# ANNUAL REPORT 2011





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## **ABOUT US**

# ENRICO MATTEI



# FEEM is entitled to Enrico Mattei, the founder of Eni and an economic leader in the national industrial system and international relations of the post-war period.

Born in Acqualagna (Pesaro) on April 29, 1906, Enrico Mattei became one of the leaders of the antifascist resistance movement in Northern Italy during World War II. After the peace declaration in 1945, Mattei was appointed by the government bankruptcy trustee of the distressed state-owned oil company Agip.

Instead of liquidating the company, Mattei successfully developed its business, starting an involvement with energy markets lasting 18 years. The unexpected discovery of natural gas in the Po Valley, the development of the business of extracting and marketing it, and his dedication to promoting legislation to regulate domestic energy markets constitute the most salient aspects of Mattei's early activities. In 1953, he was appointed Chairman of Ente Nazionale Idrocarburi (Eni), the state-owned energy company that he forcefully wanted and contributed to establish.

Mattei led the Eni group combining vision with pragmatism: the new terms of association offered to oil producing countries, the measures taken to contain the final energy prices to consumers, the launch of a large and modern domestic petrochemical and nuclear industry, the off-shoring of qualified engineering expertise to operations abroad, the focus on research, innovation and meritocracy witness his managerial skills, combined with a genuine commitment to economic and social progress.

During the expansion phase in Eni's history, Mattei died tragically in an aircraft crash on October 27, 1962 in the skies of Bascapè (Pavia). The key role he had assigned to culture, research, and cooperation represents the most valuable legacy for the Foundation that carries his name.

# MISSION



FEEM is a nonprofit, nonpartisan research institution devoted to the study of sustainable development. Founded by the Eni group, officially recognized by the President of the Italian Republic in 1989, and in full operation since 1990, FEEM has grown to become a leading research centre, providing timely and objective analysis on a wide range of environmental, energy and global economic issues.

FEEM's mission is to improve through research the quality of decision-making in public and private spheres. This goal is achieved by creating an international and multidisciplinary network of researchers working on several innovative projects, by providing and promoting training in specialized areas of research, by disseminating research results through a wide range of outreach activities, and by delivering directly to policy makers via participation in various institutional fora.

FEEM's operations are inspired by some guiding principles. FEEM sets a bold research agenda addressing big questions and emerging issues in the economic and social context. While strictly linked with the academic community, it embraces intellectual curiosity and supports risk-taking in pursuing research. Its agenda emphasizes "real world" issues and the policy relevance of the outputs.

FEEM brings together researchers from various fields at different levels of experience, in order to fertilize ideas and foster the accumulation of human capital inside and outside the organization.

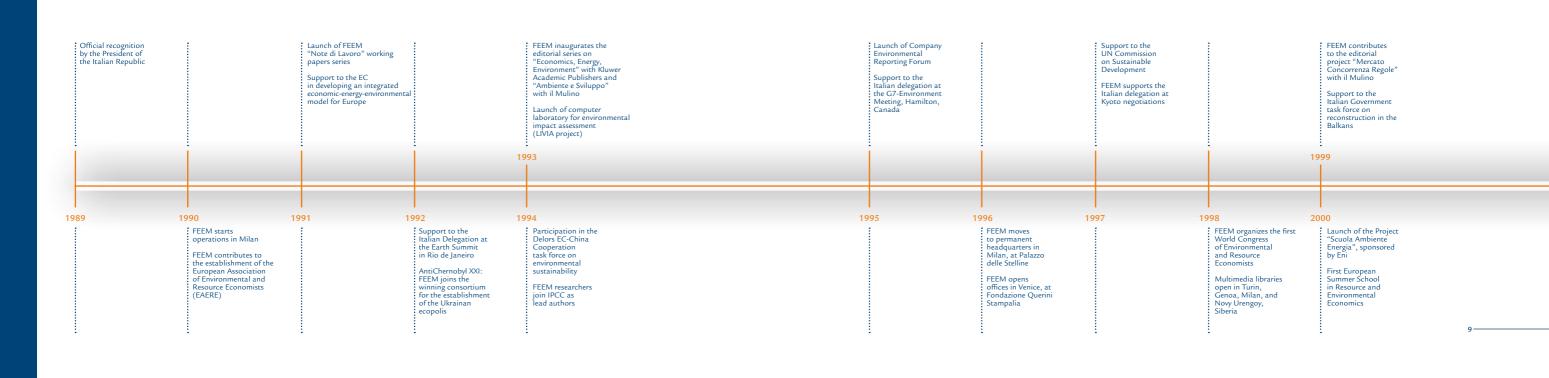
FEEM promotes excellence, boldness of ideas and creativeness, but quality, rigor and impact remain the distinctive features of its activity. Research outputs are theoretically sound, fact-based, and generally validated by the scientific community through peer review processes. FEEM aims at translating analyses into practical ideas, and at presenting them in user-friendly formats to inform and shape the public debate.

While remaining thoroughly Italian in location and perspective, FEEM promotes the international dimension of its activities by selecting topics of global relevance, by creating networks and partnerships in various countries, and by attracting researchers trained and working abroad.

## OUR HISTORY

The formal date of establishment is June 7, 1989, when the President of the Republic officially recognized FEEM's legal status. However, the project of establishing a research foundation entitled to Enrico Mattei was drafted by a commission of Eni executives and external experts in 1982, and finally endorsed in 1986.

The first board meeting took place in 1987, and set down the landmark principles for future activities. FEEM would have an international profile in terms of researchers involved, topics addressed, quality of output and networks. Furthermore, it would not operate as a grantmaking institution, but it would conduct independent research with its own human capital and coordinated programmes. In its longstanding activity FEEM has remained faithful to these principles.



The relationship between the economy, energy and the environment has always been the main focus of FEEM research activities. Today, FEEM has grown to become a leading international research center in economics, providing timely and objective analysis on a wide range of environmental, energy and global economic issues.

Sustainable economic development is an area where FEEM has gained a strong reputation in the academic community and policy spheres. In the early 90s FEEM researchers started analyzing the interaction between finance and the environment and the innovative (and now widely used) instruments such as emission permits and catastrophe bonds in the context of international and intergenerational risk-sharing. The international and strategic dimension of environmental issues has also been the focus of extensive investigation. As the story of the Kyoto protocol shows, environmental issues are global and must be addressed at a global level. FEEM researchers had foreshadowed the difficulties of inking international climate agreements, suggesting that issue-linkage, i.e. increasing the items in the negotiations agenda, could lead to more efficient solutions.

These initial intuitions prompted new strands of environmental research, ranging from sustainable energy to natural resources management and biodiversity.

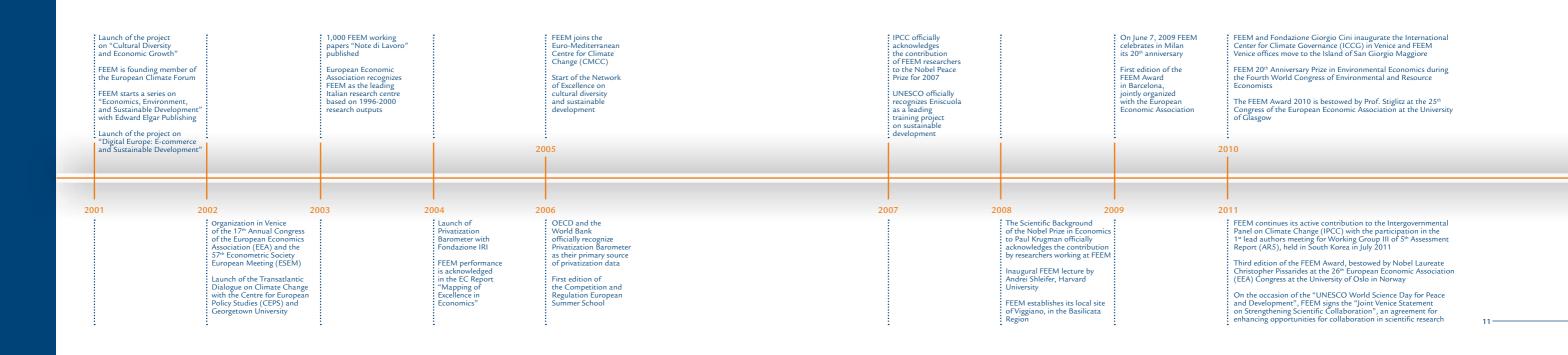
The expertise gained in this field over the years has led FEEM to contribute to the prestigious and important scientific work carried out by the IPCC (Intergovernmental Panel on Climate Change) and to provide technical support to entities and institutions, such as the Italian national and regional governments, the United Nations, the European Commission and the European Environmental Agency.

FEEM research on economic development has explored other key aspects, such as knowledge and human capital. Over the years research in this area broadened its scope to cover a variety of issues ranging from R&D, education and human capital, knowledge creation and diffusion, to multiculturalism and economic growth, tackling topics such as the emerging global urban system, the new sources of competitiveness in the global economy, and culture and diversity in capitalism.

FEEM has support-to-policy in its DNA. However, useful advice to decision makers is seldom delivered by the research community if incentives and institutional constraints are not taken into account. Embracing a "political economy" approach is essential, and FEEM has promoted studies in this field, addressing issues such as incentives, information and market failures, the role of lobbies and organized interests in collective decisionmaking, and the mechanics of self-regulation in financial markets, anticipating the critical issues of the financial crisis. Within this strand of research, FEEM has developed a series of cutting-edge projects, which consolidated its scientific reputation in corporate governance, privatization, and regulation. Today, FEEM is considered one of the most authoritative sources on privatization, and sought for advice by international organizations and governments.

Since the early 90s FEEM also started investigating the relationship between the firm and its stakeholders, well before "corporate social responsibility" became one of the buzzwords in the business sphere. In this early stage, FEEM developed path-breaking methodologies to assess the environmental and social impact of activities in the balance sheets, and assisted several companies in drafting innovative reports, including its founder Eni.

Successful research is primarily a cooperative venture, and FEEM has always strived to create strong links with the international scientific community and partnerships with leading institutions. The reader can find a comprehensive list of our main partners in our chronology. Worthy to mention is the collaboration with the European Economic Association in the organization of landmark events, such as the launch of the FEEM Award, the prize for young economists. More recently FEEM established a partnership with the Fondazione Giorgio Cini



for the creation of the International Center for Climate Governance (ICCG) aimed at fostering links between the scientific community and the policy sphere to improve decision making on climate change.

In June 2009 FEEM celebrated its 20<sup>th</sup> anniversary and established the FEEM 20<sup>th</sup> Anniversary Prize in Environmental Economics to reward researchers who have most significantly contributed to the development of the field of environmental and resource economics over the last 20 years.

In 2011 FEEM consolidated its research activities around two main research programmes: "Climate Change and Sustainable Development" and "Energy: Resources and Markets". A third strand of research is devoted to "Economy and Society". The "Report on Activities" section describes them in greater detail.

## GOVERNANCE AND ORGANIZATION

FEEM is an independent foundation officially recognized by the President of the Italian Republic in 1989. FEEM has been founded by Eni and 9 of its subsidiaries with an initial endowment of 13 million Euros.

The governance rules, functions and powers of FEEM bodies are set out by the Bylaws. FEEM is guided by a Board of Directors with complete powers for the ordinary and extraordinary administration. The Board is composed of fifteen members – eight of whom are independent – and it is chaired by Paolo Scaroni, CEO of Eni. The Board of Directors is committed to overseeing the main activities of the Foundation, approving the annual budget and related activities.

FEEM bodies also include the Scientific Advisory Board (Comitato Scientifico), made of seven qualified experts from the scientific, academic and cultural communities and appointed by the Board of Directors. The Scientific Advisory Board provides recommendations on research activities and oversees the work in progress.

The Audit Committee (Collegio dei Revisori), in compliance with the Italian legislation, is composed of three qualified and certified accountants and its Chairman is appointed by the Italian Minister for Economic Development.

The Executive Director enacts the decisions of the Board of Directors, managing and coordinating the activities of the Foundation, including its offices and staff.



In 2007 FEEM voluntarily adopted an organizational, management and control Model pursuant to Legislative Decree 231/2001 and established a Surveillance Body (Organismo di Vigilanza) for its implementation and subsequent updates. In 2008 and 2009 FEEM reviewed its organization and implemented a new Model. Within this process, FEEM also defined the key values and principles for its external and internal activities and drafted a Code of Conduct as an integral part of the Model.

Everyday activities are organized and carried out within four main areas operated by permanent staff: (i) Administration, Finance and HR; (ii) Communication and External Relations; (iii) Research, and (iv) Special Projects.

FEEM's headquarters are located in Milan, in an aisle of Palazzo delle Stelline, a former XV Century monastery fully restored in 1998. This is where the head office, the library and the facilities for events and seminars are located, and most of the staff and residential researchers work. Since 1996 FEEM holds offices also in Venice, where important research projects, congresses and seminars are carried out. In 2010 FEEM moved from Palazzo Querini Stampalia and inaugurated new prestigious offices on the Island of San Giorgio Maggiore just in front of St. Mark's Square. In 2008 FEEM also established the local site of Viggiano, in the Basilicata region.

#### Governance

Board of Directors Paolo Scaroni - Chairman Giovanni Bazoli Raffaella Leone Stefano Lucchini Alberto Meomartini Joaquìn Navarro-Valls Angelo Maria Petroni Roberto Poli Alberto Quadrio Curzio Giuseppe Recchi Giulio Sapelli Salvatore Sardo Domenico Siniscalco Guido Tabellini Daniela Paola Viglione

> **Executive Director** Giuseppe Sammarco

Scientific Advisory Board Carlo Carraro - Chairman Christopher Allsopp Thomas Heller David Hobbs Ernest Moniz **Robert Socolow Robert Stavins** 

**Audit Committee** Claudio Genovese - Chairman Michele Casò Alberto Giussani

Surveillance Body Joaqu'n Navarro-Valls – Chairman Luca Farinola Claudio Genovese

Organization

Luca Farinola - Head of Administration

### Projects Office and Fund-raising

Riccardo Tarquini - Head Mariaester Cassinelli Martina Marian Valeria Papponetti

> Collaborators Enrica Pillon

### **Research Programme Officers** Monica Eberle Valeria Papponetti

Laura Pellizzola Collaborators

Irene Bellin

### Accounting and Personnel

Stefano Maiocchi Gabriella Olgiati Roberta Ranzini Claudia Richichi

Budget Control Linda Isola - Head

Valentina Milella - Head of Communication and External Relations

### **Events** Rita Murelli

Collaborators Angela Marigo Ughetta Molin Fop Viktoria Pusker Chiara Zanandrea

**Special Projects** Cristiano Re – Special Projects Coordinator

> Andrea Bellati Emanuele Ferrari Andrea Portaluppi Filippo Tessari

As of June 2012

Note: Researchers and Special Projects collaborators are listed in the specific sections of the Annual Report.

ABOUT US-

Administration, Finance and HR

- **Facilities Management** Francesca Carobba - Facility Manager, Venice Linda Isola – Facility Manager, Milan
- Secretarial and Support Activities Sveva Caputo Nancy Elera Sonia Foschini Francesca Polatti
- Collaborators Federica Piovesan
- ICT Office Luca Signorelli - Head Luisa Imparato
- Collaborators Carlo Busetto Fabio Fornasari Paolo Gittoi Nicola Sanavio
- Library Emanuela Ragnolini
- **Communication and External Relations** 
  - **Publications** Barbara Racah - Publications Office Manager
  - Collaborators Pasquale Alferj Martina Gambaro
  - **Research Dissemination** Chiara Raffaelli
  - Collaborators Jacopo Crimi

As of June 2012

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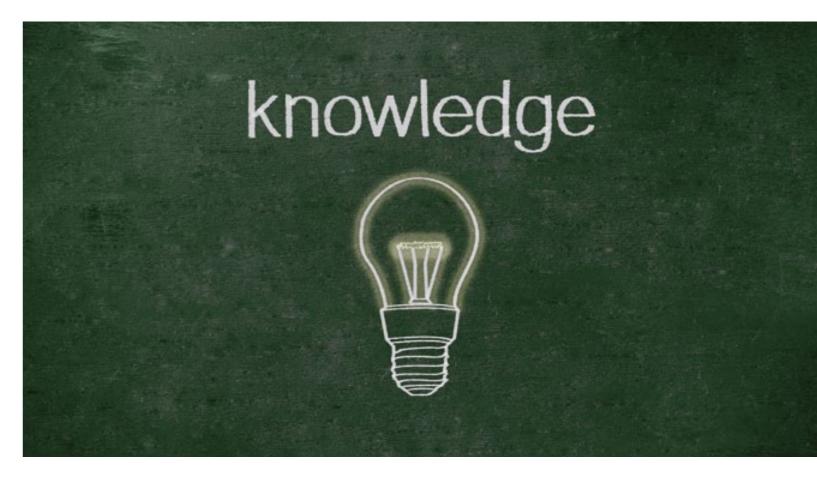
## **HIGHLIGHTS**

## THE COMPETITIVENESS OF FIRMS, REGIONS AND INDUSTRIES IN THE KNOWLEDGE-BASED ECONOMY

The comprehension of the microeconomic foundations of innovation and growth at the firm level, and the firms' interactions with the labour market, are key to understanding the nature of competitiveness and the possibilities for job-rich growth in Europe.

