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Integration in EU Energy Policy**

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The Status of Climate Policy Integration in EU Energy Policy

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Abstract

The integration of climate policy concerns in other policy areas, where decisions are taken that determine greenhouse gas emissions, is a prerequisite for effectively mitigating climate change. There are particularly strong interlinkages between energy policy and climate policy as the major part of greenhouse gas emissions is related to energy supply and use. In this paper we initially compile a set of seven indicators for assessing climate policy integration (political commitment, actors, functional overlap, time perspective, weighting/resources, policy instruments and emission impact). We then apply the criteria for an appraisal of climate policy integration in EU energy policy during the last decade, i.e. we focus on CPI from a horizontal perspective. The focus of our research lies on strategic energy policy documents, on the one hand, and on the comparison of four key energy policy documents in the context of the 2016 Winter Package to existing legislation, on the other. Our results show that mitigation of climate change is a key objective in all energy policy documents analysed. Furthermore, EU legislative processes ensure a comprehensive involvement of all stakeholders. The energy policy objectives regarding renewable energy and energy efficiency are synergetic / reinforcing with climate policy. It has to be noted, however, that other energy policy documents, like the Energy Security Strategy, contain conflicting issues and the proposed recasts of existing legislation reduce preferential treatment for renewables.

Keywords:

climate policy, energy policy, climate policy integration, European Union

JEL codes:

K32, Q48, Q54, Q58

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1 Introduction

Climate change represents a major challenge for our societies and economies. The latest IPCC report reiterates that with increasing global warming the probability of ‘severe, pervasive, and irreversible impacts’ rises (Field et al., 2014). In case of a global mean temperature increase of more than 4°C compared to preindustrial levels the risks associated with climate change are substantial and encompass massive species extinction, endangered food security as well as pervasive threats for unique systems. Moreover, also the likelihood of crossing crucial tipping points increases with temperature rise (Field et al., 2014). In the Paris Agreement of 2015 (UNFCCC, 2015) the contracting parties therefore defined the goal of ‘holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change’ (Article 2).

In order to successfully limit climate change it has to be recognised that climate policy is a cross-cutting issue that needs to be firmly integrated in general and sector-specific policy areas that frame economic activity and societal development. Many climate-relevant decisions are taken in non-environmental policy areas with only little regard to climate change impacts, such as spatial planning. Complementing climate-specific policies like carbon taxes or emission trading systems with sectoral policies that integrate and support climate policy objectives ensures that producers and consumers are confronted with coherent signals for investment decision and behavioural changes (Mickwitz et al., 2009). Climate policy integration has experienced increased interest in recent years, which is also reflected in the incorporation of climate policy aspects in various policy documents at EU level, such as the Europe 2020 Strategy.

Climate policy integration can be regarded as a continuation and development of approaches for environmental policy integration (EPI) in the 1980s and 1990s that aimed at contributing to the reduction of environmental problems and guiding the transition to sustainable development (Adelle et al., 2009, Jordan and Lenschow, 2010). In a nutshell, EPI refers to the integration of aspects and policy objectives related to sustainable development into sector policies like energy and agriculture (Adelle et al., 2009). The most well-known definition of climate policy integration has been put forward by Mickwitz et al. (2009). They start from the definition of EPI developed by Lafferty and Hoveden (2003) and transfer it to climate policy, defining CPI as ‘the incorporation of the aims of climate change mitigation and adaptation into all stages of policy-making in other policy sectors (non-environmental as well as environmental); complemented by an attempt to aggregate expected consequences for climate change mitigation and adaptation into an overall evaluation of policy, and a commitment to minimise contradictions between climate policies and other policies.’¹ According to this definition climate policy objectives are given priority in decisions in non-environmental policy areas and the integration should be reflected in general and sector-specific policy strategies as well as in applied instruments and ideally in policy outcomes, i.e. a reduction of GHG emissions (Mickwitz et al., 2009).

For successful climate change mitigation, climate policy integration or mainstreaming is required for both sectoral policies having direct physical interlinkages with climate change as well as for other policy areas such as budgetary policy, R&D policy or regional policy and spatial planning. CPI needs to be achieved both at the horizontal level – i.e. the mainstreaming of climate policy objectives into other sectoral policy areas on one level of government (e.g. Directorates-General on EU level) – as

¹ A similar conceptualisation of CPI is also followed by Dupont and Oberthür (2011).

well as on the vertical level, i.e. mainstreaming throughout multiple levels of government and policy making (e.g. from EU directives to national implementation to local or regional implementation). In any case, adequate monitoring approaches are required in order to track progress on CPI.

Our contribution to this strand of research is twofold: On the one hand, we compile a refined set of indicators for assessing climate policy integration based on an extensive literature review. On the other hand, we apply the criteria for an appraisal of the evolvement of climate policy integration in EU energy policy during the last decade, i.e. we focus on CPI from a horizontal perspective. The analysis addresses CPI in strategic energy policy documents on the one hand, and the comparison of four key energy policy documents in the context of the 2016 Winter Package to existing legislation on the other. EU energy policy most notably with the 2009 Climate and Energy Package has become highly integrated in the EU. However, as energy policy includes other targets that at the first glance might not be environmentally relevant (e.g. security of supply, diversification of supply etc.) the task is to identify not only those areas in which climate and energy policies are synergistic but also the areas in which non-climate related objectives lead to trade-offs and conflicting developments.

The paper is structured as follows: We start out with a review of criteria used to study climate policy coherence and its empirical assessments in the EU and its Member States (section 2). Building on that, in section 3 we describe our methodological framework for assessing CPI. Then the key elements of a selection of strategic and sectoral EU energy policy documents is described and an appraisal of CPI is conducted. The final section concludes and provides recommendations for an improvement of climate policy integration in the EU's energy policy framework.

2 Research Overview

2.1 Review of evaluation criteria for (C)PI

The development of criteria for the assessment of EPI was the aim of numerous scientific studies and international researchers. Notable examples include the research by Lafferty and Hovden (2003) and the work by the OECD and the European Environmental Agency.

In Lafferty and Hovden (2003) a list of criteria for assessing vertical and horizontal climate policy integration is proposed. The indicators for the appraisal of vertical policy integration include the definition of the major environmental challenges, issues and actors relevant for the particular sector, the development of a sectoral environmental action plan, the definition of indicator-based targets, as well as consistent regular reporting and impact assessment. With respect to horizontal EPI the suggested indicators comprise the existence of a long-term sustainable development strategy and relevant targets, the existence of an authority in charge of the implementation of the sustainable development strategy, clearly defined sectoral responsibilities in the context of overarching goals as well as regularly monitoring and reporting.

In 2002, the OECD published a 'checklist on improving policy coherence and integration for sustainable development' (OECD, 2002). The list comprises a collection of criteria supporting the implementation of sustainable development goals, including the prevalence of a common understanding of the issue of sustainable development and the existence of clear political commitment to the related goals. Moreover, the set of criteria focuses on the specific instruments for steering policy integration and puts forward indicators for the assessment of stakeholder integration and knowledge management. The European Environmental Agency (2005) also put forward a checklist for assessing environmental policy integration drawing mainly from two existing evaluation frameworks for EPI, i.e. its own previous work on policies and their effectiveness and the criteria published by the OECD

in 2002 focussing more strongly on the policy process. The framework has the character of a checklist instead of a comprehensive list in the sense that the relevance of the criteria might differ among sectors. The criteria of the checklist focus on cross-sectoral as well as sector-specific policy aspects. Besides questions related to the policy context, their criteria comprise five categories – political commitment and strategic vision, administrative culture and practices, assessment and consultations as policy basis, use of policy instruments and monitoring – and a total of 45 questions.

The work on criteria for EPI evaluation builds the basis for the evaluation frameworks for CPI. The number of studies in which criteria for a systematic evaluation of CPI are developed is, however, limited. Based on the criteria for the assessment of EPI by Kivimaa and Mickwitz (2009), Mickwitz et al. (2009) put forward five criteria for the evaluation of CPI: (1) the inclusion of climate change aims in other policy areas, (2) consistency of policies and instruments / minimisation of contradictions, (3) weighting of climate change aspects in case of conflicting policy targets, (4) presence and use of ex-ante and ex-post evaluation requirements for climate change mitigation and adaptation impacts, and (5) adequacy of personnel, money or time resources for CPI.

According to Dupont and Oberthür (2012) four dimensions are proposed for assessing CPI in the EU's energy policy: (1) nature of the functional overlap between sectors, i.e. whether there are direct or indirect overlaps between sectoral policies, and if the policies are synergistic or conflictive, (2) political commitment to climate policy objectives in general and to CPI in the sectoral policy analysed, and (3) the institutional and policy context of CPI, and (4) the effect of CPI on policy output.

Starting from Dupont and Oberthür (2012), Kettner et al. (2012) structure the analysis of CPI along three criteria. These cover (1) political commitment, (2) nature of interdependencies and, (3) weighting and resources.

