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Energy

Jacopo Torriti

Introduction

The impact of energy policy measures has been assessed with various appraisal and evaluation tools since the 1960s. Decision analysis, environmental impact assessment and strategic environmental assessment are all notable examples of progenitors of Regulatory Impact Assessment (RIA) in the assessment of energy policies, programmes and projects. One of the main features of RIA is that it is not restricted to energy systems, and takes into account economy-wide frameworks. In principle, RIAs conducted on energy policies can rely on a variety of data and methods which are characteristic of analyses in the energy sector. For instance, in Europe energy regulators have substantial information regarding pricing data as part of their price reviews. This favours highly technical, market-informed RIAs. However, there are challenges when it comes to wider energy policies, partly because of lower transparency with the data and partly because of the macroeconomic nature of such analyses. This complicates the preparation of RIAs produced by by Government energy departments and the European Commission (CEU).

This chapter commences with an overview of policy tools which have been historically applied to assess the impacts of energy policies, programmes and projects. It will then focus on the types of data and models that typically inform RIAs for energy policies; the organisations involved; and issues of data exchange between energy companies and policy-makers. Examples will be derived from the European Commission, the UK, Italy, the Netherlands and France. It concludes by xxxxxx

A brief (pre)history: Policy tools to assess energy policies, programmes and projects

Before RIA became a widespread tool, there were other ways to feed evidence into the formulation of energy policies, programmes and projects.

Decision analysis was first applied in the 1960s to study problems in oil and gas exploration. Its application was consequently extended from private to the public sector (Huang et al, 1995). An early 1990s review enumerates 86 decision analysis studies that appeared in peer-reviewed journals from 1970 to 1989 (Corner and Kirkwood, 1991). Subsequent surveys found that decision analysis was frequently used to address strategic or policy decisions related to energy, such as investment options facing the utility industry, choice between different energy technologies, synthetic fuel policy, commercialisation of solar photovoltaic systems, management of nuclear waste and acid-rain control (Zhou et al, 2006). Decision analysis focuses on resolving conflicts between objectives, dealing with uncertainty about the outcomes, and appraisal of multiple options. Given the fact that energy and environmental issues are generally complex and inevitably involve multiple objectives,

the techniques involved in decision analysis varied depending on the level of uncertainty associated with the specific policy or project, with multi-criteria analysis (MCA) the most commonly cited.

In the 1970s, environmental issues became increasingly central to the development of energy policies and to the activities of the energy industry. This led to the upsurge of environmental impact assessment (EIA) and (later) strategic environmental assessment. The former was first a commonly accepted practice when developing energy infrastructure, and then became a regulatory requirement in several legal dominions around the world (Petts, 1999). The latter became an established practice in the late 1990s and over time improved its legal status in some jurisdictions (Dalal-Clayton and Sadler, 2005).

EIAs focus on the environmental impacts of individual project proposals, such as new power plants or new hydroelectric dams (Mirumachi and Torriti, 2012). Legislation was first introduced in the United States (US) in 1969. In Europe, EIAs were introduced thanks to the EC Directive in 1985 (85/337), which was amended in 1997 (97/11). Currently, institutions like the World Bank, the OECD Member States, transition countries and several developing countries carry out EIA.

As the environmental performance of the energy sector was subject to higher degrees of scrutiny, questions were raised about whether EIA was the right tool to address the challenges associated with energy supply (Wood, 2003). Strategic environmental assessment is designed to address environmental issues at a higher level of planning, which may take place at a regional, national and super-national scale. This is consistent with the idea that environmental protection needs to be embedded into energy frameworks at early phases of conception. The main origins of strategic environmental assessment in the EU relate to the Strategic Environmental Assessment Directive (2001/42). Strategic environmental assessment is supposed to complement EIA for strategic actions. Strategic action is a more nebulous process than the formal submission of a development proposal, as in EIAs. Thus, strategic environmental assessments address concepts rather than particular activities and must deal with incremental and non-linear policy processes (Wood and Dejeddour, 1992). Because it is focused on strategic actions, strategic environmental assessment is designed to include a stronger consideration of alternative options than EIA. The environment is often singled out in strategic environmental assessment, more so than in EIA or RIA, in large part because of the need to bolster its importance relative to the economic and social dimensions (Thérivel and Partidário, 1996). Finnevden et al (2003) note that it is not clear which, if any, applications within the energy sectors require a strategic environmental assessment, and Jay (2010) notes that strategic environmental assessment has not been extensively adopted in the area of energy production. This may be explained in relation to the fragmented nature of the industry, since generation, transmission, distribution and supply operate as separate markets – at least where liberalisation took place. This makes the use of strategic planning tools more difficult. Today, strategic environmental assessment has potential in the fields of carbon reduction, air quality, and landscape issues.

