



5TH EUROPEAN CONFERENCE

ECONOMICS AND MANAGEMENT OF ENERGY IN INDUSTRY

Hotel D. Pedro Golf Resort – Vilamoura – Algarve – Portugal • 14-17 April 2009

PRELIMINARY PROGRAMME

APRIL 14 – TUESDAY

- 15:00 – 18:00 → Registration

VERDI (Conference room)

- 18:00 – 19:30 → **OPENING SESSION**

WELCOME ADDRESS – PROF. ALBINO REIS
CENERTEC-CENTRO DE ENERGIA E TECNOLOGIA
PORTUGAL

KEYNOTE LECTURES - ECONOMIC ANALYSIS OF INTEGRATION OF ENERGY MARKETS

PROF. EINAR HOPE
PROFESSOR AT NORWEGIAN SCHOOL OF ECONOMICS AND BUSINESS
ADMINISTRATION (NORWAY)

INDUSTRY AND CLIMATE CHANGE: THE ROLE OF ENERGY EFFICIENCY

PROF. ERNST WORRELL
PROFESSOR OF ENERGY, MATERIALS AND THE ENVIRONMENT,
COPERNICUS INSTITUTE FOR SUSTAINABLE DEVELOPMENT AND
INNOVATION, UTRECHT UNIVERSITY (NETHERLANDS)

- 20:00 → WELCOME DINNER AT THE HOTEL DOM PEDRO GOLF RESORT

APRIL 15 – WEDNESDAY

VERDI (Conference room)

- 08:30 – 10:10 → **KEYNOTE LECTURES**

INDUSTRIAL ECOLOGY-LIFE CYCLE ASSESSMENT

PROF. ADISA AZAPAGIC
PROFESSOR OF SUSTAINABLE CHEMICAL ENGINEERING, DEPUTY HEAD OF
SCHOOL AND HEAD OF RESEARCH, SCHOOL OF CHEMICAL ENGINEERING AND
ANALYTICAL SCIENCE, THE UNIVERSITY OF MANCHESTER (UNITED KINGDOM)

CLIMATE CHANGE AND CARBON ECONOMY IN THE POST-2012 GLOBAL REGIME

ENG. JORGE MOREIRA DA SILVA

SENIOR ADVISOR ON ENVIRONMENT AND ENERGY TO THE PRESIDENT OF PORTUGAL, TO THE EUROPEAN INVESTMENT BANK AND TO THE EUROPEAN COMMISSION

- 10:10 – 10:40 → **COFFEE-BREAK**

VERDI (Conference room)

- 10:40 – 13:00 → **INDUSTRIAL ENERGY ANALYSIS AND MANAGEMENT**

THEORY AND METHODOLOGY

Finite Time Exergy Considerations Extended to a General Thermodynamic System

Robert W. Grubbström

Linköping Institute of Technology (Sweden)

Time Series Analysis and Manipulation in Industrial Energy Systems

Stefan Kirschbaum, Philip Voll and Gregor Wrobel

Society for the Promotion of Applied Computer Science and RWTH Aachen University (Germany)

Zooming on the Exergetic Cost Formation Process of a Multiple-Effect-Evaporation (MEE) desalination Plant

A. Piacentino and E. Cardona

Università di Palermo (Italy)

The Influence of Allocation Methods for Chlorine Electrolysis Technology Assessment

Johannes Jung and Jan Leder

RWTH Aachen University (Germany)

A Process Integration Approach to Energy Efficiency Monitoring in the Pulp and Paper Industry

Leena Sivill and Pekka Ahtila

Helsinki University of Technology - Department of Energy Technology (Finland)

SGCIE – Management System of Intensive Energy Consumptions

João Paulo Calau

ADENE – Agência para a Energia (Portugal)

Thermoeconomical Optimization of Heating Systems

V. Nikulshin and V. von Zedtwitz

Odessa National Polytechnic University (Ukraine)

- 13:00 – 14:30 → **LUNCH**

VERDI (Conference room)

- 14:30 – 15:20 → **KEYNOTE LECTURE**

ENABLING TECHNOLOGIES FOR INDUSTRIAL ENERGY DEMAND REDUCTION

DR PASCAL TERRIEN

DIRECTOR OF THE EUROPEAN ENERGY EFFICIENCY RESEARCH CENTRE (ECLER)-EDF (France), AND LABORATORIES FOR ENERGY EFFICIENCY RESEARCH