2.2 Review of CPI assessments in the EU

On EU level a number of studies have addressed CPI in sectoral policies, i.e. energy, water and biodiversity policies as well as in terms of the allocation of EU funds. In this short review we focus on the studies related to CPI appraisals in EU energy policy.² Dupont and Oberthür (2012) analyse CPI in EU energy policies, focussing on renewable energy (RE) policy and EU policies regarding gas pipelines. The assessment is based on the process-related criteria recognition of the functional overlap between climate policy and the sector policy and presence and use of procedures for stakeholder involvement as well as on the policy outcome, i.e. whether sectoral policies are in line with climate policy objectives. Dupont and Oberthür find that CPI in the area of renewables is not sufficient to reach long-term climate policy targets while it is virtually non-existent in the policies regarding gas pipelines. They conclude that the 'consideration of long-term climate objectives in the policy process is fundamental for the occurrence of CPI'. Dupont and Primova (2011) analyse CPI in the areas of renewable energy and internal energy policies on EU level along the dimensions political commitment, functional overlap, stakeholder involvement and procedures for CPI and institutional and policy context. They find insufficient integration of climate aspects in both cases. Using the criteria political commitment, nature of interdependencies and weighting and resources, Kettner et al. (2012) address horizontal policy integration at the EU level with respect to general strategic policy papers, energy policy, the EU's Multi-annual Financial Framework (MFF) and regional policy. They show that on the strategic level, the relationship of energy and climate policies is partly synergetic (e.g. the objective of a sustainable energy system) and partly conflicting (e.g. the emphasis on fossil fuels in the

² See e.g. Brouwer et al. (2013) for an assessment of the integration of adaptation issues in EU water policy, Dupont (2010) for an analysis of CPI in the EU's biodiversity policy or Hanger et al. (2013) on CPI in terms of budgetary allocations.

context of energy security issues, funding of investment in road transport in cohesion policy). Kettner et al. (2015) show, however, that the EU's cohesion policy for the period 2014 – 2020 puts more emphasis on supporting the shift towards a low-carbon economy and promoting climate change adaptation, for which around 12% of the budget (352 bn. € total) are designated.

On the national level, research on climate policy integration so far has concentrated on Germany (Beck et al., 2009; Jacob and Kannen, 2015a,b), Finland (Kivimaa and Mickwitz, 2009; Lyytimäki, 2011), the Netherlands (Bommel and Kuindersma, 2008; Berg and Coenen, 2012), Denmark (Wejs, 2014) and Austria (Steurer and Clar, 2014a,b). A considerable share of the studies³ has been conducted in the PEER project using the five criteria developed by Mickwitz et al. (2009) for CPI assessment. These analyses generally show that while climate aspects are widely integrated in – especially high-level – policy strategies at Member State level, ‘political commitment to climate change mitigation has a rather low impact on everyday policy-making’ (Jacob and Kannen, 2015b).

3 An Assessment Framework for Climate Policy Integration

For the assessment of CPI a set of evaluation criteria is needed. The criteria or indicators in principal can refer to the following dimensions:

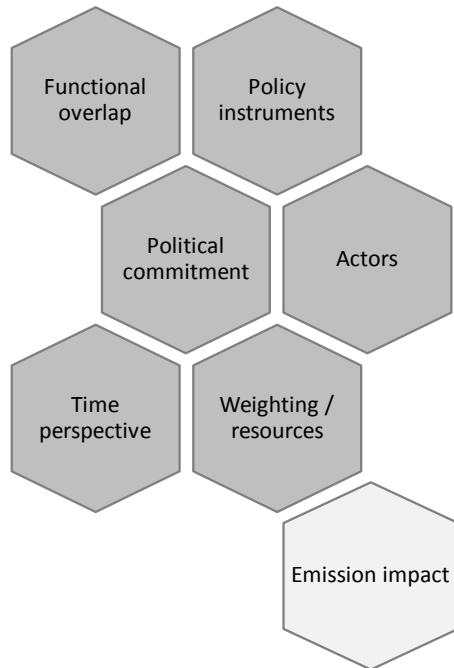
1. the policy making process;
2. policy outputs (i.e. the adopted policy and legal framework); and finally
3. policy outcomes (i.e. whether the policy framework ultimately translates into the emission reduction required).

Our conceptual indicator framework includes all of these dimensions. Due to the focus of the paper, most emphasis is, however, put on output indicators measuring how climate policy aspects are taken into account in policy documents. While we also include an indicator addressing the policy impact on emissions in our conceptual framework, we do not apply it for our assessment of CPI in EU energy policy documents. This is due to the fact that the effects of the policy framework and other, external effects (e.g. economic growth) on emissions are difficult to disentangle and such an analysis is beyond the scope of this paper.

The criteria for the evaluation of climate policy integration in this paper comprise seven dimensions as depicted in Figure 1.

³ Beck et al. (2009), Kivimaa and Mickwitz (2009), Bommel and Kuindersma (2008).

Figure 1. Criteria for the assessment of climate policy coherence



Political commitment

With respect to political commitment to climate policy integration two levels need to be differentiated: CPI on a general level, such as the integration of climate policy in overarching strategic policy documents like the Europe 2020 strategy, and CPI in specific sectoral policy documents and implementation strategies (e.g. as an explicit criterion for project funding). Another relevant aspect in this context is the ‘commitment to minimise contradictions’ (Lafferty and Hovden, 2003). Thus, the different policy aims should be consistent with each other in order to achieve successful climate policy integration. Finally monitoring of and reporting mechanisms for tracking the progress towards the climate policy objectives need to be in place.

Policy instruments

By using compatible, non-conflicting and mutually reinforcing policy instruments a high degree of climate policy integration can be achieved (Briassoulis, 2004). Whether coordination of policy instruments is effective depends crucially on the policymaking procedures in place.

Functional overlap

For the assessment of CPI the nature of existing interdependencies and spill-overs between climate policy and the relevant other policy areas needs to be identified. While in some cases like energy clear and direct linkages between climate change and other sectoral policies will exist, the linkages will be less clear-cut in other policy areas, with more indirect connections between policy aims.⁴ The different policy objectives can be either synergetic (e.g. increasing the share of renewable energy sources will contribute to GHG emission reductions) or characterised by trade-offs (e.g. when energy security is to be increased by exploiting fossil energy sources).

⁴ E.g. regional policy aims to improve accessibility involving transport infrastructure decisions that in turn affect transport related emissions.

Weighting and resources

When the functional overlap between the different policy objectives has been determined, the effective weighting of climate change aspects compared to other objectives can be assessed. This means, if and how a balance between different policy targets is achieved, when decisions have to be made and whether (potential) conflicts and trade-offs are explicitly dealt with. Another aspect in this context is the assessment – were applicable – of financial resources dedicated to climate relevant measures in relation to the overall budget of a policy area.

Actors

Climate policy coherence can only be achieved with the involvement of all relevant actors. This refers on the one hand to the integration of governmental and administrative entities and on the other hand to the involvement of stakeholders (such as representatives of social partners and NGOs). In addition, the integration of experts and respectively the relevant knowledge base for informed policymaking is of importance. For the involvement of actors, effective coordination mechanisms need to be in place.

Time perspective

In climate policy the time perspective is of particular importance since it takes a considerable period of time until policies take full effect (Persson, 2004). While long-term visions are already available at the level of strategic policy documents, sectoral policies do not necessarily comply with this overarching vision and can follow a short-term perspective.

Emission impact

While the other aspects of climate policy integration focus either on the policy process or the policy output, this dimension focuses on the policy outcome, i.e. on whether greenhouse gas emissions reductions have been achieved.

4 Climate Policy Integration in EU Energy Policy

In this section CPI in the EU energy policy framework is assessed using the seven criteria laid out above. We start with analysis of CPI strategic EU policy documents and then turn the integration of climate policy aspects in specific sectoral policies. For each area, in the first step the content of the relevant documents is sketched and in the second step the key conclusions on CPI are summarised.

4.1 Climate Policy Integration in Strategic EU Energy Policy Documents

In terms of CPI in strategic EU energy policy, we focus on the five most relevant strategies put forward by the EU in the period 2010 to 2015. These include the *Energy 2020 Strategy* (COM (2010) 639), the *Blueprint regarding Energy Infrastructure Priorities* (COM (2010) 677), the *Energy Roadmap 2050* (COM (2011) 885), the *Policy Framework for Climate and Energy for 2020-2030* (COM (2014) 15), the *Energy Security Strategy 2014* (COM (2014) 330) and the *Energy Union Package* (COM (2015) 80).