Institutions carrying out RIAs on energy

Energy regulatory authorities

Over the last couple of decades in several developed and developing countries, the liberalisation of energy markets generated new energy regulatory authorities. RIA, along with stakeholder consultation, has become a common tool in liberalising or liberalised markets. In some countries, the energy regulators stand out as a positive exception for having implemented RIA more rigorously than other government departments and other agencies (Renda, 2004). A review of RIA implementation across Italy confirms that the gas and energy regulator follows appropriate criteria (La Spina and Cavatorto, 2008).

Two main overarching political objectives of energy regulators have been to reduce prices to end-users and to improve the quality of energy supply. In order to obtain lower prices for end-users, one of the main tasks of energy regulators is to regulate the prices of distribution companies, because these are considered regional monopolies and need incentives to ensure that they improve efficiency and raise the quality of supply. Energy regulators use price control reviews to regulate the prices that distribution companies can charge suppliers for transporting electricity through their networks (Cowell, 2004). The reviews normally take place every four to five years (depending on the country) and involve a complex methodology which delivers data supporting the RIA.

The approach for the RIA commences with companies submitting a business plan setting out their operating costs, proposals for improving quality of supply, and capital expenditure estimates for the next five years. The regulators typically enter these data into a series of cost benchmarking exercises, with companies' estimated expenditure benchmarked against each other. Given the importance of price control reviews in determining the development of distribution electricity systems, the accompanying RIA is arguably the most significant piece of regulatory analysis in any liberalised energy market. For this reason, two issues are particularly worth of notice. First, notwithstanding its highly technical features, the final RIA seldom contains much detail about the actual cost curves of distribution network operators. Issues of competition mean that regulators may not make explicit allowances for particular infrastructural projects. Thus, some companies may enter dialogue with the regulators during the review process, but find relatively limited justifications for the review decisions in the final RIA (Guy and Marvin, 1996). Second, price review RIAs typically neglect non-techno economic impacts, including social and environmental impacts. For instance, Ofgem's (2001) Environmental Action Plan affirms that 'the choices made in the design of price control regulation can have wide ranging environmental impacts', but specifies what has long been the regulator's position on environmental and social matters: that it is not an environmental policy maker and does not produce social policy.

Another significant RIA produced periodically by energy regulators relates to the Quality of Supply regulation, which has similar rules in various European countries (e.g. UK, France and Italy). In Italy, this is subject to four-yearly revisions as part of which the regulatory authority sets the penalties and incentives for distribution network operators. The RIA process has been studied as an example of effective integration of various factors, including economic analysis based on end-users willingness to pay for better energy provision (Ajodhia et al, 2006) and consultation (Fumagalli and Lo Schiavo, 2009). Torriti et al (2009) describe the RIA process for two reviews of the Quality of Supply regulation in terms of preliminary analyses, research studies, alternative regulatory options, consultation and cost-benefit analysis. They highlight some of the analytical and procedural issues typically associated with RIA: the creation of alternative options, the development of cost-benefit analysis, the disparity between analytical effort and available resources and the need to

communicate in an informed manner with interested stakeholders. The experience from this case study also shows that when attention is paid to these details, RIA can generate unexpected results and indeed generate new regulatory options.

Government Departments

Given the importance of energy for fuelling economic growth, energy policy sits firmly in any governmental agenda. The institutionalisation of energy policy often translates into the presence of energy ministries or energy departments within government (Newbery, 1989). These, like any other government department, are charged with the task of formulating their policy with the support of RIAs. In addition, energy-related policies can be developed within departments for environment, industry and transport. To date no research has collected and let alone examined the body of RIAs produced by government departments. This section seeks to capture four salient features of RIAs by government departments.

