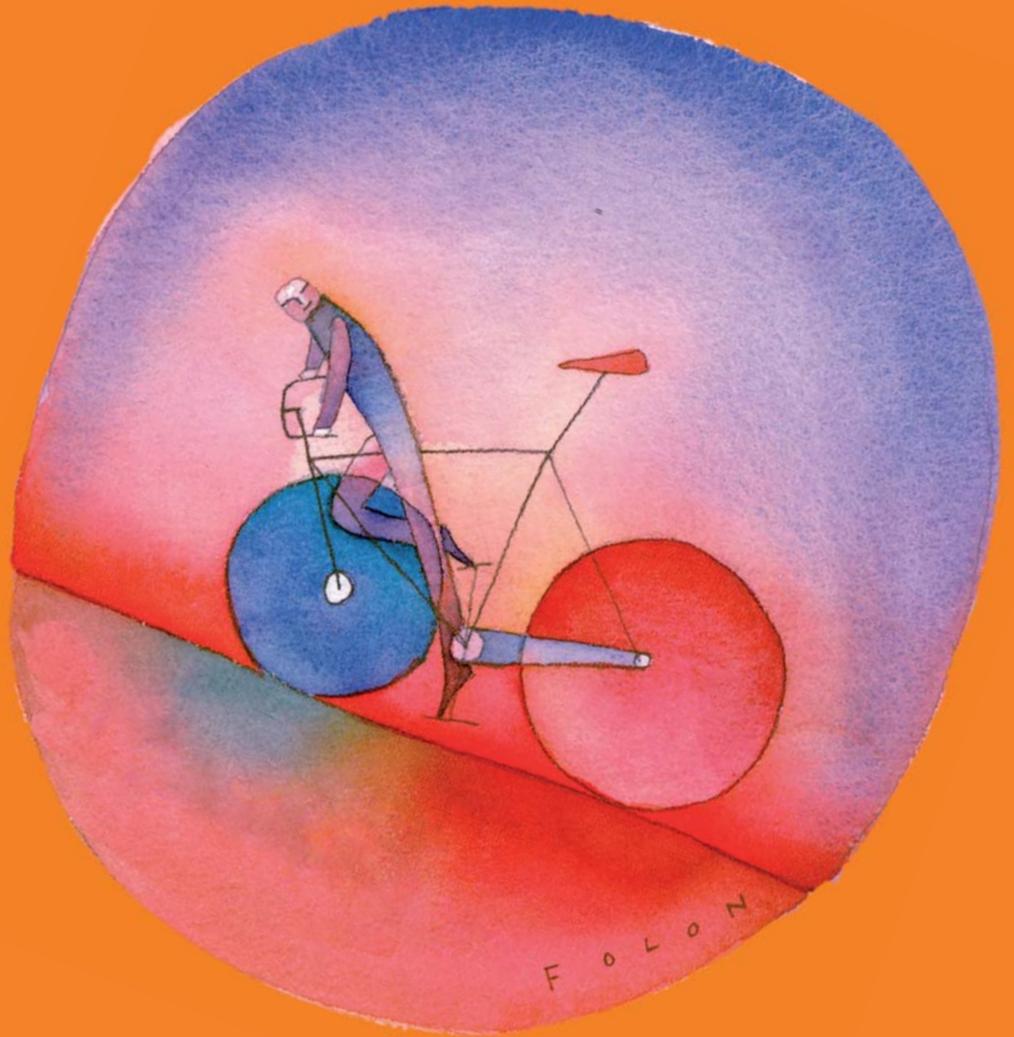


Bocconi

IEFE
Annual Report
2009



Università Commerciale
Luigi Bocconi



IEFE Annual Report 2009

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1. Introduction

The Center for Research on Energy and Environmental Economics and Policy (Istituto di Economia e Politica dell'Energia e dell'Ambiente - IEFE) is the research center of Università Bocconi which co-ordinates and conducts applied research in the following fields:

- a) Energy economics, focusing on energy markets as well as on natural resources;
- b) Environmental economics, focusing both on environmental policy and environmental management and sustainability concerning private companies and public agencies;
- c) Economics of public utilities focusing on energy, water and waste.

This report summarizes the research activity carried out by IEFE in 2009 (par. 2-3-4) and describes its main publications (par. 5-6-7) and conferences (par. 8-9). IEFE structure and organization are set out in par. 10-11-12.

2. IEFE research activity

This paragraph gives a short outline of IEFE research activity in 2009 (both concluded and ongoing).

Description of IEFE research projects are organized according to the macro-subjects of the Three-year Research Plan (RP3), which identifies the research guidelines as well as the resources required to implement them. The RP3 for the period 2007-2009 was approved by the Steering Committee in April 2007 and is available on the IEFE website (www.iefef.unibocconi.it).

The four macro-subjects of the RP3 2007-2009 are:

- RP3/1 The security of energy supplies in the European Union and the issue of energy dependence;
- RP3/2 Integration and evolution of the European electricity and gas markets;
- RP3/3 Environmental policy and energy industries;
- RP3/4 The role played by regulation in liberalized sectors.

Research Projects	Macro-subjects			
	RP3/1	RP3/2	RP3/3	RP3/4
	Security of supply	Market integration	Environmental policy	Regulation
The effects of a domestic market on export decisions for a state-owned energy company				
Towards a unique European power market: What is the role of the European Regional Initiatives?				
Financial and economic aspects of CO2 trading				
ENCLIMOD				
Comparative analysis of global city policies in climate change mitigation on selected case studies				
Contracts and competition				

Please note: the boxes shown in orange indicate the importance of each structural research program for each RP3 macro-subject. The shade of orange indicates the level of relevance from the least relevant (white) to the most relevant (dark orange)

Research Projects	Macro-subjects			
	RP3/1	RP3/2	RP3/3	RP3/4
	Security of supply	Market integration	Environmental policy	Regulation
Assistance to entry in the retail market for electricity				
The political economy of (de)regulation: Theory and evidence from U.S. states				
RE-SHAPING, shaping an effective and efficient European renewable energy market				
Market abuses in energy derivatives markets				
Energy efficiency and renewable energy sources: European and national targets and scenarios for their achievement				
Zero REGIO				
Investments in renewable energy sources: Impact on the Italian manufacturing industry				
Kyoto: A mitigation plan for Milan				
ECCELSA – Environmental Compliance based on Cluster Experiences and Local SME-oriented Approaches				
Perspectives on the regulatory reform of water services in Italy				
Comparative analysis of municipal waste management scenarios in Europe				
INECO				
Competition in the retail market for electricity and gas				
EU energy policy impact assessment: Evaluation report of the directive 2003/30 on biofuels				
An economic analysis of the Italian scheme of incentives to electricity generation from renewable and assimilated sources (Provvedimento CIP 6/92)				
The contribution of domestic measures for achieving GHG reduction objectives in the EU context and the role of local authorities				

Please note: the boxes shown in orange indicate the importance of each structural research project for each RP3 macro-subject. The shade of orange indicates the level of relevance from the least relevant (white) to the most relevant (dark orange)

RP3/1 - Security of energy supplies in the European Union and the issue of energy dependence

The effects of a domestic market on export decisions for a state-owned energy company

Research Director: Susanna Dorigoni

Research team: Luigi Mazzei, Federico Pontoni, Antonio Sileo

Timing: 2009

Production and export decisions of state-owned firms are often taken considering their effects on national social welfare, and, therefore, on home consumers' surplus. Notably, this is the case of many state-owned energy firms based in energy commodities-producing countries, which, for political reasons, sell domestically at a welfare price. This is what occurs, for instance, in countries like Algeria, Russia, Venezuela and Iran. Actually, not all state-owned energy firms have a consistent domestic market to serve, for reasons related to their level of development, their climate or the size of their population. Interestingly, the lack of an internal market may have a relevant effect on production and export decisions of state-owned welfare-maximizing energy firms.

This research projects aims at investigating these effects, describing a model in which a competitive (and, therefore, profitable) market is served by two foreign firms, only one of the two having a domestic demand to satisfy.

RP3/2 - Integration and evolution of the European electricity and gas markets

Towards a unique European power market: What is the role of the European Regional Initiatives?

Research Director: Guido Cervigni

Research team: Giuseppe Buglione, Eileen Fumagalli, Elena Fumagalli (Politecnico di Milano)

Timing: 2007–2009

In February 2006, the Association of European Regulators (ERGEG) started the so-called European Regional Initiatives (ERI), in order to promote national power market integration towards a single European market.

This regional integration program will have a relevant impact on market design and institutions. In 2007 there was news related to the mechanisms for solving cross-border congestions. In a medium term perspective, the impact on the member states cannot regard cross-border capacity allocation only, but it is going to directly affect national markets.

The purpose of the study is the integration of European electrical markets.

Particular attention will be devoted to three areas:

- 1) Analysis of the methods for allocation of transmission capacity;
- 2) Evaluation of the mechanisms adopted in Europe to ensure efficient integration of national markets in each of the macro-regions identified by the Association of European Regulators (ERGEG);
- 3) Estimate of recovery efficiency that can be achieved through the integration of the Italian electricity market with neighboring markets of the central-south macro zone.

ENCLIMOD

Research Director: Roberto Roson

Research team: Marzio Galeotti, Martina Sartori

Foreign Partner: The World Bank (Washington D.C., USA)

Timing: 2009–2010

ENCLIMOD purports to develop a computational modeling platform to analyze various issues in the area of energy and climate policy at the Italian, European, as well as world level. Examples of issues are the evaluation of integrated policy packages such as the European energy-climate package, the implementation and functioning of market mechanisms such as white and green tradable certificates, climate change impacts, the interplay of trade and environmental policies, and the introduction of environmental fiscal reforms.

The project will benefit from a partnership with the World Bank where IEFE will contribute to the development of the ENVISAGE (Environmental Impact and Sustainability Applied General Equilibrium Model), a dynamic computable general equilibrium model of the world economy, which is coupled with a numerical climate model aimed to carry out Integrated Assessment Modeling exercises.

More generally, the project aims at developing models and modeling capabilities in the field of Computable General Equilibrium models at IEFE. Models developed so are all based on the GTAP (Global Trade Analysis Project) data base and structure.

Market abuses in energy derivatives markets

Research Director: Guido Cervigni

Research team: Emanuele Borgonovo (ELEUSI-Università Bocconi), Giuseppe Buglione, Alessandro Sbuelz (ELEUSI-Università Bocconi)

Timing: 2009

The process of liberalization of energy markets has fostered the development of energy derivatives markets. In November 2008, the first Italian organized energy derivatives market, called IDEX, was created.

The purpose of this study is to identify the most effective market monitoring methodologies for the newly created Italian market. The research is divided into three sections. The first section provides the analysis of abusive practices (i.e. insider dealing and market manipulation) on the markets of derivatives on commodities. The second section is devoted to the identification of the manipulation strategies that might be adopted in the context of electricity derivatives markets, highlighting the features of electricity markets which could favor the implementation of such strategies. The last section identifies the market monitoring methodologies suggested by the literature or by the international experiences as the most effective tools in detecting abusive practices. The study will devote particular attention to the role that the Italian exchange commission (CONSOB) and energy regulator (AEEG) should play in tackling abusive practices in this new market.

