Assessing Europe’s current climate policy landscape to make it fit for the future – An insight in ENTRACTE’s current research

EDITORIAL

Climate policy-making in today’s world is complex. A fragile economic situation in large parts of the European Union caused a shift in political priorities. Uncoordinated energy policies in member states cause imbalances in the energy systems and may influence the performance of EU’s flagship climate policy instrument, the EU Emission Trading System (EU-ETS). Thus, in order to reach the ambitious long-term climate policy goals of the European Union we will need a carefully considered policy design that takes into account existing market failures, suboptimal outcomes of international agreements, the necessity to secure competitiveness and reduce carbon leakage, as well as its interaction with other political goals.

This is the contribution that the ENTRACTE research project envisages. The ENTRACTE research project is funded under the 7th Framework Programme of the European Union and is coordinated by the Centre for European Economic Research (ZEW) in Mannheim, Germany. Nine partners from six European countries collaborate in the ENTRACTE consortium within the project’s lifetime of 36 months, starting September 2012.

This first newsletter focuses on the implementation of climate policies on a member state level and shall give an insight of the research made in the project and marks off the road still ahead.
Climate and Energy Policies in Member States of the European Union

The key objectives of the European Union in the field of climate and energy policy, set in its climate and energy package in 2009, follow an easy formula: The reduction of Greenhouse Gas (GHG) emissions by 20%, a 20% share of renewables in energy consumption, and 20% improvement in energy efficiency by 2020.

However, the route to reach these goals is less easy to summarise. Policy instruments to steer the economy and energy systems towards the envisaged targets are located both on EU and member state level. Numerous policy instruments with different foci and sub-targets have been implemented. Some might be effective while others may have no effect at all since they are not binding or overlapping with other measures of regulation.

In order to get an overview over the current situation in European energy and climate policy, the Centre for European Economic Research (ZEW), together with partners with specific expertise on individual member states, assessed those policies at the EU and member state level. The study entitled “An Overview on Current Climate Policies in the European Union and its Member States” was conducted as part of the ENTRACTE research project and is available online1.

On the one hand, the study assesses which policies are in place in the different member states, and on the other hand it reveals how policy making in member states depends on decisions made at EU level. We also analyse how emission levels, renewable energy generation and energy efficiency have developed in the different member states since the policies came into effect. The following are the study’s findings in a nutshell.

At the EU level, member state policies are coordinated by setting targets for emissions, energy generation from renewable energy sources (RES) and energy efficiency. In order to make energy prices comparable across regions, it mandates minimum taxes on fossil fuels. In spite of this, effective fuel prices still vary considerably across member states. Where the European Commission saw the need to set product standards, it did so at the EU level so as not to hamper free tradability of products within the EU.

While emissions under the EU emissions trading system (ETS) are regulated on an EU level, emissions targets for emissions outside the EU ETS, such as transport, buildings, agriculture and waste, are regulated by the member states individually. The Effort Sharing Decision established differentiated binding emission targets for member states. The most ambitious targets require a reduction of emissions by 20% with respect to 2005 by 2020, whereas increases of up to 20% are allowed for other countries. Overall, the EU-27 aims at a reduction of 10% in non-ETS sectors. Member states have full flexibility in choosing policies to achieve their targets for non-ETS emissions, RES shares and efficiency levels.

In order to reach the RES targets in the electricity sectors, member states either employ tradable RES certificate schemes (green certificates) or subsidise power generation from RES with feed-in tariffs. Although the electricity systems of the individual member states are interconnected, there is very little synchronisation and harmonization of instruments and policies among member states. In the transport sector there is a RES quota of 10% specifically. With currently marketed technologies, this translates to a 10% share of biofuels in the fuel mix offered at gas stations. However, at the moment it is far from obvious if this target will be reached.

When it comes to energy efficiency measures, the diversity in adopted policies is large. Similar to green certificates, some countries have adopted white certificate schemes, where white certificates are issued to providers of energy services for investments in the energy efficiency of their customers’ buildings and appliances. Subsidies for private investment in energy efficiency of residential and commercial installations abound and vary in design and rates. Numerous countries run information campaigns to inform their citizens about the benefits of efficient appliances and buildings. But usually the effects of such campaigns lag behind expectations and it is far from clear that the efficiency target will be reached.