First, unlike RIAs by regulatory authorities, which feature a high level of techno-economic analysis, government RIAs on energy policy tend to follow a more generalist approach. RIAs conducted by government departments are often less quantitative in terms of the analysis and geared to a less specialist audience. An example of this is the RIA on the Green Deal and Energy Company Obligation in the UK (DECC, 2011). The Green Deal aims to overcome access to capital and mismatched incentive problems. The Energy Company Obligation aims to provide additional support to deliver socially costs-effective measures that are not likely to be taken up under current policies, and provides measures to relieve fuel poverty. In essence, these are complementary policy measures intended to address barriers to the slow uptake of cost-effective energy efficiency measures. The government's RIA estimates that the Green Deal will lead to 125,000 to 250,000 households being lifted out of fuel poverty by 2023, but there have been criticisms with the way this figure was derived. More specifically, it has been argued that the RIA is too simplistic. For example, it neglects distributional issues: the Green Deal might increase fuel poverty since the policy might only benefit better-off end-users and not be supportive of the fuel poor (Arie, 2012). The cost-benefit analysis (CBA) was also criticised for applying very high discount rates (7%, which is significantly higher than other policies). Indeed, the RIA shows that investments do not generate positive net present values for discount rates of 5%. However, other similar case studies show that the types of technological solutions contained in the Green Deal would create negative net present values even with discount rates as low as 1.5% (Energy Saving Trust, 2010).

Second, there is a tendency to outsource research and analysis for those RIAs which require highly specialised electrical engineering and energy economics knowledge. For instance, in Ireland, Spain and the UK consultants such as Frontier Economics, London Economics, Mott MacDonald, NERA and RedPoint have been contracted to carry out cost-benefit analyses and to come out with policy options for RIAs on key policy areas such as smart metering, energy efficiency, renewable heat incentives, feed in tariffs, etc. The smart meter RIA by Mott MacDonald highlighted that the most advanced smart metering options would have negative net present values. It was noted that this initial negative assessment was partly due to assumptions that limit the value of demand side management. Hence, the final RIA on smart meters presents a preferred roll-out option with a positive net present value (DECC, 2009).

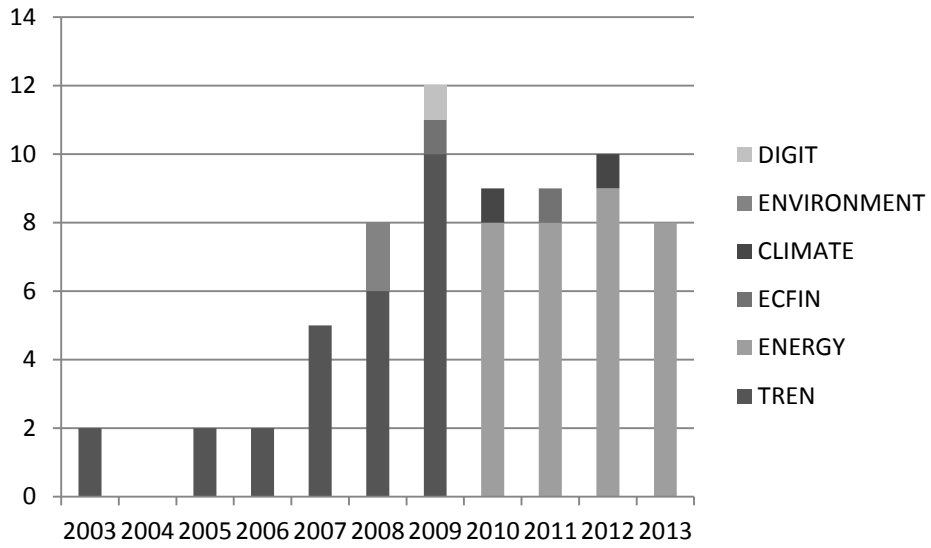
Third, the tendency to delegate pieces of analysis also results in interest groups gathering in specialist groups to produce the quantitative sections of a RIA. For instance, as part of the UK Government Electricity Market Reform, DECC asked a technical experts group, comprising the UK transmission system operator (National Grid), distribution network operators and energy aggregators, to produce analysis regarding the details of transitional arrangements to include demand side response and energy storage within newly formed capacity mechanisms. Similarly, in the case of the UK policy for 'zero carbon homes', which is part of a more general approach to low energy buildings, leadership on RIA was given by the UK Government to the Sustainable Building Task Group in 2003 (BIS, 2008). The group was co-chaired by the Chairman of the Environment Agency and the Deputy Chairman of English Partnerships and consisted of representatives from industry and environmental groups. According to Hauf (2012), a similar combination of Government, industry and environmental groups united in the same policy formulation body also occurred in France. The specific proposals for the amendment of building regulations were developed by the Building Regulations Advisory Committee which produced the results of the accompanying RIA.