RP3/3 - Environmental policy and energy industries

Energy efficiency and renewable energy sources: European and national targets and scenarios for their achievement

Research Director: Arturo Lorenzoni

Research team: Annalisa D'Orazio, Mirko Armiento, Edoardo Binda Zane, Niccolò

Cusumano, Sara Fragasso (Anie), Cristian Lanfranconi (Aper)

Timing: 2007–2009

In April 2009 the European Council adopted a climate-energy legislative package containing measures to tackle climate change and to promote renewable energy. The acts included in the package are designed to achieve the EU's overall environmental target of a 20% reduction in greenhouse gases and a 20% share of renewable energy in the EU's total energy consumption by 2020. The overall targets are shared into specific burdens along the member states. Reducing emissions across the energy sector and promoting renewable energy requires a portfolio of policies tailored to fit specific national circumstances and conditions. The purpose of this project is, firstly, to analyze the legal, technical and economic elements of the new legislative package. Secondly, the research aims to suggest to policymakers the main criteria for selecting and evaluating policies to reach national targets in alternative long-term scenarios. The constraints given by the European policy can become the support for a strong national policy in addressing investments and setting technical standards for energy use in the industry and civil sectors. The environmental policy can be the starting point of an industrial policy that creates value for the Italian society. This research project aims at identifying priorities among the many different actions conceivable to reduce CO₂ emissions and to improve energy efficiency, evaluating the cross effects of each of them. In order to give a priority ranking for the design of policies and the use of public money, we develop a set of indicators based on the energy balance sheet. Starting from the Italian energy and emissions projections, the research:

- Evaluates measures and instruments to reduce CO₂ emissions and to promote renewable energy;
- Suggests policies and approaches available to the Italian government inside the new European legal framework.

Zero REGIO

Research Director: Susanna Dorigoni

Research team: Liliya Chernyavs'ka, Cristian Lanfranconi, Pietro Lanzini, Antonio Sileo

Foreign Partners: Infracor GmbH & Co. Höchst KG (D) (coordinator), Linde Gas &

Engineering AG (D), DaimlerChrysler AG (D), Fraport AG (D), TÜV Hessen (D), Agip

Deutschland GmbH (D), Lund University (S), Roskilde University (DK), Saviko Consultants

Ltd. (DK), European Commission-JRC Ispra (I), Eni Tecnologie S.p.A. (I), Regione Lombardia

(I), SAPIO Group S.r.l. (I), Comune di Mantova (I), Centro Ricerche Fiat S.C.p.A. (I)

Timing: 2004–2010

Zero REGIO is an integrated project co-financed by the European Commission in the 6th Framework Program. The project consists of construction and demonstration of hydrogen infrastructure in two European regions for supplying fuel cell passenger cars. The project aims at developing and demonstrating zero emission road transport systems in normal daily use for European cities.

Under the coordination of Infracor Höchst GmbH & Co KG altogether 16 partners

from 4 European member states form the project consortium. The kick-off meeting of the project took place in November 2004 at Infracerv, Höchst Industrial Park.

The total execution period for this important EU project is 6 years.

At the Höchst Industrial Park a large hydrogen source (30 Mm³/y) is available as a by-product of a chemical plant. So far, this has been used for thermal conversion.

This source will be connected via a 2 km long transport line to a public service station for supplying hydrogen, similar to gasoline and diesel.

In Lombardy hydrogen will be available from a central production facility as well as from an 'on-site' reformer facility developed within the project. The reformer will produce hydrogen from natural gas at the service station. After the construction of hydrogen infrastructure, fuel cell vehicles (F-Cell, class-A from Daimler-Chrysler in Rhein-Main and FIAT Panda in Mantova) will be driven in normal daily use in different applications. The demonstration phase (which lasts 3 years) of the project will be accompanied by an evaluation of the data acquired during the fleet tests with respect to energy efficiency, environmental impact and socio-economic aspects.

IEFE is responsible for the analysis of the economic viability of the project. In particular the learning effect in hydrogen production will be evaluated with reference to both central and on-site hydrogen production. Different technologies will be compared for this purpose also taking into account their environmental impact. The last task will consist in the evaluation of the impact of standards on the development of the market.

Financial and economic aspects of CO₂ trading

Research Director: Anna Creti

Research team: Andrea Beltratti (Università Bocconi), Monica Bonacina, Alain Bousquet (LEERNA, Université de Toulouse), Paolo Colla (Università Bocconi), Simone Cozialpi, Jérôme Pouyet (CNRS – Paris School of Economics and École Polytechnique)

Timing: 2008–2009

Started on September 2008, this project investigates industrial and financial aspects of CO₂ trading systems, and provides useful insights to academics, regulators and participants in carbon markets at the European and International levels. The project has several purposes and ranges from theoretical to empirical studies. As a preliminary step, we have surveyed the empirical literature on carbon prices and investigated to which extent EU allowances in the Pilot Phase have looked like production inputs or financial assets (see “Carbon allowances between inputs and financial assets: lessons learned from the Pilot Phase of the EU-ETS”, IEFE Working Paper, 19/2009 and “Carbon allowances as inputs or financial assets” under revision in *Journal of Economic Surveys*). The hybrid behavior of carbon prices and the essential role played by institutional factors (which confirms the unsuitability of past analyses to future forecasts) have inspired the empirical assessment. After some statistic analysis on carbon futures data referred to the operation of market for permits in 2008 (see “Carbon Price Drivers: An Empirical Analysis of EU ETS in Phase II”, IEFE Seminar, February 2009), we have estimated an Error-Correction Model by using dynamic OLS to investigate carbon price drivers in early Phase II. Our analysis reveals that in 2008 oil prices were the key drivers in CO₂ markets, although as from the start of the economic and financial crises, financial variables have gained a strong role. We argue that this “equity paradox” in CO₂ price drivers is a new finding in the carbon pricing literature (see “The European Carbon Market in the Financial Turmoil: some empirics in early Phase II” under revision in *The Energy Journal*).

On a more theoretical ground, we investigate the issue of convenience yield in carbon markets. As long as agents hold allowances either to comply with environmental targets or to diversify risk, we will model an economic system characterized by two kinds of agents (i.e. firms and speculators) and analyze the role played by each market player upon the final performance of carbon allowance markets. Econometric assessments, based on the EU-ETS Phase I will complete this analysis. In terms of industrial policy issues, we study the impact of tradable permit systems upon private (either vertical or horizontal) merger incentives and the consequences on consumer welfare. Since environmental targets may act as production constraints, we will study if and up to which extent these constraints may increase the likelihood of (socially desirable) collusive outcomes and discuss the returns in terms of industrial policy. The comparison between two instruments for reducing GHG emission, that is Green Certificates and CO₂ trading, is also being investigated. The first step of this latter work consists in examining the literature on the topic and providing an extensive survey, which constitutes the basis and the starting point of further investigations. The second part is aimed at modeling the Italian Green Certificate market by adopting an industrial organization approach. Alternative market set-ups are taken into account (perfect competition, a dominant firm with a competitive fringe, etc.) in order to assess the impact of market concentration on power prices. Moreover, our model considers also the interaction between the TGC system and the European Emission Trading Scheme and its effects on the final electricity prices. Finally, we analyze the variables that affect firms' technology choice under an emission trading scheme. We will assess the impact of carbon markets on short-term input demand. At this purpose we will consider the impact on input substitution when the production function encompasses carbon-intensive energy, clean (carbon-free) energy as well as emission allowances. Within this framework, investment decisions will depend upon – exogenously given – energy and – endogenous – allowance prices. The link between emission trading and investment has been extensively discussed in the IEFE workshop “Climate policy and long term decisions: Investment and R&D”, co-organized with the École Polytechnique and held in Bocconi on June 2009.

Investments in renewable energy sources: Impact on the Italian manufacturing industry

Research Director: Annalisa D’Orazio

Research team: Riccardo Costantini

Timing: 2008–2009

The research project aims at evaluating the impact of the renewable electricity’s development on the Italian manufacturing industry. In the frame of the reform introduced by the D.Lgs. 79/99 and further integrations concerning the Italian policy in promoting renewable energies in the electricity consumption (D.Lgs. 387/03; Decree 19/07; Decree 20/07; Decree 21/12/07), the project analyzes the Italian support schemes and their success in increasing the share of renewable electricity and in contributing to the industry development and technology innovation. The research-project can be divided into two parts. The first is a methodological framework in which the goal is the evaluation of investment flows according the traditional approach of economic literature in the field of international commerce. The second part of the study deals with the Italian investment situation through interviews and direct information from the main

actors in renewable energy supply and industry. Investment flows and costs are utilized to estimate the net value along the supply chain of service (supply of electricity in the retail market) and industry (supply of premises and technologies).

The steps of the study are:

- Detailed analysis of the renewable energy power plants realized since 1999 and submitted to the tradable green certificates mechanism, featuring the different technologies applied and identifying the suppliers of the main power plant components;
- Estimation of the amount of investments undertaken during the period 1999-2008, diversified on the basis of technologies and scope;
- Given the information inferred from the previous analysis, enriched with information about the geographical origin of the main renewable power plants' components, the research aims at defining the role of the Italian energy companies and at describing the main features of the power plant technologies' market, with a focus on onshore wind, solar photovoltaic, hydroelectric, geothermic and biomass technologies;
- Estimation of the share of import and export on the total investments and the related costs and revenues inside the value chain of electricity and technologies supplies;
- Evaluation of the investment costs to meet a target of renewable electricity of almost 25-30 per cent (necessary to meet the general Italian renewable energy target of 17% set by the EU).

Final results show a strong growth of the global renewable industry in recent years. New international competitors are entering the market; investment in sustainable energy sectors and a greater activity in next-generation technologies are expected to grow strongly if targets for greenhouse gas emissions reduction and renewable energy increases are to be met. Wind power and photovoltaic are the fastest growing forms of renewable energy in the global market. In the BRIC countries, traditional and mature technologies, such as hydropower and biomass, have large unused potentials. The study aims at evaluating the beneficial effects of the renewable electricity growth on innovation, turnover and value added in the Italian manufacturing industry. The final report contains three sections. The first section (chapters 1-3) presents an updated assessment of the prospects for renewable energy technologies in the global, European and Italian markets. This part aims at evaluating the investment flows according the realizable potential of individual renewable energy technologies in future scenarios driven by economic growth (business as usual) or in those driven by environmental and innovation policy. The second section gives an up-to-date review of each renewable source for electricity production, describes technologies and their innovation chain, and analyzes the status of the markets and the competitive position of the Italian manufacturing industry (chapters 4-5). The third section is made up of a series of annexes which provide more detailed reviews of issues and topics of relevance to the methodological and empirical framework utilized in our analysis (annexes 1-4).

Kyoto: A mitigation plan for Milan

Research Director: Marzio Galeotti

Research team: Stefano Caserini (Politecnico di Milano), Sabrina Melandri, Tania Molteni, Davide Zanoni (Avanzi)

Timing: 2008–2009

The project aims at outlining the guidelines for a coherent plan for the mitigation of GHG within the Municipality of Milan, so as to assist policy makers in selecting

adequate policies given a detailed informational background and alternative scenarios for the evolution of GHG emissions.

The plan is articulated in different steps, each object of study and analysis. After a review of the national and international legislative framework, at both local (region, province, municipality) and central administration level, the first step consists of a recognition of the energy system as far as consumption is concerned, since the energy supply at the municipality level is not well-articulated. A further step is that of setting up an inventory of GHG emissions, so that an adequate information background will be available.

A set of evolutionary scenarios is hence to be provided, both trend and policy bound. The choices regarding GHG emission reduction, as well as the timeframe, are to be investigated in depth. Furthermore, intervention policies are to be singled out, starting from an overview of available tools and their costs and contribution for the reduction of emissions. Such tools will also encompass so-called offsets, such as CDM projects.

Other issues that will be analyzed and assessed within the project are: an exhaustive evaluation of environmental damages (externalities), an outline of possible absorption sources such as urban parks and gardens, and an analysis of co-benefits, in terms of other pollutions (no GHG) emissions reduction, expected increased productivity, employment and technological innovation.

Comparative analysis of global city policies in climate change mitigation on selected case studies

Research Director: Edoardo Croci

Research team: Sabrina Melandri, Tania Molteni

Timing: 2009–2010

Worldwide, cities are adopting local reduction targets and developing comprehensive mitigation plans, emerging as major players on climate change issues. This research project focuses in particular on global cities, which contribute considerably to global levels of GHG emissions, with the aim of identifying main emission drivers at an urban level and verify the coherence of urban mitigation strategies with local emission contexts.