After the economic downturn ensuing the 2008 financial crisis, the emissions targets for 2020 are within reach for most countries and for the EU overall. The evidence for RES targets is mixed. Many countries still have a long way to go to meet their targets, but in many of them, promising policies have been installed only lately. In others, currently used policies cannot be expected to deliver the RES targets in time.

The overview created by this study builds a basis for the ENTRACTE project in that it presents the current policy situation and highlights motivations behind certain features of EU climate policy. Subsequently, the ENTRACTE project will analyse the policies and their interactions more in-depth and propose ways to improve the mix of policies and targets in the EU.

Florian Landis & Oliver Schenker, ZEW

An Empirical Assessment of Compliance and Enforcement in the EU ETS from 2005-2011

The EU ETS and Installation Compliance

Launched in 2005, the European Union Emissions Trading Scheme (EU ETS) is Europe’s flagship programme for delivering its greenhouse gas emissions reduction targets. Under the EU ETS, installations receive carbon emissions permits that can be traded on the market. By 30 April of each year, they must then surrender sufficient permits to cover their verified emissions during the preceding year. The efficiency of the scheme therefore rests on the ability of European governments to ensure compliance among installations, in particular by penalising those that do not comply. However, to date no empirical evidence has been presented on compliance and enforcement within the scheme. As part of Work Package 2 of ENRACTE, our paper aims to fill this gap by assessing compliance patterns, identifying drivers of non-compliance, and linking the analysis with enforcement data.

Overall results

Using the European Commission’s Community Independent Transaction Log (CITL) Database, we analyse compliance between 2005 and 2011. During this period, there were 4,017 instances of non-compliance among installation-years, accounting for 5.2% of total installation-years and 6.2% of total emissions. It is surprising that we find such high levels of non-compliance among installations, despite a gross over-allocation of permits supplied within the EU ETS. Perhaps even more surprising is that we also find 4,873 instances of over-compliance, that is, installation-years in which more allowances are surrendered than verified emissions.

Compliance by Phase, Member-State and Type of Activity

However, compliance has improved from 91% of installations in Phase 1 (2005-2007) to 98% in Phase 2 (2008-2011). We find that compliance varies substantially across member states, with some member states achieving near-perfect compliance (e.g. Austria, Netherlands, Poland) while compliance is well below 90% elsewhere (e.g. Bulgaria, Czech Republic, France). We also observe some variation across types of activity. Some sectors achieve almost 100% compliance (e.g. coke ovens, metal ore) while others perform less well (e.g. mineral oil refineries, pulp and paper). Similar results are obtained when looking at allowances rather than installation-years.

Drivers of Non-Compliance

What factors might explain these results? First, we find that the size of installations matters. In terms of average annual allowances distributed, non-compliant installations are 14% larger. This counter-intuitive result suggests that larger companies are not better able to deal with the administrative costs associated with reporting and verification. Second, the increased compliance from Phase 1 to 2 suggests that learning effects have been influential. During early years, installations may have been unfamiliar with a newly imposed carbon constraint as well as the administrative procedures involved in reporting. In Phase 2, however, installations are likely to have adapted to the scheme. Over the years, a wide range of revisions in the regulatory system have also been implemented. These might have facilitated monitoring and compliance.

Regarding member-states, one potential explanation for the observed variation in compliance is differential enforcement. Enforcement (e.g. imposing penalties) in the EU ETS is implemented at the country-level; due to variations in legal systems, administrative capabilities and industry influence among member-states, levels of enforcement will vary. We are currently collaborating with colleagues at Tilburg University to compile information on enforcement across countries to assess these hypotheses. We are also gathering firm-level information on EU ETS-regulated companies (turnover, employment, assets...) to analyse other potential determinants of non-compliance. We hope that such an analysis will be an important step in ensuring that the full potential of the EU ETS is achieved.
Europe’s 20% efficiency improvement target in light of past energy intensity trends

Current and projected trends for population, income and energy demand growth suggest that the pressure on energy and natural resources will increase globally in the coming decades. The European Union (EU) and its member states put in place an ambitious energy policy to address these challenges. The goal is to tackle climate change, the increasing dependence on energy imports, the strain on energy resources while securing access for all users to affordable, secure energy and transitioning towards a low-energy economy.