Fourth, the high political implications of energy policies means that there are occasions where policies are pushed forward regardless of the 'better regulation' principles dictated by the same Government. For instance, in 2011, the initiative by DECC of rolling out smart meters was the only example of policy escaping the one-in one-out rule applied by the UK coalition Government. According to the one-in one-out rule, regulation whose direct incremental economic cost to business and civil society organisations exceeds its direct incremental economic benefit to business and civil society organisations can only come to place along with deregulatory measures whose direct incremental economic benefit to business and civil society organisations exceeds its direct incremental economic cost to business and civil society organisations (HM Treasury, 2011). In other words, the rule requires that no new national regulation is brought in without other regulation being cut by a greater amount. This also implies that the introduction of new regulations and removal of existing regulations are both government interventions and require their own separate RIA. The Smart Meters' initiative was classified as an "in" under the one-in, one-out methodology, because the RIA showed some £57m equivalent annual net cost to business. However it was introduced as new legislation without any significant "outs". DECC stated that there was plan to simplify the nuclear decommissioning financing and fees framework - hence reducing paperwork burdens on operators (DECC, 2012).

Supranational institutions: the European Commission

Energy is one of the most productive policy areas in terms of European Commission's RIAs. Figure 1 illustrates the number of RIAs conducted by different European Commission Directorate Generals (DGs) on energy policies between 2003 and September 2013. The RIAs on energy in Figure 1 were sourced from the official website of the European Commission (www.europa.org) and are listed in the Appendix.

Figure 1-Impact Assessments on energy policies carried out by the different departments (Directorates General) of the European Commission (2003-September 2013)



Before the creation of DG ENERGY in 2010, its predecessor -DG for Transport and Energy (TREN) - conducted most of the RIAs on energy. However, over the years RIAs on energy policies have been carried out also by DG ENVIRONMENT, CLIMATE, Informatics (DIGIT) and Economic and Financial Affairs (ECFIN). The intensification of policy-making activity around climate change targets, with renewable energy, energy efficiency and lighting policies justify the higher number of RIAs after the year 2009.

The introduction of systematic RIAs has certainly had an impact in terms of the level of analyses. What Hanley and Spash (1993) stated at the beginning of the 1990s, that in the area of energy and environment benefits have not always been well integrated into the European Community policy assessments cannot apply to present times. Individual RIAs received some attention by researchers with regards to theirs economic assessments. For instance, the RIA on the EU's Objectives on Climate Change and Renewable Energy for 2020, (European Commission, 2008) considers the actual EU partitioning between Emission Trading Scheme (ETS) and non-ETS sectors to be cost-effective, whereas, according to Böhringer et al (2009) the RIA did not take into account the excess costs associated with differential emission pricing.

Inevitably, the level of micro-economic detail which characterises energy regulators' RIAs is often not present in the RIAs of the European Commission. Indeed, the scope of the analysis is at a higher level, as demonstrated by the use of macroeconomic modelling in the RIA for the liberalisation of energy markets, where the impacts of unbundling vertically integrated energy companies are assessed in terms of changes to GDP, inflation and employment (Torriti, 2010).

Data and RIAs on energy: Who holds the data?