In this framework, 2011 marked the closure of the four-year research project on "The competitiveness of firms, regions and industries in the knowledge-based economy" (MICRO-DYN) funded by the European Commission under the 6th Framework Programme\*.

The central research objective of the project was to address in a comprehensive and methodologically coherent way some of the core driving forces of innovation, competitiveness, employment and growth in the contemporary European economy. MICRO-DYN stands for "micro-dynamics", and research moved from the micro-entities of economic actions and strategies at the enterprise level to sectoral, regional, and national levels.



The project was structured into seven scientific Work Packages (WPs) which were integrated through the use of common and overlapping sets of micro-data, a common research agenda and the joint use and development of research methodologies. FEEM led WP 5 on "the link between internationalisation, innovation, productivity and competitiveness".

While the rather simplistic and mercantilist view of internationalisation policies – stipulating export promotion no matter what – still enjoys great popularity, research conducted by FEEM provided strong evidence that imports play at least as important a role in stimulating innovation and increasing productivity of European firms. The findings further suggest that an excessive focus on providing incentives to attract Foreign-Direct-Investment (FDI) may prove counterproductive and that training policies should aim at the development of general rather than specific skills. Another key message is that firm-level heterogeneity matters a great deal in affecting the outcomes of policy decisions. These findings derive from extensive studies based on a harmonized use of unique datasets that combine traditional balance sheet data with information on individual firms' trade status (export/import) and ownership variables (which allow MICRO-DYN researchers to distinguish domestic firms from foreign affiliates). The datasets comprise an impressive number of 1.8 million observations drawn from a total of 195,000 firms across Europe.

\*More information on MICRO-DYN is available at: http://www.micro-dyn.eu/

## GOVERNING GLOBAL CHALLENGES: CLIMATE CHANGE, TRADE, FINANCE AND DEVELOPMENT



On June 16-18, 2011 FEEM organized the 14<sup>th</sup> annual conference on Global Economic Analysis of the Global Trade Analysis Project network, in cooperation with the Ca' Foscari University of Venice, and in association with the Euro-Mediterranean Centre on Climate Change (CMCC), the International Center for Climate Governance (ICCG), and the Center for Thematic Environmental Networks (TEN).

This important event, which took place in the Department of Economics at Ca' Foscari University of Venice campus, gathered more than 200 top economists from all over the world to discuss how to govern three major and intertwined global challenges affecting our modern societies: climate change, trade, finance and environment.\*

Key messages from the conference can be summarized as follows. On the one hand, the detrimental effects of climate change, ungoverned financial and trade environments are likely to exacerbate each other, especially in a globalised world. The interconnection of economic systems allows different stresses to propagate with unprecedented rapidity and with almost no friction not only across different countries, but also across different domains.

A topical example is speculation on food commodities. This can be triggered simply by changes in food stocks dynamics that in turn are driven by anticipation of future scarcity due to climate change or to climate change policies, like biofuel production. As a consequence, crops' prices, sustained by a financial phenomenon, can increase even before the real scarcity occurs anticipating concerns of food security.

On the other hand, there are solutions. During the conference many possible tools, from the more traditional top-down approaches, such as properly designed fiscal, trade or regulatory policies, to more innovative and bottom-up strategies, like credit to the poor and gender policies have been discussed. These tools are capable of both reducing the adverse effects of the abovementioned phenomena, and, even more interestingly, of exploiting potential positive synergies when present. For instance, climate change and development issues are inextricable today. Trying to solve the first problem can mobilize resources and knowledge with pro-growth effects not only in developing countries, but also in the developed world. The technological and paradigm shift implicit in this transformation would necessarily require the support of financial markets and of efficient international trade relations. In this picture, policy making and institutions play a key role, as often free markets, affected by the public nature of goods like the environment and knowledge, tend to provide them sub-optimally.

## FINANCIAL SPECULATION IN THE OIL MARKET

The project "Financial Speculation in the Oil Market and the Determinants of the Oil Price", launched by FEEM in September 2010, investigates the role of speculation in energy and nonenergy futures markets, where particular attention is paid to the crude oil market.

This project is articulated in three complementary lines of research. First, the role of financial speculation in explaining price changes in the oil market and in other energy and non-energy markets. Second, the relationship between financial trading activity and futures price volatility. Third, a structural, large-scale, macro econometric model for the price of oil.

The main research question within the first line of research is how and to what extent speculation and macroeconomic variables affect futures price returns of energy and non-energy commodities, namely 4 energy commodities (oil, gasoline, heating oil, natural gas) and 9 non-energy commodities (cocoa, coffee, corn, cotton, oats, soybean oil, soybeans, sugar, wheat). The time period spanned by the analysis is 1986-2010, while different data frequencies are considered (daily, weekly, monthly). The econometric techniques rely on reduced form models for volatility (i.e. multivariate GARCH).

The relationship between financial trading and price volatility in energy and non-energy futures markets is investigated by looking at the shortrun and long-run correlations of volume and open interest (aggregated data based on CFTC classification of traders) with volatility, as well as by producing estimates of the fragility of a futures market to financial speculation (market depth). Empirical results are obtained with reduced form, univariate GARCH models.



The third strand of research focuses on a structural, large-scale, macro econometric model for the oil price. The model allows: computing the contribution of each structural shock to the oil price forecast error variance; analyzing the transmission mechanism through which structural shocks affect the oil price, as well as the effects of an oil price shock on the global economy; reconstructing the historical evolution of the "fundamental" oil price, as well as its decomposition in the various fundamental components; evaluating the effects of speculative shocks on the actual oil price.

Overall, the results obtained suggest that speculation is not relevant in explaining commodities' returns. Moreover, macroeconomic factors, such as equity returns and exchange rates, are statistically significant in determining futures price changes. Spillovers are present "within" and "between" the groups of energy and agricultural commodities. Finally, in the financial crisis period (after 2008) market depth in the market of oil futures has dropped, i.e. this market is more vulnerable to speculation.

The results obtained so far have been disseminated through the following channels: scientific articles, FEEM international conference (held in Milan, 12-13 January 2012), The Energy Journal special issue (to be published by the end of 2012).

## IMPLEMENTING LOW CARBON POLICIES

Climate change strategies continue to be a headline making problem for the international community. As a consequence, it is essential for research to be both policy focused, and as broad and flexible as possible.

This is precisely the main objective of LIMITS, an EU funded project based at FEEM, and aiming at advancing the understanding of the implementation of climate policies in the major economies.

The "Low climate impact scenarios and the implications of required tight emission control strategies" project (LIMITS) seeks to focus on quantification and upon practical solutions for the issues surrounding climate change. In particular, the research project is set to explore the implications and the uncertainties of reaching the 2°C target set by the United Nations Framework Convention on Climate Change (UNFCCC).

The LIMITS novel approach implements 10 integrated assessment models developed across various institutions – from Italy to Japan. These models examine an extremely broad range of associated factors in climate science and are run in an integrated fashion in order to produce the most robust results possible.

This unprecedented level of simultaneous modelling means that, once the results are generated, the LIMITS consortium should be in a strong position to make effective recommendations on climate approaches regarding stringent climate policies such as those consistent with the 2°C target, and provide predictions of the appropriate breadth required to address such complex challenges.

The range of models also means that different assumptions can be accounted for regarding, for example, the remaining margin for greenhouse gas emissions, the technology available, the relative participation of different regions in international climate policy and implementation obstacles. Moreover, the high level of model integration means that the heterogeneity of regional and national responses to climate change can be assessed simultaneously.

Finally, the interrelated environmental and social challenges, such as energy security, air pollution, economic development and ecosystem preservation will also be taken into account by LIMITS. The links between climate policy and these topics can then be explored, hopefully demonstrating both synergies and trade-offs in the issues surrounding climate change itself. This is a truly original contribution of the project, since it will allow linking the trans-boundary problem of climate change to key national priorities, which differ substantially across regions and are instrumental in providing support to climate change action.

The three-year project began in October of 2011, with the first results predicted for summer of 2012. By bringing together a formidable group of scientists, the project aims to provide coherent and authoritative research. Results will be constantly updated and open source on the project website\*. The working group will contribute publications in scientific journals, and the main findings will be condensed and made easily available also to the general public through brochures and newsletters.

\* More information on the LIMITS project is available at: http://www.feem-project.net/limits/



## ECONOMICS OF NATURAL DISASTERS



In a highly emotional speech delivered last year after a series of strikes, Julia Gilbert, the Australian PM, noted that Australia has watched in horror as day after day a new chapter in natural disaster history has been written. And so did the whole world. 2011 went on to become the costliest year in terms of natural hazard losses in the recent history, with the total costs topping 380 billion US dollars.

The estimates of losses inflicted by natural hazards are, to put it mildly, incomplete and hardly representative of the ripple effects on regional and global economy, and the wider effects on social fabric, wellbeing and ecosystems that are notoriously difficult to monetise. The knowledge of the full magnitude of losses is not an end in itself. The economics of disasters is an emerging academic field, struggling to uncover the patterns of vulnerability to natural hazards, and provide insights useful for designing effective disaster risk reduction measures and policies. Yet the costly lessons learned are often neglected.

The international workshop on "Economics of Natural Disaster: Bridging Disaster Risk Reduction and Climate Adaptation Efforts and Strategies", co-organized by FEEM and hosted by the International Center for Climate Governance (ICCG) on the Island of San Giorgio Maggiore (Venice) on February 10 and 11, 2011 brought together social scientists from two so-far disconnected domains: analytical and probabilistic risk assessment of today's natural hazards, and adaptation to future climate extremes amplified by anthropogenic climate change. The workshop - promoted by European Commission's Directorate General Research, United Nations International Strategy for Disaster Risk Reduction (UNISDR), the Academy of Sciences for the Developing World and UNESCO - was structured in three sessions, dedicated to the following themes: Natural disaster risk: trends, economic costs and key challenges, chaired by Dr. Reinhard Mechler of the Institute for Applied System Analysis; Adaptation to climate extremes: economic costs and key challenges, chaired by Jaroslav Mysiak of FEEM; and Disaster Economics for Disaster Risk Reduction and Climate Adaptation, chaired by Salvano Briceno of the Inter-Agency secretariat for the International Strategy for Disaster Reduction.

FEEM conducts research meant to fill several of the knowledge gaps identified during the workshop. In collaboration with the European Environmental Agency, FEEM researchers are exploring the prospect of an European Flood Impact Database, extendable later to other natural hazards, notably droughts. By analysing selected significant hazard events, the researchers are trying to test different assessment tools and methods, able to inform disaster risk reduction policies such as the EU Floods Directive (2007/60/EC) and EU policies in the field of water scarcity, droughts and desertification. The relevant projects coordinated by FEEM include EPI-WATER (www.epi-water.eu), PREEMPT (http://www.feem-project.net/preempt) and Water2Adapt (http://www.feem-project.net/water2adapt).

## **FOCUS ON**

## FEEM LECTURES 2011

The world is changing fast and open-minded inquiry is needed to face the challenges ahead. The FEEM Lectures are catalysts for discovery in areas engaging the biggest questions in the social, economic, and political sphere. Some of the greatest thinkers and scholars of our time guide the audience in unchartered territories, providing new ideas, and challenging conventional wisdom.

In 2011 FEEM hosted two lectures delivered by the awardees of the FEEM 20<sup>th</sup> Anniversary Prize in Environmental Economics, assigned in June 2010 to Resources for the Future (RFF) and to Prof. Martin L. Weitzman, Harvard University.



Former U.S. Congressman Phil Sharp (President of Resources for the Future) in his lecture delivered in Milan on May 24, 2011 and entitled "Is the United States Taking Effective Action on Climate Change?" provided a perspective on American state and federal climate policies and on developments in U.S. energy markets which impact greenhouse gas emissions. In particular, the lecture presented the US position on climate change and pointed out the outcomes of recent policy disputes, arguing that the failure of the last Congress to adopt a comprehensive policy was a major setback in the drive for significant cuts in emissions. However, various policies in place will lead to emissions reductions.

On June 1, 2011, in Venice, <u>Prof. Martin</u> L. Weitzman (Harvard University) discussed the economics of catastrophic climate change from a theoretical perspective in a lecture entitled "An Economist Grapples with Catastrophic Climate Change". Catastrophic climate-change damages are characterized by deep structural uncertainties in the science combined with severe constraints on the ability to evaluate meaningfully the welfare losses. The critical question is: How fast does the probability of a catastrophe decline relative to the welfare impact of the catastrophe? In his presentation Prof. Weitzman attempted to distil the problem down to an extraordinarily simplistic exercise in expected utility theory.

## THIRD EDITION OF THE **FEEM AVARD** A PRIZE FOR ECONOMIC IDEAS

Fostering the investment in human capital in order to advance the frontiers of knowledge is our ultimate objective. The FEEM Award, a prize for the most innovative ideas by young economists, yields a double dividend: rewarding scientific discovery and promising young scholars.

The FEEM Award is organized jointly with the European Economic Association (EEA) and aims to reward new ideas addressing key economic issues at the European and global scale. Both theoretical and empirical papers are considered without any restriction of topics.

The award is given to the authors of the three best papers presented by young economists at the Annual Congress of the EEA. Eligible candidates should be less than 30 years of age and no more than 3 years past a PhD defense. The selection committee consists of the Program Chairman of the Annual Congress of the EEA, one member nominated by the Executive Committee of the EEA, and one by FEEM.







The 2011 FEEM Award ceremony took place on August 27, 2011 before the Presidential Address by Nobel Laureate Christopher Pissarides at the 26<sup>th</sup> European Economic Association Congress at the University of Oslo in Norway.

The prizes were bestowed by FEEM executive director Giuseppe Sammarco at the presence of EEA president and Nobel Laureate Christopher Pissarides.

The FEEM Award winners have been selected among over 600 papers by the FEEM Award Commission, composed of Alessandro Lanza (Eni Corporate University and FEEM Representative), Espen Moen (Norwegian Business School and EEA Program Chair), and Hélène Rey (London Business School).

The three winners of the third edition of the FEEM Award are:

- Jan Grobovsek with a paper entitled "Development Accounting with Intermediate Goods"
- Ronald Wolthoff with a paper entitled "Applications and Interviews: A Structural Analysis of Two-Sided Simultaneous Search"\*
- Gabriel Zucman with a paper entitled "The Missing Wealth of Nations: Evidence from Switzerland 1914 – 2010"

\*The paper by Ronald Wolthoff has been published in the Note di Lavoro, FEEM working paper series.

## REACHING OUT: THE FEEM E-JOURNAL "REVIEW OF ENVIRONMENT, ENERGY AND ECONOMICS" RE3

Editorial board Francesco Bosello *(Editor-in-Chief)* Valentina Bosetti Carlo Carraro Manfred Hafner Matteo Manera Emanuele Massetti Jaroslav Mysiak Giuseppe Sammarco Giulio Sapelli Massimo Tavoni Sergio Vergalli Editorial staff Pasquale Alferj Jacopo Crimi Valentina Milella Barbara Racah Chiara Raffaelli

As of June 2012

In order to maximize the value of our research outputs by increasing visibility and impact, FEEM recently launched its new e-journal, the "Review of Environment, Energy and Economics" – Re3.