Improving energy efficiency by 20% is one of three EU “20-20-20” targets to be reached by the end of this decade. For this goal to be met, efficiency improvements will need to be fostered both through superior consumer appliances and cars and through more efficient production technologies in the industrial sectors. The natural question that arises in this respect is what will be the effort required by EU member states to fully comply with this ambitious regulation. A natural departure point for a meaningful answer is to observe past trends in energy efficiency.

The article “Energy Intensity Developments in 40 Major Economies: Structural Change or Technology Improvement?” describes the drivers behind industrial national and sectoral dynamics of energy intensity in all EU member states and in some other major world economies (including the USA and Russia and developing countries such as Brazil, Indonesia, China and India) over the years between 1995 and 2007, with all countries contributing to this trend with the exception of Brazil, which saw an increase in aggregate energy intensity. Improvements were however not steady over the years under consideration. Aggregate energy intensity decreased by 11% points in the five years between 1995 and 2000, after which three years of stagnation followed. The positive trend in energy efficiency improvement took off again in 2004, and in only three years global energy intensity declined by another 7%.

The magnitude of improvements varied widely across sectors within each country, as shown in Figure 3. At the aggregate level, all sectors decreased energy intensity with the exception of mining and quarrying, supporting and auxiliary transport activities, activities of travel agencies, education, electricity, gas and water supply. Specifically, some of the most intensive sectors with respect to Research and Development investment, such as transport equipment, basic metals and fabricated metal, machinery, electrical and optical equipment, chemicals and chemical products, saw efficiency improvements in all the countries considered.

Within the older EU member states, most sectors are similar in their efficiency improvements over the period analysed. Conversely, the Eastern EU members, which were characterized by higher levels of energy intensity, display more heterogeneity within sectors, with some major sectors decreasing energy intensity by 60%, while other minor sectors increased energy intensity by the same percentage.

While these are promising trends testifying the commitment of the EU and its member states to green growth, two important policy considerations arise from this study. First, changes in energy intensity within the same sector across different countries vary widely. This suggests that in some countries production technologies within a specific sector are significantly more efficient than in other economies. As a result, one of the major future challenges (for both the EU and other major world economies) will be to support changes in the production processes and to share the technological know-how that will favour the use of the most efficient technology and methods of production and will increase convergence of efficiency levels across sectors.

Second, to achieve a 20% reduction in energy efficiency EU member states will need a stable support policy framework. Efficiency trends of the past decades will need to be supported, but the low hanging fruits in the industrial sectors have already been picked. Strong commitment will therefore be necessary to foster improvements also in the residential and building sectors, which are seen as major contributors towards reaching a 20% efficiency improvement at the EU level.

Elena Verdolini, FEEM

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Effective auctioning EU ETS allowances in a globalized market for carbon dioxide

Introduction
The EU ETS is the largest trading programme in the world to combat global climate change. However, the effectiveness of the system—scrutinized since its inception in 2005 by both economists and lawyers—is thus far flawed. The crucial importance of a well-developed implemented compliance chain has been neglected. Only after it was found out that carbon trading fraudsters may have accounted for up to 90% of all market activity in some European countries, with criminals pocketing billions, according to European law enforcement agencies, the compliance issue received increased attention. The EU ETS legislation originally left a considerable amount of discretion to Member States. That decentralized approach pursued in the Directive has adversely affected the effectiveness of the system. Later amendments to the EU legislation on the ETS have gradually reduced the level of decentralization.