One of the main issues around RIAs on energy regards the extent to which data from energy companies are used as part of the appraisals. Most of the energy regulators monitor the markets in order to foresee critical issues, prevent disturbances, enact timely regulatory actions. To ensure this task, they need significant amounts of data from market actors. Ideally, RIAs on energy could contain all the available information on markets performance; compare operations over time and across markets; publicly release all data submitted to and produced by the market and system operators; and even anticipate instances where small market flaws may develop into market failures. However, there are at least three obstacles to the transparent exchange of information between energy companies and energy regulators.

First, there are data which companies have a right to maintain confidential. Second, there are data which are public in principle but costly to gather and assemble. Third, there is no general consensus on the desirability of data exchange. OFGEM's guidance on RIA admits the challenges of capturing competition effects of regulatory change:

In the case of markets being opened up to competition, for example, it is inherently difficult to predict with any accuracy the potential efficiency benefits that introducing a competitive process might bring, or to quantify meaningfully the dynamic benefits of competition such as the scope for increased innovation and the introduction of new products, services and technologies (OFGEM, 2013, p. 23)

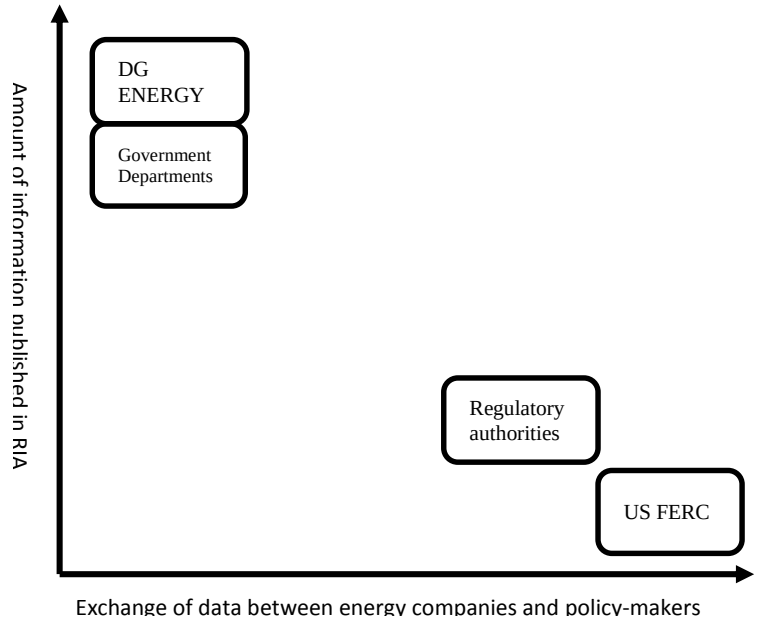
In principle, the exchange of information from energy companies to policy-makers is desirable because lack of exchange of data leads to incomplete information and inefficient screening of the market (Brown, 2001). According to this view, under publicly available RIAs, the information these disclose should be available not only for those who have the legal and financial capability to access data, but also to all market and non-market actors. However, in practice, incumbents argue that there are instances where transparency may violate property rights, or harm business when the disclosure of crucial information can alter the competitive process (Campbell and Lindberg, 1990). An example of this relates to the treatment of electricity consumption data from smart meters. In principle, if regulators had access to such data, they could make informed decisions about tariffs, based on actual end-users' consumption. In reality, the consultation and RIAs conducted in the Netherlands show that both energy companies and consumers were opposed to the disclosure of consumption data (Cavoukian et al, 2010). Moreover, even new entrants to the market may find data exchange problematic. Perfect visibility of the strategies of competitors may be beneficial to the defence of market power by the dominant company. Some delay in making market bids transparent may help the strategies of new competitors. In the recent Electricity Market Reform in the UK, DECC proposed to publish historical data on the bidding prices for the Short Term Operating Reserve, a service for the provision of additional active power from generation and/or demand reduction, and energy aggregators, which have only entered energy markets in the past five years, opposed such change.

Compared with the European Commission's DG ENERGY, the US Federal Energy Regulatory Commission features a higher legislative power for access to data and a greater financial capacity to purchase data. Since data are kept confidential by the regulator, business concerns of being negatively affected by data disclosure for competition purposes are limited. This arrangement

implies that in the US the transparency of RIAs is sacrificed in support of effective market monitoring and higher quality of data and analysis.