The "Review of Environment, Energy and Economics"\* is a new tool for the dissemination of the work and research-based policy analysis of FEEM researchers and leading international scholars, covering the areas of the environment, energy and economics, and offering new insights into the challenges ahead.

Re3 publishes non-technical scientific articles and policy-oriented contributions, selected presentations, literature surveys, interviews to leading scholars and experts, short briefs on FEEM research areas and book reviews. It collects both invited contributions and unsolicited submissions from researchers and scholars in these areas and readers have the opportunity to comment the articles.

Re3 aims at a steady flow of contributions, and it publishes new contributions as they become available, rather than collecting articles for release as an issue. Open access is provided to all readers, and the processes of submission, evaluation, and publication are electronic. The target readership spans from researchers and academics to policy makers, journalists, professionals, firms, and a general audience of readers wishing to understand the intricacies of the environment-energy-economics challenge.

An editorial board composed of FEEM senior researchers and an in house editorial staff cooperate in managing the flow and publication of contributions.

\*Re3 at: http://re3.feem.it



FOCUS ON-

## **REPORT ON ACTIVITIES**

# RESEARCH

### **Overview**

FEEM conducts research on a wide range of climate change and sustainability, energy and economic issues. The starting point of FEEM research is the realization of the high level of complexity of the problems emerging in the global economy, and more particularly the need to foster awareness on the interaction between the firm and the environment, the economy and energy scenarios, and corporate cultural responsibility.

In 2011 FEEM has consolidated its research activities around two main research programmes: one on "Climate Change and Sustainable Development" and the other one on "Energy: Resources and Markets". These two research programmes aim at promoting innovative research across the various dimensions of the global environmental and energy challenges, improving the analysis of the economics and policies of mitigation and adaptation to climate change and developing a strategic socio-economic analysis of the energy policies needed to support the transition to a low-carbon and more sustainable world. A third area of important research is devoted to "Economy and Society", promoting a multidisciplinary approach to scientific research on sustainability and to the study of the human and social dimension of economic progress and civilization.



Research programmes and related activities follow the strategic guidelines stated in FEEM's mission. Ongoing research is thus rigorous, factbased, interdisciplinary, and international in terms of the composition of research teams and topics addressed.

FEEM's research staff includes experienced international research leaders with key responsibility in the design and implementation of projects, senior and junior residential researchers working in the offices of Milan, Venice, and Viggiano, and research associates, typically affiliated to a university or to other research institutions and involved in specific projects. In 2011, FEEM carried out 47 research projects, 37 of which financed by the European Commission or third parties. Related activities included the organization of 35 scientific conferences and workshops, 52 scientific seminars and 3 summer schools. Overall, these events attracted over 5,000 attendees. In 2011, FEEM published 100 working papers in the "Note di Lavoro" series, three thematic issues of the journal on sustainable development "Equilibri" and launched a new e-journal covering the areas of environmental and energy economics and policy, the "Review of Environment, Energy and Economics", Re3 (See section FOCUS ON). The FEEM website recorded over 510,000 single visitors and over 1.4 million document downloads.



### "Climate Change and Sustainable Development" Programme

The research programme on "Climate Change and Sustainable Development" addresses the two intertwined issues of climate change and sustainable development and a corollary of key topics in the field of environmental economics.

The programme builds upon twenty years of successful FEEM research. In the specific area of climate change, FEEM has achieved a leading position in the international research community, as a result of the in-house development and application of several modelling tools for the economic analysis of policies aimed at climate change control.

FEEM models address world-wide vulnerability to changes in climatic conditions, and investigate the economics of mitigation and adaptation to these changes. In the specific area of sustainable development, FEEM research covers a variety of issues: sustainable management of natural resources, the economics of natural hazards and extreme events, and the use of indicators to measure sustainability and growth beyond GDP.

Research within this programme is currently aimed at improving and extending FEEM expertise in these fields by widening its scope to new themes, such as the interplay between mitigation and adaptation in climate policy, R&D and innovation in low-carbon technologies and technology transfer. The twofold goal is to contribute to science while guiding policies and informing the public debate. Programme Coordinator Carlo Carraro (*ad interim*)

### Programme Deputy Coordinator Massimo Tavoni

### People

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As of June 2012

### Areas

### Climate change integrated assessment modelling

Research on the economics of climate change at FEEM addresses both mitigation and adaptation issues, building upon consolidated modelling tools for climate policy analysis developed over more than twenty years of work. On the mitigation side, FEEM is positioned at the forefront of international research through the use of the energy-economy-climate WITCH model, specifically designed to assist in the study of the socioeconomic dimensions of climate change and to help policy makers understand the economic consequences of climate policies. On the impact side, FEEM investigates climate change impacts on the world economy through the use of ICES, a model designed to assess the final welfare implication of climate change impacts, capturing the production and consumption substitution processes at play in the socialeconomic system as a response to climate shocks. Through modelling and policy analysis, this research area investigates the economic dimension of existing and new mitigation instruments and technologies for climate stabilization and assesses the full costs of climate change impacts and adaptation, aiming to provide comprehensive integrated а assessment of climate impacts and policies. The integrated assessment will soon also account for land use, forestry cover, atmosphere, biosphere modules, and other one of FEEM's leading research

complex feedback dimensions. Specific attention is going to be paid to the role of uncertainty in the mutual responses of climate and socio-economic systems.

### Climate change policy and governance

The climate change policy research investigates alternative area options for future international climate agreements, with the goal of advancing knowledge in the area of coalition and network formation and of applying it to the analysis of the process of international climate negotiations.

In particular this research area intends to improve the economic policy analysis of climate and governance, assessing the effectiveness of current governments' pledges in reaching the accepted stabilization targets and providing an overall economic valuation of possible international climate strategies. Also, this area of research focuses on climate finance, investigating the nature and amount of financial efforts needed to support the technological transformation towards a low-carbon economy and to adapt to the impacts of climate change, already tangible in many vulnerable and poorer regions of the world.

### Climate-related innovation and technological change

energy Research on new technologies, innovation, and the drivers of technological change is

areas. Although crucial in the design of future scenarios, the dynamics of innovation, adoption diffusion of energy and technologies are yet to be fully understood. In particular, the lessons learned from the rich innovation literature, ranging from economics to engineering and history, need to be extended and confirmed with respect to technologies that can help ease the energy security issue, climate change and other environmental challenges.

FEEM research in this field aims to improve the dynamics of technological change in FEEM integrated assessment models, through the estimation of parameters that are crucial to the diffusion of different technologies and a better understanding of the role of institutional factors, such as IPR protection, in hindering or promoting different technologies. Modelling improvements in this field are supported by empirical work on patents and diffusion models, aiming to provide the data needed to address novel research questions on the peculiarities of innovation and diffusion dynamics in climate-related technologies. In addition, to predict the market penetration of new technologies, innovative instruments will be developed and used, such as electronic prediction markets, i.e. online markets where participants can trade virtual contracts whose payoffs are tied to a future event, and experts elicitation techniques. Through the latter, judgments and

information obtained from the experts allow the assessment of subjective probabilities of specific outcomes, such as the potential breakthrough on innovative technologies as a response to R&D programs.

### Natural hazards and extreme climate-related events

Natural hazards are recurrent and ordinary phenomena triggered by atmospheric, geologic and hydrologic processes. They become disasters when the imposed hardship exceeds the affected community's ability to cope while relying on its own resources, strengths and upturn capability. Hence disasters are results of an inopportune combination of exposure to hazard, high vulnerability and limited coping capacity. Over the past decades, the world witnessed a striking increase of the economic losses caused by natural hazards. Although the observed increase in magnitude of the impacts of the disasters is primarily associated with increased wealth and population in risk-prone areas, indirect evidence suggests that greenhouse gas emissions play a role to some extent. In the coming decades, anthropogenic climate change will very likely lead to more frequent and intense meteorological and climate extreme events and thus further amplify the disaster losses, if no preventive actions are taken.

analyzing the economics of natural recurring issue is land scarcity.

hazards and extreme climate events, assessing the costs of inaction and of preventive actions.

### Management of natural resources

Over the years FEEM research in the field of natural resources management has contributed to the development of an integrated - transdisciplinary - approach of science in support to policy and decision-making, a principle now deemed necessary to drive the integration of sectoral and national policies for a sustainable use of natural resources. FEEM research produced a decision support systems (DSS) tool made freely available through the internet and used by several researchers at FEEM and elsewhere. In particular, in the area of water management, FEEM researchers have developed a modular framework for managing participatory processes (PP) named NetSyMoD, "Network Analysis - Creative System Modelling - Decision Support", which has found a number of interesting applications in supporting decision/policy making projects in various fields: integrated water resources management, climate change adaptation in coastal areas (sea level rise, Alpine regions (winter tourism), rural areas (irrigation management), etc. A main focus of FEEM research in this field is on forestry land use and land use cover, agriculture and food. From food to timber, from FEEM research in this field aims at biofuels to afforestation, the

Sustainable management of land becomes a factor of key relevance for its main implications and feedbacks on several sectors and environmental problems. FEEM aims to analyze these trade-offs, which are of critical importance in natural resources management, with specific attention to the problem of water scarcity.

### Sustainability and growth beyond GDP

This research stream at FEEM pursues an integrated approach to the analysis of sustainable development issues, exploiting multidisciplinary research skills and analytical instruments developed over more than twenty years of work. Much of FEEM research in this area investigates sustainability indicators at the regional and local levels, addressing sustainability issues not only from the socioeconomic and environmental perspectives, but also from a sociological cultural and perspective.

The FEEM sustainability index, a measure of current and projected sustainability of world's countries, is going to be improved through an extensive expert elicitation process in order to reflect the current consensus on future regional trends.



### "Energy: Resources and Markets" Programme

The Research Programme on "Energy: Resources and Markets" carries out socio-economic analysis in a vital area which will become even more strategic in the coming decades.

Energy supply is adjusting to the globally rising population and standards of living. It must ensure development where it is most needed, while pursuing the transition to a low-carbon inclusive growth. Current resources suffice to meet demand but research must look ahead. Where and how will the transition to a lowcarbon economy occur? How can it be made safe, affordable, and sustainable? The deployment of efficient and clean technologies to produce sustainable energy for all must be supported by adequate institutional and market structures. Key issues to be considered for balanced energy policies are access to sustainable energy, energy security and the implementation of a global green growth policy.

FEEM aims at generating high-quality research on the economics of energy, taking the longterm perspective which characterizes public policy making and environmental management. It must also provide insight into the short-term perspective typical of markets and investors. The core activities of the "Energy: Resources and Markets" research programme focus on issues that are peculiar to the energy sector alone. Specific topics include the drivers of changes in demand and supply, the role of globally integrated markets in ensuring efficiency and stability, the interrelationship between energy and economic development, the energy poverty problem, and the role of governance and institutions of energy policy. At the same time, there is strong interaction between the research activities in this programme and in the "Climate Change and Sustainable Development" field.

Research in this programme has been organized into three areas that investigate energy resources, demand and supply from an economic, environmental, and policy and governance perspective. **Programme Coordinator** Giuseppe Sammarco

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Programme Officer Laura Pellizzola

As of June 2012

### Areas

### Energy and the economy

Energy is crucial to feed the rapid economic growth of emerging and developing economies and to maintain the high consumption standards in the developed world, while undergoing the technological 'revolution' needed to meet the climate challenge. In particular, reducing energy poverty and promoting energy access in the developing world is a necessary condition to promote its economic and social development.

Moreover, since different patterns of consumption and growth in emerging economies are likely to have important repercussions on the international energy markets and technology development, a better understanding of the drivers of energy demand at the global and regional levels is needed, and is one key focus of FEEM research in this area.

Through policy analysis and quantitative instruments, FEEM research analyses the most important socio-economic determinants of energy consumption, such as demographic and urbanization dynamics, patterns of income growth and distribution, as well as changes in lifestyles and market prices. On the supply side, FEEM research investigates the main effects of the increasing integration of global energy markets, in terms of market efficiency, security of supply, decision-making processes and so forth, accounting for the supply of strand of research will continue in

conventional and both unconventional fossil resources, as well as for uncertainty in technological innovation in the energy sector. In this regard, FEEM research also aims at developing an assessment economic of technological change and of the portfolio of investments in energy technologies needed under a set of plausible future scenarios.

Another key issue of this area is energy price, in particular the oil price. Whatever future energy scenario, the oil price plays a central role because it heavily affects environmental and energy policies and consumption patterns. This is why FEEM addresses the issue of financial speculation in the oil market and the determinants of the oil price, defining the concept of financial speculation, describing its role in the oil derivatives market (volatility and price) and elaborating statistical models to explain what determines the price of oil. Additional information on this project ("Financial speculation in the oil market and the determinants of the oil price") is available on FEEM's website.

In the light of FEEM's growing interest in energy markets a new project in cooperation with eni was started in 2011. The main aim of the "EU Energy Model" project is to update and review eni's model for forecasting the final energy consumption of European countries. The activities within this

2012 and 2013 with a new project aimed at designing a new European model for electricity generation.

Finally, in 2011 FEEM defined a new project on energy poverty and energy access. The first output was the organization of an international workshop on these issues in March 2012, which marked the starting point for the creation of a specific research network and strand of research

### Energy policy and governance

The globalization of energy markets, the urgency of global environmental problems such as climate and land use change, and the need to ensure the affordability and security of energy supply require an increased level of cooperation between strategic players on the global scene. A successful and effective governance of energy policies is crucial to address these global challenges. FEEM research in this field is developed both at the international and at the European and country level. At the international level, research focuses on the scope for building institutions to manage more effectively the global energy challenges, helping to make

progress also in international climate policy. The design of institutions for energy governance at the international level is obviously influenced by geopolitics - strongly driven by world countries' endowments in energy sources, that may vary with the development

of more widely distributed sources such as non-conventional fossil fuels - and by the country level of economic development and associated democratization. The inclusion of the issue of security of energy supply is central to research in this field given the high interdependence between energy policies and energy markets. With regard to energy policies, the project "A New EU Gas Security of Supply Architecture" was carried out in 2011 in partnership with the Clingendael International Energy Programme (CIEP), the Loyola de Palacio Programme of the European University Institute and the Wilton Park Conferences (WPC). The cooperation was based on the organisation of four round tables promoted by each of the four partners with the objective of fostering debate among international experts on the security of natural gas supply. The final output of the project is a forthcoming volume covering some of the ideas on European policy that emerged during the project. FEEM is also continuing research in the MEDPRO project, exploring the key challenges that countries in the Southern Mediterranean region (from Morocco to Turkey) will have to cope with in the next decades, and aiming at delivering the best scientific underpinning for future policy decisions to be taken at both domestic and EU level within the European Neighbourhood Policy (ENP) and the Union for the

Mediterranean (UfM) frameworks. In this project FEEM leads the activities related to: the elaboration of oil and gas market scenarios; the analysis of renewables and energy efficiency potential in the Southern Mediterranean; the sustainable development and management of resources.

In 2011 research on the European project POLINARES (Policy for Natural Resources) has also continued. This project deals with the analysis and development of the future strategies aimed at fostering cooperation among countries for the access to mineral resources and energy markets.

### Energy and the environment

Climate change is certainly one of the most studied environmental impacts of energy production and consumption, due to the fundamental role played by energy in generating greenhouse gas emissions. However, besides contributing to global warming, production and energy consumption impact on many other environmental factors such as local air pollution, land use and water utilization, enhancing environmental and socio-economic vulnerability particularly in the developing and fast-growing world. FEEM research in this area thus aims at providing an integrated assessment of the interaction between the energy system, the environment and the economy. It focuses on the environmental

impacts of energy consumption on CO2 emissions, soot, food and water quality, and the opportunities for effective mitigation strategies.

Overall, this research stream at FEEM helps to inform decision makers on the full costs and potential trade-offs of different technology options and aims at improving the energy-environmenteconomy modelling by better representing the full costs of energy sources.