The latest changes made to the ETS, the ones that apply to the third trading phase (2013-2020), have greatly centralized the ETS. In particular Auctioning Regulation 1031/2010 coordinates auctions by establishing common auctioning platforms, sets forth sanctioning responsibilities of auction platforms in cases of suspected criminal or abusive behaviour by participants, and endows financial and other competent national authorities with broad investigative and enforcement powers. In this contribution we will focus on how market abuse is prevented under this system, and we will examine what national and interregional regulators should take into consideration when designing and enforcing integrated auctioning systems.

Phase 3: regulatory improvements on a common auctioning system
Building on previous improvements to monitoring, reporting and verification, the start of phase 3 of trading saw additional changes pertaining to a strict, robust and transparent system deemed essential for compliance and enforcement, including series of reforms in accordance with Auctioning Regulation 1031/2010. Under the new Auctioning Regulation, a common auctioning infrastructure where a common auction platform conducts the auctions is expected to reinforce the price signal to achieve abatement of emissions at least costs. Such an approach should also avoid market abuses, such as the widely reported strategy of demand reduction, under which firms falling under the EU ETS understate their demand for allowances in order to buy them at lower prices. Auctioning is considered the most transparent allocation method to prevent this and has therefore become the default method of allocating allowances within the EU ETS.

The Auctioning Regulation assigns different tasks regarding enforcement and monitoring to different actors at different levels: auction platforms, an Auction Monitor and several national authorities supervising the financial sectors. The Regulation explicitly grants enforcement powers to both the auction platform and national authorities for the financial markets, which will be highlighted below. For the effective and efficient prevention and detection of market manipulation it is important to understand how crucial information between the various actors is to be exchanged.

Auction Platforms
Auctions are held by auction platforms appointed by national governments, but each auction is open to buyers from anywhere in the European Union and the European Economic Area-European Free Trade Association. The Auctioning Regulation provides for the Member States and the European Commission to procure jointly a common platform to auction emission allowances on behalf of the Member States. Member States are entitled to opt out of the common platform and appoint their own auction platform, which Germany, Poland and the United Kingdom have decided to do.

Two auction platforms are already in place, the European Energy Exchange in Leipzig and the Intercontinental Exchange Futures Europe in London. The Auctioning Regulation allows, and in some cases requires, that the auction platforms take independent enforcement actions. Article 21 states that persons willfully or repeatedly breaching the Auctioning Regulation have to be sanctioned by the auction platform by refusal, revocation or suspension of admission to bid in auctions. The same sanction must be applied in cases of money laundering, terrorist financing, criminal activity or market abuse, unless the platform is instructed not to apply sanctions by the auction platform by refusal, revocation or suspension of admission to bid in auctions. The Auctioning Regulation assigns different tasks regarding enforcement and monitoring to different actors at different levels: auction platforms, an Auction Monitor and several national authorities supervising the financial sectors. The Regulation explicitly grants enforcement powers to both the auction platform and national authorities for the financial markets, which will be highlighted below. For the effective and efficient prevention and detection of market manipulation it is important to understand how crucial information between the various actors is to be exchanged.

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3 An extended version of this article has also been published online at http://inece.org/resource/climate-report-02-verschuuren/ in: Jo Gerardu, Meredith Koparova, Ken Markowitz, Elise Stull, Durwood Zaelke (eds), Compliance Strategies to Deliver Climate Benefits (Intl Network for Environmental Compliance and Enforcement -INECE- 2013).
Similar sanctions can be imposed on persons negligently in breach of the Regulation, or persons who otherwise behave in a manner that is prejudicial to the orderly or efficient conduct of an auction. Other sanctioning powers of the auction platform include setting a maximum bid-size and taking any other remedial measures necessary to mitigate an actual or potential discernible risk of market abuse, money laundering, terrorist financing or other criminal activity.

The Auction Monitor
The Auction Monitor has as its central task to observe the conduct of the auctions. It is informed by the auction platforms about any suspected market abuse and by the measures undertaken. The Auction Monitor also receives information about the auction from the competent national authorities. However, the information is only made available upon request, and it could therefore be argued that information flows between national competent authorities, auction platforms and the Auction Monitor should be automatically linked.