4.1.1 Energy 2020, a strategy for competitive, sustainable and secure energy

The aim of the *Energy 2020* (COM (2010) 639) is ‘to ensure the uninterrupted physical availability of energy products and services on the market, at a price which is affordable for all consumers [...], while contributing to the EU’s wider social and climate goals’, which are the central energy policy goals defined in the Lisbon Treaty. The strategy focuses on five priorities:

- The priority *Achieving an energy efficient Europe* shall ensure that by 2020 energy savings of 20% compared to a business and usual scenario and a further decoupling of energy use from economic growth are achieved and that energy efficiency is mainstreamed into all relevant policy areas. The actions focus on exploiting energy efficiency potentials (particularly in buildings and transport as well as in industry), increasing generation and distribution efficiency⁵ and making the most of National Energy Efficiency Action Plans (e.g. by an annual review mechanism).
- The second priority *Ensuring the free movement of energy* focuses on developing an integrated, interconnected energy market and removing existing barriers to competition. Specific Actions in this area include the implementation of internal market legislation, the development of a blueprint for energy infrastructure development for 2020-2030, the streamlining of permit procedures as well as market rules for infrastructure development and the establishment of an adequate financing framework.
- The priority *Secure, safe and affordable energy* focuses on a well functioning internal market for consumers (households as well as businesses) in order to deliver lower (but cost-reflective) prices⁶, more choice and better services. In addition, safety aspects – both with respect to security of supply (e.g. promotion of interconnections) and the protection from risks of energy production and transport (e.g. safety and security provisions for nuclear energy, CCS) – form part of this priority.
- The priority *Making a technological shift* underlines the role of technological change for a decarbonisation of the electricity and transport sectors until 2050 and the urgency for action given the lead time for low-carbon innovation. The actions of this priority focus on a fast implementation of the Strategic Energy Technology plan, the launch of new large-scale projects⁷ by the European Commission and large-scale R&D support for low-carbon and efficiency technologies.
- The priority *Strong international partnership* recognises the strong link of energy policy with the EU's foreign and security priorities. The actions defined include the integration of energy markets and regulatory frameworks with neighbouring countries, the establishment of privileged partnerships with key partners, the promotion of the EU's global role for low-carbon energy technologies and the promotion of global nuclear-safety, security and non-proliferation standards.

4.1.2 *Energy infrastructure priorities for 2020 and beyond – A Blueprint for an integrated European energy network*

The Commission *Blueprint regarding Energy Infrastructure Priorities* (COM (2010) 677) focuses on providing the infrastructure for reaching the energy policy and economic goals defined in Europe 2020; i.e. it stresses the need for a common infrastructure strategy and funding for an energy transition required to meet the long-term policy objectives. As main challenges electricity and natural gas grids and storage, oil transport and refining infrastructure, district heating and cooling networks, CO₂ capture, transport and storage, removing regulatory obstacles and financing gaps are mentioned.

Important infrastructural needs (so called priority corridors) are defined for meeting the following challenges:

⁵ I.e. to expand highly efficient cogeneration, district heating and cooling, supply of energy services and demand side management.

⁶ It is nevertheless recognised that consumers would have to engage in energy saving measures since the market is expected to tighten significantly before 2020. Smart grids, smart meters and billing are listed as measures that could contribute to consumers' awareness raising.

⁷ Focussing on smart grids, electricity storage, sustainable bio-fuels and "smart cities".

- Growing electricity demand requires upgrading and modernising the European grids in order to ensure market integration and, especially, the transport and balance intermittent (renewable) electricity generation.
- Natural gas is expected to make a contribution to the EU's energy supply in the next decades, in particular as back-up fuel for electricity generation. The role of additional diversified energy imports is stressed, against the background of increasing depletion of the EU's own resources.
- Oil is expected to play an important role in the EU's energy system in the medium-term. Security of supply requires to ensure the availability of sufficient crude oil supplies (from diversified sources) on the one hand and the respective refining capacities within the EU on the other.

4.1.3 *Energy Roadmap 2050*

In the *Energy Roadmap 2050* (COM (2011) 885) the European Commission presents scenarios for the development of primary energy supply that are consistent with the long run emission reduction target of 80 to 95% compared to 1990 defined by the European Council in October 2009. While the scenarios merely serve illustration purposes, the Roadmap contains also some general guidelines for the development of the energy system until 2050:

- Increasing energy efficiency – especially in the transport and buildings sector – as well as renewable energy sources are considered to play a key role in the long-term energy transition.
- Gas is regarded a central transition technology, especially in the generation of electricity. Higher integration and liquidity of the gas market as well as higher diversification of gas supplies is called for. The role of fossil energy sources in general in ensuring security of supply is stressed, in conjunction with the need of the development of carbon capture and storage and other emerging clean technologies.
- In addition, the relevance of smart technologies, storage and alternative fuels (including e-mobility) is stressed.

4.1.4 *Policy Framework for Climate and Energy in the Period 2020 to 2030*

In January 2014 the European Commission published a communication on the development of the climate and energy policy framework in the post-2020 period (COM (2014) 15) defining a greenhouse gas emission reduction of 40% vis-à-vis 1990 and an increase of the share of renewable energy sources in EU gross final energy consumption to 27% as key objectives to be achieved in 2030. The framework included seven key elements:

1. *Greenhouse gas emission target:* The proposed 40% emission reduction is split up into a 43% reduction target for the EU ETS sector and a 30% reduction for the other sectors. Just as for 2020, the EU ETS target applies to the sector as a whole, while there will be nationally differentiated targets for the Non-ETS sectors. The emission cap of the ETS sectors will be decreased by 2.2% per year in order to achieve the reduction target (compared to 1.74% in the period up to 2020).
2. *Renewable energy target:* The 27% renewable energy target will be binding only on EU but not on Member State level. Member States will set their own targets in consideration of the EU objective⁸. Completion of the internal energy market is strived for, implying in this context a rationalisation and increased cost-effectiveness of national support schemes as well as improved regulatory certainty.

⁸ Achievement of this target based on the individual contributions of the Member States will be reviewed by the Commission.

3. *Energy efficiency*: The communication stresses the relevance of energy efficiency, but defines no 2030 target; instead reference is made to the revision of the Energy Efficiency Directive regarding detailed targets and provisions in this area. According to the impact assessment accompanying the proposal for the 2030 framework, the 40% greenhouse gas emission reduction target would require an increase in energy efficiency by about 25%.
4. *Reform of the EU ETS*: The EU ETS is confirmed a cornerstone in EU climate policy. In order to increase the incentive effect of the scheme for investment in low carbon technologies, provisions to reduce the accumulated surplus of allowances that has been built up in the course of the economic crises are proposed. These instruments include the backloading of allowances⁹ as well as the set-up of a market stability reserve¹⁰.
5. *Ensuring competition in integrated markets*: The communication stresses the completion of the internal market as precondition for cost-effectiveness. In addition, the need for revision of existing support schemes towards more market-oriented approaches is reiterated.
6. *Competitive and affordable energy for all consumers*: The Commission puts strong emphasis on potential negative competitiveness effects arising from higher energy prices compared to other economies and proposes a perpetuation of the existing carbon leakage regulation¹¹.
7. *Promoting security of supply*: In this context, the security of supply of all energy sources to all users is defined as target. A three-pronged approach is proposed that includes increasing of domestic supply of all energy sources (i.e. renewable, fossil and nuclear energy), diversifying of supply countries and routes for fossil fuels and improving energy efficiency.

4.1.5 *Energy Security Strategy 2014*

The European *Energy Security Strategy* (COM (2014) 330, European Commission, 2014) was developed as an integral part of the 2030 policy framework on climate and energy. It defined eight key areas where decisions had to be taken or concrete action implemented in the short to medium term. The short term actions were, however, strongly motivated by avoiding or preparing for energy supply disruptions in the winter 2014/2015 as had occurred in 2006 and 2009. Other short term actions comprised the promotion of new infrastructure investments according to internal market rules and the cooperation with EU neighbouring countries to improve energy security. In the medium to long term main priorities concern the achievement of a more integrated energy market and the acceleration of priority energy projects (mainly in electricity and gas networks). The diversification of supply is another key pillar. This includes increasing the EU's own energy production (renewable as well as fossil and nuclear), strengthening the partnership with existing and gaining access to new suppliers. The transition to a low carbon economy is to be supported on the one hand through improvements in efficiency and reductions of energy demand. On the other hand the development of new energy technologies (albeit including clean coal and CCS) are prerequisites for the substantial changes that are required in the energy system. These objectives should not only be reflected in the EU financial instruments like the European Regional Development Fund or Horizon 2020 but should also guide interventions of the EU external action instruments (e.g. the European Investment Bank or the Neighbourhood Investment Facility). Thus, coordination is not only required within the European Union regarding the alignment of national energy policies with the overall framework but also

⁹ Back-loading was implemented through an amendment to the EU ETS Auctioning Regulation (Commission Regulation 176/2014) that entered into force in February 2014.

¹⁰ This aspect has been taken up in the proposal for a revised emissions trading directive (COM 2015 0337).

¹¹ This means that sectors considered to be at risk of carbon leakage will continue to receive free allowances in the EU ETS.

regarding the EU's external energy policy and foreign policy in terms of strengthening existing co-operations, as well as opening the way for new suppliers.

4.1.6 Energy Union Package

In its communication '*A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy*' (COM (2015) 80), the Commission defines the provision of '*secure, sustainable, competitive and affordable energy*' to consumers as the core goal of the Energy Union. The strategy stresses the key role of citizens in the energy transition, who benefit from new cost-saving technologies and participate actively in electricity markets.