At this purpose, local emission inventories and mitigation plans are compared and the urban emission contexts are analyzed through data on energy consumption and a set of city indicators. The lack of standardized methodologies to build local emission inventories and climate plans and scarce data availability regarding city statistics strongly condition the research project.

As local mitigation policies and city planning instruments for climate change keep spreading worldwide, a wider range of case studies will be gradually available for comparison. Further development of research may also benefit from a greater availability of comparable city-level data on energy, GHG emissions and territorial features.

As global cities start publishing data and progress reports on their climate strategies, two main research areas may be specifically targeted. As far as implementation is concerned, the effectiveness and efficiency of each mitigation strategy may be assessed and compared, to identify the most cost-effective measures and those instruments and governing modes proving to be the most successful in pursuing reduction targets.

Secondly, each mitigation strategy may be reviewed with regard to other plans defined at the city level, in order to explore synergies, co-benefits and linkages.

The first result of this research is the paper that was presented to the “Urban Symposium 2009” call for papers. The paper considers five case studies: London, New York, Milan, Mexico City and Bangkok.

The research will be extended to other cities and will focus particularly on the identification of main emissions drivers at urban level.

ECCELSA – Environmental Compliance based on Cluster Experiences and Local SME-oriented Approaches

Research Director: Michela Melis

Research team: Michele Barberio, Andrea Fontanella

Timing: 2009–2011

ECCELSA is a project funded within the European Commission Life+ Programme. The project aims at supporting an effective application of European Commission ECAP – Environmental Compliance Action Plan and is especially focused on SMEs, as they represent 99% of all EU enterprises and, despite their small size, their contribution to environmental pollution is large.

SMEs limits, in terms of human, technical and financial resources, often make it difficult to implement environmental compliance and environmental performance improvement related actions. In such a context, the ECCELSA project aims at testing the “cluster approach” – based on creation of SME networks, resources sharing, innovation development and knowledge exchange – as a means to increase local environmental skills and to improve environmental performances both in the companies and at an industrial area level.

The main objectives of the project are:

- To analyze different types of inter-company dynamics in clusters;
- To provide evidence on the diffusion of cluster approaches in Europe;
- To understand possible correlations between the cluster approach and environmental issues management;
- To identify and examine some excellent experiences concerning the shared and collective management of environmental aspects.

The cluster concept in ECCELSA is seen as related to both geographic proximity and productive homogeneity. The best practices analyzed in the project will provide suggestions for the elaboration of Guidelines for the application of ECAP in SMEs through the Cluster Approach.

In 2009, the activities of the project focused the definition of the methodological Cluster Approach. To this end, a detailed review and analysis on the experiences dealing with the Cluster Approach – with reference both to the Italian context and to the other EU member states – was carried out. The results of the analysis were collected in the first Deliverable of the project, the “Databases of cluster approach”, which explores in-depth the different meanings of the term ‘cluster’. Then, a “Consensus building” exercise was carried out, aimed at consolidating and sharing the Approach with relevant stakeholders, by way of five workshops, one for each region involved in the project (Lombardy, Lazio, Liguria, Emilia Romagna and Tuscany). The outcomes of the workshops were summarized in a second Deliverable, which will be used to improve the approach to its implementation (Report “Consensus building exercise”).

The ECCELSA Deliverable may be downloaded from the official website of the EU project: www.eccelsalife.it.

The contribution of domestic measures for achieving GHG reduction objectives in the EU context and the role of local authorities

Research Director: Fabio Iraldo

Research team: Andrea Fontanella, Sabrina Melandri, Tania Molteni

Timing: 2009–2010

The research project takes in and extends the objectives of the EU White Book and tries to assess the feasibility and effectiveness of a more territorial-based strategic approach to improve the policies on climate change. According to this point of view, the research mainly focuses on the role of local authorities in the definition of an overall strategy to efficiently implement GHG emission reduction initiatives, within the so-called Domestic Measures and consistently with their specific role and territorial governance sphere. The research carries out an analysis of the empirical evidence concerning actions implemented by local authorities and methods to account for the GHG reductions achieved. The aim of the research is to develop credible, participated and practicable scenarios on the economic valorization of GHG emission reductions obtained by local authorities, and to assess the possibility of setting up a trading systems of emission credits concerning the voluntary actions implemented by local authorities at the national level, so to support the national government in pursuing Kyoto and EU 20-20-20 objectives.

RP3/4 - The role played by regulation in liberalized sectors

Perspectives on the regulatory reform of water services in Italy

Research Director: Antonio Massarutto

Research team: Vania Paccagnan, Elisabetta Linares

Timing: 2007–2009

In the frame of the ongoing reform of water services in Italy, this research develops a deep comparative analysis of regulatory institutions in a number of selected EU and non-EU countries, with the aim of elaborating policy recommendations to the Italian context. The research represents an original contribution to the ongoing debate of private sector participation to Water and Sanitation Services (WSS). Innovative outcomes regard the very deep comparative analysis, based on regulatory issues rather than on PSP models. Another innovative theme concerns the allocation of economic risk and regulatory risks.

Comparative analysis of municipal waste management scenarios in Europe

Research Directors: Luigi De Paoli, Antonio Massarutto

Research team: Alessandro de Carli, Matteo Graffi

Timing: 2007–2009

The project develops a comparative analysis of waste management scenarios based on the LCA (Life-Cycle Analysis) model. IEFÉ participates in a team of several partners coordinated by Politecnico di Milano. The task of IEFÉ is to apply monetary evaluation techniques to physical scenarios worked out by other units. Through a comparative analysis of regulatory models in EU, it also tries to understand the implications of scenarios in terms of economic regulation.

Contracts and competition

Research Director: Anna Creti

Research team: Monica Bonacina

Timing: 2009

This research study provides an in-depth analysis of the effects of contracts on competition in output markets. Notwithstanding academic and regulatory interests as well as empirical evidence, to date the argument rests controversial. By studying the strategic motive for pre-committing, Allaz and Vila (1993) have demonstrated that a contract stage taking place before the output market mitigates mark-ups under Cournot competition. However this challenging result has proved to be sensitive to the underlying setting.

We suggest an original approach to shed light on this debate. As a preliminary insight we demonstrate that anti-competitive effects follow the upsurge of discrimination practices (see “Im-perfectly competitive contract markets for electricity”, IEFE Working Paper, 8/2008). Therefore we extend Allaz and Vila (1993) to industries where one firm has a first-mover advantage over its competitors and get innovative results. Forward markets may be exposed to monopolization, they leave consumers better off and cause a redistribution of profits such that the first-mover advantage fades away (see “A note on forward contracts in leader-follower games” under revision in Journal of Economic Letters).

INECO

Research Director: Antonio Massarutto

Research team: Vania Paccagnan, Elisabetta Linares

Timing: 2006–2009

In the frame of an EU-funded coordination action, IEFE contributes to the transfer of knowledge and expertise concerning Integrated Water Resources Management (IWRM) in Mediterranean countries. Its contribution is mostly focused on the institutional and economic aspects of IWRM. The aim of INECO is to establish a Mediterranean network of research institutes, public authorities and stakeholders for coordinating research, and to analyze decision-making practices regarding the application of institutional instruments in the water sector. INECO encompasses a series of coordination activities aiming to:

- Promote the exchange and dissemination of the best available water management practices through the systematic exchange of information and research among the participating parties and the consideration of institutional and socio-economic instruments improving sustainable, equitable and efficient water use;
- Perform studies for the assessment of the efficiency, effectiveness and equity of currently applied water management practices, as well as the role of public involvement in planning and implementing alternative actions;
- Promote capacity building for constructively engaged Integrated Water Resources Management, with emphasis on socio-economics and policy considerations.

The official website of INECO is: <http://environ.chemeng.ntua.gr/ineco>.

Assistance to entry in the retail market for electricity

Research Director: Clara Poletti

Research team: Paolo Bertoletti (Università di Pavia), Eileen Fumagalli

Timing: 2008–2009

The research project aims at studying the issues related with the liberalization of the electricity retail market. We will analyze the transition from a regulated monopoly to a competitive market, in the framework set by the European Directive 2003/54/CE to protect small customers either unable or not willing to find a new supplier.

Unlike most of the previous literature, we do not study the optimal choice between regulated monopoly and unregulated competition under economies of scale or asymmetric information. We also abstract from any difference between consumers (both in terms of supply costs and wealth). Rather, we focus on the design of liberalization policies in utilities markets where competition is superior to a regulated monopolist but barriers to entry due to some consumer inertia can reduce the competitive pressure. We investigate the impact on the liberalization process of organizing a public auction to select the Supplier of Last Resort before opening the market to competition.

The research project is inspired by what happened in the Italian electricity sector, even though the majority of the discussed issues can be easily applied to other network-related sectors, which have been interested by the same reform process.

Competition in the retail market for electricity and gas

Research Directors: Guido Cervigni, Clara Poletti

Research team: Eileen Fumagalli, Simone Spalletta

Timing: 2009

This research project aims at providing the Italian Electricity and Gas Authority with a methodology for the analysis of the level of competition in the retail market for electricity and gas.

The project is structured as follows. The first section of the research will describe the regulatory framework of the two retail markets under analysis. The scope of this section is to provide a detailed description of the current regulation and functioning of the two markets, focusing on its impact on competition. The second section of the research will provide a competitive assessment of the two retail markets under analysis. The relevant market is going to be defined both from a product and a geographical point of view. After this step, we will provide the elements to assess the level competition in the relevant market. The last section will provide the data requirements and the indicators for the Authority to monitor the two retail markets.

EU energy policy impact assessment: Support activities for the evaluation report of the Directive 2003/30 on biofuels

Research Director: Augusto Ninni

Research team: Pietro Lanzini

Timing: 2008–2009

In November 2007, IEFE, together with PriceWaterhouseCooper and Golder Associates, was awarded a procurement contract by DG Tren (FC A2/143-2007, Lot 1 Energy), for impact assessments and evaluations (ex ante, intermediate and

ex post). This entitles experts from IEFE to evaluate various policy interventions in the field of Energy. IEFE, PwC and Golder have been ranked first among the four other participants (COWI - AETS/ECN/ENCO/SEE - Cambridge Economic; Deloitte; ECORYS/ECOFYS - Institute of Communication and Computer Systems - Oxford Institute for Energy Studies - Vienna University of Technology). Within this contract, IEFE has been required to analyze and assess the progress made in the use of biofuels and other renewable fuels in the member states as well as the European Union as a whole.

The political economy of (de)regulation: Theory and evidence from U.S. states

Research team: Carmine Guerriero (University of Cambridge, University of Amsterdam and IEFE)

Timing: 2009–2010

This research project looks at determining whether and how to introduce competition into regulated industries with a special focus on the electricity market. While competition assures lower expected prices, due to asymmetric information, regulation delivers higher expected profits which, in turn, foster cost reducing investments. Thus, deregulation should be more likely the more limited the rents left by regulation or the political reformer's dynamic efficiency concerns are. The former happens to be the case when regulators exert a higher cost-reducing effort because, for instance, they are elected in spite of being appointed or the information-gathering technology is more efficient; the latter is, instead, the case when the reformer's constituency is pro-consumer or when political competition is stiffer or the opposing party's veto power is lower. In order to test this battery of predictions, I make use of a data set gathering marginal costs, political institutions and the timing of pro-competitive reforms for a panel of 44 US states spanning the period 1981 to 1999. The data nicely met the above mentioned testable predictions.

RE-SHAPING, shaping an effective and efficient European renewable energy market

Research Director: Arturo Lorenzoni

Research team: Niccolò Cusumano, Giacomo Selmi

Timing: 2009–2011

The overall aim of the RE-SHAPING project is to develop sound policy recommendations and policy implementation strategies for instruments to foster RES market penetration in all 27 EU member states.