National financial authorities
National financial authorities have the most extensive enforcement powers under the Auctioning Regulation. These competent national authorities are established under Directive 2004/39/EC on financial instruments, Directive 2003/6/EC on insider dealing and market manipulation and Directive 2005/60/EC on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing and are charged with tasks falling under the scope of these directives. In order to carry out all the different tasks designated under these instruments, Member States should clearly assign specific competences to national authorities. Often Member States have chosen one single national authority to be responsible for the implementation, application and supervision of EU financial legislative instruments.

The national authorities receive relevant information on suspicion of market abuse from the auction platforms, other national authorities, and from bidders. There exists thus a constant flow of information that should make it easier to detect large-scale market manipulation. Supervision and enforcement of the prohibitions set in the Auctioning Regulation have been put first and foremost in the hands of the national authorities for the financial markets, who have powers to:

- access any document in any form whatsoever, and to receive a copy of it,
- demand information from any person,
- carry out on-site inspections,
- require existing telephone and existing data traffic records,
- require the cessation of any practice that is contrary to the provisions adopted in the implementation of the above provisions,
- suspend trading,
- request the freezing and/or sequestration of assets, and
- request temporary prohibition of professional activity.

Member States have the obligation to impose effective, proportionate and dissuasive administrative sanctions against the persons responsible for non-compliance. Criminal proceedings as well as measures under national administrative law may be instituted by Member States, possibly by the same competent national authorities that lead the investigation. Through a revision of the Market Abuse Directive, the investigative and administrative sanctioning powers of regulators will be further reinforced in the near future, for instance by criminalising offenses at the EU level.

Conclusion
A wide range of revisions in the regulatory system facilitating the EU ETS have been implemented, all aimed at improving the robustness of the system through centralization and through tightening the rules on monitoring and compliance. For phase 3 the legal framework for auctioning EU ETS allowances has been tightened in order to address market abuse. The Auction Regulation endows different actors with enforcement powers. Both the national authorities and the auction platforms can take enforcement measures independently. The exchange of information between these different entities is crucial to ensure that these concurring competences are complementary to each other. This should be done in close cooperation with the Auction Monitor as the central entity of oversight.

Jonathan Verschuuren & Floor Fleurk - Tillburg University

Joint European Climate Policy Workshop in Dublin

On the 12th and 13th of September 2013 EnvEcon Ltd. hosted a workshop in Dublin focused on the future of European Climate Policy. This collaborative event brought together our own ENTRACTE consortium, as well as members of the CECILIA2050 project. Whilst there were

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4 The ENTRACTE consortium collaborates with the FP7 project CECILIA2050, which receives EC funding under the same topic. For more information please visit www.cecilia2050.eu.
important and tangible benefits to the social and professional mixing of these two parallel research communities, the most significant value of this event was derived from the presence and participation of a diverse and distinguished set of ‘external’ high level speakers.

These special guests included experienced representation from the European Commission in the form of Ger Klaassen, as well as seasoned policy watchers and commentators such as Christian Egenhofer (CEPS), Richard Baron (OECD) and Andreas Barkman (EEA). Informed industrial perspectives were provided courtesy of Jean-Yves Canéill (EDF), Nick Campbell (Arkema) and Tomas Chmelik (CEZ), whilst practical ministerial perspectives from Italy and France were offered by Aldo Ravazzi Douvan and Dominique Bureau respectively. The meeting also drew on the excellence and experience of the broader research community in this field that are not formally engaged as partners in either the ENTRACTE or CECILIA projects. These speakers included Xavier Labandeira (University of Vigo), Stefan Schleicher (Wegener Centre), Luke Redmond (UCD) and Christian De Perthuis (University of Paris-Dauphine/CDC Climate). Both project teams also contributed speakers including Frank Convery, Denny Ellerman and Andreas Löschel from the ENTRACTE side, and Paul Drummond, Benjamin Görlich and Matthias Duwe of CECILIA2050. Local policy actors, industrial stakeholders and researchers from Ireland also participated in the event to further extend the reach and relevance of the meeting and the subsequent outcomes.