In the EU, institutional market monitoring activities are lagging. In some European countries, the regulator is recipient of a wealth of data (Gilbert et al, 2002), and the main issue is whether to publish them in a RIA or not. In other countries, data gathering does not represent a problem, but organizational deficiencies make the treatment of data rather difficult.

Figure 2-Amount of information published in RIAs and level of data exchange between energy companies and public authorities producing RIAs



In the light of what discussed above, Figure 2 illustrates indicatively how different actors performing RIAs vary in terms of their amount of information published in RIAs and level of data exchange between energy companies and public authorities.

Conclusion

The examples given in this chapter offer a picture of the range of RIAs applied to energy policies. This chapter has observed how the level of techno-economic analysis varies in RIAs conducted by regulators, government departments and the European Commission. However, no judgement is placed here on the value of less technical RIAs. Indeed, a lower level of analysis may yield positive benefits in terms of greater engagement with stakeholders and the wider public in the development of policies that will have significant consequences for society as a whole. This benefit is even greater when taking into account the detachment of the lay public from energy policies (Cotton and Devine-Wright, 2012). Unlike some of the more technically focused exercises that have been used to assess

energy regulation, RIA for energy policy is intended to be an inclusive and participative process, in which there is an opportunity for deliberation and consensus-building. It has been pointed out elsewhere that the application of cost-benefit analysis to energy policies emphasises three typical weaknesses consisting of (i) the exclusive concern with economic values; (ii) the treatment of uncertainty; (iii) and the neglect of intergenerational effects (Simpson and Walker, 1987).

Very much like environmental policies, energy policies tend to be designed to achieve multiple objectives ranging from climate change to utilities' tariffs. Correspondingly, the impacts generated by energy policies tend to vary substantially in nature and size. Over the years, policy-makers have expanded the types of analytical tools used in the appraisal and evaluation of energy policies from narrowly scoped geophysical and ecological models, on the one hand, and purely socio-economic oriented tools of decision analysis, on the other hand, to highly integrated assessment tools, such as RIA. Through an expansion of geographic and temporal scopes and depiction of large complex systems, RIA models were expected to overcome many of the short-comings of earlier analyses, i.e. absent or inadequate depiction of technological change, micro-behaviours of economic actors (e.g., firms and consumers), intergenerational trade-offs and fairness, and uncertainty (Greening and Bernow, 2004). However, given their broad approach, RIAs are prone to the problem of finding a balance between quantification of current economic and physical phenomena, and future variations in the supply and demand of energy systems. In energy policy, the main added value of the RIA system has been associated with explicitly providing a range of policy relevant criteria including a broad range of stakeholder opinions which can be used to assess (in traditional cost-benefit terms) and develop alternative environmental and energy policies.

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Appendix-RIAs conducted by the European Commission in the area of energy (2003-September 2013)

DG	Proposal date	Commission proposal	RIA report
TREN	2003/12/10	Directive on Security of Supply for Electricity	COM(2003)740
TREN	2003/12/10	Decision laying down guidelines for Trans-European energy networks	COM(2003)742
TREN	2005/12/07	Electricity from renewable sources	COM(2005)627
TREN	2005/12/07	Action plan for biomass	COM(2005)628
TREN	2006/02/27	Enhancing supply chain security	COM(2006)79
TREN	2006/10/19	Action Plan for Energy Efficiency: Realising the Potential	2006/10/19
TREN	2007/01/10	Renewable Energy Road Map	2007/01/10
TREN	2007/01/10	Report on the implementation of the Biofuels Directive (2003/30/EC)	2007/01/10
TREN	2007/01/10	Communication on sustainable coal	2007/01/10
TREN	2007/09/07	Legislative package on the internal market for electricity and gas	2007/09/07
TREN	2007/11/22	Communication on European Energy Strategic technology Plan (SET-Plan)	2007/11/22
TREN	2008/01/23	Communication on supporting early demonstration of sustainable power generation from fossil fuels	
TREN	2008/12/17	Commission Regulation of implementing Directive 2005/32/EC with regards to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and	2008/12/17

