoption of the integrated climate and energy package of legislative measures in 2009. Applying our framework to two empirical cases of energy policy – namely RE policy and gas import pipeline policies – we found insufficient levels of CPI (despite the fact that environmental sustainability is one of the three main objectives of EU energy policy). Importantly, we based our analysis on long-term climate policy objectives and requirements to 2050, increasingly recognised as the appropriate, and required, perspective in climate policy.

Conceptually, we have tried to advance the debate on CPI by bringing together many strands of literature on EPI and situating them in general theories of European integration. Applying a 'strong' standard of CPI as a benchmark measurement, we could analyse the results of the case studies using four core factors derived from literature on EPI and from theories of European integration, namely: (1) the nature of the functional overlap with climate policy objectives (direct-indirect and synergistic-conflictual), (2) the level of political commitment to climate policy and to CPI, (3) the institutional and policy context, and (4) the level of CPI in the policy process (to explain CPI in the output). Such an exercise in collating the EPI literature to outline a single, manageable and encompassing framework, although in its early stages, has not before been carried out. It promises to systematise and enrich conceptually the debate on EPI/CPI and connect it to mainstream discussions on European integration.

Our case analysis reveals great explanatory variation between them, but also leads us to hypothesise about some inter-linkages among the different explanatory factors. It appears that the four (sets of) explanatory factors reinforced each other in the case of RE. Synergistic and direct functional overlap; political commitment to both climate policy in general and the promotion of CPI; the institutional and policy contexts; and high levels of CPI in the process all worked in favour of CPI. In contrast, these factors were all less favourable or unfavourable in gas pipeline policy. The nearly complete lack of discussion and consideration of climate policy objectives in the policy-making process in the gas pipeline case, however, is particularly noteworthy: as long as no such consideration takes place (and is 'crowded out' by a dominant energy security discourse), it seems futile to hope for political commitment to CPI, addressing functional overlap, involvement of climate advocates and stakeholders and, consequently, a search for enhanced synergy and greater levels of CPI. A first fundamental requirement for achieving enhanced levels of CPI would thus appear to be the serious consideration of long-term climate policy objectives in the policy process. In both cases, the imperfect levels of CPI can also be linked to the lack of long-term focus in the policy discussions, masking the potential for CPI. At the same time, the prospects of CPI in the policy process may be much related to the nature of the functional overlap, with indirect and/or conflictual overlap impeding integration.

The empirical analysis has demonstrated the usefulness of the framework, and further empirical studies, encompassing other policies and policy sectors, should enable us to further validate and refine the framework. For example, further studies may identify in more detail constellations of factors that favour (or not) CPI in energy policy and beyond. There is also much potential for deriving new insights on the interactions of theories of European integration in the reality of EU policymaking as more cases are examined. The framework presented in this article thus advances and opens a promising research agenda.

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