The team at EnvEcon successfully enticed all of these guests to Dublin on the promise of a productive, interesting and enjoyable working meeting. No promises were made as regards the weather. On one level then the workshop afforded the two project teams an opportunity to promote awareness of both their work and progress amongst these broader stakeholder, policy and research communities. Whilst from another perspective, the meeting provided an opportunity for the project teams themselves to learn from these external experts through a series of structured presentations and panel discussions. These addressed topics such as Industrial perspectives and responses to the ETS, member state responses to the non-ETS challenges, and policy perspectives on the performance to date of European climate policy and pathways for the future.

The event closed with a series of roundtable working groups given the challenge of developing a menu of key challenges to address in respect of the design and implementation of future European climate policy, as well as their individual perspectives on the best available approach.

The contributions and final outcomes of the meeting will be collated by the EnvEcon team (Andrew Kelly, Denny Ellerman and Frank Convery) and synthesised into a concise and accessible policy brief that can be widely distributed in a short-time frame. It was noted at the meeting that the research and policy cycles can often spin at different speeds, and therefore it was crucial that those in the research community respond as and when possible with information and insights that can provide a basis for enhanced decision support for the policy making community. The workshop report will be made available by the end of 2013 through the ENTRACTE website and other sources.

Andrew Kelly (CEO), EnvEcon
Publications

Energy Intensity Developments in 40 Major Economies: Structural Change or Technology Improvement?

Elena Verdolini, Enrica De Cian, Michael Schymura, Sebastian Voigt

This study analyzes energy intensity trends and drivers in 40 major economies using the WIOD database, a novel harmonized and consistent dataset of input-output table time series accompanied by environmental satellite data. We use logarithmic mean Divisia index decomposition to (1) study trends in global energy intensity between 1995 and 2007, (2) attribute efficiency changes to either changes in technology or changes in the structure of the economy, and (3) highlight sectoral and regional differences. We first show that heterogeneity within each sector across countries is high. These general trends within the sectors are dominated by large economies, first and foremost the United States. In most cases, heterogeneity is lower within each country across the different sectors. Regarding changes of energy intensity at the country level, improvements between 1995 and 2007 are largely attributable to technological change while structural change is less important in most countries. Notable exceptions are Japan, the United States, Australia, Taiwan, Mexico and Brazil where a change in the industry mix was the main driver behind the observed energy intensity reduction.

Working paper:

Can non-market regulations spur innovations in environmental technologies? A study of firm level patenting – Working paper

Marit E. Klemetsen, Brita Bye, Arvid Raknerud

This paper provides new evidence on the role of non-market based (command-and-control) regulations for innovations in environmental technologies. While pricing is generally considered the first-best policy instrument, non-market regulations, such as technology standards and non-tradable emission quotas, are common when a regulator faces multiple emission types and targets, heterogeneous recipients, or uncertainty with regard to marginal damages. Knowing whether these regulations spur or hinder innovation is of great importance for environmental policy. Using a unique Norwegian panel data set that includes information about type and number of patent applications, technology standards, non-tradable emission quotas, and a large number of control variables for almost all large and medium-sized Norwegian incorporated firms, we are able to conduct a comprehensive study of the effect of non-market based regulations on environmental patenting. Unlike previous studies that are typically conducted at the industry level, we are able to take into account firm heterogeneity, and thereby reduce the prevalent problem of omitted variable bias in our analysis. We empirically identify strong and significant effects on innovations from implicit regulatory costs associated with the threat that a firm is sanctioned for violating the emission permit.

http://www.ssb.no/en/forskning/discussion-papers/_attachment/140478?_ts=1416e2bc7e8