The Energy Union strategy covers five dimensions that are closely interrelated and are considered to be reinforcing:

1. *Energy security, solidarity and trust*: Building on the *Energy Security Strategy* (COM (2014) 330, see above) particular emphasis is put on the diversification of energy sources, suppliers and routes. Storage of fossil fuels should be increased and cooperation between Member States should be fostered especially in cases of supply disruptions. Partnerships with third countries should be strengthened in order to increase security of supply. In addition, early information of the Commission about the negotiation of intergovernmental agreements on the acquisition of energy – and particularly gas – is called for.
2. *Full integration of the European energy market*: According to the strategy, inter-connections between national energy markets need to be strengthened. With respect to the electricity market, a minimum interconnection target of 10% of installed electricity generation capacity of the Member States has been defined for 2020. Access to financing of energy infrastructure shall be facilitated by the European Investment Bank, the Connecting Europe Facility and the European Structural and Investment Funds as well as by the European Fund for Strategic Investments. Implementation and enforcement of the *3rd Internal Energy Market Package*¹² will be required by Member States, especially regarding the unbundling and independence of regulators, and market distortion should be prevented by competition law enforcement. In addition, the Commission will make a legislative proposal regarding a redesign of the electricity market and linking wholesale and retail. Other aspects relate to consumer information and protection as well as to improved coordination and collaboration between Member States as already emphasised for increasing energy security.
3. *Energy efficiency achieving a reduction of demand*: The third dimension of the Energy Union Strategy on the one hand is targeted on reducing heating and cooling demand by improving energy efficiency of buildings and providing the relevant funds. On the other hand, improved efficiency and decarbonisation of the transport sector is aimed for via further improving the CO₂ efficiency of fuel driven cars, shifting towards public transport, and supporting alternative drives (like e-mobility) and related infrastructure.
4. *Decarbonisation of the economy*: In order to achieve significant greenhouse gas emission reductions post-2020, the strategy continues to focus on the EU Emission Trading Scheme (EU ETS) for large emitters from industry and energy supply and binding national targets for

¹² This package consists of Directives 2009/72/EC and 2009/73/EC on rules for the internal market in electricity and gas respectively and three regulations on criteria for access to the natural gas transmission networks and the network for cross-border exchange of electricity (Commission Regulations 714/2009 and 715/2009) and the establishment of the Agency for the Cooperation of Energy Regulators ACER (Commission Regulation 713/2009).

sectors not covered by the EU ETS. In addition, the role of renewable energy sources – as well as adequate support schemes and financing – is stressed.

5. *Research, innovation and competitiveness*: EU and national research programmes should be harmonised and actions should be grouped around the following four core priorities: (1) renewable energy technologies and storage; (2) smart grids, smart home appliances, smart cities, and home automation systems; (3) energy efficiency of buildings; and (4) sustainable transport technologies. In addition, collaborative action between the Commission and interested Member States is emphasised for the research priorities carbon capture and storage (CCS) and carbon capture and use (CCU) as well as nuclear energy.

4.1.7 *Evaluation of CPI in strategic EU energy policy documents*

Although energy security issues and the creation of an efficient internal market were at the core of EU energy policy for a long time, climate policy concerns have been increasingly taken up on the level of strategic documents. In particular the Energy 2020 Strategy indicates an integration of climate policy aspects and the emphasis given to synergies between different energy policy goals, especially with respect to energy sustainability and security of supply. Pursuing the different energy policy goals can, however, also imply trade-offs and conflicts due to the divergent underlying problems (in particular the emphasis on fossil fuels in the context of energy security issues).

Figure 2 summarises the results of the analysis of climate policy integration in strategic EU energy policy documents performed along the seven criteria developed in Chapter 3 above:

- Political commitment: Mitigation of climate change is an objective in all strategic energy policy documents.
- Actors: Comprehensive stakeholder involvement is ensured in all EU legislative processes¹³.
- Functional overlap: The energy policy objectives regarding renewable energy and energy efficiency are synergetic / reinforcing with climate policy. Regarding energy security they are partly synergetic (energy savings) and partly conflicting (increased deployment of fossil fuels) (see Table 1).
- Weighting / resources: Mitigating climate change is one of the overarching objectives for the strategic energy policy documents developed since 2010. Nevertheless no prioritisation of the topic vis-à-vis other energy policy goals is found. Quite the contrary, especially in the Energy Security Strategy and in the Energy Infrastructure Priorities climate aspects are clearly subordinate to the goal of safeguarding the EU's energy supply also by fossil energy sources.
- Time perspective: Strategic documents cover a long term horizon since the publication of the 2050 Low Carbon Economy Strategy (COM (2011) 112) and the Energy 2050 Roadmap (COM (2011) 885). The targets of the 2030 framework have been defined as intermediate milestones on the way to the 2050 objectives. In the short term the focus on developing (domestic) fossil fuels bears the risk of creating additional carbon lock-ins.
- Policy instruments, emission impact: These criteria cannot be assessed at the level of strategic policy instruments.

¹³ However, Dupont (2014) argues that in the case of natural gas infrastructure policies pro-climate stakeholders were not present in the policymaking process.

Figure 2. Climate policy coherence in strategic EU energy policy documents

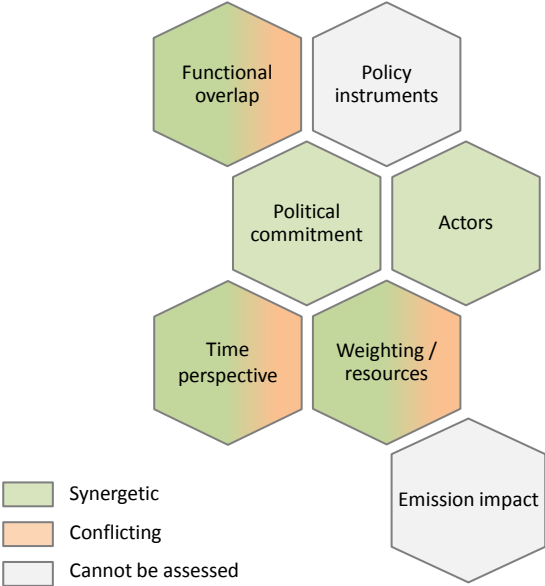


Table 1. Functional overlap of climate policy and strategic EU energy policy documents

	Energy 2020 (2010)	Energy Infrastructure Priorities (2010)	Energy Roadmap 2050 (2011)	Climate and Energy Policy Framework 2030 (2014)	Energy Security Strategy 2014 (2014)	Energy Union Package (2015)
Decarbonisation	Global role of the EU for a future of low-carbon energy (tackled under international cooperation)		Decarbonisation as superordinate target	2030 GHG emission reduction target split between ETS & NETS sectors	Integral part of the 2030 Climate and Energy Policy Framework but little reference to particular climate aspects	EU plans ambitious contribution to international climate negotiations Revision of ETS directive
Renewables		Improve fitness of grid wrt. RES-E	RES-share of up to 97% in the scenarios	Binding 27% RES target on EU level	Increase of internal supply	Proposal of a new Renewable Energy Package to reach 2030 targets Market-based RES support
Energy Efficiency	'First priority'		Crucial importance in all scenarios	But no target for 2030 (instead: reference to revision of efficiency directive)	As cheapest means for improving energy security	27% energy efficiency target for 2030 Focus on efficiency in buildings and transport sector
Energy Security – Fossil Resources	Security of FES (tackled under international cooperation)	Diversification of oil and gas supply	Role of gas and nuclear at least in transition	Import diversification FES development in EU	Development of internal FES (incl. clean coal) Diversification of FES imports	Diversification of gas supply
Energy Security – Other (i.a.)	Energy safety issues (also tackled under international cooperation)	General improvement of el. infrastructure		RES development Energy efficiency Integrated markets R&D support	Increase and diversification of RES Increased energy efficiency	Security of electricity supply via completion of internal market
Empowering consumers / Affordability	Increase consumers' market participation Competition policy enforcement for affordable prices		Empowerment of consumers Support for vulnerable consumers	Empowerment of consumers Discussion of price competitiveness vis-à-vis Non-EU countries		Empowerment of consumers Increase consumers' market participation Support for vulnerable consumers
Internal Market	Timely implementation of the internal market legislation Establishment of blueprint for infrastructure	General improvement of el. infrastructure	Fostering of market integration Incentives for capacity and flexibility	Completion of internal market is confirmed as goal	Also including the extension of the existing gas grids	Enforcement of completion of internal market Support of infrastructure projects Revision of market design wrt. increased RES share
R&D / Innovation	Implementation of set plan Launch of 4 large-scale EU projects (smart grids, smart cities, storage, biofuels)		Alignment of R&D programmes to energy transition targets		Including clean coal and CCS	Development of a forward-looking, energy and climate-related R&I strategy

Note: Green denotes synergies with climate policy goals, red denotes conflictual issues. Black denotes potential neutrality.

4.2 Climate Policy Integration in Specific Energy Policy Documents

In addition to the strategic energy policy documents we aim tracking the CPI development in specific EU energy policy documents over time. Starting point are four commission proposals in the context of the Winter Package 2016 (COM (2016) 860) that we contrast with the predecessor documents currently in place, in the areas of renewable energy, energy efficiency and electricity market regulation.

4.2.1 CPI in the Renewable Energy Directive

Directive 2009/28/EC

In the Renewable Energy Directive a common framework for the promotion of renewable energy sources in the EU Member States is set up. Moreover, mandatory national targets for the overall share of renewable energy sources in gross final energy consumption for 2020 are defined, that together amount to an EU-wide share of 20%. The national targets are listed in Annex 1 of the directive; they reflect a lump-sum increase of 5.5 percentage points for each Member State as well as an additional differentiated increase reflecting differences in GDP per capita, and are capped at 50%. In addition, each Member State was obliged to achieve a renewables share of 10% in the transport sector (Article 3). The shares of renewable energy in gross final energy consumption are calculated as the sum of final energy consumption of renewable energy and the electricity and heat production from renewable energy sources divided by the sum of total final energy consumption, distribution losses and own consumption of the energy sector (Article 5).