		office equipment	
TREN	2008/11/13	Proposal for a Directive imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products	COM(2008)775
TREN	2008/11/13	Proposal for a Directive on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products	COM(2008)778
TREN	2008/11/13	Proposal for a Directive on energy performance of buildings (recast)	COM(2008)780
TREN	2008/11/26	Proposal for a Directive (Euratom) setting up a Community framework for nuclear safety	COM(2008)790
ENV	2008/01/23	Communication '20 20 by 2020 Europe's climate change opportunity'	COM(2008)30
ENV	2008/01/23	Decision on effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020	COM(2008)17
TREN	2009/07/16	Regulation concerning the notification to the Commission of investment projects in energy infrastructure within the European Community and repealing Regulation (EC) No 736/96	COM(2009)361
TREN	2009/07/16	Regulation concerning measures to safeguard security of gas supply and repealing Directive 2004/67/EC	COM(2009)363
TREN	2009/07/22	Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for electric motors	C(2009)5675
TREN	2009/02/04	Commission Regulation implementing Directive 2005/32/EC with regards to ecodesign requirements for simple set-	C(2009)582

		top boxes	
TREN	2009/03/18	Commission Regulation No 245/2009 implementing Directive 2005/32/EC with regards to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC	C(2009)1891
TREN	2009/03/18	Commission Regulation No 244/2009 implementing Directive 2005/32/EC with regards to ecodesign requirements for non-directional household lamps	C(2009)1907
TREN	2009/04/06	Commission Regulation implementing Directive 2005/32/EC with regards to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies	C(2009)2452
TREN	2009/07/22	Commission Regulation (EC) No…/… implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for glandless standalone circulators and glandless circulators integrated in products	C(2009)5677
TREN	2009/07/22	Commission Regulation of […] implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for televisions	C(2009)5671
TREN	2009/07/22	Commission Regulation (EC) No …/… of … implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for household refrigerating appliances	C(2009)5681
ECOFIN	2009/10/07	Communication – Investing in the Development of Low Carbon Technologies (SET – Plan)	COM(2009)519

ENERGY	2010/12/08	Proposal for a Regulation on energy market integrity and transparency	SEC(2010)1510 + SEC(2010)1511
DIGIT	2009/03/12	Communication on mobilising Information and Communication Technologies to facilitate the transition to an energy-efficient, low-carbon economy	COM(2009)111
ENERGY	2010/11/17	Communication – Energy infrastructure priorities for 2020 and beyond – A Blueprint for an integrated European energy network	SEC(2010)1395 + SEC(2010)1396
ENERGY	2010/11/10	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household washing machines	SEC(2010)1354 + SEC(2010)1353
ENERGY	2010/11/10	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household dishwashers	SEC(2010)1356 + SEC(2010)1357
ENERGY	2010/11/10	Commission Decision amending Chapter 3 of Annex 1 to Regulation (EC) No 715/2009 on conditions for access to the natural gas transmission network	SEC(2010)1362 + SEC(2010)1363
ENERGY	2010/11/03	Proposal for a Directive on the management of spent fuel and radioactive waste	SEC(2010)1289 + SEC(2010)1290
ENERGY	2010/09/23	Commission Regulation on laying down guidelines relating to the inter-transmission system operator compensation mechanism and a common regulatory approach to transmission charging	SEC(2010)1075 + SEC(2010)1076
ENERGY	2010/09/02	Commission Regulation on laying down guidelines relating to inter-transmission system operator compensation and a common regulatory approach to transmission charging	SEC(2010)992 + SEC(2010)991

