

Annual Meeting of the
International Energy Workshop
jointly organized by EMF/IEA/ETSAP/IIASA
24-26 June 2003 at the Conference Center, Laxenburg, AUSTRIA




Program

Tuesday - 24 June 2003

- 08:15 Shuttle Bus from Parkhotel Schönbrunn / Hotel Prinz Eugen to IIASA Conference Center
- 08:00-08:45 *Registration* -- Entrance of the Conference Center in Laxenburg
- 09:00-09:10 *Opening and Welcome Address*: **Leen Hordijk** - IIASA Director
Alan Manne, John Weyant, Fatih Birol, GianCarlo Tosato, and Leo Schrattenholzer – Coordinators
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PLENARY SESSION I

CHAIRPERSON: Cesare Marchetti

- 09:10-09:30  Long-Term Energy-Economic-Environment Scenarios and Policy Making
Leo Schrattenholzer
- 09:30-10:00  Towards Hydrogen Economy in Iceland
Hannes Jónsson
- 10:00-10:30  Hydrogen Economy: Opportunities and Challenges
Phillip Tseng, John Lee, and Paul Friley
- 10:30-11:00 Coffee Break

11:00-11:30



**Domenico Rossetti
di Valdalbero**

The EU Models and the High-level Group on
Hydrogen and Fuel Cells

11:30-12:00



Naomoto Uesugi

R&D Efforts for a Competitive Market

12:00-12:30



Steve Xia

General Electric's Hydrogen Research









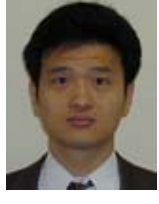
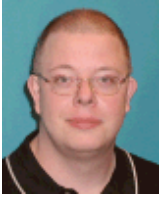


12:30-14:00 Lunch

14:00-17:40 Parallel Sessions (see next page)

18:00-20:30 Social Event: IIASA Schloss Restaurant
Shuttle Bus to the Parkhotel Schönbrunn / Hotel Prinz Eugen at 20:30

Tuesday Afternoon - 24 June 2002 - 14:00-17:40

	Theater Hall #215 PARALLEL SESSION I: ALTERNATIVE FUELS CHAIRPERSONS: Ottmar Edenhofer and Peter Read	Marschall Room I #188 PARALLEL SESSION II: LEARNING AND TECHNOLOGICAL PROGRESS CHAIRPERSONS: Alan McDonald and Jürgen-Friedrich Hake	Marschall Room II #177 PARALLEL SESSION III: RENEWABLE ENERGY AND SUSTAINABLE DEVELOPMENT (1 of 2) CHAIRPERSONS: Claudia Kemfert and Kurt Kratena	Kamin Room #173 PARALLEL SESSION IV: METHODOLOGY CHAIRPERSONS: Ronald Sands and Amit Kanudia
14:00- 14:20	 Hydrogen Infrastructure Modeling in USEPA- MARKAL Ken Harrison	 Modeling Experience Curves in MERGE Socrates Kypreos	 Sustainable Energy Supply in Germany - Scenario Analysis with Different CO ₂ Prices Markus Blesl , Uwe Remme, and Ulrich Fahl	 Possible Global Warming Futures, an Imprecise Probability Theory Approach Minh Ha Duong
14:20- 14:40	 The Hydrogen Economy in the 21st Century: A Sustainable Development Scenario Leonardo Barreto , Atsutoshi Makihira, and Keywan Riahi	 Energy Infrastructures Modeling: Eurasia Gas Pipelines System Arkadii Kryazhimsky, Oleg Nikonov, Yaroslav Minullin	 Waste Recycling for Biomass Electricity: A Comparison between India and China Ashish Rana , Hongwei Yang, and Toshihiko Masui	 Emission Permit Allocation Schemes and Industrial Growth: An Analysis Using MARKAL Richard Loulou and Amit Kanudia
14:40- 15:00	 Pollution-Free Hydrogen from Nuclear Power Alistair I. Miller and Romney B. Duffey	 Technical Change in Energy Related Methane Abatement Casey Delhotal, Francisco de la Chesnaye, Michael Gallaher and Marvin Branscome	 Innovation Takes Off in Chinese Automobile Industry Cheng Chang	 Assessment of the Very Long Term Development of the Needs For Energy Services: The VLEEM Methodology Bertrand Chateau , N. Quercia and the VLEEM consortium