VERDI (Conference room)

- 15:20 – 16:20 → **INDUSTRIAL ENERGY ANALYSIS AND MANAGEMENT**

Co-Authorship of Portuguese Scientists in the Energy Field: an Exploratory Study of the ETDEWeb using Social Network Analysis (SNA)

Vasco Monteiro, Miguel Neto, Aurora Cardoso and Ana Maria R. Correia
Instituto Superior de Estatística e Gestão de Informação, Instituto Nacional de Engenharia, Tecnologia e Inovação (DEECA, INETI), Instituto de Apoio às Pequenas e Médias Empresas e à Inovação, I.P. (IAPMEI) and Universidade Nova de Lisboa (ISEGI) (Portugal)

NATIONAL PROSPECTIVES

Energy Management in Industrial SMEs

Patrik Thollander
Linköping University – Division of Energy Systems (Sweden)

Thermodynamic Analysis of the UK Industrial Sector

G. P. Hammond, R. C. Mckenna and J. B. Norman
University of Bath (United Kingdom)

- 16:20 – 16:50 → **COFFEE-BREAK**

VERDI (Conference room)

- 16:50 – 18:50 → **INDUSTRIAL ENERGY ANALYSIS AND MANAGEMENT**

Adoption of Profitable Efficiency Related Process Improvements in Small and Medium Sized Enterprises

Suresh Muthulingam, Charles J. Corbett, Shlomo Benartzi and Bohdan Oppenheim
University of California and Loyola Marymount University (USA)

Monitoring Energy Efficiency Trends in EU – The Case of Croatia and Transition Countries, with Special Emphasis on Energy Efficiency in Industry

Marko Karan
Energy Institute Hrvoje Požar (Croatia)

Evolution and Prospects of Energy Efficiency in Romania

Gheorghe Olteanu, Vasile Rugina and Mircea Ghitulescu
ICEMENERG (Romania)

Energy Conservation through Value-Engineering for SMEs in Thailand

Channarong Asavatesanupap, Malee Santikunaporn and Prapat Wangskan
Thammasat University (Thailand)

Energy Management for Designated Factories and Designated Buildings in Thailand

Malee Santikunaporn, Channarong Asavatesanupap and Prapat Wangskan
Thammasat University (Thailand)

Energy Consumption and Energy Intensity in Iran's basic Metals Industry: Analyze and Forecast with Fuzzy Regression

Mehdi Shahriari, S. Farid Ghaderi and Mehdi Piltan
University of Tehran – Faculty of Engineering (Iran)

APRIL 16 – THURSDAY

VERDI (Conference room)

- 08:30 – 10:10 → **KEYNOTE LECTURES**

FUEL CELL AND HYDROGEN FUTURES

DR DAVID HART

DIRECTOR OF E4TECH, AND HEAD OF FUEL CELL AND HYDROGEN RESEARCH AT IMPERIAL COLLEGE LONDON'S CENTRE FOR ENERGY POLICY AND TECHNOLOGY (SWITZERLAND AND UK)

NUCLEAR POWER PROSPECTS AND CHALLENGES

DR FABIEN ROQUES

ASSOCIATE DIRECTOR, EUROPEAN GAS AND POWER, CAMBRIDGE ENERGY RESEARCH ASSOCIATES (FRANCE)

- 10:10 – 10:40 → **COFFEE-BREAK**

VERDI (Conference room)

- 10:40 – 13:00 → **ALTERNATIVE ENERGY SOURCES**

Making Markets for Hydrogen Vehicles: Lessons from LPG

Richard Green and Helen Hu

University of Birmingham (United Kingdom)

Levelised costs of Wave and Tidal energy in the UK: cost competitiveness and the impact of "banded" Renewable Obligation Certificates

Grant Allan, Peter McGregor and Kim Swales

Fraser of Allander Institute and University of Strathclyde (United Kingdom)

An Analysis of Supporting Mechanisms to Favor the Renewable Energy Source Penetration in the Italian Electric Generation

Marco Calisi, Davide Cicolin and Antonio Mattucci

ENEA – Energy Department (Italy)