Florens Flues, Andreas Löschel, Benjamin Lutz, Oliver Schenker

Current climate and energy policy has to operate under an ex-ante unforeseen economic crisis. An obvious consequence is the collapse of prices for carbon emission allowances as, for example, seen in the European Union. However, this price collapse may be applied by the interaction of a carbon emission cap and supplementary policy targets such as the minimum shares for renewables in the power sector. The static interaction between climate and renewable policies has been discussed extensively. This paper extends this debate by analysing how uncertain differences in medium to long-run growth rates affect the efficiency and effectiveness of a policy portfolio containing an emission trading scheme and a target for a minimum renewable share. Making use of a simple partial equilibrium model we identify an asymmetric interaction of emissions trading and renewable quotas with respect to different growth rates of an economy. The results imply that unintended consequences of the policy interaction may be particularly severe and costly when economic growth is low and that carbon prices are more sensitive to changes in economic growth if they are applied in combination with renewable energy targets. Our main example for the policy interaction is the EU, yet our research also relates particularly well to the uncertainty of economic growth in fast growing emerging economies like China.

Clean and Dirty International Technology Diffusion – Working paper

Elena Verdolini, Valentina Bosetti

This paper investigates the role of Intellectual Property Rights (IPR) protection and Environmental Policies (EPs) on clean (renewable) and dirty (fossil-based) technology diffusion from top-innovators. IPR protection and EPs are extensively debated policy tools, as IPR protection addresses knowledge market failure, while EPs respond to pressing local and global environmental externalities. A model of monopolistic competition inspired by the recent trade literature shows that the profits associated with exporting a blueprint are a function of the quality of the idea and of market and institutional characteristics of the receiving country. We test the empirical implications of our model using patent data in renewable and fossil efficient power technologies for 13 top innovating countries and 40 patenting authorities. We improve on previous contributions by accounting for unobserved heterogeneity and for the endogeneity of policy proxies through a Generalized Method of Moment estimator. We show that knowledge transfer through patent duplication increases with the level of IPR protection, but with slight diminishing marginal returns. The effect is stronger for clean technologies, which are arguably less mature and more sensitive to uncertainty. Commitment to EPs also increases the incentives for patent duplication. The magnitude of the effect is conditional on the nature of the technology and on the specific policy instrument.


Scenarios for a Post-2020 European Climate Policy – ENTRACTE report

Oliver Schenker, Andreas Löschel, Miguel Angel Tovar Reaños

The ENTRACTE research project is aiming to analyse the European climate policy portfolio with special emphasis on the role of interactions between its different parts. The project’s ultimate goal is to provide pragmatic guidance to policy makers for designing effective, cost efficient and politically and legally feasible climate policy portfolios. This report on the status quo of European Union (EU) climate politics takes stock of currently implemented policies and highlights what progress has been made so far. It thus gives a first indication of the effectivity of different member state’s policy bundles and highlights interactions between different countries’ policies, where these are evident.

The EU passed the EU Climate and Energy Package in 2009 which contains three climate related targets for the year 2020. The targets are a 20% reduction in greenhouse gas (GHG) emissions compared to 1990 levels, a 20% share of renewable energy sources (RES) in final energy consumption, and a 20% reduction of final energy consumption compared to business as usual through improved energy efficiency. For the different EU level targets, different approaches for distributing the burden over different sectors and member states exist. In the case of the GHG emissions reduction target, the EU has established the Emissions Trading System (EU ETS) which caps the emissions of the energy intensive industries and power generators at the EU level. Trade in emissions permits allows firms that are subject to the EU ETS to implement the emissions reductions cost-efficiently. Emissions reductions from non-ETS sectors, however, are delegated to member states in form of member state targets. For the RES target, the EU agreed on member state targets for overall RES shares and requires a minimum RES share in transport fuels. The energy efficiency target, finally, is described as non-binding and no responsibilities

An Overview on Current Climate Policies in the European Union and its Member States – ENTRACTE report

Florian Landis, Oliver Schenker, Miguel Angel Tovar Reaños, Christina Vonnahme, Sonja Zitzelsberger

The ENTRACTE research project is aiming to analyse the European climate policy portfolio with special emphasis on the role of interactions between its different parts. The project’s ultimate goal is to provide pragmatic guidance to policy makers for designing effective, cost efficient and politically and legally feasible climate policy portfolios. This report on the status quo of European Union (EU) climate politics takes stock of currently implemented policies and highlights what progress has been made so far. It thus gives a first indication of the effectivity of different member state’s policy bundles and highlights interactions between different countries’ policies, where these are evident.

for meeting the target have been appointed yet. But for the RES share target at least, countries can coordinate if they choose to. Sweden and Norway, e.g. implemented compatible green permit schemes and integrated their markets for green permits. And the Annual Emission Allocations (AEAs) that describe emission pathways to meet the non-ETS targets, according to decisions 406/2009/EC, can be traded to a certain extent.