In order to achieve the national targets, Member States can either implement national renewable support schemes or make use of cooperation mechanisms (i.e. joint support schemes, statistical transfers and joint projects between Member States as well as joint projects with third countries, for which the general rules are also laid down in Articles 6 to 11 of the directive). Each Member State has to adopt a national renewable energy action plan setting out its national targets for achieving the share of energy from renewable sources consumed in transport, electricity and heating and cooling in 2020, taking into account national renewable support measures and cooperation mechanisms as well as interaction effects with other policies (Article 4).

Directive 2009/28/EC also defines the rules regarding grid access and grid operation (Article 16) stipulating preferential access to the electricity grid for energy from renewable sources. In addition, it establishes sustainability criteria for biofuels and bioliquids (Articles 17 to 20). Finally, the Renewable Energy Directive contains provisions regarding guarantees of origin, administrative procedures, information and training.

Proposal for a Recast of the Renewable Energy Directive (COM (2016) 767)

Analyses of the European energy system indicate that policies currently employed on EU and Member State level will only deliver a share of 24.4% renewables in gross final energy consumption by 2030, which is significantly below the aspired EU target of 27% (SWD (2014) 15). The revision of the Renewable Energy Directive shall contribute to achieving this target as well as to reap the benefits of an increased deployment of renewable energy sources with respect to competitiveness and energy security.

Compared to the 2009 directive, only an EU-wide binding target is stipulated instead of nationally binding targets for the Member States (Article 3). In their Integrated National Energy and Climate Plans¹⁴, Member States shall define renewable targets for 2030 and ensure that the effective share of

¹⁴ See COM (2016) 759.

renewables does not fall below baselines, i.e. the respective targets adopted for 2020 under Directive 2009/28/EC. Should the Commission in the context of the assessment of the Integrated National Energy and Climate Plans in 2023 conclude that the Union trajectory is not collectively met or that the baselines are not maintained, Member States have to ensure that any emerging gaps are covered by additional measures (COM (2016) 759, Article 24(4)).

The proposed directive does no longer provide for preferential grid access for renewable electricity. In order to foster the deployment of renewables, Member States, however, may still make use of support schemes subject to state aid rules. After 2020 support schemes for renewable electricity (RES-E) should be designed as to avoid unnecessary distortions of electricity markets and in a way that RES-E generators consider electricity supply and demand as well as potential grid constraints. Hence support for RES-E should be market-oriented, i.e. ensure that generators respond to price signals and maximise their market revenues, as well as 'open, transparent, competitive, non-discriminatory and cost-effective' and the effectiveness of their support schemes should be assessed by Member States at least every four years (Article 4). When changing the support frameworks Member States should ensure that the revisions do not negatively impact supported projects thus providing for investment security (Article 6). One major change in the proposed revised renewable energy directive concerns the opening of RES-E support schemes, i.e. national support schemes should be opened to generators located in other Member States (Article 5). At least 10% of the support in the period 2021 to 2025 should open to installations located in other Member States and respectively 15% in the period 2026 to 2030. In addition, cooperation mechanisms between Member States as in Directive 2009/28/EC are still provided for.

Guarantees of origin are still available in order to prove the share of renewable energy sources in an energy supplier's energy mix to final customers. However, guarantees of origin shall no longer be issued to generators receiving financial support from a support scheme. Instead, such guarantees of origin should be auctioned by Member States with the revenues of these auctions used to offset the costs of renewables support (Article 19).

The proposed directive also aims at fostering the use of renewable energy sources with respect to heating and cooling and in the transport sector. Member States should seek to increase the share of renewables for heating and cooling by 1 percentage point every year and the minimum share of advanced biofuels in the transport sector should be increased from 1.5% in 2021 to 6.8% in 2030 in all Member States. The greenhouse gas emission reductions achieved by the utilisation of the biofuels should amount at least to 70% compared to fossil fuels as of 2021 (Article 26)¹⁵. In contrast, the contribution from biofuels and bioliquids produced from food or feed crops shall not exceed 7% of final consumption of energy in road and rail transport the Member States with the limit being reduced to 3.8% in 2030.

Finally, the proposal aims at strengthening the role of consumers: Consumers may generate their own electricity and feed surpluses into the grid (Article 21), and they can organise themselves into renewable energy communities to generate, store or sell renewable energy (Article 22). Moreover, consumers should have the right to disconnect from a district heating or cooling network, provided they are able to achieve a significantly better energy performance (Article 24).

¹⁵ With respect to electricity, heating and cooling production from biomass fuels greenhouse gas savings should be 80% in installations starting operation in 2021 and 85% for installations starting operation in 2026.

4.2.2 CPI in the Energy Efficiency Directive

Directive 2012/27/EU

The 2012 Energy Efficiency Directive pursues two key targets: First, it aims at establishing a common framework for actions promoting energy efficiency to ensure that the 20% efficiency target¹⁶ is met in 2020, i.a. by eliminating barriers to the common energy market and market failures. Second, it obliges Member States to define indicative national energy efficiency targets by 2020 that are in line with the overall EU target (Article 3).

With respect to the efficiency endorsing policy framework, the directive requires Member States to develop a long-term strategy for mobilizing investment in thermal refurbishment (Article 4) and underlines the role-model function of public facilities, demanding an increase of the refurbishment rate of public buildings to 3% and public procurement considering only products, services and buildings with high energy efficiency as set out in Annex III of the Directive (Articles 5 and 6). Moreover the directive contains provisions related to energy audits and energy management systems (Article 8) as well as regarding metering and informative billing (Articles 9 and 10). As a key instrument for improving energy efficiency, the Directive proposes the introduction of energy efficiency obligation systems (Article 7): All energy distributors (and / or all energy sales companies) each year have to achieve savings of at least 1.5% of their energy sales volume in the period 2014/2020, sales of energy in the transport sector can, however, be excluded. Alternative to the energy obligation schemes Member States can adopt other measures to increase energy efficiency at the end customer (such as energy or CO₂ taxes, voluntary agreements, financing schemes, tax incentives, standards or norms).

In order to increase the efficiency of energy supply, Directive 2012/27/EU calls for national assessments of the potential for cogeneration and efficient district heating / cooling (Article 14). Policies should generally support the utilization of efficient district heating / cooling and cogeneration technologies, also with respect to exploiting the potential of waste heat from industrial installations. Moreover, Member States should carry out assessments of the energy efficiency potentials of their gas, electricity, district heating / cooling infrastructure, especially with regard to transmission, distribution and load management as well as connection to energy generating plants and identify concrete measures and investments for the introduction of cost-effective energy efficiency improvements to grid infrastructure. In addition, tariffs and regulation should be designed in a form that supports energy efficiency and highly efficient co-generation plants should be granted priority or guaranteed grid access (Article 15).

Finally, the Energy Efficiency Directive comprises a range of horizontal measures. These relate to the provision of qualification, accreditation and certification schemes and of information (on energy efficiency, financing, etc.) as well as to the promotion of the energy services market and the elimination of barriers to energy efficiency measures.

Proposal for a Revised Energy Efficiency Directive (COM (2016) 761)

The proposed new energy policy framework of November 2016 stresses the role of energy efficiency for meeting the long-run energy and climate targets ('putting energy efficiency first'). The proposal for a new Energy Efficiency Directive stipulates for 2030 a 30%¹⁷ energy efficiency improvement target vis-à-vis a business as usual pathway, compared to the 20% target of Directive 2012/27/EU.¹⁸ While

¹⁶ This value refers to an improvement of energy efficiency compared to a baseline. In absolute terms, EU primary energy supply in 2020 should not exceed 1,483 Mtoe and respectively final energy consumption should not exceed 1,086 Mtoe.

¹⁷ The European Parliament (e.g. 2015) even called for a 40% efficiency target.

¹⁸ In 2014, the European Council (2014) had already agreed on a target of at least 27% for 2030 that would potentially be increased to 30% in the 2020 review, while the European Parliament (2014) resolution has called for at least a 30% target.

this target keeps to be binding on EU level only, Member States have to set national indicative energy efficiency targets taking into account the EU-wide targets of limiting primary energy supply to 1,321 Mtoe and final energy consumption to 987 Mtoe respectively (Article 3).

In Article 7 the energy savings obligations requiring a reduction of final energy demand of 1.5% p.a. are extended until 2030 and beyond. These savings can either be achieved via an energy efficiency obligation scheme (Article 7a), alternative policy measures (Article 7b) or a combination of both approaches. In each case, Member States need to consider the effects of the measure on energy poor households and are encouraged to design the policy measures in a way to mitigate energy poverty.

Article 9 on metering and Article 10 on billing and consumption information are limited to gas and supplemented by new provisions for heating, cooling and domestic hot water. A distinction between final customers and final consumers is introduced in order to provide metering that reflects the final consumer's actual energy consumption in buildings with several dwellings and in multi-purpose buildings, since timely and clear feedback about their actual energy consumption for consumers can help reduce energy costs.