In 2011 research activities within the European project THINK were concluded with the preparation of the report "Transition Towards a Low Carbon Energy System by 2050: What Role for the EU", published also by the European Commission in the Roadmap 2050 section. The project will continue in 2012 with the drafting of the future reports elaborated by the other partners of the interdisciplinary think tank that act as consultants to the European Commission. The theme of renewable energy and environmental sustainability has led to the start-up of a new joint eni-FEEM project called RESA (Renewables and Energy State Aid) that analyses how State aids have affected and will affect new energy policies. To date the analysis has focused on the main European countries but it is now being extended to the remaining countries of the EU27 area.



## "Economy and Society" **Research** Area

The "Economy and Society" area promotes a multidisciplinary approach to scientific research on sustainability and on the human and social dimension of economic progress and civilization. It collects projects focused on the new challenges that the global economy poses to the traditional paradigms of economic analysis and on the social nature of economic activities.

In 2011 this research area has been extended to include new projects, while research efforts are continuing on topics that had been previously covered by the research strand on "Global Challenges", but not incorporated into the two programmes "Climate Change and Sustainable Development" and "Energy: Resources and Markets".

### Area Coordinator Giuseppe Sammarco (*ad interim*)

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**Research Area Officer** Valeria Papponetti

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Research in this area therefore currently addresses a variety of topics rather than a specific, main research stream: new sources of competitiveness in the global economy; corporate social responsibility; the third sector's contribution to welfare progress and employment; Euro-Med cultural and political issues; privatization and institutions.

The first topic – new sources of competitiveness in the global economy – studies how competitiveness of regions, firms and industries in the global economy crucially depends on the ways economic activities are reorganizing worldwide. In particular, how are globalization and the rapid growth of emerging economies affecting the competitiveness and the strategies of European Union firms, industries and regions? In 2011 FEEM successfully concluded two projects financed by the European Union, addressing this question from two different angles.

The first EU-financed project on the impact of networks, globalization and their interaction with EU Strategies (INGINEUS project) focused on the evolution of global production networks into global innovation networks and their impact on knowledge-intensive activities in the European Union.

The project produced a series of policy briefs addressed to decision makers and available on the FP7 European Commission web site dedicated to research on Socio-Economic Sciences and the Humanities, and recently published an article on FEEM's e-journal Re3. The second EU-financed project concluded in 2011 was the project on micro-dynamics (MICRO-DYN project), which tackled the issues of growth, employment and competitiveness in the knowledge-based economy through a micro-founded firm-based approach. The analysis moved from the micro-entities of economic actions and strategies at the enterprise level to sectoral, regional, national and European levels. (For more information on the MICRO-DYN project see section HIGHLIGHTS, "The Competitiveness of Firms, Regions and Industries in the Knowledge-based Economy").

Finally, in July 2011 FEEM started working on a project on Europe's global linkages and the impact of the financial crisis: policies for sustainable trade, capital flows, and migration (GLOBAL LINKAGES project), funded by the Volkswagen Foundation. Since 2007 the financial crisis has damaged Europe's global linkages in international trade, direct investments, capital flows, and labour migration. Working closely with the other partners in the project, FEEM uses newly available global data on bilateral migrant stocks and other international transactions to draw a comprehensive picture of the interaction between international migration, trade, and foreign direct investments at the global level.

Under the second topic - corporate social responsibility - research efforts aim at monitoring the evolution of the "social responsibility" concept, together with the implementation of tools to integrate sustainability policies and measures within organizations and local contexts.

The focus is on gaining awareness of the complexity of social responsibility, which has moved from the original "corporate" context toward the public and "not for profit" world. In the fields of territorial sustainability and stakeholder engagement, FEEM provides research support to eni, contributing with reports, newsletters, benchmarking analyses and position papers to the activities of sustainability units.

FEEM has also extended its research efforts to the not for profit sector in its activities carried out in the Basilicata region. The project - aimed at backing the third sector (Support-Ter project) and based in FEEM's offices in Viggiano - is a laboratory of ideas and actions to promote collaboration between public institutions, the private sector and communities in order to support the development of the not-for-profit sector in this Italian region.

Moreover, the Economy and Society research area has started exploring the changes in the economic and political paradigms in the Euro-Mediterranean area, focusing in particular on two projects. The first investigates how Arab and Islamic attitudes shape the Arab discourse on oil prices, and to what extent oil prices have influenced contemporary Arab culture. The second addresses the rise of Turkey in the new Mediterranean geopolitical context and how this implies challenges and opportunities for energy cooperation in a region in transition. FEEM also continues to contribute to the leading European observatory on privatizations, the Privatization Barometer (PB), financed by KPMG since 2010. Since 2004 the PB has become the official provider of privatization data to OECD and the World Bank. The new annual report on the development of privatizations in 2011 is forthcoming.

To conclude, in 2011 FEEM has also laid the groundwork for extending the research focus of the "Economy and Society" area to themes such as the ongoing geopolitical and economic paradigm shifts, and the human and social dimension of sustainability.

## Special Projects Coordinator, Cristiano Re

### FEEM in Basilicata

FEEM's office in the Basilicata region opened in early 2008 in Viggiano, a town located in the heart of Val d'Agri, as part of an agreement signed by eni for the exploitation of the oil and gas fields in the area. FEEM's mission is to contribute to the economic and social development of the region, and to support eni in its plan to develop the local resources and skills through networking, research activities and advanced training. Human capital and innovation are key drivers of economic growth, and leveraging on the existing networks and skills is central to the process of local endogenous growth.

Activities in the Basilicata region are carried out by a staff of residential researchers and collaborators in coordination with FEEM headquarters and in close cooperation with private and public local institutions. Activities are focused on three main areas: (i) research, (ii) advanced training and education and (iii) support to local institutions.



# SPECIAL PROJECTS

FEEM's research efforts in the region are directed to the study of energy-related issues and to the analysis of sustainable tourism as an opportunity for local development.

In particular, research and consultancy projects are conducted to support the local institutions and companies involved in energy efficiency and renewable energy sources, through the development of integrated models of sustainable economic industrial growth and the exploitation and strengthening of existing production activities.

It is certainly noteworthy mentioning that within the research activities carried out in the region, in 2011 FEEM offered scientific support to the Basilicata Region Department of Environment for the organization of the first international conference on "Oil and Environment", COPAM 2011. During this important event, representatives of the Basilicata Region discussed with local stakeholders the state of health of the area and offered some policy proposals aimed at a local sustainable development model where oil activities coexist with communities welfare and respect the environment. The conference succeeded in raising public awareness of these topics, and for this purpose, in 2011 FEEM also organized several meetings and seminars aimed at informing the local communities on the effects of industrial activities carried out in the region.

In the field of sustainable tourism, FEEM supports regional and local entities in developing policies by providing research and data analyses. In 2011 FEEM signed a memorandum of understanding with the Appennino Lucano National Park for a long-term collaboration. With regard to this agreement FEEM - in partnership with CISET - is managing the certification process that will grant the Park the European Charter for Sustainable Tourism in Protected Areas. Together with the Basilicata Region and the University of Basilicata, FEEM also developed a project for the design of an energy park in Val d'Agri ("enerAGRIa" project). The concept was developed around the idea that the local energy sources could represent a development driver that needs to be promoted through innovation and competitiveness, encouraging different types of tourism in the area.

Finally, in 2011 FEEM further developed the strand of research in the field of film-induced tourism, an emerging topic in the international academic debate, and an important marketing opportunity in order to promote the territory (See section FOCUS ON: "The new frontiers of tourism in the Basilicata region").

Other activities aimed at creating opportunities for local autonomous sustainable development are developed in cooperation with the AASTER Consortium and are carried out within eni "Community Mission" project.

Finally, also in 2011 FEEM organized summer schools focusing on energy and sustainability issues, and training activities on energy and environment through seminars, labs, scientific theatre shows and e-learning activities.

### People

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## FEEM in Basilicata - Focus on: The New Frontiers of Tourism

In recent years, film-induced tourism - meaning tourist visits to the destination featured on television or cinema screen - has become a growing phenomenon worldwide, and represents today an excellent marketing opportunity, fueled by the growth of the entertainment industry and international travel.

The economic contribution of this emerging trend has only recently been studied in Italy, and in 2011 FEEM conducted a case study research based on the film "Basilicata Coast to Coast", by the Italian actor and film director Rocco Papaleo.

The Basilicata region, indeed, is still largely unknown to national and international tourists, and the movie "Basilicata Coast to Coast" (2010) represents the first experiment in "targeted" marketing activities intended to promote the region through the movie industry, by exploiting the potential of film-induced tourism and the strong influence that films can have on tourist decision-making. In this manner, regional authorities and local communities (in particular the Basilicata Region and the Local Action Groups) contributed to the movie realization by providing financial support and by identifying the local sites, traditions and products to be featured and highlighted in the film.

FEEM research "The new frontiers of tourism in Basilicata, film-tourism and the case of Basilicata Coast to Coast", investigates the film-induced tourism potential of the movie and the way in which the narrative structure is combined with the promotion of the territory. Finally, the study tries to analyze the benefits in terms of short-term revenues and long-term prosperity which could be directly attributed to the movie.

Beyond the immediate economic impact, the research showed that the film "Basilicata Coast to Coast" succeeded in creating tourism demand in a region that had not been previously considered a tourism destination. In fact, in the wake of the movie, a number of national tour operators specialized in trekking holidays conceived and marketed new proposals for travel to the film's locations. The romantic and naturalistic dimension expressed by Papaleo's film stimulated the curiosity of tourists and promoted a "dreamy" but truthful image of the region. Finally, FEEM investigation also provided evidence for the need of establishing a regional Film Commission to liaise between production and territory in order to take advantage of the opportunities that film productions can offer to territories such as the Basilicata region.

FEEM research has been used by the University of Basilicata in its course on the tourism industry and the study has been presented in 2011 as a theoretical contribution to multidisciplinary studies and as a report on tourism best practice at several important conferences such as the 32<sup>nd</sup> Scientific Conference of the Regional Science Association International at the University of Catania; the 31<sup>st</sup> Geographical Conference at the University of Milan; the 9<sup>th</sup> International Conference on International Tourism at the Lillebael Academy of Professional Higher Education of Odense, in Denmark (EAL); and at the "Film Commission Symposium" at the Italian Cultural Institute of New York.

### Eni Award Scientific Secretariat

Since 2003 FEEM supports eni in organizing the Scientific Secretariat of the prestigious eni Award. The prize was officially launched in July 2007 to replace and extend the former Eni-Italgas Prize, which in 2006 had reached its XIX edition.

The award is promoted by eni in order to encourage basic and applied scientific research within the national and international scientific community, to provide incentives for technological development and innovation, to promote a better use of energy sources and help new generations of researchers to emerge.

Over the years the award has gained a solid reputation as one of the most important scientific prizes in the fields of energy and environment and today it is considered the "Nobel Prize for Energy" by the international scientific community for several reasons: the increasing number of projects submitted by researchers all over the world, the worldwide network of universities and research centers and the prestige of the Scientific Commission that includes renowned international scientists and two Nobel Prize Laureates.

The number of applications submitted in 2011 for the eni Award 2012 increased five-fold compared to the first editions. A total of 1,105 proposals were received, consolidating a network of high-profile researchers belonging to the international energy and environmental research élite. More information on the eni Award is available at www.eniaward.net

Project Manager, Filippo Tessari

### People

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As of June 2012

### **Eniscuola and Schoolnet**

Since 2000 FEEM supports eni in carrying out educational projects such as Eniscuola and Schoolnet. The projects aim at providing pupils and teachers of lower-middle schools with advanced teaching support on the subject of energy, sustainability and environment and at increasing the use of the Internet as a fundamental tool for learning and acquiring information.

Both projects are web-based and use multimedia technology for dissemination. A broad range of learning support systems are provided and they can all be downloaded by the pupils.

Eniscuola's main tool is the www.eniscuola.net website. The website has over 3,000 pages with documents, pictures, graphs, charts, experiments, games and interviews with national and international scientists including Nobel Prize Laureates.

The Eniscuola project has been acknowledged by UNESCO's Italian National Commission and is part of the United Nation's Decade of Education for Sustainable Development, by contributing to spread its goals and ideals.

### People

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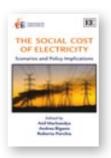
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## PUBLICATIONS

FEEM has a broad range of publications addressed to both the academic and non academic readerships.

### At present FEEM has two Editorial Series:

Edward Elgar Publishing, FEEM Series on "Economics, the Environment and Sustainable Development" Editorial Board: Carlo Carraro (Series Editor) Kenneth Arrow William Baumol Partha Dasgupta Karl-Göran Mäler Ignazio Musu Henry Tulkens



Il Mulino, FEEM Series Editorial Board: Giuseppe Sammarco (Series Editor) Geminello Alvi Carlo Carraro Gianmarco I.P. Ottaviano Alberto Quadrio Curzio Domenico Siniscalco Guido Tabellini



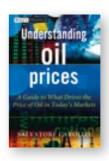
of Working Papers in English (FEEM "Note di Lavoro") collecting the output of research in the field of economics, energy and the environment. FEEM Note di Lavoro are included in the Social Science Research Network (SSRN), the electronic bibliography by the American Economic Association (EconLit), the Research Series in Agricultural and Applied Economics (AgEcon), the Research Papers Series in Economics (RePEc), the Berkeley University Press (BePress) and the German National Library of

Economics (ZBW).

FEEM circulates a series



In 2011 FEEM has published a volume with Wiley Finance, Understanding Oil Prices. A Guide to What Drives the Price of Oil in Today's Markets, by Salvatore Carollo



In 2011 FEEM launched an open-access, online e-journal, the **Review of Environment**, **Energy and Economics - Re3**, a new tool for the dissemination of the work and research-based policy analysis of FEEM researchers and leading international scholars, covering the areas of the environment, energy and economics.



Since 1997, in

cooperation with the publisher "il Mulino" FEEM publishes the journal for sustainable development **EQUILIBRI**, targeted to a broad audience of readers.

Editorial Board: Giuseppe Sammarco (Editor) Geminello Alvi Carlo Carraro Massimo Livi Bacci Danilo Mainardi Domenico Siniscalco



Since 2009, FEEM also publishes an electronic bi-monthly newsletter FEEM News, providing updates and highlights on research, events and publications.



## SOCIAL REPORT

## INTRODUCTION



Accounting for the contribution to the cultural, scientific and economic progress of the society in which one operates is an interesting exercise for companies of all stripes. For non profit organizations utilizing private and public resources in the pursuit of their mission, "social" reporting and accounting is an imperative.

Indeed, conventional balance sheets and financial statements are fundamental reporting tools, but they fail to disclose the actual performance of non profit institutions in terms of impact and relevance for their respective stakeholders.

FEEM has been a frontrunner in company social reporting, and has applied best practices and principles in communication to stakeholders throughout its long-standing activity. For this reason, since 2008 FEEM decided to resume the publication of a fully-fledged social report.

Given the increase in the scope and quantity of activities, a social report is fundamental to provide not only qualitative and descriptive information, but also to provide objective indicators and statistics about the overall results from the operations. We claim that the numbers provided represent clearly not only the impact of activities, but also an overall evaluation of all the inputs that contribute to our productivity. Among them, human capital is obviously fundamentally important.

This social report aims at showing that during the 2009-2011 period FEEM has operated as a responsible organization towards all its major stakeholders: (i) our people; (ii) the research community; (iii) the policy sphere; (iv) young generations; and (v) the general public.

## Our people

Human capital is without doubt the most important input for FEEM's activities. It is mainly composed of researchers, often with a post-graduate diploma, and classified in different categories according to career advancement and profile: senior researchers are defined as such when they have a Ph.D. and have performed research for at least 2 years under FEEM contracts or they have no Ph.D. but have performed research for 5 years under FEEM contracts. They are typically experienced research leaders with key responsibility in the design and implementation of projects. Research associates are typically affiliated to a university or to other research institutions and are involved in contingent projects. Staff includes full-time employees and non permanent staff involved in support activities for specific projects.

FEEM's operations include a much larger number of collaborators than full time employees. This organizational mode is typical in the non profit sector and in research institutions, as it allows flexibility and reflects the high turnover rate of young researchers, typically moving to other institutions after a successful training period in FEEM.

In the 2009-2011 period staff activities have been streamlined and reorganized with the creation of the FEEM staff register in 2008. In 2011, the 27 full-time employees provide efficient secretarial and administrative support, and communication services for the organization of events, media relations and publications.