In the case of the RES targets, member states have had complete freedom in the implementation of the measures to reach their targets so far. Similarly, for the targets relating to emissions of non-ETS sectors, it is the countries’ responsibility to devise policies to reach them. To harmonize energy and fuel taxes, the EU has set minimum levels that have to be met in all member states. Still, differences between overall fuel taxation across different countries remain. The efficiency target, finally, is approached by some specific EU level policies like product standards on the one hand, but on the other hand delegated to the member states like in the case of buildings regulations.


The future costs of nuclear power using multiple expert elicitations: effects of RD&D and elicitation design – Article in Journal

Laura Díaz Anadón, Gregory Nemet and Elena Verdolini

Characterization of the anticipated performance of energy technologies to inform policy decisions increasingly relies on expert elicitation. Knowledge about how elicitation design factors impact the probabilistic estimates emerging from these studies is, however, scarce. We focus on nuclear power, a large-scale low-carbon power option, for which future cost estimates are important for the design of energy policies and climate change mitigation efforts. We use data from three elicitations in the USA and in Europe and assess the role of government research, development, and demonstration (RD&D) investments on expected nuclear costs in 2030. We show that controlling for expert, technology, and design characteristics increases experts’ implied public RD&D elasticity of expected costs by 25%. Public sector and industry experts’ cost expectations are 14% and 32% higher, respectively than academics. US experts are more optimistic than their EU counterparts, with median expected costs 22% lower. On average, a doubling of public RD&D is expected to result in an 8% cost reduction, but the uncertainty is large. The difference between the 90th and 10th percentile estimates is on average 58% of the experts’ median estimates. Public RD&D investments do not affect uncertainty ranges, but US experts are less confident about costs than Europeans.


Stakeholder workshops and meetings (including Joint Workshops with CECILIA2050)

20.02.2013 - Workshop: Defining Policy Scenarios (Brussels, Belgium)

ENTRACTE discussed together with key experts of the project’s advisory board and the European Commission potential scenarios of Europe’s climate policy after 2020.

01.07.2013 - Joint Workshop on Scenarios (Berlin, Germany)

The members of the two projects discussed scenarios for the evolution of climate policies and gave an introduction of the modeling approaches of the two consortia and the role of scenarios therein, in order to have a mutual understanding what to expect from the scenarios and what function they serve in the two projects.

12/13.09.2013 – Joint Climate Policy Workshop (Dublin, Ireland)

The workshop focused upon gaining insights from key stakeholders as well as enabling a structured interaction between researchers, stakeholders and policy makers on a range of subject matter. Key topics included recent developments in European Climate Policy, a contemporary review of the ETS performance and prospects, and finally some detailed reflections and discussion on the ETS and Non-ETS sectors at member state level.
Planned Events & Workshops

20.11.2013, 10:30-12:30 - Side Event at the UNFCCC Conference of the Parties (COP19) (Warsaw, Poland)

The two FP7 projects ENTRACTE and CECILIA2050 will co-organize a side-event focusing on the projects’ research results regarding the impacts of climate policies on innovation dynamics.

February 2015 - Workshop to define optimal policy mixes (Italy)

Based on the findings created during ENTRACTE and based on policy scenarios defined in the first stage, instrument mixes will be developed which are best response to the policy scenarios. Those policy instrument mixes will be developed together with stakeholders.

July or August 2015 - Brussels Final Stakeholder Workshop and Conference (Brussels, Belgium)

This workshop will bring together key findings of the project and engage with the Commission and key stakeholders as to choices and their implications.
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