4.2.3 CPI in the Electricity Market Directive and Regulation

Directive 2009/72/EC

Directive 2009/72/EC was part of the EU's Third Energy Package which was concerned with establishing the rules package for an internal gas and electricity market in the European Union. The core elements of this package were

1. avoiding vertical integration by splitting electricity generation from transmission by ownership unbundling, or alternatively by establishing Independent System Operators (ISO) or Independent Transmission Operators (ITO) in control of the transmission network;
2. the designation of a National Regulatory Authority (NRA) in each Member State which ensures more effective regulatory oversight;
3. the reinforcement of consumer protection (e.g. the right to choose or change suppliers without extra charges); and
4. cross-border cooperation between transmission system operators and the creation of European Networks for Transmission System Operators.

Directive 2009/72/EC therefore establishes the common rules for generation, transmission, distribution and supply of electricity, taking also into account matters of consumer protection with the aim of achieving a competitive, secure and environmentally sustainable electricity market. Due to the importance of a secure electricity supply for society as well as for climate policy, cross-border interconnections should be further developed. In order to achieve the objectives stated in Article 3 as social and economic cohesion and environmental protection, Member States shall implement appropriately measures that include energy efficiency/demand-side management measures and means to combat climate change. For the construction of new generation capacity authorisation procedures are to be adopted in accordance with objective, transparent and non-discriminatory criteria (Article 7) considering i.a. the aspects of safety and security of the electricity system, the protection of public health and safety, the protection of the environment, land use and siting, energy efficiency, the nature of the primary sources as well as the contribution to reaching the 20% renewable target and the contribution to reducing emissions. Special consideration is given to small decentralised and/or distributed generation.

Article 8 contains provisions for the possible use of tendering procedures for new capacities or energy efficiency and demand side management measures. Article 12 deals with the tasks of transmission system operators which are responsible for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity, operating, maintaining and developing under economic conditions secure, reliable and efficient transmission systems with due regard to the environment. The tasks of the distribution system operators are defined in Article 25 and include ensuring the system's ability to fulfil the required functions. In particular, it requires the distribution system operator to give priority to generating installations using renewable energy sources, waste, or producing combined heat and power. In the course of planning the distribution network the impacts of energy efficiency/demand-side management measures or distributed generation have to be taken into account specifically. In addition, relevant specifications are also included in the objectives of the regulatory authority (Article 36) concerning the promotion of a competitive, secure and environmentally sustainable internal market for electricity and developing competitive and properly functioning regional markets, developing appropriate cross-border transmission capacities, promoting the integration of large and small-scale production of electricity from renewable energy sources and distributed generation and facilitating access to the network for new generation capacity, in particular removing barriers that could prevent access for new market entrants and of electricity from renewable energy sources.

Regulation (EC) No 714/2009

The regulation aims at setting fair rules for the cross-border exchange of electricity and establishing a compensation mechanism for such cross-border flows. Thereby competition shall be enhanced and a well-functioning and transparent wholesale market shall be facilitated. The regulation deals primarily with organisational and technical aspects like the certification of transmission system operators, or the EU wide cooperation of transmission system operators in a European Network (ENTSO), its tasks as well as provisions regarding network codes that help manage effective and transparent access to transmission networks. In addition, the regulation offers guidelines for the application of charges for network access, principles for congestion management and the handling of new interconnectors.

Proposal for a Recast of the Electricity Market Directive (COM (2016) 864)

The focus on the electricity market directive recast is on consumers and the importance of the internal market. Its objectives are to eliminate obstacles still existing in the internal market for electricity regarding interconnection (cross-border flows of electricity), the integration of active consumers and demand-response approaches, and required investments (e.g. in generation and transmission capacities, energy storage, the integration of electro-mobility). In addition, it strengthens consumer rights and aims to ensure that electricity prices reflect actual demand and supply. Moreover, it defines and clarifies rules on unbundling as well as on the rights and tasks of transmission and distribution system operators and local energy communities. The adaption of the market rules with the focus on integrating consumers and securing electricity supply reflects the change in "market realities" through the increase of renewable sources and the advancing decentralisation as well as the requirements of a decarbonisation of the energy system.

Member States shall avoid hampering interconnection, consumer participation and market entry or exit (Article 3). They shall guarantee that all customers may purchase electricity from the supplier of their choice (Article 4). Suppliers of electricity in turn may determine the price at which they sell electricity to customers with Member States ensuring effective competition between the suppliers. Member

States must generally refrain from electricity price-setting when combating energy poverty¹⁹, but shall protect vulnerable consumers with other targeted measures (Article 5).

In addition to the rules regarding energy poverty the rights of customers are generally empowered by the directive recast: Final customers should be entitled, on request, to close a dynamic electricity price contract with their supplier (Article 11). Customers also have the right to switch supplier with no or minimised switching-related fees (Article 12) and may conclude a contract with an aggregator – i.e. with 'a market participant that combines multiple customer loads or generated electricity for sale, for purchase or auction in any organised energy market' – without seeking consent of the final customer's supplier (Article 13). Finally, the proposal aims at ensuring that final customers actively participate in the electricity market: They should be 'entitled to generate, store, consume and sell self-generated electricity in all organised markets either individually or through aggregators' subject to cost reflective, transparent and non-discriminatory network charges (Article 15). Likewise customers should be entitled to organise themselves in 'local energy communities'²⁰ (Article 16). Empowerment of customers goes hand in hand with improving their information base: Customers should be provided with independent price comparison tools (Article 14) as well as with smart metering technologies (Article 19)²¹.

Member States shall enable and incentivise distribution system operators (DSOs) to improve efficiencies in the operation and development of the distribution system via a transparent, non-discriminatory and market-based procurement of services. The development of distribution grids should be based on transparent network development plans that are submitted biannually to the regulatory authority and contain information on the planned investments for the next five to ten years (Article 32). While the proposal also fosters integration of electro-mobility into the electricity network, it generally strives for an unbundling between distribution system operators and recharging points (Article 33). The same holds true with respect to energy storage systems (Article 36).

With respect to transmission system operators, the importance of close cooperation with neighbouring countries is stressed (Article 40). Just as distribution system operators, transmission system operators should generally not be allowed to own, manage or operate energy storage facilities (Article 54).

Proposal for a Recast of the Electricity Market Regulation (COM (2016) 861)

The revised electricity market regulation shows a strong focus on market signals in order to deliver flexibility, decarbonisation and innovation in the electricity market. Stipulated principles regarding the operation of electricity markets include market-based price formation, increased competition on retail markets as well as facilitation of market participation of consumers and small businesses that engage in demand-response. Moreover, market rules shall contribute to the decarbonisation of the economy through enabling the integration of renewable energy sources and incentivising energy efficiency measures and providing investment incentives for storage, energy efficiency and load management measures (Article 3).

¹⁹ Countries where such measures are currently in place may, however, prolong these interventions over a period of five years after the directive will have become effective. In case no other measures to tackle energy poverty adequately are available, Member States may even prolong price-setting actions after the 5-year period upon approval by the European Commission. The proposal requests Member States to define a set of criteria for the assessment of energy poverty and introduce a respective monitoring and reporting system (Article 29). Moreover, Member States may prohibit the disconnection of energy poor or other vulnerable customers from the electricity grid in critical times (Article 28).

²⁰ According to the proposal, local energy communities are legal entities that are 'effectively controlled by local shareholders or members, generally value rather than profit-driven, involved in distributed generation and in performing activities of a distribution system operator, supplier or aggregator at local level, including across borders'.

²¹ Moreover, the proposal contains minimum requirements for the smart meters and defines alternatives for cases in which smart meters cannot be supplied to all customers due to cost constraints.

The proposal requires all market participants to aim for system balance and holding them financially responsible for imbalances they cause. Member States may exclude demonstration projects and small²² renewable or cogeneration plants from balance responsibility (Article 4).

The proposed regulation also provides rules for balancing markets accounting for increasing shares of variable renewable generation and for increased demand responsiveness: Access to the balancing market should be ensured for all market participants in a non-discriminatory way, yet accounting for different technical capability of generation from variable renewable sources and demand side response and storage. Further rules regarding the procurement processes of balancing energy, pricing and market organisation are laid down (Article 5). Integrated day-ahead and intraday markets should also be organised in a non-discriminatory manner that reflects market fundamentals and i.a. ensures the contribution of market participants in avoiding system imbalances as well as their participation in cross-border trade (Article 6). In addition, rules for day ahead markets and restrictions on wholesale prices are defined in Articles 8 and 9 of the proposal.

The dispatch of power generation units and demand-response should generally be non-discriminatory and market-based. Nevertheless, transmission system operators should provide priority dispatch to small-scale²³ generating installations using renewables²⁴ or high-efficiency co-generation subject to the condition that the secure operation of the electricity system is not endangered (Article 11). Also the curtailment or redispatch of generation and the redispatch of demand response should be organised in an objective, transparent and non-discriminatory way. Generation or demand facilities should submit offers for curtailment or redispatch using market-based mechanisms and should receive financial compensation. As long as the reliability and safety of the grid are provided for, curtailment and redispatch of generation installations using renewable energy sources or high-efficiency cogeneration should be minimised (Article 12).