One major objective of the research project is to investigate different strategies for RES support from a national and European perspective. By considering their dynamic development a best practice time-path for harmonized as well as non-harmonized promotion strategies can be determined. As the nature of the RES support scheme has a strong influence on the overall cost and the effectiveness of deployment this is important for the competitiveness of the European economy in a continuously globalizing world. Due to the rapid growth in the international renewable energy technology market that has been seen over the last years, it is important for EU countries' R&D and production activities to be stimulated by efficient home markets. As a large share of the renewable technology production located in the EU is carried out by small and medium-sized companies, these companies will be positively affected by an EU-wide development of renewable energy technologies.

The project started in spring 2009 and the kick-off meeting, held in July 2009, under the coordination of Fraunhofer Institute – ISI and with the participation of some of the major European research teams in renewable energy economics and regulation. The first evaluations of the EU policies to support RES have been prepared by the end of 2009, in light of the requirements of Directive 2009/28/EC.

The CIP 6/92 incentive scheme: An economic analysis

Research Director: Clara Poletti

Research team: Federico Pontoni

Timing: 2009–2010

The main goal of this research project is to analyze the regulatory scheme set up in Italy at the beginning of the '90s, usually referred to as CIP 6/92 mechanism. This mechanism was designed to allow new entrants to invest on electricity generation capacity. At that time the Italian market structure was still almost monopolistic, with a dominant player – ENEL – responsible for system adequacy and dispatching. The CIP 6/92 scheme therefore required ENEL to act as a single buyer, buying all the power produced under the scheme at a given price. The price had to be set equal to the generation cost avoided by ENEL thanks to the new investment carried out by another firm.

Alongside the adequacy concern, environmental objectives were at the heart of this incentive mechanism: renewable sources were in fact given specific prices and economic conditions.

It was a governmental responsibility, jointly with ENEL, to decide which investments to choose, based on efficiency criteria. The implementation of the “avoided cost” principle has proved difficult to apply and the mechanism has been partly revised over the last fifteen years. Lengthy judicial litigations arose and are still open. The research project reviews the mechanism and discusses its incentives properties.

3. Thematic Observatories

As well as conducting research projects, the Center also manages thematic Observatories, open to members and non-members alike, on subjects of particular interest. These Observatories are high-level working platforms, where researchers, firms and institutions are able to discuss and compare different views and methods of analysis.

Observatory on Energy and Environmental Policy

This Observatory was established in 1995 with the objective of monitoring the developing trends in European and Italian energy and environmental policies, in order to assess their implications for the Italian industrial and economic system and promote dialogue between actors in the political, institutional and industrial spheres. Companies operating in the electricity and gas industries normally participate in this Observatory.

Observatory on Integrated Environmental Management Systems (OSIGA)

This Observatory, established in 1997, is a qualified venue for discussing and analyzing emerging environmental management issues at the Italian and international levels. It monitors ISO and EMAS environmental registrations and certifications and provides constantly updated information on the development of new environmental policy tools at the Italian and EU levels. Central and local institutions, accreditation and certification bodies, trade and industrial associations, environmentalist and consumer associations, trade unions and industrial and service companies specialized in environmental management participate in the Observatory. In 2009 the OSIGA meetings addressed the following issues:

- The new EU action plan on sustainable production and consumption (2 February 2009);
- Environmental management systems, environmental performances and competitiveness (3 March 2009);
- Milano EXPO 2015: The environmental and energy commitments (31 March 2009);
- The new EU Life+ ECCELSA Project “Environmental Compliance based on Cluster Experiences and Local SME-oriented Approaches” and the new EU CIP Ecoinnovation IMAGINE Project “Innovation for a Made Green in Europe” (4 May 2009);
- The “Emas Easy” approach and tools (24 June 2009);
- The outcomes of the first ten-yearly activities of the Observatory: 1997-2007 (14 July 2009);
- Product carbon footprint: Regulatory framework and innovations (29 September 2009);
- The Italian APEA (Aree Produttive Ecologicamente Attrezzate) regional regulatory framework and the Tuscany experience (23 November 2009).

Observatory on Environmental Information and Participation (IPA)

This Observatory was established in 2006. It monitors both Italian and international legislation governing information, participation and access to environmental law and justice, with a view to promoting uniform implementation of the law and defining policy guidelines for administrative transparency in the environmental sector. Public institutions, such as regions, regional environmental protection agencies, municipalities and consortia participate in this Observatory.

During 2009 the following seminars were held:

- The evolution of the international framework on environmental participation and information: an update on the proceedings of the Aarhus Convention, and the law on stakeholder participation of the Tuscany Region: aims, contents and first applications (25 February 2009);
- The evolution of the Italian regulatory framework on Strategic Environmental Assessment, and presentation of the “Draft white paper on conflicts involving infrastructures for transport (Avanzi)” (2 July 2009);
- Urban sustainable indicators, and presentation of the Fifth Urban Environmental Report (ISPRA) (11 November 2009).

4. Other activities

EnergyLab

In 2007 Clara Poletti, IEFE Director, was named member of the Executive Committee of the EnergyLab Foundation. The Foundation was set up by Regione Lombardia, Fondazione Edison, Fondazione AEM and the main universities settled in Milan (Università Bocconi, Università degli Studi di Milano, Università degli Studi Milano-Bicocca, Università Cattolica del Sacro Cuore di Milano, Politecnico di Milano). In 2009 the research institute ERSE as well as the Milan Municipality became members. The main objective of the Foundation is to facilitate cross-cutting research activities on environmental and energy issues, within the Region of Lombardy. To this aim, IEFE has also contributed to the project “Mappatura delle competenze” (Mapping the energy knowledge, within the Region of Lombardy). A database with a description of the members’ competences on energy is available on the Foundation website: www.energyfoundation.org.

In 2009 IEFE contributed to the main initiatives coordinated by EnergyLab, among others the launch of an Observatory on nuclear power. The issue of nuclear power has been as well the focus of a research project commissioned by Federutility, the association of Italian utilities. Other two research projects started in 2009: the first one on “smart networks” and the second one on the regulation of gas distribution networks.

New projects are on the agenda: on renewable energy sources, on smart grids for electricity distribution and on fuel poverty.

EU Energy Policy Blog

In 2007 IEFE began contributing to the EU Energy Policy Blog (www.energypolicyblog.com), where a number of prominent European energy economists, analysts and policy makers contribute with “ideas, theories and facts” to the debate on energy and environment.

During 2009 IEFE posted two contributions:

- EU environmental targets: Forza Italia (by Annalisa D’Orazio and Anna Cretì - January);
- Storage in the backstage of the gas crisis (by Anna Cretì - February).

GME Newsletter

In 2008 IEFE started a co-operation with the Italian power exchange, GME spa, aiming at the analysis of the electricity and CO2 markets.

In 2009 IEFE contributed to the monthly GME newsletter on the following topics:

- n. 12 (Jan. 09): *Le novità del pacchetto energia-clima* (by Clara Poletti);
- n. 13 (Feb. 09): *Aspettando il mercato del bilanciamento gas* (by Clara Poletti);
- n. 14 (Mar. 09): *Le prospettive del mercato dei certificati verdi* (by Clara Poletti and Stefano Alaimo);

- n. 15 (Apr. 09): *Il mercato dei diritti di emissione di CO2 nella Fase di Kyoto: una prima valutazione* (by Anna Creti and Clara Poletti);
- n. 16 (May 09): *Novità legislative nei meccanismi di promozione dei nuovi impianti a fonti rinnovabili* (by Annalisa D’Orazio and Clara Poletti);
- n. 17 (Jun. 09): *Non ci resta che l’afa* (by Clara Poletti and Federico Pontoni);
- n. 18 (Jul. 09): *Terzo pacchetto UE: avanti con le smart grid* (by Clara Poletti);
- n. 19 (Aug. 09): *Tecnologie rinnovabili: industria non in crisi?* (by Annalisa D’Orazio);
- n. 20 (Oct. 09): *Certificati Verdi: novità normative della Legge Sviluppo* (by Clara Poletti);
- n. 21 (Nov. 09): *Prezzi biorari per i consumatori domestici: sogno o realtà?* (by Clara Poletti);
- n. 22 (Dec. 09): *Oltre Copenhagen* (by Marzio Galeotti and Clara Poletti).

The newsletter can be downloaded from the GME website (www.mercatoelettrico.org). IEFÉ articles are also available on our website (www.iefé.unibocconi.it) in the “Policy notes” section.

5. Working Paper series

In April 2007 IEFE started a series of working papers in English addressing research topics in the fields of energy and environmental economics. During 2009 the following working papers, which can be downloaded from the IEFE website (www.iefef.unibocconi.it), were published.

Influencing modal choice for pollution control: Feasibility, costs and benefits. The case of an Indian megacity, Kolkata

IEFE Working Paper n. 17 – January
by M. Dutta and J. Bhattacharya

Whilst developed nations have used technology-forcing standards or market mechanisms (such as taxes) as their main tool for the control of transport pollution, transportation demand management (TDM) may have greater relevance for cities in poorer countries: and the choice of less polluting modes of travel is a crucial aspect of TDM.

With the help of a carefully selected sample of 3000 individuals residing in or commuting to the city of Kolkata, we have determined, from the travel behavior of the sample, the composition of the modes used by commuters in the city. Using measurements of the degree of pollution by all existing modes of transport, we have derived the total air pollution created by this modal structure. We have then looked at the extent to which we can make transport users shift to less polluting modes, and hereby evolved a number of feasible modal structures that would reduce air pollution. We determined the benefit (in terms of emissions reduction) and costs of changing the current modal composition to each of these alternatives. We were hereby able to arrive at several optimum modal compositions for Kolkata.

Can LNG increase competitiveness in the natural gas market?

IEFE Working Paper n. 18 – April
by S. Dorigoni, C. Graziano and F. Pontoni

The following paper aims at studying the competitive effect of the entry in the gas market of importers of liquefied natural gas (LNG hereafter). In particular we would like to analyze whether the construction of LNG terminals and the entry of LNG importers can have a positive effect on the gas price and therefore on consumers' welfare. The present paper formalizes some plausible scenarios for the gas market in the next years and studies the resulting prices. It will then turn to an empirical analysis in order to see which of the assumed scenarios is more likely to emerge in these future years. The main result of the model is that entry of

LNG importers in the market for natural gas can have a positive competitive effect even if LNG has a higher total cost, but only under some stringent conditions. The main conditions can be summarized as follows: new competitors must enter the LNG market; an active spot market should develop; LNG cost should decrease. The empirical analysis shows that these conditions are very likely to be fulfilled in the future.

Carbon allowances as inputs or financial assets: Lessons learned from the Pilot Phase of the EU-ETS

IEFE Working Paper n. 19 – April
by M. Bonacina and S. Cozialpi

This paper provides an updated state of art in the literature on carbon permits as inputs and financial assets. Analyses refer to the operation of the European market for allowances in the Pilot Phase. Results are particularly intriguing as they posit the basis for future assessments.

The European carbon market in the financial turmoil: Some empirics in early Phase II

IEFE Working Paper n. 20 – May
by M. Bonacina, A. Creti and S. Cozialpi

We estimate an Error-Correction Model by using dynamic OLS to investigate carbon price drivers in early Phase II. The futures contract negotiated from January to December 2008 on the European Climate Exchange is the focus of our analysis. We consider the allowance price as explained by oil prices, the switching price and the Dow Jones Euro Stoxx 50. The long-term co-integration analysis shows that oil was the main driver of carbon prices in 2008. Technological variables, although statistically significant, had almost no impact on the endogenous variable. The financial index has not been a statistically significant regressor. We find an adjustment speed of 8% in the co-integrating equation. The short-term estimates show a two-tier relationship. Before the financial and economic turmoil, energy inputs were the drivers of carbon prices more than financial assets. After the oil crisis, carbon markets have become sensitive to equity pricing. Brent prices have halved their impact on permit prices. This kind of “equity paradox” in CO₂ price drivers represents a new finding in carbon market pricing.