Technical and Economical Viability for the Use of Waste Vegetable Edible Oil in the Oporto Metropolitan Area for Biodiesel Production

A. Neves, P. Vilarinho and C. Pinho

Petrogal, CIRELIUS and Faculdade de Engenharia da Universidade do Porto (CEFT-DEMEGI) (Portugal)

Renewable Technology for Energy Access in Sahelian Countries: Application to Senegal

Djiby O. Racine Thiam, Sylvie Ferrari and Stephane Becuwe

GRETHA Groupe de Recherche en Economie Théorique et Appliquée (France)

Renewable Outlook 2007, Considerations for Business Strategy

Alberto Biamonti and José Figueiredo

Instituto Superior Técnico (CEG-IST) (Portugal)

Solutions Concerning the World Energy Crisis

Bogdan Patratanu

ICEMENERG (Romania)

Managing the Public Participation Process in Energy Policy: A Case Study Approach on UK Nuclear Energy Policy

Raphael J. Heffron

University of Cambridge (United Kingdom)

- 13:00 – 14:30 → LUNCH
- 14:45 – 19:45 → TOUR: VISIT TO LAGOS AND SAGRES

APRIL 17 – FRIDAY

VERDI (Conference room)

- 08:30 – 10:10 → KEYNOTE LECTURES

OPORTUNITIES AND TRENDS IN THE IBERIAN ELECTRICITY MARKET (MIBEL)

PROF. JORGE DE SOUSA

PROFESSOR OF ENERGY MARKETS AND HEAD OF THE POWER SYSTEMS UNIT AT INSTITUTO SUPERIOR DE ENGENHARIA DE LISBOA (PORTUGAL)

ENERGY USE AND CO2 EMISSIONS IN INDUSTRY: THE WAY FORWARD

MRS. CECILIA TAM

ENERGY ANALYST, ENERGY TECHNOLOGY POLICY DIVISION, INTERNATIONAL ENERGY AGENCY (FRANCE)

- 10:10 – 10:40 → COFFEE-BREAK

VERDI (Conference room)

- 10:40 – 13:00 → ELECTRICITY AND GAS MARKETS

The Relationship between Natural Gas Exports and Prices Resulting from the Deregulation of the Natural Gas Industry in Canada: A Twenty Five Year Perspective

Philip R. Walsh

Ryerson University – Ted Rogers School of Management (Canada)

Development of the Natural Gas Infrastructure in Croatia with Respect to Security of Natural Gas Supply in the South East Europe Region

Eraldo Banovac, Darko Pavlović and Goran Babić

Croatian Energy Regulatory Agency (Croatia)

Forecasting Methods for Prices of Fuel, Electricity and Emission Allowances and the Future Electricity Demand

Athanasios A. Rentizelas, Athanasios I. Tolis and Ilias P. Tatsiopoulos

National Technical University of Athens – Mechanical Engineering School (Greece)

Economies of Vertical Integration in the Swiss Electricity Sector

Aurelio Fetz and Massimo Filippini

ETH Zurich – Department of Management, Technology and Economics and University of Lugano – Department of Economics (Switzerland)

Brazilian Electricity Demand Estimation: What has Changed After the Rationing in 2001? An Application of Time Varying Parameter Error Correction Model

Hilton Notini, Amanda Pimenta Carlos and Luiz Felipe Maciel

ANAC – National Civil Aviation Agency and Getulio Vargas Foundation (Brazil)

Selecting Oligopolistic Models in the Italian wholesale Electricity Market

Daniela Floro

University of Milan (Italy) and University of Warwick (United Kingdom)

Mergers between Natural Gas Suppliers and Electricity Generators: should European Consumers be concerned?