The gender audit yields a balanced mix in the organization, with a prevalence of women. Interestingly, this pattern is observed across categories, confirming the same balance by gender among researchers, non permanent staff and employees. In 2011 we can observe a slight increase in the international dimension (+2 %), and the average age is 36 years.

FEEM People	2009	2010	2011
Total headcount	176	166	167
By categories:			
Researchers	110	103	105
Junior Researchers	56 (51%)	43 (42%)	46 (44%)
Senior Researchers	27 (25%)	24 (23%)	27 (26%)
Research Associates	27 (24%)	36 (35%)	32 (30%)
Collaborators	42	36	35
Support activities	23 (55%)	16 (44%)	16 (46%)
Special projects	19 (45%)	20 (56%)	19 (54%)
Full-time employees	24	27	27
By sex			
Male	73 (41%)	70 (42%)	73 (44%)
Female	103 (59%)	96 (58%)	94 (56%)
By nationality			
Italian	152 (86%)	139 (84%)	137 (82%)
Non-Italian	24 (14%)	27 (16%)	30 (18%)
Average age (years)	37	37	36

Overall the educational profile of FEEM's people is very high: in 2011, 90% have a graduate degree, and 59% also hold a post-graduate diploma. Among researchers, 81% hold a post-graduate degree. In particular, 62% of our researchers holds a Ph.D. which was obtained abroad in 51% of cases.

2009	2010	2011
110, of which	103, of which	105, of which
80 (73%)	79 (76%)	85 (81%)
40	42	73
23 (58%)	21 (50%)	49 (67%)
60	56	65
29 (48%)	29 (52%)	33 (51%)
	110, of which 80 (73%) 40 23 (58%) 60	110, of which 103, of which   80 (73%) 79 (76%)   40 42   23 (58%) 21 (50%)   60 56

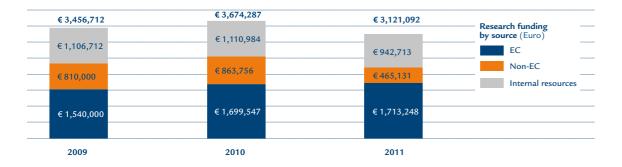
### **Research community**

The research community is a primary stakeholder, which FEEM targets by carrying out research projects, by publishing high quality research, by organizing scientific events and training initiatives, and by managing large international networks.

### **Research projects**

In 2011, FEEM has been actively working on 47 projects, 37 of which financed by third parties, and mainly by the European Commission.

Research projects	2009	2010	2011	2009-2011
Total research projects, of which	56	49	47	152
funded by the EC	31 (55%)	20 (41%)	30 (64%)	81 (53%)
funded by others	6 (11%)	10 (20%)	7 (15%)	23 (15%)
funded with own resources	19 (34%)	19 (39%)	10 (21%)	48 (32%)
Average project duration (in years)	3.3	3.0	3.2	3.1



Over the years FEEM has achieved a high success rate in research funding under the European Commission, and in particular under the EC 7<sup>th</sup> Framework Programme on Environment (EC FP7 - Environment, including climate change), ranking among the best Italian research institutions. In 2011 within this specific programme FEEM has been involved in 4 newly integrated and multidisciplinary research projects on sustainable development and climate change modeling.

### Scientific publications

Publications are one of the most important outlets for the dissemination and certification of the scientific quality of FEEM's research output.

FEEM has two editorial series with Edward Elgar and il Mulino for books published in English and in Italian, respectively, and it circulates a series of working papers in English (FEEM "Note di Lavoro") targeted to the international research community.

FEEM has published a total of 2,183 "Note di Lavoro" since the publication of its first working paper in 1993. FEEM "Note di Lavoro" are downloadable from FEEM's website since 1998, and have been gradually included in other platforms such as AgEcon, the Social Science Research Network (SSRN), RePEc, Berkeley University Press, ZBW and EconLit.

Since 2008 the "Note di Lavoro" are distributed only electronically, with substantial cost savings and unscathed impact and visibility. 2011 marks another successful year for the "Note di Lavoro" series. The downloads from the Social Sciences Research Network SSRN totaled 21,772, while those from Berkeley University Press soared to a record of 24,987. The downloads from RePEC were equal to 12,347 while those from AgEcon have climbed to 18,175, ensuring the widespread diffusion of our working paper series throughout the broadest realms of research.

Publications	2009	2010	2011	2009-2011
FEEM working paper series "Note di Lavoro"	126	160	100	386
of which				
with at least one FEEM author	31%	27%	31%	29,6%
N. of downloads from other websites (*)	76,634	89,751	79,367	245,752
of which				
Social Science Research Network SSRN	34,913	34,560	21,772	91,245
Berkeley University Press	14,199	20,848	24,987	60,034
RePEc	17,336	17,410	12,347	47,093
AgEcon	10,186	16,933	18,175	45,294
ZBW	-	-	2,086	2,086

(\*) FEEM Note di Lavoro are included in the Economics Research Institutes Paper Series of Social Science Research Network SSRN, AgEcon, RePEc, Berkeley University Press, ZBW and EconLit. This table reports statistics from SSRN, AgEcon, RePEc, BePress and ZBW.

The percentage of Note di Lavoro authored by FEEM researchers in 2009-2010-2011 republished in peer-reviewed journals is equal to 31%.

In 2011 FEEM launched the open-access e-journal "The Review of Environment, Energy and Economics", a new tool for the dissemination of the work and research-based policy analysis of FEEM researchers and leading international scholars, covering the areas of the environment, energy and economics (for more details see section FOCUS ON "Reaching out: the FEEM e-journal "Review of Environment, Energy and Economics" - Re3").

### Conferences and seminars for scholars

The organization of events is a fundamental activity for FEEM, since it allows the creation and maintenance of relationships with the scientific community at the national and international level. It also generates important spillovers in terms of research opportunities that can subsequently yield outputs in the form of projects, publications and networks.

Conferences are usually large-scale events on the topics of FEEM's research agenda, while workshops are typically used for the discussion of "work in progress" and brainstorming sessions. Seminars are primarily given by residential researchers and aimed at cross-fertilization between the different research areas and programmes. Seminars are also open to visiting scholars and to the local research community, and widely publicized through the web.

Over the 2009-2011 period, FEEM has organized a total of 250 scientific events for the research community, attracting over 15,000 registered participants.

Conferences and seminars for scholars	2009	2010	2011	2009-2011
Events for the research community	84	79	87	250
of which:				
Conferences, workshops and lectures	37 (44%)	34 (41%)	35 (40%)	106
Seminars	47 (56%)	45 (59%)	52 (60%)	144
Total events attendance	4,709	5,230	5,366	15,305
of which:				
Conferences and workshops attendance	3,894 (82%)	4,490 (86%)	4,534 (84%)	12,918 (84%)
Seminars attendance	815 (17%)	740 (14%)	832 (16%)	2,387 (16%)

### Post-graduate training

Young researchers are very important stakeholders for FEEM and providing advanced training is thus one of the principal institutional activities. In this direction, FEEM organizes Marie Curie individual fellowships (sponsored by the EC), summer schools, and internships. Since 2000, FEEM organizes in co-operation with the European Association of Environmental and Resource Economists (EAERE) and the Venice International University the "European Summer School in Environmental Economics" (EAERE-FEEM-VIU), attracting every year young researchers from a large number of international universities. Since September 2010, FEEM jointly organizes with the EAERE and the Faculty of Agriculture of the University of Catania, the Belpasso International Summer School on Environmental and Resource Economics (Sicily, Italy). From 2005 to 2010 FEEM also regularly contributed to the scientific organization of the "European Summer School and Conference in competition and regulation" CRESSE.

In 2011 FEEM co-organized overall 3 summer schools and 5 internships.

Post-graduate training	2009	2010	2011	2009-2011
Summer Schools				
Number of Summer Schools organized	6*	4	3	13
Students	178	124	60	362
Graduate researchers trained at the Fondazione				
Internships	1	2	5	8
Marie Curie Individual Fellowships	4	2	3	9

\* Including 2 Marie Curie Training Conferences.

Fostering the investment in human capital in order to advance the frontiers of knowledge is FEEM's ultimate objective. For this reason, starting from 2009 FEEM regularly bestows a prize for the most innovative ideas by young economists. The prize (FEEM Award) is organized jointly with the European Economic Association (EEA) and yields a double dividend: rewarding scientific discovery and promising young scholars.

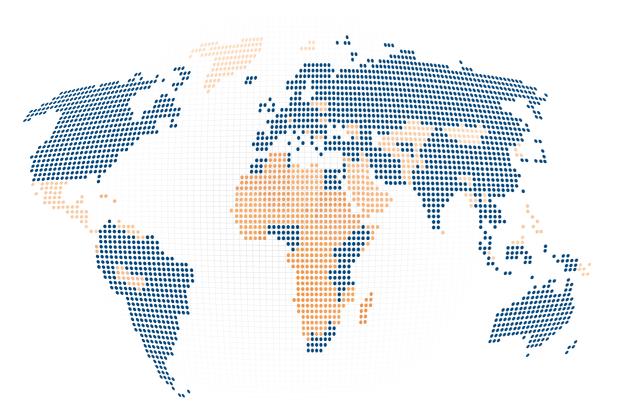
#### Networks

The international research network is certainly one of FEEM's most valuable intangible assets. Built up over the years by involving the best researchers and top research institutions on various projects, the network allows FEEM to remain acquainted with the state-of-the-art of scientific knowledge, to spread its results more widely and expose its human capital to international interaction. FEEM's global footprint is quite impressive: today, FEEM is linked via joint projects, partnerships or associations with over 600 research institutions operating in more than 80 countries around the world.

Over the years, FEEM has contributed to the creation of a number of thematic networks and associations, such as the Coalition Theory Network (CTN), the European Association of Environmental and Resource Economists (EAERE), the Italian Association of Environmental and Resource Economists (IAERE), Biodiversity and Economics for Conservation Economists (BIOECON), Climate Policy Network (CPN), European Climate Forum (ECF). In recent years FEEM has also become an institutional member of the European Economic Association (EEA), of the European Association of Environmental and Resource Economists (AERE), and has built new important partnerships with the Euro Mediterranean Centre for Climate Change (CMCC), with the Fondazione Giorgio Cini for the creation of the International Center for Climate Governance (ICCG) in Venice, and the Climate Policy Initiative (CPI). Finally, FEEM is also involved in the International Energy Workshop network (IEW), the Integrated Assessment Consortium (IAMC), the Energy Modelling Forum (EMF) and the Regional Modelling Exercise (RME) network.

### In 2011 FEEM co-organized overall 3 summer schools and supported 3 Individual Marie Curie Fellowships





Albania Argentina Australia Austria Azerbaijan Bangladesh Belgium Benin Brazil Bulgaria Cambodia Canada Chile China Colombia Costa Rica Croatia Cyprus Czech Republic Denmark Egypt

Estonia Ethiopia Finland France French Guiana Germany Ghana Greece Hong Kong Hungary Iceland India Indonesia Iran Ireland Israel Italy Japan Kenya Latvia Lebanon

Lithuania Malawi Malta Morocco Montenegro Nepal Netherlands New Zealand Nigeria Norway Palestine Peru Poland Portugal Principality of Monaco Romania Rwanda Russia Serbia Singapore Slovak Republic

Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Tanzania Thailand Trinidad & Tobago Tunisia Turkey Ukraine United Kingdom United States of America Uruguay Uzbekistan Vietnam

### **Policy sphere**

One of the characteristics of FEEM has always been the provision of technical assistance to national and international institutions.

The past twenty years have seen a strengthening of FEEM's role as a provider of technical assistance to national and international institutions and policy makers. Indeed, through the rigor of its research, FEEM aims at improving the credibility and quality of decision-making in public and private spheres. This goal is achieved by creating an international and multidisciplinary network of researchers working on several innovative projects, by promoting training in specialized areas of research, by disseminating research results through a wide range of outreach activities, and by delivering directly to policy makers via participation in various institutional fora.

In 2011 the most significant and systematic collaborations have been:

At the international level, with:

- · United Nations:
  - · UN Framework Convention on Climate Change
  - · UN International Panel on Climate Change (IPCC)
  - · UN International Strategy for Disaster Reduction
    - · UN Educational, Scientific and Cultural Organization

### • European Union:

- · European Commission:

  - (European Research Council ERC)
  - DG Climate Action
- · European Environmental Agency (EEA)
- · European Investment Bank
- · European Parliament
- · Privatization Agencies and Ministries of the main CEEC Countries
- (Poland, Hungary, Czech Republic)
- · Deutsche Bundesbank
- · Volkswagen Foundation
- · Asian Development Bank
- · Organization for Economic Co-operation and Development (OECD)
- The World Bank
- · TWAS Academy of Sciences for the Developing World

At the national level, with:

- · Bank of Italy
- · Chamber of Commerce, Industry, Craft Trade and Agriculture of Milan
- City of Milan
- Confederation of Italian Industries (Confindustria)
- · Italian Ministry for the Environment, Land and Sea
- Italian Ministry of Economy and Finance
- · Italian Ministry of Education, University and Research · Italian Institute for Environmental Protection and Research (ISPRA) and local public authorities for
- FLA; Basilicata Region; Po River Basin Authority; City of Ferrara; City of Parma; Emilia Romagna Region; Emilia Romagna Agency for the Protection of the Environment) Local public authorities for matters concerning privatizations and liberalizations
- · Unioncamere Veneto

- DG Environment DG Humanitarian Aid and Civil Protection (ECHO) - DG Research, Cooperation Programme, People Programme, and Ideas Programme

sustainable development matters (Lombardy Region; Lombardy Foundation for the Environment,

### **General public**

FEEM aims at fostering and encouraging a broader awareness and understanding of economic, energy and environmental issues, also within the civil society. This objective is pursued by using a variety of communication tools and outlets, ranging from the web to non technical publications, the organization of public conferences and roundtables, and the free access to FEEM facilities such as the Library, with a view to reinforcing the commitment towards the economic and social development of the country.

FEEM's website, launched in 1994 and renovated in 2009, is today user-friendly, making information accessible and clear also for the general public, and ensuring efficiency through a high-speed internet connection and dedicated line on the network of the Ministry for Higher Education and Scientific Research. The statistics provided below report information recorded during 2011.

Website, www.feem.it	2011
Visitors	510,611
Average visitors per day	1,398
Average time spent	8,15 min.
Page views	1,806,724
Bookmarks	124,170
Downloads	1,402,944

In addition to the institutional website, FEEM manages video sharing and social networking sites (FEEM Channel on You Tube, pages on Facebook, Twitter and LinkedIn) and web applications for iPad, aiming at opening new windows on FEEM research and exploiting additional instruments to provide information to the general public and to the community of both institutional peers and individuals with shared interests.

In 2011 FEEM continued the publication of the digital bi-monthly newsletter, *FEEM News* (launched in 2009). A complete archive of past newsletters is available online and on average each *FEEM News* issue is mailed to over 7,000 stakeholders and subscribers. A dedicated section of the website allows visitors to subscribe to the newsletter or other specific contents of interest, and subscribers can regularly receive updates on FEEM activities, events and publications by email or through *RSS feeds*.

Since 1997, FEEM regularly publishes the journal *Equilibri* with il Mulino. The journal is targeted to a broad audience of readers, and over the years it has contributed to the understanding of sustainable development, emphasizing its complex economic, social and political implications. Today, new trends are reshaping the world's economic and political balances. In the quest for new paradigms, *Equilibri* aims at dealing with these issues, keeping a constant eye on energy, the environment and future global challenges. The three issues published in 2011 focused on three important themes: the debate on emission reductions by developed countries and on the approach of energy-intensive countries such as China and India discussed at the 2011 summit meeting in Durban; the goal, launched by the United Nations Assembly in 2000, of halving, by the year 2015, the proportion of the world's people who live in extreme poverty, compared to 1990 levels; and the outlook in the field of renewables, the problems that remain to be solved and the state-of-the-art of research in clean energy technologies.

Besides events targeted to the scientific community, FEEM also organizes roundtables, book presentations, conferences and lectures usually open to the general public on various issues broadly related to sustainable development.