Integration of electricity markets in Europe: Relevant issues for Italy

IEFE Working Paper n. 21 – July
by A. Creti, E. Fumagalli and E. Fumagalli

In this paper we analyze the current trend towards a higher degree of market integration in Europe and identify those aspects that are particularly relevant for Italy. The Italian involvement in this process appears comparatively modest: contributions from policy makers, practitioners and academics are, instead, necessary to estimate the potential advantages and disadvantages of integration and to indicate the preferable coupling solution. These proposals should be supported by robust analyses and sound evaluations: we identify open questions and indicate the direction for further work.

The productive effect of transport infrastructures: Does road transport liberalization matter?

IEFE Working Paper n. 22 – September
by A. Bottasso and M. Conti

In this paper we analyze the impact of motorway networks on production for a panel of twenty one manufacturing and service sectors of eleven EU countries observed over the period 1980-2003. In particular, we analyze if the degree of regulation of the road transport sector affects the link between productivity and motorway infrastructures. Overall results suggest that output elasticity with respect to motorway is found to be lower for countries characterized by a high degree of entry barriers in the road transport sector. This result is found to be more evident for industries which rely more heavily on transport services.

Does expected supply affect the price of emission permits? Evidence from Phase I in the European system

IEFE Working Paper n. 23 – September
by A. Beltratti, P. Colla and A. Creti

Does current and future supply affect the market price of permits? The answer should be positive as the market itself was created by the governments that also control supply. However, governments themselves may be uncertain about the relation between supply and price and may go through a learning period. Do investors believe in the announcements of governments about the future supply? We find the answer was positive at least regarding Phase I of the European system, where empirical evidence about a current excess supply of permits was offset by announcements of a future excess demand.

Accountability in government and regulatory policies: Theory and evidence

IEFE Working Paper n. 24 – September
by C. Guerriero

A key aspect of institutional design is the degree of accountability to which the officials involved in regulation are subjected. Elected officials strive for re-election, appointed ones are career-concerned. Provided that the effort exerted to uncover a firm's unknown cost is sufficiently efficient in swaying votes, elected officials produce more information than appointed ones do. As a result, both prices and ex post rents are higher under appointment, and society will prefer this last institution whenever investment inducement is sufficiently relevant or shareholders are sufficiently more powerful than consumers. Data on electricity prices and costs, and the methods of selecting top-level regulators and High Court judges for a panel of forty-nine U.S. states confirm the model's predictions.

Modeling climate change mitigation options: A review of Tol's contribution to Copenhagen consensus

IEFE Working Paper n. 25 – November
by R. Roson

Copenhagen Consensus Center organized an initiative, in which an expert panel of

outstanding economists convened in Washington DC in September 2009 to compile a prioritized list of specific solutions in the fight against climate change. The basis for the discussions and the ranking were assessment papers prepared for five different categories of solutions to climate change. Richard S.J. Tol was in charge of writing the assessment paper on traditional mitigation policies, by reviewing the existing frontier academic literature and presenting the economic costs and benefits of relevant solutions together with the strengths and weaknesses in the applied methodology. To ensure complete information on each category of solutions, all assessment papers were balanced by alternative views by one or two economists, preparing a critical perspective paper. This is one critical review of Tol's contribution.

At home and abroad: An empirical analysis of innovation and diffusion in energy-efficient technologies

IEFE Working Paper n. 26 – November

by E. Verdolini and M. Galeotti

This paper contributes to the induced innovation literature by extending the analysis of supply and demand determinants of innovation in energy-efficient technologies to account for international knowledge flows and spillovers. In the first part of the paper we select a sample of 38 innovating countries and we study how knowledge related to energy-efficient technologies flows across geographical and technological space. We demonstrate that higher geographical and technological distances are associated with a lower probability of knowledge flow. In the second part of the paper, we use our previous estimates to construct stocks of internal and external knowledge for a panel of 17 countries and present an econometric analysis of the supply and demand determinants of innovation accounting for international knowledge spillovers.

Our results confirm the role of demand-pull effects, as proxied by energy prices, as well as that of technological opportunity, as proxied by the knowledge stocks. In particular, this paper provides evidence that spillovers between countries have a significant positive impact on further innovation in energy-efficient technologies.

6. Research Report series

In September 2009 the Center launched a new publication series which presents the final reports of its research projects and can be downloaded from IEFE website (www.iefef.unibocconi.it).

The first three issues are listed below.

La regolazione economica dei servizi idrici

IEFE Research Report n. 1 – September

by Antonio Massarutto

Integrating European electricity markets

IEFE Research Report n. 2 – October

by Giuseppe Buglione, Guido Cervigni, Eileen Fumagalli, Elena Fumagalli and Clara Poletti

Prospettive di sviluppo delle energie rinnovabili per la produzione di energia elettrica. Opportunità per il sistema industriale nazionale

IEFE Research Report n. 3 – December

by Annalisa D'Orazio

7. Articles and books

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8. IEFE seminars and conferences

IEFE has organized numerous seminars and conferences, listed below. Programs and presentations can be downloaded from IEFE website (www.iefef.unibocconi.it)

23 January 2009

IEFE Seminar on **Market coupling: Looking at the future of the Italian power exchange**

Elena Fumagalli (Politecnico di Milano)

6 February 2009

IEFE Seminar on **Carbon price drivers: An empirical analysis of EU ETS in Phase II**

Anna Cretì (Università Bocconi and IEFE)

20 February 2009

IEFE Seminar on **The political economy of incentive regulation: Theory and evidence from US states**

Carmine Guerriero (Cambridge University)

6 March 2009

The economics of natural gas storage: A European perspective

Workshop organized by IEFE

9 March 2009

IEFE Seminar on **Analysis of the sectors exposed to significant risk of carbon leakage: Results for Italy**

Annalisa D'Orazio (IEFE)

13 March 2009

IEFE Seminar on **Modelli bottom-up per la pianificazione energetica: le applicazioni di TIMES a scenari europei e italiani**

Evasio Lavagno (Politecnico di Torino)

17 March 2009

IEFE Seminar on **Price volatility and risk exposure – On the interaction of quota and product market**

Nils-Henrik von der Fehr (Oslo University)

20 March 2009

IEFE Seminar on **2009: Italy 12 years after Kyoto. Waiting for Godot?**

Enzo Di Giulio (Scuola Mattei, Eni Corporate University)

27 March 2009

IEFE Seminar on **Biofuels for the future: Towards the revision of the Directive 2003/30**
Augusto Ninni (Università di Parma and IEFE) and Pietro Lanzini (IEFE)

3 April 2009

IEFE Seminar on **Market instruments for solid waste management: UK, Germany and USA**
Antonio Massarutto (Università di Udine and IEFE)

17 April 2009

IEFE Seminar on **The productive effect of highways infrastructure: Does road transport liberalization matter?**
Anna Bottasso (Università di Genova)

24 April 2009

IEFE Seminar on **Industrial coal demand in China: A provincial analysis**
Matteo Manera (Università Milano-Bicocca and IEFE)

5 May 2009

IEFE Seminar on **On coase and hotelling**
Juan Pablo Montero (Pontificia Universidad Católica de Chile and MIT)

15 May 2009

IEFE Seminar on **Time series models for monthly electricity demand forecasting**
Margherita Grasso (Enel)

22 May 2009

IEFE Seminar on **History, geography and economies of agglomeration: Evidence from Italian cities**
Marco Percoco (Università Bocconi)

29 May 2009

IEFE Seminar on **Long run relations in European electricity prices**
Lucia Parisio (Università Milano-Bicocca)

5 June 2009

IEFE Seminar on **Il possibile ruolo del GNL nell'ambito della liberalizzazione del mercato del gas in Europa**
Susanna Dorigoni (Università di Bolzano and IEFE)

12 June 2009

IEFE Seminar on **On the economic determinants of oil production: Theoretical and empirical evidence**
Alessandro Cologni (Edison Trading and IMT Institute for Advanced Studies)

16 June 2009

Climate policy and long term decisions: Investments and R&D
Workshop organized by IEFE and École Polytechnique de Paris

26 June 2009

IEFE Seminar on **Energia Italia 2020: tutto come oggi?**
Arturo Lorenzoni (Università di Padova and IEFE)

3 July 2009

IEFE Seminar on **An overview of World Bank's envisage model for climate change policy assessment**

Roberto Roson (Università di Venezia)

25 September 2009

IEFE Seminar on **Effetti di rete e potere di mercato nella trasmissione di energia elettrica**

Giuseppe Buglione and Eileen Fumagalli (IEFE)

2 October 2009

IEFE Seminar on **Divesting power**

Giulio Federico (IESE-University of Navarra)

9 October 2009

IEFE Seminar on **Pacchetti anti-crisi nei paesi dell'UE e interventi di politica industriale**

Augusto Ninni (Università di Parma and IEFE)

15 October 2009

FEEM-IEFE Joint Seminar on **Zonal price analysis of the Italian wholesale electricity market**

Angelica Gianfreda (Università di Verona)

23 October 2009

IEFE Seminar on **Is policy-driven environmental performance able to influence firms' competitiveness?**

Fabio Iraldo (Scuola Superiore Sant'Anna di Pisa and IEFE)

30 October 2009

AIEE-IEFE Joint Seminar on **La ricerca energetica applicata in Italia: l'esperienza del progetto 'Efficienza energetica' di Industria 2015**

Ennio Macchi (Politecnico di Milano)

6 November 2009

IEFE Seminar on **Biodiversità e servizi degli ecosistemi: ecologia ed economia a confronto**

Marino Gatto (Politecnico di Milano)

12 November 2009

FEEM-IEFE Joint Seminar on **A numerical analysis of optimal extraction and trade of oil under climate policy**

Fabio Sferra (Fondazione Eni Enrico Mattei)

20 November 2009

IEFE Seminar on **Market coupling dei mercati elettrici**

Giuseppe Buglione (IEFE)

23 November 2009

Giornata mondiale dell'alimentazione 2009: i prezzi dei prodotti alimentari

Conference organized by IEFE in collaboration with the Ministry of Foreign Affairs as part of the official Italian celebrations for the World Food Day 2009.

27 November 2009

IEFE Seminar on **Retailing di energia elettrica e gas naturale**

Simone Spalletta (IEFE)

4 December 2009

IEFE Seminar on **Energy demand and energy efficiency in the OECD countries: A stochastic demand frontier approach**

Massimo Filippini (Università della Svizzera Italiana and ETH Zurich)

11 December 2009

IEFE Seminar on **The EU ETS and the EU RES promotion: Preparing for the National Plan 2020**

Annalisa D'Orazio (IEFE)

17 December 2009

FEEM-IEFE Joint Seminar on **Modeling of energy conversion and end users systems: Local long-term planning and optimization**

Giuseppe Muliere (Università di Pavia and Provincia di Pavia)

9. Participation in seminars and conferences

IEFE members have participated in seminars and conferences organized by other institutions. Programs and presentations can be downloaded from IEFE website (www.iefe.unibocconi.it).

Markets and organization; Paris, 6 January 2009

Seminar organized by École Polytechnique - Chair for Business Economics. Anna Cretì presented the paper “Economic and financial aspects of carbon trading”.

Economie et finance du développement durable. Approches quantitatives; Paris, 7 January 2009

Organized by Université de Paris Dauphine. Anna Cretì presented her paper “Market for CO2 allowances and industry structure”.

Efficiency, competition and long term contracts in electricity markets; Florence, 15-16 January 2009

Workshop organized by Larsen and Loyola de Palacio Program of the European University Institute. Anna Cretì presented the paper “Imperfectly competitive contract markets for electricity” (co-authored with M. Bonacina and F. Manca).