ENERGY	2010/02/25	Report on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling	SEC(2010)65 + SEC(2010)66
CLIMATE	2010/11/03	Commission Decision of 3.11.2010 laying down criteria and measures for the financing of commercial demonstration projects that aim at the environmentally safe capture and geological storage of CO2 as well as demonstration projects of innovative renewable energy technologies under the scheme for greenhouse gas emission allowance trading within the Community established by Directive 2003/87/EC of the European Parliament and of the Council	SEC(2010)1320 + SEC(2010)1319
ENERGY	2011/12/15	Communication - Energy Roadmap 2050	SEC(2011)1565 + SEC(2011)1566
ENERGY	2011/11/24	Proposal for a Regulation on Union support for the nuclear decommissioning assistance programmes in Bulgaria, Lithuania and Slovakia	SEC(2011)1387+ SEC(2011)1388
ENERGY	2011/10/27	Proposal for a Regulation of the European Parliament and of the Council on safety of offshore oil and gas prospection, exploration and production activities	SEC(2011)1293+ SEC(2011)1294
ENERGY	2011/10/19	Proposal for a Regulation on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC	SEC(2011)1233+ SEC(2011)1234
ENERGY	2011/09/29	Proposal for a Directive laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation	SEC(2011)1098 + SEC(2011)1099
ENERGY	2011/08/31	Proposal for a Regulation establishing a Community system for registration of carriers of radioactive materials	SEC(2011)1006+ SEC(2011)1005

ENERGY	2011/06/22	Proposal for a Directive on energy efficiency and repealing Directives 2004/8/EC and 2006/32/EC	SEC(2011)779 + SEC(2011)780
ENERGY	2011/03/08	Communication: Energy Efficiency Plan 2011	SEC(2011)277+ Annexes: SEC(2011)278+ SEC(2011)279+ SEC(2011)280+
ECOFIN	2011/10/19	Proposal for a Regulation amending Decision No 1639/2006/EC establishing a Competitiveness and Innovation Framework Programme (2007-2013) and Regulation (EC) No 680/2007 laying down general rules for the granting of Community financial aid in the field of the trans-European transport and energy networks	SEC(2011)1237+ SEC(2011)1239
ENERGY	2012/12/12	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment	SWD(2012)419 + SWD(2012)418
ENERGY	2012/11/22	Report from the Commission on the voluntary ecodesign scheme for complex set-top boxes	SWD(2012)391 + SWD(2012)392
ENERGY	2012/10/03	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for household tumble driers	SWD(2012)289 + SWD(2012)290
ENERGY	2012/09/14	Communication on communicating outcome of the Impact Assessment related to requirements of Article 3(4) of Directive 2009/28/EC	SWD(2012)261 + SWD(2012)262
ENERGY	2012/08/24	Commission Decision on amending Annex I to Regulation (EC) No 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks	SWD(2012)248 + SWD(2012)247
ENERGY	2012/06/25	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with	SWD(2012)178 + SWD(2012)179

		regard to ecodesign requirements for water pumps	
ENERGY	2012/06/06	Communication : Renewable Energy - a major player in the European energy market	SWD(2012)149 + SWD(2012)163
ENERGY	2012/05/30	Proposal for a Directive laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation	SWD(2012)137 + SWD(2012)138
ENERGY	2012/03/06	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for air conditioners and comfort fans	SWD(2012)35 + SWD(2012)34
CLIMATE	2012/10/17	Proposal for a Directive of the European Parliament and of the Council amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources	SWD(2012)343 + SWD(2012)344
ENERGY	2013/08/28	Commission Regulation amending Commission Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Commission Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions	SWD(2013)306 + SWD(2013)305
ENERGY	2013/08/02	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water heaters and hot water storage tanks	SWD(2013)295 + SWD(2013)294
ENERGY	2013/08/02	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters	SWD(2013)297 + SWD(2013)296
ENERGY	2013/07/08	Commission Regulation implementing Directive 2009/125/EC of the European	SWD(2013)240 + SWD(2013)241

		Parliament and of the Council with regard to ecodesign requirements for vacuum cleaners	
ENERGY	2013/06/26	Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers	SWD(2013)219 + SWD(2013)218
ENERGY	2013/06/14	Commission Regulation on submission and publication of data in electricity markets and amending Annex I to Regulation (EC) No 714/2009 of the European Parliament and of the Council	SWD(2013)197 + SWD(2013)198
ENERGY	2013/06/13	Draft proposal for a Directive amending Directive 2009/71/EURATOM establishing a Community framework for the nuclear safety of nuclear installations Draft presented under Article 31 Euratom Treaty for the opinion of the European Economic and Social Committee	SWD(2013)199 + SWD(2013)200
ENERGY	2013/01/29	Report of the Commission on the voluntary ecodesign scheme for imaging equipment	SWD(2013)15 + SWD(2013)14