Finally, FEEM also offers free access to its facilities and in particular to its Library in Milan. FEEM Library was opened to the public in 1997. Originally established for the needs of FEEM researchers, it has been enlarged over the years and now offers a collection of relevant interest for students and scholars. In the fields of natural resource economics, the holdings of the library are among the most updated in Italy, containing a great selection of books (5,334), scientific journals (754), electronic databases (11) and statistical yearbooks (14). In 2011 about 200 users had open access to the stacks. The reading rooms can seat 36 people.

The general public is usually reached by media operators, representing certainly an important stakeholder for FEEM. The interest of the press in FEEM's activities has been considerable and broadly increasing.

Press coverage	2009	2010	2011	2009-2011
N. of citations by typology				
Articles, citations, press releases and announcements	336	346	579	1,261
Op-eds	11	10	7	28
Interviews	9	25	6	40
Total number of citations in national and local magazines and newspapers	356	381	592	1,329

In the last 3 years, FEEM activities have had a significant coverage in the traditional media, totaling overall about 1,329 citations or articles covering FEEM studies, research projects, events and other activities. In particular in 2011 FEEM registered a strong boost in the number of articles published in national newspapers and covering FEEM special projects and activities. The press review is downloadable from a new section of the website dedicated to the media, where journalists can find the updated and most significant articles and may subscribe to regular updates on FEEM research and related initiatives.

## Young generations

FEEM supports eni in the organization of two educational projects for the middle school, Eniscuola and Schoolnet.

FEEM Educational projects for the middle school - Schoolnet				
Numbers involved at middle schools:	2009	2010	2011	2009-2011
N. of schools contacted	1,400	1,800	1,500	4,700
N. of educational seminars and laboratories	35	197	235	467
N. of students who attended direct teaching activities	4,350	8,180	8,840	21,370
N. of teachers who attended direct teaching activities	425	575	858	1,858
N. of teachers and students who attended e-learning projects	10,500	11,200	10,350	32,050

FEEM Educational projects for the middle school - Schoolnet

Both projects are based on the Internet and multimedia technology. Learning support systems are wideranging (text, images, graphs and charts, film clips, games, exercises, data bases and links to other sites) and can all be downloaded by pupils in order to conduct "multimedia research" or create their own site. The Eniscuola project is based on a website (www.eniscuola.net) daily updated with over 3,000 pages with documents, pictures, graphs, charts, experiments, games, and interviews with national and international scientists including Nobel prize laureates such as Alan J. Heeger, Sir Harold W. Kroto, Theodor W. Hänsch and Robert Coleman Richardson; eni Award winners; scientists from the most important universities like University of California (Berkeley) or Massachusetts Institute of Technology. Eniscuola carries out its educational activities in cooperation with Regional School Departments, Universities and local government institutions. The project is also actively involved in the organization of numerous scientific and cultural events. Eniscuola regularly organizes seminars, laboratories and scientific theatre events in schools all over Italy. In 2009 Eniscuola also began educational activities in Sicily in collaboration with enimed spa.

The Eniscuola project has been acknowledged by UNESCO's Italian National Commission and is part of the United Nations Decade of Education for Sustainable Development, by contributing to spread its goals and ideals.

The main purpose of the Schoolnet project (www.schoolnet.eni.it) is to encourage the exchange of ideas and information among some of the schools of the areas where Eni operates, in Italy (Secondary Schools in Val d'Agri and Val Basento), Norway (Finnmark), Australia (Northern Territory), United States (Alaska), East Timor, Angola, Indonesia, Pakistan, Tunisia and Venezuela. In 2011, students from the schools involved in the project were asked to write projects in electronic format to describe the culture, history and home environment of their country of origin, with the aim to promote knowledge and stimulate dialogue among different cultural identities. The theme of the project for the Schoolnet 2011- 2012 edition was: "Games".

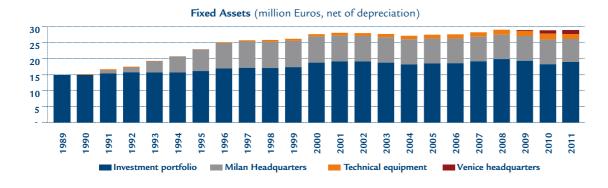
## **FINANCIAL REPORT**

### Endowment and asset growth

A key objective for the financial sustainability of FEEM activities is the conservation of its endowment and assets over time. Over the past twenty years, the assets of FEEM have grown from the initial endowment of 13.3 million Euros in 1989 to approximately 26.3 million Euros at year-end 2011. This increase is mainly attributable to the additional contributions from the founders, along with the inception and increase of the Studies and Research reserve fund in the early years, when receipts exceeded total costs. Returns from financial assets is another component of asset growth.

Contributions from the founders have financed in the early 90s the complete restructuring of FEEM's Milan headquarters at the prestigious Palazzo delle Stelline, while the Studies and Research reserve fund increased its capitalization, allowing the financing of extraordinary institutional activities.

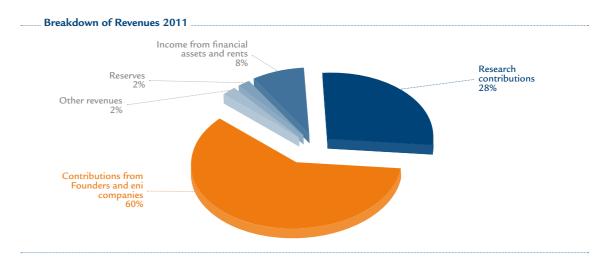
The graph below shows the composition of FEEM's fixed assets net of depreciation. Over the past twenty years the overall value of the investment portfolio has grown from the initial 14.7 million Euros invested in 1989 to the present 18.6 million Euros, following a risk-adverse investment strategy. The value of the lease on the headquarters building increased until 1998, when the restructuring was completed. In 2010 FEEM completed the restructuring of its new local site in Venice, an aisle of an historic building located on the Island of San Giorgio Maggiore, started in 2009.



### **Revenues**

Total revenues for 2011 amounted to 7,747,062 Euros. Contributions from Founders and eni companies represent the main source of funding for the annual budget, accounting for 60% of total revenues in 2011.

FEEM has developed a remarkable fundraising capability. External funding raised from third parties mainly from the European Commission through the research framework programmes contributions, along with several domestic and international institutions - covers approximately 28% of FEEM's total revenues. In 2011 third party funding totaled 2.2 million Euros. Returns from the investment portfolio and rents represent 8% of total revenues. Financial assets, managed by professional asset managers, provided an annual income of approximately 0.6 million Euros in 2011. The remaining 4% comes from the use of the reserve funds and other extraordinary items. The revenues breakdown for 2011 is shown in the graph below.



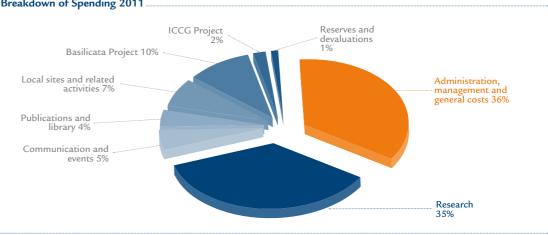
## Spending

In 2011, expenditure for research projects and other institutional activities amounted to approximately 4.9 million Euros (64% of the total budget), whereas administration and management expenses amounted to 2.8 million Euros (36% of the total budget).

Although FEEM's institutional activities have significantly increased in recent years, the minimization of the fixed cost component and the flexibility of the organizational structure have allowed the allocation of the largest part of the annual spending to research and related activities, such as publications, communication, and dissemination initiatives. The increased personnel expenditure starting from 2009 is due to the implementation of an organizational restructuring plan effective from January 2009 with a two-fold effect: the consolidation in the staff of a limited number of direct employees in parallel with the minimization of contracted workforce hired for support activities.

The graph below shows the breakdown of expenditures in 2011 for administration/management (including also taxes and general costs) and for the institutional activities. The personnel expenditure has been classified accordingly.





### Financial statement Balance sheet (Euros)

	31/12/2010	31/12/2011
FIXED ASSETS		
Tangible fixed assets	1,807,802	1,842,448
Intangible fixed assets	8,841,109	8,545,932
Financial assets	18,278,549	18,585,020
TOTAL FIXED ASSETS	28,927,461	28,973,400
CURRENT ASSETS		
Cash at bank and in hand	1,894,724	850,014
TOTAL CURRENT ASSETS	1,894,724	850,014
DEFERRED CHARGES	1,405,150	1,570,082
TOTAL ASSETS	32,227,335	31,393,496

	31/12/2010	31/12/2011
LIABILITIES		
Initial endowment	13,316,553	13,316,553
Grants from Founders	9,872,421	9,872,421
Studies and research fund	2,968,044	2,975,044
Surplus	7,000	86,964
TOTAL NET LIABILITIES	26,164,018	26,250,982

### **RESERVE FUNDS**

Investment portfolio fluctuation fund	755,453	755,453
Library fund	64,674	65,490
Reserve funds for future expenses	542,368	429,357
TOTAL RESERVE FUNDS	1,362,494	1,250,300

### SEVERANCE INDEMNITY

FOR PERSONNEL	88,811	144,149
DEBTS		
Suppliers	545,700	627,175
Other debts	336,918	318,438
TOTAL DEBTS	882,617	945,613
DEFERRED INCOME	3,729,395	2,802,452
TOTAL LIABILITIES	32,227,335	31,393,496

	Profit
Loss	Accou

625,114 65,000	565,219
65.000	65.000
	65,000
4,645,000	4,645,000
2,563,303	2,178,379
135,965	140,903
278,462	152,561
0 210 044	7,747,062
	4,645,000 2,563,303 135,965

### TOTAL REVENUES

EXPENSES	31/12/2010	31/12/201
Personnel	1,576,321	1,825,959
Researchers and non permanent staff	2,925,559	2,683,481
Statutory bodies	308,952	309,201
Travel expenses	716,323	629,872
Consumables	160,365	106,291
Services	1,178,830	1,116,560
Insurances	43,804	38,092
Rent and shared ownership expenses	278,088	162,213
Taxes	198,362	138,314
Reserves and devaluations	302,845	40,367
Depreciation	447,598	441,191
Other charges	168,798	168,557
TOTAL EXPENSES	8,305,844	7,660,098
Surplus	7,000	86,964

### t and unt (Euros)

## **BYLAWS**

#### Art. 1 - Name

The "Fondazione Eni Enrico Mattei" is hereby established. The registered office of the Foundation shall be at the "Le Stelline" building complex, Corso Magenta 63, Milan.

Other branches or representative offices may be established in Italy and abroad to perform ancillary and other activities that are instrumental to promoting, developing and expanding the activities of the Foundation.

#### Art. 2 - Aims

The Foundation exists to contribute, through studies, research, training and information initiatives, to a broader awareness and understanding of economic, energy and environmental issues, at both local and global level. In particular, the Foundation aims to:

- (a) carry out detailed research in the area of sustainable development, with particular emphasis on its environmental, economic and social aspects, in relation to the Italian development framework, the international context and technological innovation;
- (b) contribute with appropriate initiatives to the training of experts in the fields of interest stated in the Foundation's bylaws;
- (c) study, particularly through international discussion and debates, issues of particular interest to the Eni Group relating to corporate governance and the planning of company research, in order to disseminate the most recent and up-to-date knowledge and guidance.

Such aims shall be pursued by the Foundation using appropriate data collection, research, training and information methods and tools, with particular regard to the corporate purposes of Eni, and also with a view to reinforcing the commitment of the Eni Group to the economic and social development of Italy.

#### **Art. 3 – Instrumental, ancillary and associated activities** In order to achieve its aims the Foundation may also:

(a) award prizes and scholarships;

- (b) buy and take possession of movable and immovable property, plant, equipment and materials that may be useful or necessary for the performance of its activities, and provide for their administration and management;
- (c) carry out banking and financial transactions and apply for subsidies, contributions and loans;
- (d) form companies, buy and sell investments and interests in companies or bodies, including those of a commercial nature.

The results of studies and research carried out by the Foundation shall be made available, in the first instance, to the Eni Group.

#### Art. 4 – Assets

- The assets of the Foundation shall consist of:
- a) the contributions made by the founders, as detailed in the memorandum of association;
- b) payments from third parties;
- c) movable and immovable property allocated to assets;
- d) income allocated to increasing the assets, by
- resolution of the Board of Directors; e) investments and other interests held.

#### Art. 5 - Revenues

- The Foundation's revenues shall consist of:
- a) income from assets as referred to in article 4;
- b) contributions received.

### Art. 6 - Management Bodies

The Management Bodies of the Foundation shall be the following:

- a) the Board of Directors;
- b) the Chairman;
- c) the Scientific Advisory Board;
- d) the Board of Auditors.

### Art. 7 - The Board of Directors

The Board of Directors shall be appointed by Eni S.p.A. and consist of a minimum of 5 (five) and a maximum of 15 (fifteen) members, who shall remain in office for a period of three financial years.

The Board of Directors shall be chaired by the Chairman of the Foundation or, in his absence or impediment, by the most senior member of the Board, by age.

The term of office of board members shall expire and may be renewed when the financial statements for the third financial year are approved, provided that, by that date, the Board of Directors has been reconstituted.

In the event of a resignation from office, Eni S.p.A. shall arrange for the resigning Director to be replaced. The mandate of a Director appointed in this way shall expire at the same time as that of the other Directors in office at the time of his appointment.

#### Art. 8 - Convocations and quorum

Meetings of the Board of Directors shall be called by the Chairman of the Foundation or, in his absence, by the most senior Director, by age.

The Chairman or, in his absence, the senior Director, by age, may also convene a meeting of the Board when requested in writing by a majority of the Directors.

A meeting of the Board of Directors shall be convened at least twice a year, by the end of November in order to approve the budget for the coming year and by the end of April in order to approve the final balance for the preceding year.

Convocations must be sent by registered letter sent at least 10 days prior to the date fixed for the meeting. In case of need or emergency, the convocation may be

sent by telegram or fax at least three days before the date fixed for the meeting.

The convocation must state the place, day and time of the meeting, as well as the agenda.

Meetings of the Board of Directors shall take place at the Foundation's headquarters or at the venue stated in the convocation. Meetings may also take place by videoconferencing, provided that all participants can be identified and can follow the meeting and contribute in real time to the discussion on the matters being addressed. If these requirements are met, the meeting of Board of Directors shall be deemed to have been held in the place where the Chairman and Secretary are physically present. Meetings of the Board of Directors shall be quorate if a majority of members are present and resolutions may be passed by a majority of those present. The Chairman shall have the casting vote in the event of a tie. Resolutions regarding amendments to the bylaws, the transformation or closure of the Foundation, must be approved by a minimum of four fifths of the Directors in office. The validity of such resolutions shall depend on the approval of the relevant government authority being obtained.

Minutes shall be drawn up for all meetings of the Board of Directors and shall be signed by the Chairman and the Secretary.

#### Art. 9 - Duties and powers

The Board of Directors shall have complete powers for the ordinary and extraordinary administration of the Foundation. In particular it shall:

- a) appoint the Foundation's Chairman from among its members;
- b) approve the annual budget and final balance;
- c) approve the annual programme of activities, in accordance with the purposes stated in the bylaws, having consulted with the Scientific Advisory Board;
- d) identify the actions to be taken in support of such programmes;
- e) appoint the Chairman and other members of the Scientific Advisory Board;
- f) appoint the Director of the Foundation and, if appropriate, a Deputy Director;
- g) if appropriate, delegate some of its powers to the Chairman, the Director of the Foundation and, if appointed, the Deputy Director;
- h) if appropriate, ask the Scientific Advisory Board to express opinions.

### Art. 10 – The Chairman

The Chairman of the Foundation shall convene and chair meetings of the Board of Directors and shall be the legal representative of the Foundation.

In cases of emergency, the Chairman may take decisions that are within the remit of the Board of Directors, subject to ratification by the Board at its subsequent meeting. The Chairman may appoint proxies to perform any administrative tasks assigned to him by the Board.

#### Art. 11 - The Scientific Advisory Board

The Scientific Advisory Board shall consist of a maximum of 12 (twelve) members, one of whom shall be elected Chairman, selected from among national and international scientific, academic and cultural experts, with particular attention being paid to their professional background and experience.

The Chairman and members of the Scientific Advisory Board shall remain in office for three years and may be re-elected.