Ambiente, strutture e finanza per l'economia lombarda; Milan, 30 January 2009

Seminar organized by the Milan Chamber of Commerce and the Consorzio Camerale per il credito e la finanza. Annalisa D’Orazio presented her work “Prospettive delle energie alternative per le imprese”.

Un new deal ecologico. La sfida ambientale per affrontare la recessione ed uscire dalla crisi; Rome, 31 January 2009

Conference organized by Ecologisti Democratici. Marzio Galeotti took part in the round table “La sfida ambientale per affrontare la recessione ed uscire dalla crisi”.

The legacy of sport events: Challenges and opportunities; Milan, 5 February 2009

International workshop organized by SDA-Bocconi School of Management. Michela Melis presented the paper “The impact of wide-scale sport events on local development” (co-authored with M. Frey and F. Iraldo).

Conference of the Italian solar industry; Rome, 6 February 2009

Organized by Solarpraxis. Arturo Lorenzoni gave a talk on “In corsa per la sicurezza dell’approvvigionamento energetico e per i posti di lavoro: elementi di politica energetica per il XXI secolo”.

Investire in energie rinnovabili. La convenienza finanziaria per le imprese; Milan, 26 February 2009

Conference organized by Centrobanca and Università Bocconi. Annalisa D'Orazio presented "Quale futuro per l'energia? Le energie rinnovabili nell'attuale contesto macroeconomico".

Energeticamente Kyoto; Arezzo, 27 February 2009

Conference organized by Legambiente. Marzio Galeotti presented "Green New Deal: le energie alternative come occasione di sviluppo e nuova occupazione".

Il futuro delle nuove energie; Tortona, 6 March 2009

Conference organized by Agroenergia. Augusto Ninni presented "Sul futuro (politico?) dei biocarburanti".

Sostenibilità. Nuovi modelli di sviluppo nell'UE; Modena, 20 March 2009

Seminar organized by Fondazione Collegio S. Carlo. Marzio Galeotti presented "Questione climatica e sviluppo economico. Le politiche energetiche dell'UE".

Sistemi di gestione ambientale e nuovo regolamento Emas; Milan, 25 March 2009

Meeting organized by Assolombarda. Fabio Iraldo presented the paper "Le aspettative su Emas III: quali opportunità competitive, quali incentivi attesi, quali barriere da superare per il definitivo successo dello schema" and took part as moderator in the round table "Il futuro dei sistemi di gestione ambientale e della certificazione nel quadro della normativa ambientale".

Energia 2030. Sfide, piani, risorse; Genoa, 27 March 2009

Meeting organized by Reer. Clara Poletti presented her work "Scenari economici ed energetici 2030".

Per una scuola capace di futuro; Rome, 28 March 2009

Forum organized by Legambiente Scuola, Acli and Arci. Marzio Galeotti presented the report "La crisi dell'economia globale".

Processi di combustione: tecnologie innovative per la compatibilità ambientale; Milan, 1 April 2009

Round table organized by Ati Lombardia. Annalisa D'Orazio took part in the round table.

Ambiente futuro; Amalfi, 3 April 2009

Organized by Scuola di Formazione PD. Marzio Galeotti presented "L'insostenibilità strutturale di un'economia senza regole".

Ambiente Energia: come affrontare la crisi ambientale e rilanciare l'economia; Varese, 6 April 2009

Conference organized by Partito Democratico. Marzio Galeotti presented the report "Energia e cambiamenti climatici: prospettive in Europa e in Italia".

Last resort supplier and competition in the retail electricity market; Milan, 8 April 2009

Seminar organized by Facoltà di Scienze Politiche - Università degli Studi di Milano. Clara Poletti gave a talk on "Last resort supplier and competition in the retail electricity market".

2009: Anno per la qualità delle reti tecnologiche locali; Milan, 8 April 2009

Seminar organized by Fondazione EnergyLab and Gruppo Italiaenergia. Antonio Massarutto discussed the relevant economic issues.

Royal Economic Society Annual Meeting; Wildford (UK), 20-22 April 2009

Carmine Guerriero presented the report “Democracy, judicial attitudes and heterogeneity: The civil versus common law tradition”.

Last resort supplier and competition in the retail electricity market; Milan, 23 April 2009

Seminar organized by Fondazione Eni Enrico Mattei. Clara Poletti gave a talk on “Last resort supplier and competition in the retail electricity market”.

Enel Energy Club Program; Rome, 23 April 2009

Seminar organized by Enel-GEM Division. Arturo Lorenzoni gave a talk on “Financial Management e Risk Management nel mercato dell’energia: un’introduzione”.

Global change and sustainability; Bardonecchia, 24 April 2009

Conference organized by Alta Scuola Politecnica. Marzio Galeotti took part in the round table “How global problems impact the economy, the political agenda and the public”.

Le frontiere del CSR management; Milan, 24 April 2009

Conference organized by Alta Scuola Impresa e Società of Università Cattolica. Arturo Lorenzoni spoke about “Carbon footprint e carbon offset”.

A smart EU energy policy “The design of the internal energy market in relation to energy supply security and climate change”; Florence, 29-30 April 2009

Conference organized by CIEP, EUI, FEEM. Clara Poletti presented the report “Gas storage and gas balancing cross-country rules” and Arturo Lorenzoni presented “Toward a smart EU ‘GSM-Like’ infrastructure for smart metering, demand response and retail competition”.

Ambiente ed energia: scelte strategiche e fattori di sviluppo; Rome, 6 May 2009

Conference organized by Confcommercio. Marzio Galeotti participated in the session “Riflessi applicativi nel contesto nazionale”.

Italian PV Summit 2009; Verona, 6 May 2009

Conference organized by SolarExpo. Arturo Lorenzoni was Conference Rapporteur.

Istituzioni per le rinnovabili; Verona, 7 May 2009

Conference organized by QualEnergia. Arturo Lorenzoni was invited to speak about “Costi del raggiungimento dell’obiettivo rinnovabili al 2020”.

Le energie rinnovabili: motore per nuove imprese; Verona, 8 May 2009

International conference organized by SolarExpo. Arturo Lorenzoni gave a talk on “Fonti rinnovabili e industria. Verso un nuovo modello di impresa energetica”.

Prospettive di sviluppo delle tecnologie rinnovabili per la produzione di energia elettrica: opportunità del sistema industriale nazionale; Rome, 14 May 2009

Conference organized by Focus Eventi. Annalisa D’Orazio presented IEFE research results.

American Law and Economics Association Annual Meeting; San Diego (CA), 15-16 May 2009

Carmine Guerriero presented the report “Democracy, judicial attitudes and heterogeneity: The civil versus common law tradition”.

VI International Conference on the European Energy Market; Leuven (B), 27-29 May 2009

Organized by Katholieke Universiteit Leuven. Clara Poletti presented “The consumer at the center of smart grids”.

Green New Deal. Crisi e opportunità di cambiamento: ecologia, innovazione e lavoro; Florence, 29 May 2009

Seminar organized by Terra Futura. Marzio Galeotti introduced the seminar with a speech on “Le energie alternative come occasione di sviluppo e nuova occupazione”.

VI Doctoral Seminar; Moncalieri, 4 June 2009

Organized by Società Italiana di Economia e Politica Industriale, Ceris-Cnr Torino. Raffaele Fiocco spoke on “Regulation of interdependent markets”.

III Congresso Nazionale Associazione Italiana Gestione Energia; Parma, 5 June 2009

Pietro Lanzini presented the paper “Overview of biofuels in Europe. The birth of a new industry: perspectives and hindrances” (co-authored with Augusto Ninni).

Game Theory @ the universities of Milan; Milan, 5 June 2009

Workshop organized by Mate - Politecnico di Milano. Raffaele Fiocco presented “Bargaining and collusion in a regulatory model”.

Club dell’energia; Vicenza, 8 June 2009

Workshop organized by Confindustria Vicenza. Arturo Lorenzoni spoke on “Energia e fonti rinnovabili come elementi di business per le imprese”.

Cambiamenti del clima. Scenari, innovazione, efficienza energetica. Strumenti e opportunità per le imprese; Brescia, 10 June 2009

Seminar organized by Camera di Commercio di Brescia. Marzio Galeotti gave a talk on “Le azioni a livello europeo e nazionale: quali prospettive per le imprese”.

XIII ICABR Conference, “The emerging bio-economy”; Ravello, 17-20 June 2009

Augusto Ninni presented “Policies to support biofuels: A re-appraisal of the European experience”.

XXXII IAEE International Conference “Energy, economy, environment: The global view”; San Francisco (CA), 21-24 June 2009

Pietro Lanzini presented “Biofuels in Europe: overview and features of a new industry” (co-authored with Augusto Ninni) and Federico Pontoni “The effects of a domestic market on export decision for a state-owned energy company”.

XVII AISSEC Scientific Conference; Perugia, 25-27 June 2009

Augusto Ninni presented “Policies to develop biofuels in two very large and very fast growing countries: A comparison between China and India” (co-authored with Chiara Landini and Carlo Lupi, PwC Italia).

V Urban Research Symposium “Cities and climate change: Responding to an urgent agenda”; Marseille (F), 28 - 30 June 2009

Organized by World Bank. Sabrina Melandri and Tania Molteni presented the paper “A comparative analysis of global city policies on climate change mitigation: London, New York, Milan, Mexico City, Bangkok” (co-authored with Edoardo Croci).

COST Foresight 2030; Bruges (B), 30 June-2 July 2009

Workshop on Energy organized by European Cooperation in Science and Technology. Clara Poletti was invited as expert.

3F (Fossil Fuel Free) Electric power: rinnovabili e nucleare; Milan, 9 July 2009

Conference organized by Animp - Sezione Energia and Ati - Sezione Lombardia. Clara Poletti took part as moderator in the round table “Energia da fonti rinnovabili e nucleare: quali prospettive nel panorama energetico nazionale”.

La fiscalità del fotovoltaico; Rome, 13 July 2009

Conference organized by Assosolare. Clara Poletti spoke on “Fotografia del mercato”.

Solare termodinamico. Desertec un’opportunità per l’industria italiana; Rome, 16 July 2009

Workshop organized by Kyoto Club. Arturo Lorenzoni presented “Le fonti rinnovabili: un’opportunità per l’industria italiana”.

Organizzazione e regolazione economica dei servizi idrici; Rome, 21 July 2009

Conference organized by Camera dei Deputati. Antonio Massarutto presented IEFE research results.

Eco-Innovazione e “Made Green in Italy”; Florence, 23 September 2009

Conference organized by the Region of Tuscany, Scuola Superiore Sant’Anna di Pisa and the City of Florence. Fabio Iraldo presented “La valorizzazione competitiva dell’eccellenza ambientale dei cluster italiani: performance sul mercato ‘verde’ come via per il superamento della crisi, vantaggi e limiti delle attuali opportunità competitive e proposte per una qualificazione del ‘Made Green in Italy’”.

Festival Internazionale dell’Ambiente: “Greenomics - una speranza per la ripresa economica?”; Milan, 26 September 2009

Round table organized by L’Umana Dimora and Fondazione Legambiente Innovazione. Clara Poletti spoke on “La crisi è la fine della green economy o la green economy può essere la fine della crisi?”.

Festival Internazionale dell’Ambiente: “Green Jobs - le nuove professionalità dell’energia e dell’ambiente”; Milan, 28 September 2009

Workshop organized by Sec-Relazioni Pubbliche e Istituzionali and Italia Oggi. Annalisa D’Orazio participated in the workshop.

V zeroEmission Rome – Biofuel Expo: “Verd’Italia: i nuovi orizzonti delle agroenergie e dei biocarburanti per una economia ecosostenibile”; Rome, 30 September 2009

Augusto Ninni presented “Orientamenti politici nei biocarburanti: un giro d’orizzonte a livello mondiale” in the session “Prospettive politiche e sostenibilità dei biocarburanti: quale futuro?”.