Charges applied by grid operators for grid access should be non-discriminatory and transparent and consider the need for network security and flexibility and reflect actual costs incurred. The design of tariffs should incentivise transmission and distribution system operators to increase efficiency, foster market integration and security of supply, and support investments and the related research activities. Distribution tariffs shall reflect the cost of use and may be differentiated based on system users' consumption or generation profiles. In case smart metering systems have been implemented, regulatory authorities may introduce time differentiated network tariffs (Article 16).

The establishment of a European Entity for Distribution System Operators (EU DSO entity) is proposed (Articles 49 and 50). The EU DSO entity should i.a. aim at coordinated operation and planning of transmission and distribution networks, integration of renewable energy resources, distributed generation and other resources technologies such as energy storage and development of demand response (Article 51).

4.2.4 Evaluation of CPI in specific EU energy policy documents

The Climate and Energy Package of 2009 (with the inclusion of the targets in the EU's 2020 strategy) represents a milestone for the integration of these policy areas in the EU. The joint consideration is a prerequisite for effective climate protection and the required restructuring of energy systems. The

²² With an electric capacity below 500 kW; in 2026 the size limit will be reduced to 250 kW.

²³ In general the proposal stipulates a size limit of 500 kW and 250 kW from 2026. In case the total capacity of these small generating installations exceeds 15% of the total installed generating capacity the size limit should be reduced to 250 and 125 kW respectively.

²⁴ In addition, renewables or high-efficiency co-generation installations that have been subject to priority dispatch under Directive 2012/27/EU or Directive 2009/28/EC should remain subject to priority dispatch.

2016 Winter Package revises key specific energy policy documents and shifts the temporal perspective to the period 2020/2030. The targets for 2030, however, constitute intermediate steps on the way to the long term decarbonisation goals. Figure 3 summarises the results of the analysis regarding climate policy integration in specific EU energy policy documents and compares the existing legal framework with the proposed recasts.

- **Political commitment:** Mitigation of climate change is an objective in all energy policy documents. However, in the Energy Efficiency Directives (effective and proposed) the emphasis on climate change aspects is less pronounced than in the Energy and Climate Policy Package documents.
- **Actors:** Comprehensive stakeholder involvement is ensured in all EU legislative processes.
- **Policy instruments:** Specific policy instruments are suggested in only a few specific energy policy documents (e.g. energy efficiency obligation schemes in the Energy Efficiency Directive) and are generally reinforcing. The new design requirements (increased market orientation) for renewable support schemes might, however, decrease investment security thus decelerating the further expansion of renewable energy sources. Moreover, feedback effects need to be considered; this concerns for instance interlinkages between support schemes for renewable electricity and the EU ETS.
- **Time perspective:** The 2009 Energy and Climate Policy Package for the period until 2020 was the first major step towards an integrated energy and climate policy. The long-term perspective up to 2050 has been developed afterwards requiring a reformulation of the specific policy documents (as proposed in the European Commission's Winter Package 2016). The 2030 targets are considered as intermediate steps towards 2050.
- **Emission impact:** The various policies implemented (renewable targets and support schemes, etc.) and their interplay (also with other policy approaches like the EU ETS) have contributed to a continuous decrease in energy related GHG emissions in the EU over the past years. However, the contribution of individual legislations cannot be assessed.
- **Weighting / resources:** Climate aspects are at the core of the Climate and Energy Package 2009. Moreover, although equally contributing to increasing energy security, the Energy Efficiency Directive and the Energy Efficient Buildings Directive are also perfectly in line with the goal of reducing greenhouse gas emissions in the European Union.
While the 2009 Package was mainly dedicated to aligning energy policy with the requirements of climate change mitigation, the proposed changes of the legal framework emphasise also the energy security and cost issues which may be conflicting with climate policy goals.
- **Functional overlap:** In all effective legal documents, the areas of renewable energy and energy efficiency are synergetic / reinforcing with climate policy objectives. The energy market package can be considered as neutral to slightly reinforcing (priority grid access for renewables).
The Winter Package makes progress in some areas. Primarily, these are the more stringent EU targets for renewable energy and energy efficiency, the focus on consumer integration (active market participation of consumers and small businesses engaging in demand response and representing decentralised small-scale renewable units), the more stringent sustainability criteria for biofuels as well as the first steps towards the integration of e-mobility. However, some conflictual issues arise that are mainly related to renewables. On the one hand this concerns the shift from national renewables targets to only one overall EU target and the change towards more market oriented support schemes (potentially reducing investment security and incentives for new

renewables). On the other hand the preferential grid access for electricity from renewables is eliminated (except for small scale installations).

Figure 3. Climate policy coherence in specific EU energy policy documents

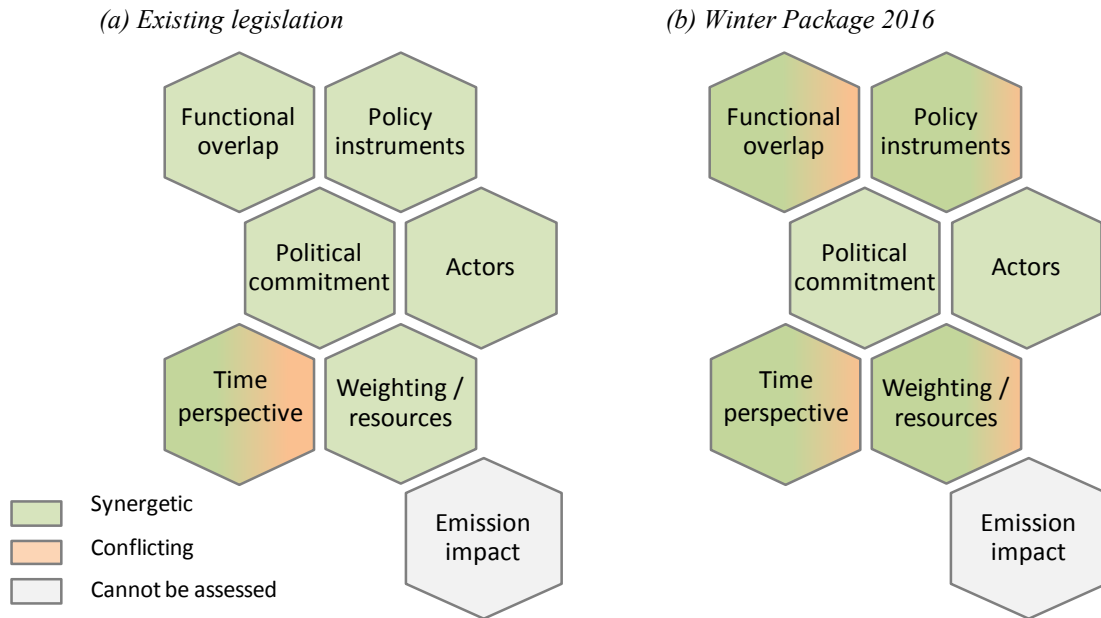


Table 2. Functional overlap of climate policy and specific EU energy policy documents

Document \ Issue	Renewable Energy Directive		Energy Efficiency Directive		Electricity Market Directive & Regulation	
	Dir. 2009/28/EC	COM (2016) 767	Dir. 2012/27/EU	COM (2016) 761	Dir. 2009//72/EC Reg. (EC) 714/2009	COM (2016) 864 COM (2016) 861
Renewables	Definition of national RES targets Specification of support schemes Definition of preferential grid access Criteria for biofuel sustainability	Definition of an EU-wide target More market oriented support schemes No preferential grid access More stringent biofuel criteria			Priority for RES and co-generation	No preferential grid access
Energy Efficiency			Definition of an EU-wide efficiency target Establishment of efficiency obligation systems Green public procurement Assessment of cogeneration potentials	Definition of an EU-wide efficiency target Prolongation of EOS Improved consumer information	MS should implement efficiency / demand side management measures	DSOs should improve efficiency of the grid
Consumer Focus		Prosumers Establishment of RES communities Right of disconnection from district heating / cooling system	Provision of information Accreditation and certification schemes	Billing and consumption information	Consumer protection (e.g. choice / switch of supplier)	Prosumers Stronger consumer rights (choice / switch of supplier) Improved information incl. smart metering
Market Integration					Unbundling Definition of rules for cross border electricity flows Cooperation of MS TSOs (ENTSO)	Integration of e-mobility should be fostered

Note: Green denotes synergies with climate policy goals, red denotes conflictual issues. Black denotes potential neutrality.

5 Conclusions

The integration of climate policy concerns in other policy areas, where decisions are taken that determine greenhouse gas emissions, is a prerequisite for effectively mitigating climate change. There are particularly strong interlinkages between energy policy and climate policy as the major part of greenhouse gas emissions is related to energy supply and use.

The Energy and Climate Package of 2009 the EU constituted an important milestone in integrated policymaking and set targets for the period until 2020. With the comprehensive approach to addressing energy and climate issues the EU assumed a leading role in global climate policy. Subsequently, in 2011 the long-term nature of climate policy objectives was recognised and the time horizon was extended to 2050 by documents like the Energy Roadmap 2050 and the Low Carbon Economy Roadmap 2050.

This time horizon is also born in mind in the 2016 Winter Package that revises key specific energy policy documents and shifts the temporal perspective to the period 2020/2030. The targets for 2030, however, constitute intermediate steps on the way to the long term decarbonisation goals. The proposals for new or revised directives and regulations included in the Winter Package are still pending adoption.