The Chairman of the Foundation or a Board member specifically appointed by the Chairman of the Foundation shall attend meetings of the Scientific Advisory Board.

Within the limits established by the Board of Directors, and in the context of the programmes it proposes, the Scientific Advisory Board shall:

 a) express its opinion on the annual programme of activities drawn up by the Board of Directors and ensure its implementation;

- b) make proposals for the Foundation's research and study activities;
- c) provide considered opinions on issues submitted to it by the Board of Directors;
- d) make proposals to the Director of the Foundation regarding the appointment of individual project leaders;
- e) monitor work in progress and produce regular reports for the Board of Directors.

Meetings of the Scientific Advisory Board shall be convened by its Chairman and resolutions passed by simple majority.

### Art. 12 - The Director

- The Director of the Foundation shall:
- a) attend meetings of the Board of Directors and the Scientific Advisory Board in the capacity of Secretary;b) implement the decisions of the Board of Directors;
- c) manage and co-ordinate the activities of the Foundation, including its offices and personnel;
- appoint project leaders for individual research or study projects on a proposal from the Scientific Advisory Board.

### Art. 13 - Financial year and reporting

The financial year shall begin on 1<sup>st</sup> January and end on 31<sup>st</sup> December of each year.

Subject to any legal obligations, no distribution of profits, management surpluses, funds or reserves shall be permitted during the life of the Foundation.

### Art. 14 - The Audit Committee

The Audit Committee shall consist of three regular and two alternate members, appointed from among people enrolled in the register of auditors. Auditors shall be appointed as follows:

- a) one regular and one alternate auditor by the Minister for Economic Development, who shall also act as Chairman of the Audit Committee;
- b) the others by Eni S.p.A.

Auditors shall remain in office for a period of three financial years and may be re-elected.

Should one of the members resign, the new auditor shall be appointed by the person who appointed him. The office of the auditor thus appointed shall expire at the same time as that of the members in office at the time when he takes office.

### Art. 15 - Winding-up of the Foundation

Should the Foundation be wound up, residual assets shall be donated for the public good in accordance with applicable legal provisions.

## **APPENDICES**

## **PUBLICATIONS**, 2011

### FEEM Working Papers "Note di Lavoro", 2011

- **1.2011\_**Anna Alberini, Will Gans and Daniel Velez-Lopez: <u>Residential Consumption of Gas and</u> <u>Electricity in the U.S.: The Role of Prices and Income</u>
- 2.2011\_Alexander Golub, Daiju Narita and Matthias G.W. Schmidt: <u>Uncertainty in Integrated</u> <u>Assessment Models of Climate Change: Alternative Analytical Approaches</u>
- 3.2011\_Reyer Gerlagh and Nicole A. Mathys: Energy Abundance, Trade and Industry Location
- **4.2011**\_Melania Michetti and Renato Nunes Rosa: <u>Afforestation and Timber Management</u> <u>Compliance Strategies in Climate Policy. A Computable General Equilibrium Analysis</u>
- 5.2011\_Hassan Benchekroun and Amrita Ray Chaudhuri: <u>"The Voracity Effect" and Climate</u> Change: The Impact of Clean Technologies
- 6.2011\_Sergio Mariotti, Marco Mutinelli, Marcella Nicolini and Lucia Piscitello: <u>Productivity</u> <u>Spillovers from Foreign MNEs on Domestic Manufacturing Firms: Is Co-location Always</u> <u>a Plus?</u>
- 7.2011\_Marco Percoco: <u>The Fight Against Geography: Malaria and Economic Development in</u> <u>Italian Regions</u>
- 8.2011\_Bin Dong and Benno Torgler: <u>Democracy, Property Rights, Income Equality, and</u> <u>Corruption</u>
- 9.2011\_Bin Dong and Benno Torgler: Corruption and Social Interaction: Evidence from China
- **10.2011**\_Elisa Lanzi, Elena Verdolini and Ivan Haščič: <u>Efficiency Improving Fossil Fuel</u> <u>Technologies for Electricity Generation: Data Selection and Trends</u>
- 11.2011\_Stergios Athanassoglou: Efficiency under a Combination of Ordinal and Cardinal Information on Preferences
- 12.2011\_Robin Cross, Andrew J. Plantinga and Robert N. Stavins: <u>The Value of Terroir: Hedonic</u> <u>Estimation of Vineyard Sale Prices</u>
- 13.2011\_Charles F. Mason and Andrew J. Plantinga: <u>Contracting for Impure Public Goods:</u> <u>Carbon Offsets and Additionality</u>
- 14.2011\_Alain Ayong Le Kama, Aude Pommeret and Fabien Prieur: Optimal Emission Policy under the Risk of Irreversible Pollution
- 15.2011\_Philippe Quirion, Julie Rozenberg, Olivier Sassi and Adrien Vogt-Schilb: <u>How CO2</u> <u>Capture and Storage Can Mitigate Carbon Leakage</u>
- 16.2011\_Carlo Carraro and Emanuele Massetti: Energy and Climate Change in China
- **17.2011**\_ZhongXiang Zhang: Effective Environmental Protection in the Context of Government Decentralization

- 18.2011\_Stergios Athanassoglou and Anastasios Xepapadeas: <u>Pollution Control with Uncertain</u> <u>Stock Dynamics: When, and How, to be Precautious</u>
- **19.2011**\_Jāratė Jaraitė and Corrado Di Maria: <u>Efficiency</u>, <u>Productivity and Environmental Policy</u>: <u>A Case Study of Power Generation in the UE</u>
- 20.2011\_Giulio Cainelli, Massimiliano Mozzanti and Sandro Montresor: Environmental Innovations, Local Networks and Internationalization
- 21.2011\_Gérard Mondello: <u>Hazardous Activities and Civil Strict Liability: The Regulator's</u> <u>Dilemma</u>
- 22.2011\_Haiyan Xu and ZhongXiang Zhang: <u>A Trend Deduction Model of Fluctuating Oil Prices</u>
- 23.2011\_Athanasios Lapatinas, Anastasia Litina and Effichios S. Sartzetakis: <u>Corruption and</u> <u>Environmental Policy: An Alternative Perspective</u>
- 24.2011\_Emanuele Massetti: A Tale of Two Countries: Emissions Scenarios for China and India
- 25.2011\_Xavier Pautrel: <u>Abatement Technology and the Environment-Growth Nexus with</u> <u>Education</u>
- **26.2011**\_ Dionysis Latinopoulos and Eftichios Sartzetakis: <u>Optimal Exploitation of Groundwater</u> <u>and the Potential for a Tradable Permit System in Irrigated Agriculture</u>
- 27.2011\_Benno Torgler and Marco Piatti: <u>A Century of American Economic Review</u>
- **28.2011\_**Stergios Athanassoglou, Glenn Sheriff, Tobias Siegfried and Woonghee Tim Huh: <u>Optimal Mechanisms for Heterogeneous Multi-cell Aquifers</u>
- **29.2011**\_Libo Wu, Jing Li and ZhongXiang Zhang: Inflationary Effect of Oil-Price Shocks in an Imperfect Market: A Partial Transmission Input-output Analysis
- **30.2011\_**Junko Mochizuki and ZhongXiang Zhang: <u>Environmental Security and its Implications</u> <u>for China's Foreign Relations</u>
- **31.2011**\_Teng Fei, He Jiankun, Pan Xunzhang and Zhang Chi: <u>How to Measure Carbon Equity:</u> <u>Carbon Gini Index Based on Historical Cumulative Emission Per Capita</u>
- 32.2011\_ Dirk Rübbelke and Pia Weiss: <u>Environmental Regulations</u>, <u>Market Structure and</u> <u>Technological Progress in Renewable Energy Technology – A Panel Data Study on Wind</u> <u>Turbines</u>
- **33.2011\_**Nicola Doni and Giorgio Ricchiuti: <u>Market Equilibrium in the Presence of Green</u> <u>Consumers and Responsible Firms: a Comparative Statics Analysis</u>
- **34.2011**\_Gérard Mondello: <u>Civil Liability, Safety and Nuclear Parks: Is Concentrated Management</u> <u>Better?</u>
- **35.2011\_**Walid Marrouch and Amrita Ray Chaudhuri: <u>International Environmental Agreements in</u> <u>the Presence of Adaptation</u>
- **36.2011\_**Will Gans, Anna Alberini and Alberto Longo: <u>Smart Meter Devices and The Effect of</u> <u>Feedback on Residential Electricity Consumption: Evidence from a Natural Experiment</u> <u>in Northern Ireland</u>

- 37.2011\_William K. Jaeger and Thorsten M. Egelkraut: Biofuel Economics in a Setting of Multiple **Objectives & Unintended Consequences**
- 38.2011\_ Kyriaki Remoundou, Fikret Adaman, Phoebe Koundouri and Paulo A.L.D. Nunes: Are Preferences for Environmental Quality Sensitive to Financial Funding Schemes? Evidence from a Marine Restoration Programme in the Black Sea
- 39.2011\_Andrea Ghermandi and Paulo A.L.D. Nunes: A Global Map of Coastal Recreation Values: Results From a Spatially Explicit Based Meta-Analysis
- 40.2011\_Andries Richter, Anne Maria Eikeset, Daan van Soest, and Nils Chr. Stenseth: Towards the Optimal Management of the Northeast Arctic Cod Fishery
- 41.2011\_Florian M. Biermann: <u>A Measure to Compare Matchings in Marriage Markets</u>
- 42.2011\_Timo Hiller: Alliance Formation and Coercion in Networks
- 43.2011\_Sunghoon Hong: Strategic Network Interdiction
- 44.2011\_Arnold Polanski and Emiliya A. Lazarova: Dynamic Multilateral Markets
- 45.2011\_Marco Mantovani, Georg Kirchsteiger, Ana Mauleon and Vincent Vannetelbosch: Myopic or Farsighted? An Experiment on Network Formation
- 46.2011\_Rémy Oddou: The Effect of Spillovers and Congestion on the Segregative Properties of Endogenous Jurisdiction Structure Formation
- 47.2011\_ Emanuele Massetti and Elena Claire Ricci: Super-Grids and Concentrated Solar Power: A Scenario Analysis with the WITCH Model
- 48.2011\_Matthias Kalkuhl, Ottmar Edenhofer and Kai Lessmann: Renewable Energy Subsidies: Second-Best Policy or Fatal Aberration for Mitigation?
- 49.2011\_ZhongXiang Zhang: Breaking the Impasse in International Climate Negotiations: A New Direction for Currently Flawed Negotiations and a Roadmap for China to 2050
- 50.2011\_ Emanuele Massetti and Robert Mendelsohn: Estimating Ricardian Models With Panel Data
- 51.2011\_Y. Hossein Farzin and Kelly A. Grogan: Socioeconomic Factors and Water Quality in California
- 52.2011\_ Dinko Dimitrov and Shao Chin Sung: Size Monotonicity and Stability of the Core in Hedonic Games
- 53.2011\_ Giovanni Mastrobuoni and Paolo Pinotti: Migration Restrictions and Criminal Behavior: Evidence from a Natural Experiment
- 54.2011\_Alessandro Cologni and Matteo Manera: On the Economic Determinants of Oil Production. Theoretical Analysis and Empirical Evidence for Small Exporting Countries
- 55.2011\_Alessandro Cologni and Matteo Manera: Exogenous Oil Shocks, Fiscal Policy and Sector Reallocations in Oil Producing Countries
- 56.2011\_Morgan Bazilian, Patrick Nussbaumer, Giorgio Gualberti, Erik Haites, Michael Levi, Judy Siegel, Daniel M. Kammen and Joergen Fenhann: Informing the Financing of Universal Energy Access: An Assessment of Current Flows

- with Clean and Dirty Consumption
- 58.2011\_Wan-Jung Chou, Andrea Bigano, Alistair Hunt, Stephane La Branche, Anil Markandya and Roberta Pierfederici: Households' WTP for the Reliability of Gas Supply
- 59.2011\_Maria Comune, Alireza Naghavi and Giovanni Prarolo: Intellectual Property Rights and South-North Formation of Global Innovation Networks
- 60.2011\_Alireza Naghavi and Chiara Strozzi: Intellectual Property Rights, Migration, and Diaspora
- 61.2011\_Massimo Tavoni, Shoibal Chakravarty and Robert Socolow: Safe vs. Fair: A Formidable Trade-off in Tackling Climate Change
- 62.2011\_Donatella Baiardi, Matteo Manera and Mario Menegatti: Consumption and Precautionary Saving: An Empirical Analysis under Both Financial and Environmental Risks
- 63.2011\_Caterina Gennaioli and Massimo Tavoni: Clean or "Dirty" Energy: Evidence on a Renewable Energy Resource Curse
- 64.2011\_Angelo Antoci and Luca Zarri: Punish and Perish?
- 65.2011\_Anders Akerman, Anna Larsson and Alireza Naghavi: Autocracies and Development in a Global Economy: A Tale of Two Elites
- 66.2011\_Valentina Bosetti and Jeffrey Frankel: <u>Sustainable Cooperation in Global Climate Policy</u>: Specific Formulas and Emission Targets to Build on Copenhagen and Cancun
- 67.2011\_Mattia Cai, Roberto Ferrise, Marco Moriondo, Paulo A.L.D. Nunes and Marco Bindi: <u>Climate Change and Tourism in Tuscany, Italy. What if heat becomes unbearable?</u>
- 68.2011\_Morgan Bazilian, Patrick Nussbaumer, Hans-Holger Rogner, Abeeku Brew-Hammond, Vivien Foster, Shonali Pachauri, Eric Williams, Mark Howells, Philippe Niyongabo, Lawrence Musaba, Brian Ó Gallachóir, Mark Radka and Daniel M. Kammen: Energy Access Scenarios to 2030 for the Power Sector in Sub-Saharan Africa
- 69.2011\_Francesco Bosello, Carlo Carraro and Enrica De Cian: Adaptation Can Help Mitigation: An Integrated Approach to Post-2012 Climate Policy
- 70.2011\_Etienne Farvaque, Alexander Mihailov and Alireza Naghavi: The Grand Experiment of Communism: Discovering the Trade-off between Equality and Efficiency
- 71.2011\_ZhongXiang Zhang: Who Should Bear the Cost of China's Carbon Emissions Embodied in Goods for Exports?
- 72.2011\_Francesca Pongiglione: Climate Change and Individual Decision Making: An Examination of Knowledge, Risk Perception, Self-interest and their Interplay
- 73.2011\_Joseph E. Aldy and Robert N. Stavins: Using the Market to Address Climate Change: Insights from Theory and Experience
- 74.2011\_Alexander Brauneis and Michael Loretz: Inducing Low-Carbon Investment in the Electric Power Industry through a Price Floor for Emissions Trading

57.2011\_Carlo Orecchia and Maria Elisabetta Tessitore: Economic Growth and the Environment

- 75.2011\_Jean-Marie Grether, Nicole A. Mathys and Jaime de Melo: Unravelling the Worldwide Pollution Haven Effect
- 76.2011\_Benjamin Elsner: Emigration and Wages: The EU Enlargement Experiment
- 77.2011\_ZhongXiang Zhang: Trade in Environmental Goods, with Focus on Climate-Friendly Goods and Technologies
- 78.2011\_Alireza Naghavi, Julia Spies and Farid Toubal: International Sourcing, Product Complexity and Intellectual Property Rights
- 79.2011\_Mare Sarr and Tim Swanson: Intellectual Property and Biodiversity: When and Where are Property Rights Important?
- 80.2011\_Valentina Bosetti, Sergey Paltsev, John Reilly and Carlo Carraro: Emissions Pricing to Stabilize Global Climate
- 81.2011\_Valentina Bosetti and Enrica De Cian: <u>A Good Opening: The Key to Make the Most of</u> Unilateral Climate Action
- 82.2011\_Joseph E. Aldy and Robert N. Stavins: <u>The Promise and Problems of Pricing Carbon:</u> Theory and Experience
- 83.2011\_Lei Zhu, ZhongXiang Zhang and Ying Fan: An Evaluation of Overseas Oil Investment Projects under Uncertainty Using a Real Options Based Simulation Model
- 84.2011\_Luca Di Corato, Michele Moretto and Sergio Vergalli: Land Conversion Pace under Uncertainty and Irreversibility: too fast or too slow?
- 85.2011\_Jan Grobovšek: Development Accounting with Intermediate Goods
- 86.2011\_Ronald P. Wolthoff: Applications and Interviews. A Structural Analysis of Two-Sided Simultaneous Search
- 87.2011\_Céline Guivarch and Stéphane Hallegatte: <u>2C or Not 2C?</u>
- 88.2011\_ Marco Dall'Aglio and Camilla Di Luca: Finding Maxmin Allocations in Cooperative and **Competitive Fair Division**
- 89.2011\_Luca Di Corato: Optimal Conservation Policy Under Imperfect Intergenerational Altruism
- 90.2011\_Ardjan Gazheli and Luca Di Corato: Land-use Change and Solar Energy Production: A Real Option Approach
- 91.2011\_Andrea Bastianin, Matteo Manera, Anil Markandya and Elisa Scarpa: Oil Price Forecast **Evaluation with Flexible Loss Functions**
- 92.2011\_Elena Verdolini, Nick Johnstone and Ivan Haščič: Technological Change, Fuel Efficiency and Carbon Intensity in Electricity Generation: A Cross-Country Empirical Study
- 93.2011\_ Qin Bao, Ling Tang, ZhongXiang Zhang, Han Qiao and Shouyang Wang: Impacts of Border Carbon Adjustments on China's Sectoral Emissions: Simulations with a Dynamic Computable General Equilibrium Model
- 94.2011\_Benno Torgler: Work Values in Western and Eastern Europe

- Directed Technical Change: Comment
- Taxation Schemes for Automobiles: A Simulation Exercise for Germany
- Assessment
- Antagonism? Modeling interactions with energy efficiency instruments
- Electricity Market
- 100.2011\_Charles F. Mason: Why do Firms Hold Oil Stockpiles?