V zeroEmission Rome – Geotech Expo: “Per una gestione sostenibile delle acque del Mediterraneo”; Rome, 30 September 2009

Antonio Massarutto presented “Il progetto INECO: strumenti istituzionali ed economici per una gestione sostenibile dell’acqua nel Mediterraneo” in the session “L’acqua nel Mediterraneo: risorse e utilizzi?” and “La regolazione economica dei servizi idrici nell’esperienza internazionale” in the session “I servizi idrici integrati e la gestione razionale dell’acqua”.

V zeroEmission Rome - CO2Expo: “Countdown a Copenaghen 2009: l’impegno italiano per ridurre le emissioni di CO2”; Rome, 1 October 2009

Conference organized by Artenergy Publishing. Susanna Dorigoni attended the conference as a speaker in the session “La ‘XV Conferenza ONU sui Cambiamenti Climatici’ e il cammino delle imprese verso un futuro economico più sostenibile”.

V zeroEmission Rome - PV Rome Mediterranean: “Il solare fotovoltaico: settore strategico per la crescita economica, la ricerca scientifica e la salvaguardia ambientale”; Rome, 1 October 2009

Arturo Lorenzoni presented “Il valore dell’energia fotovoltaica in Italia” in the session “Il fotovoltaico che verrà: mercato e incentivi dopo il 2010”, organized by Gruppo Imprese Fotovoltaiche Italiane.

CompraVerde – Terzo Forum internazionale degli acquisti verdi; Cremona, 9 October 2009

Organized by Adescoop and Provincia di Cremona. Fabio Iraldo participated in the conference, giving a presentation on “Expo 2015: filiera agroalimentare e acquisti verdi”.

La sostenibilità della produzione del tissue nell’attuale scenario dei consumi; Lucca, 16 October 2009

Organized by Assocarta as part of MIAC - XVI Mostra internazionale dell’industria cartaria. Fabio Iraldo presented “L’evoluzione della sostenibilità ambientale: dalla gestione dei processi alla progettazione e valorizzazione competitiva dei prodotti”.

Rilancio dell’economia e ambiente: opportunità per gli strumenti volontari tra produzioni verdi e business ambientale; Rimini, 29 October 2009

Conference organized by Ervet and Enea as part of ECOMONDO – XIII Fiera internazionale del recupero di materia ed energia e dello sviluppo sostenibile. Fabio Iraldo delivered the introductory speech “Lo sviluppo degli strumenti volontari e le connesse opportunità competitive”.

Scuola Enrico Mattei - Opening of the Academic Year 2009-2010; Milan, 13 November 2009

Marzio Galeotti gave the opening address “Verso Copenaghen: lo stretto sentiero di un nuovo accordo sul clima”.

X Edition “Woman, economy & power”: New energies; Reggio Calabria, 19-20 November 2009

Meeting organized by Fondazione Marisa Bellisario. Clara Poletti participated in the session “Renewable energy”.

Green Package at 2020; Milan, 25 November 2009

Arturo Lorenzoni and Clara Poletti spoke at the conference organized by A2A.

SMART GRID: il futuro dell'energia e dei servizi; Milan, 27 November 2009

Seminar by invitation organized by EnergyLab. Clara Poletti presented “Non c'è smart grid senza smart regulation”.

Le reti tecnologiche locali: opportunità e prospettive per le imprese; Brescia, 30 November 2009

Seminar by invitation organized by EnergyLab. Antonio Massarutto presented “Riforma dei servizi pubblici locali e prospettive per le imprese private”.

Milano verso Copenhagen 2009. Il Piano Clima del Comune di Milano; Milan, 1 December 2009

Conference organized by Comune di Milano. Edoardo Croci coordinated the session “Città e Clima”; Marzio Galeotti presented “Valutazione preliminare dei costi delle misure di abbattimento”.

Il futuro delle reti di distribuzione gas; Rome, 3 December 2009

Seminar organized by Staffetta Quotidiana and Cenacolo. Antonio Sileo presented “Distribuzione gas: l'evoluzione della specie”.

Le nuove frontiere dell'energia: da Kyoto a Copenhagen; Genoa, 4 December 2009

Conference organized by Consiglio Nazionale Ordine Ingegneri, Energethica, Legambiente Liguria, Muvita Fondazione and Fondazione UniVerde. Edoardo Croci presented “La sostenibilità ambientale dei grandi eventi: il caso Milano Expo 2015”.

Missione Copenhagen; Bologna, 11 December 2009

Meeting organized by Goodlink. Edoardo Croci was invited as a guest to the event, during which I GreenSocialFestival2010 was presented.

10. Structure*

Working at IEFE are tenured professors and researchers from Università Bocconi and other universities, along with research fellows with contracts or grants connected to the Center itself, as well as expert consultants in specific areas. The Center is managed by the President, the Steering Committee, the Scientific Committee and the Members' Committee.

President Alberto Meomartini, Chairman Assolombarda and Snam Rete Gas

Honorary President Renzo Capra

Director Clara Poletti

Research Fellows Michele Barberio, Monica Bonacina, Giuseppe Buglione, Guido Cervigni, Anna Cretì, Edoardo Croci, Niccolò Cusumano, Alessandro de Carli, Annalisa D'Orazio, Susanna Dorigoni, Andrea Fontanella, Marco Frey, Marzio Galeotti, Fabio Iraldo, Arturo Lorenzoni, Matteo Manera, Antonio Massarutto, Sabrina Melandri, Michela Melis, Alberto Minarelli, Tania Molteni, Augusto Ninni, Federico Pontoni, Roberto Roson, Martina Sartori, Antonio Sileo, Simone Spalletta

Secretarial Office Lia Bertoglio, Daniela Cereda

Administrative Office Pinuccia Ganda, Dora Milanese

* As of March 2010

11. Steering Committee*

Roberto Bazzano, Federutility, President
Giancarlo Cremonesi, Acea, Chairman
Bruno D'Onghia, EdF- Representative Office in Italy, Director
Pasquale De Vita, Unione Petrolifera, Chairman
Nicolò Dubini, Pirelli & C. Ambiente, Executive Vice President
Paolo Gallo, Edipower, CEO
Edoardo Garrone, Erg, Chairman
Piero Gnudi, Enel, Chairman
Gian Marco Moratti, Saras, Chairman
Massimo Orlandi, Sorgenia, CEO
Umberto Quadrino, Edison, CEO
Luigi Roth, Terna, Chairman
Paolo Scaroni, Eni, CEO
Klaus Schäfer, E.On Italia, CEO
Tomaso Tommasi di Vignano, Hera, Chairman
Giuliano Zuccoli, A2A, President of the Management Committee and Assoelettrica,
Chairman

De Jure Members

Alberto Meomartini, IEFÉ President
Clara Poletti, IEFÉ Director
Bruno Pavesi, Chief Executive Università Bocconi, or his delegate
Guido Tabellini, Rector Università Bocconi, or his delegate

* As of March 2010

12. Scientific Committee*

President Pippo Ranci, Università Cattolica del Sacro Cuore di Milano

Members

Clara Poletti, IEFE Director (de jure)

Carlo Carraro, Università di Venezia

Claude Crampes, École d'Économie de Toulouse

Michele Grillo, Università Cattolica del Sacro Cuore di Milano

Thomas C. Heller, Stanford University, CA

Christian von Hirschhausen, TU-Dresden

François Lévêque, École des Mines, Paris

Massimo Motta, European University Institute, Florence

David Newbery, Cambridge University, UK

Ignacio Pérez-Arriaga, Comillas University, Madrid

Carlo Scarpa, Università di Brescia

Catherine Waddams, East Anglia University, UK

* 2007-2009 mandate

13. Associated companies and organizations

1. **ABB:** Alessandro Clerici, Senior Advisor to the President
2. **ACEA:** Giancarlo Cremonesi, Chairman; Paolo Carta, Regulatory Affairs Market and Corporate Studies
3. **ACTELIOS:** Roberto Tellarini, CEO
4. **A2A:** Patrizia Savi, Planning, Finance and Control Director
5. **ALPIQ ENERGIA ITALIA:** Alessandro Ferrari, Director Business Development Department; Paolo Meneghini, Marketing Manager Business Development
6. **ANIGAS:** Marialuisa Vegetabile, Managing Director; Bruno Tani, Chairman
7. **ANSALDO ENERGIA:** Giuseppe Zampini, CEO
8. **ARPA EMILIA ROMAGNA:** Raffaella Raffaelli, Director of Department Integrated Management System: Quality, Health & Safety
9. **ASSOELETTRICA:** Francesco De Luca, Managing Director; Antonio Livrieri, Technical Director
10. **ASSOGAS:** Sergio Sala, Managing Director
11. **AZIENDA ENERGETICA:** Pietro Calò, CEO
12. **CVA TRADING:** Paolo Giachino CEO; Danilo Angrilli, Environment Market Manager
13. **EdF- Representative Office in Italy:** Bruno D'Onghia, Director
14. **EDIPOWER:** Paolo Gallo, CEO
15. **EDISON:** Umberto Quadrino, CEO; Giampaolo Russo, Public and Regulatory Affairs Director
16. **ENEA:** Giovanni Lelli, Commissioner
17. **ENEL:** Piero Gnudi, Chairman; Simone Mori, Regulatory and Environmental Director
18. **ENI:** Paolo Scaroni, CEO
19. **ENI – DIV.NE GAS & POWER:** Domenico Dispenza, Managing Director
20. **E.ON Italia:** Klaus Schäfer, CEO
21. **EQUITER:** Alberto Eichholzer, Investments Area Manager; Massimiliano Camporesi, Utilities & Environment Unit Manager
22. **ERG:** Lucia Bormida, Authorities and Government Relations Manager
23. **ERG RIVARA STORAGE:** Grayson Nash, CEO; Roberto Bencini, Technical Director
24. **ESSO ITALIANA :** Piero Biscari, Public Affairs Manager; Nello Angelucci, Public and Government Affairs
25. **FEDERAMBIENTE:** Gianluca Cencia, Managing Director
26. **FEDERUTILITY:** Roberto Bazzano, Chairman; Adolfo Spaziani, Managing Director
27. **FOSTER WHEELER ITALIANA:** Giovanni Franco Brustia, Vice Chairman; Rosa Maria Domenichini, Technical Director Power Division
28. **GDF SUEZ:** Angelo Ferrari, Country Delegate for Italy; Andrea Galieti, Business Development Manager

29. **GME – GESTORE MERCATO ELETTRICO:** Massimo Guarini, CEO; Alessandro Talarico, Institutional Relations & Communication Director
30. **GRANDI RETI SOCIETÀ CONSORTILE:** Giuseppe Gatti, Chairman
31. **GSE – GESTORE DEI SERVIZI ELETTRICI:** Gerardo Montanino, Director of Operations; Costantino Lato, Engineering Unit Manager
32. **HERA:** Tomaso Tommasi di Vignano, Chairman; Giovanni Tagliatela, Regulatory Affairs Manager
33. **IRIDE ENERGIA:** Roberto Garbati, CEO
34. **PIRELLI & C. AMBIENTE:** Nicolò Dubini, Executive Vice President
35. **REZIA ENERGIA ITALIA:** Fabio Bocchiola, Managing Director
36. **RINA:** Roberto Cavanna, Certification and Services Division Director; Paolo Teramo, Technical Manager
37. **SARAS:** Gian Marco Moratti, Chairman
38. **SNAM RETE GAS:** Alberto Meomartini, Chairman
39. **SOGIN:** Francesco Mazzuca, Commissioner; Fabio Chiaravalli, Environmental Area Manager
40. **SORGENIA:** Mario Molinari, Managing Director
41. **TERNA:** Luigi Roth, Chairman; Luigi de Francisci, Regulatory Affairs Director
42. **UNICREDIT:** Giovanni Tordi, Head of Environmental Sustainability – OU Corporate Sustainability;
Giorgio Capurri, Corporate Sustainability - Group Identity and Communications Area
43. **UNIONE PETROLIFERA:** Pasquale De Vita, Chairman

14. Regulations for the Center for Research on Energy and Environmental Economics and Policy (IEFE)

Article 1 Scope of application and subject of the regulations

- 1.1 These regulations, which were drawn up pursuant to Article 74 of the General University Rules (hereinafter referred to as “RGA”), apply to the Center for Research on Energy and Environmental Economics and Policy (IEFE) (hereinafter referred to as “the Center”), set up at Università Bocconi. They regulate its purpose, tools, organization, administration, evaluation and winding-up.
- 1.2 Pursuant to Article 27 of the Statute and Article 73 of the RGA, the Center is set up to promote and undertake specific research (applied research). The Center operates in the academic fields and areas of the Institute of Economics and the Institute of Corporate Economics and Management, and works with the Institute of Comparative Law.