Marta Ferreira Dias

University of Aveiro (Portugal) and University of Warwick (United Kingdom)

ROSSINI (Conference room)

- 10:40 – 13:00 → **ENERGY AND ENVIRONMENT
COMBINED HEAT, COLD AND POWER**

ENERGY AND ENVIRONMENT

The Effects of the New European Climate Change Policy on the Worldwide Distribution of Industrial Activity

Stef Proost and Denise Van Regemorter

Center for Economic Studies, KULeuven (Belgium)

The ESCO Problem under Uncertainty

Sam Aflaki and Paul R. Kleindorfer

INSEAD (France)

Effects of a Green Tax Reform and EU-ETS in Portugal: a General Equilibrium Analysis

Margarita Robaina Alves and Miguel Rodríguez

University of Aveiro and University of Vigo (Portugal)

Incentive to an Efficient Management of CO2 Allowances in the Portuguese Electricity Sector

Pedro Costa, Amanda Falcão and Vítor Marques

Entidade Reguladora dos Serviços Energéticos (Portugal)

Optimal Introduction of the CCS Technology in an Environment of Technological and Price Uncertainties

Joachim Geske and Johannes Herold

Forschungszentrum Jülich and TU Dresden (Germany)

COMBINED HEAT, COLD AND POWER

Trigeneration Technologies for Energy Savings and Reduction of Greenhouse Gas Emissions from Food Manufacturing and Retailing

Savvas Tassou, IN Suamir, N Sugiarta and D Marriott

Brunel University and Doug Marriott Associates (United Kingdom)

Possibilities of Industrial Trigeneration – Two Illustrative Cases

Pekka Ruohonen, Timo Nousiainen, Ilkka Hippinen and Pekka Ahtila

Helsinki University of Technology - Department of Energy Technology (Finland)

Cogeneration in Industry Sector: Problems and Opportunities in Italy

A. Arteconi, C. Brandoni, C. M. Bartolini and F. Polonara

Università Politécnica delle Marche – Dipartimento di Energetica (Italy)

Increased Industrial District Heating use in a CHP System-Economic Consequences and Impacts on Global CO2 Emissions

Kristina Difs and Louise Trygg

Linköping University – Division of Energy Systems (Sweden)

- 13:00 – 14:30 → **LUNCH**

VERDI (Conference room)

- 14:30 – 15:20 → **KEYNOTE LECTURE**

MODELLING AND SIMULATION OF THERMAL SYSTEMS

PROF. JEAN LEBRUN

PROFESSOR AT THE UNIVERSITY OF LIÈGE (BELGIUM)

VERDI (Conference room)

- 15:20 – 16:20 → **ELECTRICITY AND GAS MARKETS**

Electricity Market Interconnections and Electricity Price Volatility

Nuno Fonseca and João Duque

Citigroup Global Markets and Technical University of Lisbon (Portugal)

Global Natural Gas Market: Reality or Expectation?

Marcela Ferreira Ramos, Amanda Pimenta Carlos and Rafael Martins de Souza

Getulio Vargas Foundation – Post-Graduate School of Economics (Brazil)

Assessment of Restrained Energy Market into Clean Development Context at Araçatuba Administrative Region

Raphael B. Heideier, Marcos Z. Ueocka and Miguel E. M. Udaeda

Escola Politécnica da Universidade de São Paulo, Dep. de Engenharia de Energia (Brazil)

Forecast and Analyze the Electricity Consumption in Textile Industry in Iran

Mehdi Piltan, Mohammad Reza Farahani and S. Farid Ghaderi

University of Tehran – Faculty of Engineering (Iran)

ROSSINI (Conference room)

- 15:20 – 16:20 → **ENERGY CONSERVATION IN INDUSTRIAL PROCESSES AND BUILDINGS**

Thermodynamic Optimization of Energy Conversion Systems using Nanofluids as Working Media

Sergey Artemenko, Michael Khmelnyuk, Yuri Simonenko and Victor Mazur

Academy of Refrigeration (Ukraine)

Technological and Economical Survey of Small-Scale Organic Rankine Cycle Systems

Sylvain Quoilin, Vincent Lemort and Jean Lebrun

Thermodynamics Laboratory, University of Liège (Belgium)

Issues for Energy Saving Solutions for Industry using Innovative Induction Heating

Bernard Paya, Bernard Nacke, Sergio Lupi, François Maréchal, Yves Fautrelle and Laurent Levacher

EDF-R&D-EPI, Leibniz Universität Hannover, Università di Padova, EPFL-STI-ISE-LENI (Laboratoire d'Énergétique Industrielle), G-INP SIMAP EPM Group and EDF-R&D-ECLÉER (European Center Laboratories for Energy Efficiency Research) (France)

- 16:20 – 16:50 → **COFFEE-BREAK**

VERDI (Conference room)