### **Books**, 2011

Understanding Oil Prices. A Guide to What Drives the Price of Oil in Today's Markets, Salvatore Carollo, Wiley Finance, 2011.

### Equilibri, Rivista per lo sviluppo sostenibile, Il Mulino, 2011

1.2011\_Verso Durban 2.2011\_Povertà e sostenibilità 3.2011\_Tecnologie per un futuro senza carbonio

95.2011\_Jean-Charles Hourcade, Antonin Pottier and Etienne Espagne: The Environment and

96.2011\_Adamos Adamou, Sofronis Clerides and Theodoros Zachariadis: Oil Designing Carbon

97.2011\_Valentina Bosetti, Carlo Carraro, Enrica De Cian, Emanuele Massetti and Massimo Tavoni: Incentives and Stability of International Climate Coalitions: An Integrated

98.2011\_ Oskar Lecuyer and Ruben Bibas: Combining Climate and Energy Policies: Synergies or

99.2011\_Francesca Bonenti, Giorgia Oggioni, Elisabetta Allevi and Giacomo Marangoni: Evaluating the Impacts of the EU-ETS on Prices, Investments and Profits of the Italian

## **EVENTS, 2011**

Main Conferences and Workshops, 2011

Annual meeting of the project on "Linking Impact Assessment Instruments to Sustainability Expertise" (LIAISE) <u>Milan, 26-28 January 2011</u>

Kick-off meeting of the project on "Evaluating Economic Policy Instruments for Sustainable Water Management in Europe" (EPI-WATER) Venice, 20-21 January 2011

International workshop on "Economics of Natural Disasters: Bridging Disaster Risk Reduction and Climate Adaptation Efforts and Strategies", in partnership with the International Center for Climate Governance (ICCG), Euro-Mediterranean Centre for Climate Change (CMCC), the International Institute for Applied Systems Analysis (IASA) Venice, 10-11 February 2011

Steering committee meeting of the project on "Paradigm Shifts Modelling and Innovative Approaches" (PASHMINA) Venice, 24-25 March 2011

International workshop on "RD&D Needs to Enhance the Role of Nuclear Energy in Meeting Climate and Energy Challenges", organized by the ICARUS project on "Innovation for climate change mitigation: a study of energy R&D, its uncertain effectiveness and spillovers" in partnership with the International Centre for Climate Governance (ICCG), the Belfer Centre at the Harvard University Kennedy School, and in collaboration with the Euro-Mediterranean Centre for Climate Change (CMCC) Venice, 7-8 April 2011

4<sup>th</sup> Advisory Board meeting of the project on "Externality Data and Input-Output Tools for Policy Analysis" (EXIOPOL) <u>Brussels, 11 April 2011</u> Conference on "Climate Impacts on Energy Systems: Key Issues for Energy Sector Adaptation", in cooperation with eni Corporate University San Donato Milanese (Milan), 27 April 2011

International workshop "A new EU Gas Security of Supply Architecture: EU External Relations and its Relation to Gas Infrastructure", in partnership with The Clingendael International Energy Programme (CIEP), the Loyola de Palacio Chair (LdP) of the European University Institute and Wilton Park Conferences (WPC) <u>Milan, 5-6 May 2011</u>

International workshop on "Innovation in Energy Technologies: What can we Learn from Patent Data", organized by the ICARUS project on "Innovation for climate change mitigation: a study of energy R&D, its uncertain effectiveness and spillovers" in partnership with the International Center for Climate Governance (ICCG), and in collaboration with the Organisation for Economic Co-operation and Development (OECD), Tilburg University and the Euro-Mediterranean Centre for Climate Change (CMCC) Venice, 19-20 May 2011

International workshop on "Modeling and Policy of CO2 Removal from the Atmosphere", in partnership with the International Center for Climate Governance (ICCG), in collaboration with the Euro-Mediterranean Centre for Climate Change (CMCC) Venice, 30-31 May 2011

Dissemination workshop of the project on "Policy for Natural Resources" (POLINARES): "Cooperation and conflict on access to energy resources the energy security issue" <u>Paris, 31 May 2011</u>

Annual meeting of the Canadian Institute for Advanced Research (CIFAR): "Institutions, Organizations and Growth", in cooperation with CIFAR Milan, 10-12 June 2011 14<sup>th</sup> annual conference on Global Economic Analysis "Governing Global Challenges: Climate Change, Trade, Finance and Development", in partnership with the Centre for Global Trade Analysis, Purdue University (GTAP), the Ca' Foscari University of Venice, in association with the Euro-Mediterranean Centre for Climate Change (CMCC), the International Center for Climate Governance (ICCG), the Thematic Environmental Networks (TEN Center) of Venice International University (VIU) Venice, 16-18 June 2011

18<sup>th</sup> annual conference of the European Association of Environmental and Resource Economists (EAERE), in partnership with EAERE

Rome, 29 June 2011 - 02 July 2011

"2011 International Energy Workshop", in partnership with Energy research Centre of the Netherlands (ECN), Energy Modeling Forum (EMF), Electric Power Research Institute (EPRI), International Energy Agency (IEA), and Energy Technology Systems Analysis Program (IEA-ETSAP)

Stanford, CA 6-8 July 2011

International workshop "A new EU Gas Security of Supply Architecture: Infrastructure in Relation to the External Relations", in partnership with The Clingendael International Energy Programme (CIEP), the Loyola de Palacio Chair (LdP) of the European University Institute and Wilton Park Conferences (WPC) <u>The Hague, 7-8 July 2011</u>

FEEM Award Ceremony 2011, in cooperation with the European Economic Association (EEA) <u>Oslo, 27 August 2011</u>

First meeting of the project on "Technology Elicitations and Modeling" (TEaM) Venice, 1-2 September 2011

"Climate Change" (*Trentino Clima 2011:* "*Climatica...mente Cambiando*"), in collaboration with Provincia of Trento <u>Trento, 5-11 September 2011</u> International workshop on "Foreign Direct Investment and Climate Change: New Research Directions", in partnership with the International Center for Climate Governance (ICCG), the Euro-Mediterranean Centre for Climate Change (CMCC) Venice, 7-8 October 2011

Kick-off meeting and 1<sup>st</sup> stakeholder workshop of the project "Low climate impact scenarios and the implications of required tight emission control strategies" (LIMITS) Milan, 10-12 October 2011

International workshop on "Implementing Low Carbon Policies" <u>Milan, 11 October 2011</u>

Final conference of the project on "Externality Data and Input-Output Tools for Policy Analysis" (EXIOPOL) Brussels, 12 October 2011

Meeting of the European Commission Expert group on "Water Scarcity and Drought", in partnership with Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA) and the Euro-Mediterranean Centre for Climate Change (CMCC) Venice, 13-14 October 2011

"Global Energy Scenario" (*"Lo Scenario energetico mondiale"*) <u>Milan, 14 October 2011</u>

Kick-off meeting of the project on "Impacts Quantification of global changes" (Global-IQ) <u>Milan, 17-18 October 2011</u>

"Enrico Mattei - the partisan who planned the future" (*"Enrico Mattei - il partigiano che progettò il futuro"*), in collaboration with Associazione Nazionale Partigiani Cristiani (ANPC) and eni <u>Milan, 27 October 2011</u> International workshop "A new EU Gas Security of Supply Architecture: European Infrastructure Policy in Relation to the Issue of Solidarity", in partnership with The Clingendael International Energy Programme (CIEP), the Loyola de Palacio Chair (LdP) of the European University Institute and Wilton Park Conferences (WPC) Florence, 27-28 October 2011

International workshop on "Recent Trends in Non Market Valuation", in partnership with the International Center for Climate Governance (ICCG), the Euro-Mediterranean Centre for Climate Change (CMCC) Venice, 3-4 November 2011

Presentation of the book: "The Capitalism. Towards Chinese ideal" ("Il Capitalismo. Verso l'ideale cinese", Geminello Alvi) Milan, 8 November 2011

Conference on "World sustainability ranking: presentation of the FEEM Sustainability Index" (FEEM SI) <u>Milan, 1 December 2011</u>

Concluding workshop "A new EU Gas Security of Supply Architecture", in partnership with The Clingendael International Energy Programme (CIEP), the Loyola de Palacio Chair (LdP) of the European University Institute and Wilton Park Conferences (WPC) <u>Steyning, 5-7 December 2011</u>

Conference of the project on "Impact of Networks, Globalisation, and their Interaction with EU Strategies" (INGINEUS): "Globalisation of Innovation" <u>Brussels, 9 December 2011</u>

Side event at the 17<sup>th</sup> Conference of the Parties (COP17) of the UNFCC in Durban: "The San Giorgio Group: Expanding Green, Low-Emissions Finance", organized in partnership with the Climate Policy Initiative (CPI) Durban, 9 December 2011 Presentation of the book: "The Experience of Evil. War, Torture, Genocide and Terrorism under Trial" (*"L'esperienza del male. Guerra, tortura, genocidio, terrorismo alla sbarra", Antonio Cassese)* <u>Milan, 12 December 2011</u>

### Lectures, 2011

FEEM Lecture by Phil Sharp, President of Resources for the Future, USA: "Is the United States Taking Effective Action on Climate Change?" <u>Milan, 24 May 2011</u>

FEEM Lecture by Prof. Martin L. Weitzman, Harvard University, USA: "An Economist Grapples with Catastrophic Climate Change" <u>Venice, 1 June 2011</u>

### Seminars, 2011

When, and how, to be precautious Milan, 13 January 2011

The policy path to low-carbon society Milan, 20 January 2011

Intergenerational and inter-regional equity in a warming Milan, 3 February 2011

New generation power networks and climate change: the economic potential of national and trans-national Super-Grids. <u>Milan, 10 February 2011</u>

Nuclear power: current state and future developments <u>Milan, 17 February 2011</u>

Efficient mechanisms for access to storage with imperfect competition in gas markets Milan, 24 February 2011 A branching and recombination model of innovation <u>Milan, 3 March 2011</u>

Generalized Nash equilibrium and incomplete energy markets: an illustration by market coupling in the European power system <u>Milan, 10 March 2011</u>

A good opening: the key to making the most of unilateral action <u>Milan, 16 March 2011</u>

The regulation of interdependent markets Milan, 24 March 2011

On the determinants of state aid to car manufacturers <u>Milan, 7 April 2011</u>

Reconciling climate policy and energy security: results and recommendations from the SECURE project <u>Milan, 14 April 2011</u>

Rural electrification programmes in Kenya: policy conclusions from a valuation study <u>Milan, 21 April 2011</u>

The Kyoto Protocol, the Copenhagen Accord, the Cancun Agreements, and beyond: an economic and game theoretical exploration and interpretation Venice, 28 April 2011

The distributional impact of emigration: the case of EU enlargement Milan, 5 May 2011

Seventh Framework Programme for Research and Technological Development: PEOPLE Programme - training, mobility and career development opportunities Venice, 10 May 2011

Does cleanup of hazardous waste sites raise housing values? Evidence of localized effects from restricted access census block data Venice, 12 May 2011 Climate change and individual decision making <u>Milan, 26 May 2011</u>

Risk and return in environmental economics <u>Venice, 6 June 2011</u>

"Scenario analysis and energy policy": the experience of the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) Research Department Milan, 9 June 2011

Policy for natural resources (POLINARES): a report of the first 18 months <u>Milan, 16 June 2011</u>

Climate change and growth: will there be enough water? <u>Venice, 16 June 2011</u>

Stochastic capacity expansion models: risk exposure and good-deal valuation <u>Milan, 23 June 2011</u>

Energy efficiency support programmes in the residential buildings sector: the Hungarian experience Venice, 24 June 2011

Carbon capture & storage (CCS): technology issues and worldwide projects <u>Milan, 7 July 2011</u>

Filling the gap between academic research and business decision-making: the case of the Corporate Ecosystem Valuation <u>Milan, 14 July 2011</u>

Oil price and financial speculation Milan, 21 July 2011

The effects of malaria on education: evidence from the Ethiopian highlands Venice, 1 September 2011

Incentives for environmental R&D Venice, 5 September 2011 Scientific communication: from research to the general public <u>Milan, 8 September 2011</u>

Measuring human development: a stochastic dominance <u>Venice, 15 September 2011</u>

Which value of a statistical life (VSL) to use in cost-benefit analyses? A global meta-analysis of stated preference studies <u>Venice, 19 September 2011</u>

Optimal spatial pricing and its impact on renewable generation in Great Britain <u>Milan, 22 September 2011</u>

VENETONIGHT, the European Researchers' Night in Veneto Venice, Padua, Verona, 23 September 2011

Does speculation affect returns in commodities futures markets? <u>Milan, 29 September 2011</u>

Macroeconomic impacts of sectoral approaches: the role of the cement sector Milan, 6 October 2011

Reducing emissions from deforestation in developing countries under the UNFCCC - caveats and opportunities for biodiversity Venice, 13 October 2011

Climate change impacts in the Mediterranean: the economic assessment of the CIRCE project <u>Milan, 20 October 2011</u>

Changing incentives to publish and the consequences for the competitiveness of countries <u>Milan, 27 October 2011</u>

"ICCG Think Tank map": a worldwide observatory on climate think tanks Venice, 28 October 2011 Finite sample results of range-based integrated volatility estimation <u>Milan, 3 November 2011</u>

Heterogeneous firms trading in ideas: an application to energy technologies <u>Milan, 10 November 2011</u>

The EU ETS: dead end or path to the future? Milan, 17 November 2011

Oil price, macroeconomic dynamics and financial speculation Milan, 21 November 2011

Estimation of perceived flood damage in Tokyo metropolitan area <u>Venice, 22 November 2011</u>

Hydropower development in Italy: tradable certificates for renewable energy <u>Venice, 24 November 2011</u>

Understanding the strategic energy technology (SET) plan: does the EU have a climate/energy technology deployment strategy? <u>Milan, 1 December 2011</u>

Do land conservation programs crowd out or crowd in each others' conservation? <u>Milan, 6 December 2011</u>

Disaster risk, social vulnerability and economic development Venice, 12 December 2011

Endogenous market power in an emissions trading scheme Milan, 15 December 2011

Evolution of the regional gas pricing mechanisms <u>Milan, 22 December 2011</u>

### Summer Schools and training conferences, 2011

European Summer School on Developments in Resource Economics Venice, 3-9 July 2011

Belpasso International Summer School: Extremes: Natural Disasters in Changing Climate Belpasso, 4-10 September 2011

International & European Law and Policy on Investment and Environment (IELPIE) Summer School 2<sup>nd</sup> Edition Venice, 19-24 September 2011

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