Title I – Purpose and resources

Article 2 Purpose

- 2.1 The purpose of the Center is described in terms of: a. research objectives; b. research methods and tools; c. methods
 - a. research objectives

The Center’s purpose shall be to coordinate and carry out research in economic dynamics and public policy issues in the following areas, using the foremost economic and quantitative analysis techniques:

 - a) economics and policies of the energy and natural, renewable and non-renewable resource markets;
 - b) environmental economics, focusing on issues of environmental policy and on issues of environmental management and sustainability in the private and public sectors;
 - c) economics of public utilities with particular reference to the energy and environmental sectors.

In carrying out its research, the Center shall make constant reference to Europe and abroad, with the aim of anticipating major fundamental issues in the energy sector and addressing the development of regulatory and energy policies in the light of the experience of other countries, primarily in Europe.
 - b. research methods and tools

The Center shall place a strong emphasis on interdisciplinary research, and shall from time to time add economic, management, policy, technology and legal topics to its areas of research and investigation. It shall use theoretical, quantitative and descriptive tools. The tools used

shall be those commonly used in the study of applied economics.

c. methods

The work of the Center in the area of research shall aim to:

- a) coordinate and undertake study and research and take part in joint research projects with other centers and research institutes;
- b) promote research initiatives;
- c) promote and organize conferences, meetings, seminars and other information initiatives;
- d) promote the circulation of the research results among associates, through the preparation and circulation of final reports and the production of an annual report;
- e) promote the circulation in the academic community of research results, through the publication of a series of working papers and articles in academic journals in Italy and abroad;
- f) publish books and a journal to disseminate the research results of the Center or of others;
- g) be part of national and international research center networks working in the same areas, and inter-university consortia or similar forms of collaboration;
- h) organize information exchange initiatives, including through monitoring centers, for the public and private sectors.

For administrative purposes, the Center may be divided into sections or divisions, or set up the most appropriate organizational structures.

- 2.2 The Center may carry out its work in collaboration with other Centers, and for other public or private sector bodies, subject to appropriate contracts or agreements, in accordance with the relevant administrative arrangements.
- 2.3 The Center shall not be a legal entity and all contracts and agreements shall be entered into by the University's legal representative (or his or her delegate) in accordance with the relevant administrative arrangements.

Article 3 Human, financial and other resources

- 3.1 In carrying out its research work, the Center may call upon:
 - the faculty of Università Bocconi or other universities and research institutes in Italy and abroad;
 - consultants working specifically for the Center;
 - external academics and specialists, including scholarship and fixed-term research contract holders, to undertake fixed-term tasks.
- 3.2 In carrying out its research work, the Center may call upon the University's administrative staff, bearing the associated costs.
- 3.3 In pursuit of its aims, the Center may make use of Università Bocconi spaces, facilities, services and equipment, bearing the associated costs.

Title II – Organizational structure

Article 4 Structure of the Center

- 4.1 The Center shall formally comprise
 - President
 - Director
 - Steering Committee

- Scientific Committee
- Members' Committee

Article 5 President

- 5.1 The President shall be appointed by the University Board at the nomination of the Rector in consultation with the Department Directors and members of the outgoing Steering Committee representing members.
- 5.2 The President shall remain in office for three years and may be reappointed.
- 5.3 The President shall represent the Center in dealings with public agencies, research institutes, international organizations, corporations operating in the energy and environment sectors, and public utilities.
The President shall call and chair meetings of the Members' Committee and the Steering Committee.
- 5.4 In consultation with the Director, the President shall propose appropriate initiatives to ensure external appreciation of the Center's results, especially by members.
- 5.5 The President and the Director shall jointly maintain relations with members.
- 5.6 The President may propose that the University Board appoint one or more Vice-Presidents from the Steering Committee, and may delegate his or her duties to them in the event of absence or incapacity.
- 5.7 The President may suggest to the Steering Committee that new members be admitted.

Article 6 Director

- 6.1 The Director shall be appointed by the University Board at the nomination of the Rector in consultation with the Department Directors.
The Director shall remain in office for three years and may be reappointed.
- 6.2 A first- or second-level Università Bocconi professor may be appointed Center Director. Other persons may be appointed Director at the proposal, giving grounds, of the Rector.
- 6.3 The Director shall:
 - a) prepare a multi-year research plan on the basis of the recommendations of the Scientific Committee, and submit it to the Steering Committee;
 - b) produce, in the context of the multi-year plan, an annual research plan that identifies research projects to be undertaken during the year; the plan shall be submitted to the Scientific Committee for evaluation and to the Steering Committee for approval;
 - c) organize and run the Center in implementation of the multi-year plan and the annual research plan, and individual approved research projects; be responsible for the other work of the Center, consistent with the objectives set by the Steering Committee: in particular, allocate researchers and resources to the various research projects.
 - d) inform the Steering Committee, in consultation with the Scientific Committee, about joint projects with other research centers in Italy or abroad;
 - e) oversee the recruitment and periodic evaluation of the Center's researchers;
 - f) organize internal seminars for Scientific and Steering Committee members for the discussion of the preliminary results of the most significant projects;
 - g) produce an annual report to be submitted to the Steering Committee, the Scientific Committee and the Members' Committee;

- h) implement directives from the Steering Committee and the Scientific Committee;
 - i) undertake further initiatives developed during the year within the context of the guidelines approved by the Steering Committee and the Members' Committee;
 - j) maintain relations with members and ensure the circulation of research results;
 - k) prepare draft and final financial statements.
- 6.4 The Director of the Center shall present an annual report to the Rector and the Scientific Committee.
- 6.5 The Director shall also carry out all the other duties required by the national university laws.
- 6.6 The Director may designate one or more Deputy Directors, appointed by Rectoral Decree, to assist the Director and replace him or her in the event of absence or incapacity.

Article 7 Steering Committee

- 7.1 The Steering Committee shall comprise members by right and members' representatives elected by the Members' Committee; numbers shall be determined by the Members' Committee from a minimum of seven and a maximum of eighteen.
- 7.2 The Chief Executive of Università Bocconi or his or her delegate, the Rector or his or her delegate, the President, the Director and any Vice-Directors of the Center are members by right of the Steering Committee.
- 7.3 The Steering Committee shall:
- evaluate at least once a year, and approve, the multi-year plan and the research plan, and the individual research projects to be undertaken during the year and in general the work of the Center, and assess the results;
 - comment on the annual budget proposal prepared by the Director for submission to the University Board in accordance with the relevant administrative procedures;
 - support the Director in addressing the Center's main management issues;
 - make suggestions to the Director on activities and initiatives to enhance the image of the work and role of the Center;
 - set membership fees.
- 7.4 The Steering Committee may, at the proposal of the President, appoint an internal Executive Committee to which it may delegate its powers and capacities wholly or partly. The President and the Director shall report to the Steering Committee on the work of the Executive Committee.
- 7.5 The term of office of Steering Committee members shall be two years and shall expire at the same time as that of the President who appointed them. Members may be reappointed.

Article 8 Scientific Committee

- 8.1 The Scientific Committee shall comprise:
- the Director;
 - a minimum of three members appointed by the Rector at the proposal of the Center Director from persons or proven ability in the research areas of the Center.
- 8.2 The Scientific Committee shall be chaired by one of the members appointed

by the Rector at the proposal of the Director of the Center.

The President shall call meetings of the Scientific Committee at least twice a year, or when requested by the Steering Committee or the Director for specific reasons, and shall ensure maximum information provision and participation including through long-distance communication.

- 8.3 The President of the Scientific Committee may invite experts in relation to specific agenda items.
- 8.4 The Scientific Committee may make proposals as to directions or evaluations of areas to be developed in the research of Center and the work undertaken. Specifically, the Scientific Committee shall:
- develop proposals on the research paths and directions to be developed by the Center;
 - make and consider proposals for links and joint projects with other research centers in Italy or abroad;
 - provide the Steering Committee and the Members' Committee with an evaluation of the proposals in the multi-year research plan and the annual program produced by the Center Director, and of the individual research projects;
 - provide the Steering Committee and the Members' Committee with an evaluation of the research projects carried out during the year;
 - at the request of the Director, provide evaluations of studies and research for the purpose of publishing them in the series of working papers;
 - discuss and evaluate the criteria, procedures and standards used in the recruitment of new researchers;
 - assist the Director with the preparation of the annual report;
 - provide the Steering Committee with a report of meetings held.
- 8.5 The Scientific Committee may co-opt experts in the field, with an advisory vote.
- 8.6 The term of office of Scientific Committee members shall be three years and may be renewed.

Article 9 Members' Committee

- 9.1 Membership of the Center shall be open to organizations, associations and corporations. Their admission shall be decided by the Center's Steering Committee at the proposal of the President, and the proposal shall set out the conditions of their participation.
- 9.2 The Members' Committee shall be chaired by the President. It shall be an advisory and guideline body and each external member organization shall be represented by one person.
- 9.3 The Members' Committee shall meet at least once a year for the presentation of the annual plan and annual report pursuant to Article 6.4 above. It may make proposals in relation to the Center's activity.
- 9.4 The Members' Committee shall consider the draft and final financial statements and shall have the task of direction and assessment with regard to fees to the Center set by the Steering Committee.
- 9.5 If a member organization fails to meet its contribution commitment, its membership shall be revoked and the representative pursuant to Article 9.2 shall no longer sit on the Members' Committee.
- 9.6 Members may participate in all Center initiatives on a paying or non-paying, at the discretion of the Steering Committee.
Members shall also have the right to use the Center library and to receive all Center publications, with the exception of custom research.

Title III – Administration, evaluation and winding-up

Article 10 Evaluation

- 10.1 The Center’s work shall be evaluated in the ways and with the frequency set down by the evaluation program for University facilities and services, to assess their financial self-sufficiency.

Article 11 Administration and accounting

- 11.1 Administrative and accounting management of the Center shall be regulated by the University’s regulations on administration, finance and accounting.

Article 12 Duration, winding up and liquidation

- 12.1 The Center shall have a maximum duration of five years which shall commence from the date of issue of these regulations, and which may be renewed. The request for renewal must be submitted by the Center’s governing bodies at least six months from expiry. Renewal shall occur with the same procedure as for setting up. Each renewal may be for no more than five years.
- 12.2 The University Board, at the request of the Center or on its own initiative, may resolve to wind up the Center and carry out liquidation following the procedures set down for its setting up, in the following cases (among others):
- at the time of expiry of the period of duration;
 - because the purposes of the Center have been reached or it has become impossible to achieve them;
 - in the absence of a majority of members that is unable to be re-established within six months.

Title IV – Final regulations

Article 13 Application

- 13.1 When these regulations come into effect they replace all previous regulatory provisions on this subject.
- 13.2 Where there is no specific provision in these Regulations, reference should be made to the national university laws on research and the regulations of the RGA where applicable.

Article 14 Amendments

- 14.1 These Regulations, approved by the University Board in accordance with Article 3 of the RGA, may be amended by the Board at the proposal of the office-holders of the Center.

Article 15 Coming into effect

- 15.1 The coming into effect of these Regulations shall be established in the promulgating decree.