- 16:50 – 18:50 → **ENERGY SUPPLY**

Quality of Electricity Supply and Distributed Energy Sources

Jiří Tůma, Jan Šefráník, Tomáš Sýkora, Igor Chemišinec and Zdeněk Andrlík
The Czech Technical University in Prague, Electricity Market Operator – OTE and Interel, s.r.o. (Czech Republic)

Reliability and Optimal Design of Energy Supply Networks

Larisa Afanas'eva and Ekaterina Bulinskaya
Moscow State University (Russia)

Method for Monitoring of the High Power Electric Generators Operation by means of the Relational Diagrams between Generator and Transport Grid

Rodica Zlatanovici, Dan Zlatanovici, Cristinel Cicirone and Sorin Dumitrescu
ICEMENERG (Romania)

Optimal Selling into the Elspot Market for a Norwegian Hydropower Generator

Stein-Erik Fleten and Jens Arne Steinsb
Norwegian University of Science and Technology (NTNU) (Norway)

Exploration and Supply of Natural Gas in India

Rashid Mamunur
Tokyo Institute of Technology (Japan)

The Search for a Balance between State and Market in the Brazilian Power Sector

Adilson de Oliveira
Universidade Federal do Rio de Janeiro – Instituto de Economia (Brazil)

ROSSINI (Conference room)

- 16:50 – 18:50 → **ENERGY CONSERVATION IN INDUSTRIAL PROCESSES AND BUILDINGS**

Energy Optimisation in Polymer Processing: A Review of Energy Usage in PLASTIC Blow Moulding

P. Golden and G. E. O'Donnell
Trinity College Dublin – Department of Mechanical and Manufacturing Engineering (Ireland)

Formation Structure of Optimality by Thermoconomics: Disassembling Thermodynamic and External Influences in Energy Systems Design

A. Piacentino and F. Cardona
Università di Palermo and Università "La Sapienza" Roma (Italy)

Energy intensity in the Italian Pulp and Paper Industry. A Study of Evolutionary Dynamics

Ornella Malandrino, Maria Proto and Daniela Sica
University of Salerno – Faculty of Economics (Italy)

Calculation of Drops Distribution in Steam Turbines Blades

M. Toledo Velázquez, F. Rueda Martinez, F. Sánchez Silva and A. Aldo Rueda Martinez
SEPI-ESIME-IPN Unidad Profesional "Adolfo Lopez Mateos" (Mexico)

Thermographic Analysis, an Energy Audit Approach

Luís Braga and Sónia Coelho
RAR – Refinaria de Açúcar Reunidas, S.A. (Portugal)

Low-NOx Oil-Fuels Burners – Developed in Romania by the ICEMENERG Specialists

Adrian Adam, Ion Barbieru and Silvia Grigorescu
ICEMENERG (Romania)

Low Energy Buildings in Industry: Economics and Management

V. Zebergs, N. Zeltins, I. Puikевичa-Puikēvska and V. Vrublevskis
Institute of Physical Energetics and Riga Technical University (Latvia)

Effect of Heat Exchangers on the Thermo Economic Analysis of Water/LiBr Absorption Refrigeration System

I. Boukholda, S. Elmay and A. Bellagi
Ecole Nationale d'Ingénieurs de Monastir (Tunisia)

The Relation between the Efficiency of the District Heating System of Riga and the Type of Regulation of the Load

Daniels Turlajs, Aris Zigurs and Aleksandrs Sorocins
Riga Technical University – Department of Heat and Power Engineering (Latvia)

A Case of Energy Waste through Air Conditioners

E. Bakaya-Kyahurwa, C. S. Kiravu and M. T. Oladiran
Walter Sisulu University (South Africa)

Measures of Energy Economy in Livestock Housing

Andris Kreslins and Anna Ramata
Riga Technical University – Institute of Heat, Gas and Water Technology (Latvia)

VERDI (Conference room)

- 18:50 – 19:00 → **CLOSING SESSION**

CLOSING ADDRESS – PROF. ROBERT W. GRUBBSTROM
LINKOPING INSTITUTE OF TECHNOLOGY
SWEDEN

PROF. GEOFFREY HAMMOND
UNIVERSITY OF BATH
UNITED KINGDOM

- 20:30 → **FAREWELL DINNER AT THE CASINO OF VILAMOURA SHOW ROOM**