For assessing the development of CPI in EU energy policy we focused on three specific documents – the Renewable Energy Directive, the Energy Efficiency Directive and the Electricity Market Directive – comparing the existing and proposed legislation. In addition, we analysed six strategic energy policy documents from the period 2010 – 2015.

The assessment of CPI was carried out according to a set of seven indicators (political commitment, actors, functional overlap, time perspective, weighting/resources, policy instruments and emission impact). Our results show that mitigation of climate change is a key objective in all energy policy documents analysed. Furthermore, EU legislative processes ensure a comprehensive involvement of all stakeholders.

At the strategic level, the energy policy objectives regarding renewable energy and energy efficiency are synergetic / reinforcing with climate policy. It has to be noted, however, that other energy policy documents contained conflicting issues. This refers for instance to the Energy Security Strategy that emphasised the role of fossil fuels for safeguarding the EU's energy supply.

At the level of specific policy documents the areas of renewable energy and energy efficiency are synergetic / reinforcing with climate policy objectives. The Winter Package makes progress in some areas: the more stringent EU targets for renewable energy and energy efficiency, the focus on consumer integration, the more stringent sustainability criteria for biofuels as well as the first steps towards the integration of e-mobility. However, some conflicting issues arise that are mainly related to renewables. This concerns the shift from national renewables targets to only one overall EU target and the change towards more market oriented support schemes and the elimination of the preferential grid access for electricity from renewables. This recent step in giving priority to market-based principles must be judged critical with respect to achieving climate mitigation targets.

Specific policy instruments are, however, suggested in only a few specific energy policy documents (e.g. energy efficiency obligation schemes) and are generally reinforcing. Nevertheless, feedback effects with other policies (e.g. the EU ETS) need to be considered. The various policies implemented and their interplay have contributed to a continuous decrease in energy related GHG emissions in the EU over the past years. However, the assessment of the contribution of individual legislations is beyond the scope of this paper. It should, however, be included in future research as well as the continuous assessment of CPI in other policy areas.

References

- Adelle, C., Pallemarts, M., Chiavari, J., (2009), Climate Change and Energy Security in Europe Policy Integration and its Limits, June 2009, Stockholm.
- Beck, S., C. Kuhlicke and C. Görg (2009), Climate Policy Integration, Coherence, and Governance in Germany, UFZ-Bericht 01/2009.
- Bommel, S. and W. Kuindersma (2008), Policy integration, coherence and governance in Dutch climate policy. A multi-level analysis of mitigation and adaptation policy, Alterra-rapport 1799.
- Briassoulis, H., (2004), Policy Integration For Complex Policy Problems: What, Why And How, Paper presented at the 2004 Berlin Conference “Greening of Policies: Interlinkages and Policy Integration” Berlin, December 3-4, 2004.
- Brouwer, S., T. Rayner and D. Huitema (2013), Mainstreaming climate policy: the case of climate adaptation and the implementation of EU water policy, *Environment and Planning C: Government and Policy* 31, 134–153.
- COM (2010) 639, Energy 2020 – A strategy for competitive, sustainable and secure energy.
- COM (2010) 677, Energy infrastructure priorities for 2020 and beyond – A Blueprint for an integrated European energy network.
- COM (2011) 112, A Roadmap for moving to a competitive low carbon economy in 2050.
- COM (2011) 885, Energy Roadmap 2050.
- COM (2014) 15, A policy framework for climate and energy in the period from 2020 to 2030.
- COM (2014) 330, European Energy Security Strategy.
- COM (2015) 80, Energy Union Package – A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy.
- COM (2016) 759, Proposal for a Regulation Of The European Parliament And Of The Council On The Governance Of The Energy Union, Amending Directive 94/22/EC, Directive 98/70/EC, Directive 2009/31/EC, Regulation (EC) No 663/2009, Regulation (EC) No 715/2009, Directive 2009/73/EC, Council Directive 2009/119/EC, Directive 2010/31/EU, Directive 2012/27/EU, Directive 2013/30/EU and Council Directive (EU) 2015/652 and repealing Regulation (EU) No 525/2013.
- COM (2016) 761, Proposal For A Directive Of The European Parliament And Of The Council amending Directive 2012/27/EU on energy efficiency.
- COM (2016) 767, Proposal For A Directive Of The European Parliament And Of The Council On The promotion Of The Use Of Energy From Renewable Sources (Recast).
- COM (2016) 860, Clean Energy for all Europeans.
- COM (2016) 861, Proposal For A Regulation Of The European Parliament And Of The Council On The Internal Market For Electricity (Recast).
- COM (2016) 864, Proposal For A Directive Of The European Parliament And Of The Council On Common Rules For The Internal Market In Electricity (Recast)

COM (2015) 337, Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments.

Commission Regulation (EU) 176/2014 amending Regulation (EU) No 1031/2010 in particular to determine the volumes of greenhouse gas emission allowances to be auctioned in 2013-20.

Council Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

Council Directive 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.

Council Directive 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC.

Council Directive 2009/73/EC concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.

Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

Dupont, C. (2010), Political Commitment to Climate Policy Integration at EU Level: The Case of Biodiversity Policy, Edinburgh Europa Paper Series 2010/05.

Dupont, C. (2014), EU climate and energy policy: hope for more and better climate policy integration? Policy brief 2014/02, Brussels: Institute for European Studies.

Dupont, C. and S. Oberthür (2011), Climate policy integration into EU energy policy: achievements and driving forces, Brussels: Institute for European Studies.

Dupont, C. and S. Oberthür (2012), Insufficient climate policy integration in EU energy policy: the importance of the long-term perspective, *Journal of Contemporary European Research* 8 (2), 228–247.

European Council (2014), European Council (23 and 24 October 2014) – Conclusions.

European Environment Agency (2005), Environmental Policy Integration in Europe: State of Play and Evaluation Framework, EEA Report no 2/2005, Copenhagen: European Environment Agency.

European Parliament (2014), European Parliament resolution of 5 February 2014 on a 2030 framework for climate and energy policies.

European Parliament (2015), European Parliament resolution of 15 December 2015 on Towards a European Energy Union.

Field, C.B., et al. (2014), Technical summary. In: Field, C.B. et al. (eds), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, UK and New York, NY, USA, 35–94.

Jacob, K. and H. Kannen (2015a), Climate Policy Integration in Federal Settings: the Case of Germany's Building Policy, FFU-Report 01-2015.

Jacob, K. and H. Kannen (2015b), Integrated Strategies for Climate Policy Integration and Coherence: the Case of Germany, FFU-Report 02-2015.

Jordan, A. and A. Lenschow (2010), Environmental policy integration: a state of the art review, *Environmental Policy and Governance* 20 (3), 147–158.

- Kettner, C., D. Kletzan-Slamanig, and A. Köppl (2012), Climate policy integration – Evidence on coherence in EU policies, Vienna: WIFO.
- Kettner, C., D. Kletzan-Slamanig, and A. Köppl (2015), Climate Policy Integration: Evidence on Coherence in EU Policies, In: Kreiser, L., et al. (eds.), *Critical Issues in Environmental Taxation*, Vol. XVI, Edward Elgar, 2015, 3–17, doi:10.4337/9781785360251.00012.
- Kivimaa, P. and P. Mickwitz (2009), Making the Climate Count. Climate Policy Integration and Coherence in Finland, *The Finnish Environment* 3/2009.
- Lafferty, W. and E. Hovden (2003), Environmental Policy Integration: Towards an Analytical Framework, *Environmental Politics* 12 (3), 1–22
- Lyytimäki, L. (2011), Mainstreaming climate policy: the role of media coverage in Finland, *Mitigation and Adaptation Strategies for Global Change* 16 (6), 649–661.
- Mickwitz P., et al., (2009), Climate Policy Integration, Coherence and Governance, PEER Report No 2, Helsinki.
- OECD (2002), Improving policy coherence and integration for sustainable development: a checklist, Paris: OECD.
- Persson, A. (2004), Environmental Policy Integration: An Introduction, PINTS – Policy Integration for Sustainability Background Paper, Stockholm.
- Regulation (EC) No 713/2009 establishing an Agency for the Cooperation of Energy Regulators.
- Regulation (EC) No 714/2009 Of The European Parliament And Of The Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003.
- Regulation (EC) No 714/2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003.
- Regulation (EC) No 715/2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005.
- Steurer, R. and C. Clar (2014a), Is decentralisation always good for climate change mitigation? How federalism has complicated the greening of building policies in Austria, *Policy Sciences* 48 (1), 85–107.
- Steurer, R. and C. Clar (2014b), Politikintegration in einem föderalen Staat: Klimaschutz im Gebäudesektor auf Österreichisch, *der moderne staat*, 7 (2), 331–352.
- SWD (2014) 15, Impact Assessment accompanying COM (2014) 15 A policy framework for climate and energy in the period from 2020 to 2030, Commission Staff Working Document.
- UNFCCC (2015), Paris Agreement, Paris.
- van den Berg, M. and F Coenen (2012), Integrating climate change adaptation into Dutch local policies and the role of contextual factors, *Local Environment* 17 (4), 441–460.
- Wejs, A. (2014), Integrating climate change into governance at the municipal scale: an institutional perspective on practices in Denmark, *Environment and Planning C: Government and Policy* 32, 1017–1035.