15:00-15:20				
	<p>Tax Exemption for Biofuels in Germany: Is Bio-ethanol Really an Option for Climate Policy?</p> <p>Jan Michael Henke, Gernot Klepper and Norbert Schmitz</p>	<p>A Dynamic Programming Approach to Learning-by-Doing</p> <p>Charles Ng</p>	<p>South Asian Energy and Emission Perspectives for 21st Century</p> <p>Jyoti Parikh and Kankar Bhattacharya</p>	<p>Estimation of Real Emissions Reduction Caused by Wind Generators</p> <p>Olev Liik, Rein Oidram and Matti Keel</p>
15:20-15:40				
	<p>Effective Utilization of By-product Oxygen at Hydrogen Production by PEM</p> <p>Takeyoshi Kato, Mitsuhiro Kubota, Noriyuki Kobayashi and Yasuo Suzuki</p>	<p>Induced Technological Change Under Energy Taxes</p> <p>Reyer Gerlagh, Wietze Lise, and Bob van der Zwaan</p>	<p>Multi-Gas Strategy in Committing to the Kyoto Protocol</p> <p>Marc Vielle and Alain L. Bernard</p>	<p>Energy Productivity Across OECD and Non-OECD Countries in 10 Manufacturing Sectors - Patterns of Growth and Convergence</p> <p>Asami Miketa and Peter Mulder</p>
15:40-16:00	Coffee Break			
16:00-16:20				
	<p>Quantitative Analysis of CO₂ Emission Reduction by Introducing Stationary Type PEFC Systems</p> <p>Yutaka Nagata</p>	<p>Learning Curve Analysis for Energy Technologies: Theoretical and Econometric Issues</p> <p>Thomas Sundqvist and Patrik Söderholm</p>	<p>ADMIRE-REBUS: Modelling the European Market for Green Electricity</p> <p>B.W. Daniels and Martine A. Uytterlinde, and H.J. de Vries</p>	<p>Analysis of Future Network Developments with the Help of the VLEEM Back-Casting Methodology</p> <p>Thomas Hamacher, M. Biberacher and the VLEEM consortium</p>

16:20-16:40				
	<p>The Role of Energyplexes in the 21st century: Coal Gasification for Co-producing Hydrogen, Electricity and Liquid Fuels</p> <p>Kei Yamashita and Leonardo Barreto</p>	<p>Technological Changes in Long Term Transition Scenarios</p> <p>Koen Smekens</p>	<p>Linking Promotion Strategies for RES-E and CO₂ Reduction in a Liberalised Electricity Market: Is Harmonisation of Policy Necessary?</p> <p>Claus Huber and Poul Erik Morthorst</p>	<p>Impact Parameters on Electricity Prices in Liberalised Electricity Markets</p> <p>Reinhard Haas</p>
16:40-17:00				
	<p>Economical CO₂, SO_x and NO_x Capture from Fossil Fuel Utilization with Combined Renewable Hydrogen Production and Large Scale Carbon Sequestration</p> <p>Danny Day</p>		<p>Tying Europe Together - Long-Term Effects on Green Electricity Production in the Nordic Countries from Cross-Border Trade</p> <p>Anna Krook-Riekkola, Erik O. Ahlgren, and Ingrid Nyström</p>	<p>An Energy Model for a Low Income Rural African Village</p> <p>Thomas Alfstad, Gary Goldstein, David Victor, Lindsey Jeftha and Mark Howells</p>
17:00-17:20				
17:20-17:40	Discussions/Conclusions	Discussions/Conclusions	Discussions/Conclusions	Discussions/Conclusions
18:00-20:30	<p>Social Event: IIASA Schloss Restaurant Shuttle Bus to the Parkhotel Schönbrunn / Hotel Prinz Eugen at 20:30</p>			

Wednesday Morning - 25 June 2003 – 9:30-12:30
08:15 Shuttle Bus from Parkhotel Schönbrunn / Hotel Prinz Eugen to IIASA
Conference Center

PLENARY SESSION II: Energy Modeling Forum (EMF) Study

CHAIRPERSON: John Weyant

09:00-09:30



Hillard G. Huntington

EMF 20: Natural Gas, Fuel Diversity and
North American Energy Markets

09:30-10:00



Francisco de la Chesnaye,
Casey Delhotal, and John
P. Weyant

EMF 21: Multi-Gas Mitigation and Climate
Change

10:00-10:30



John P. Weyant

Technology and Climate Policy: EMF 19 and
Global Climate and Energy Project (GCEP)

10:30-11:00

Coffee Break

11:00-11:30



Shunsuke Mori

Outline of the Integrated Assessment of
Global Warming and its Mitigation
Technologies in the Changing World
Economy and Industry Project and some
extensions of MARIA

11:30-12:00



William Nordhaus

Climate Policy in a Unilateral World: Some
Initial Thoughts

12:00-12:30

Discussions













12:30-14:00













Lunch

14:00-17:40 Parallel Sessions (see next page)

18:00 Shuttle Bus to the Parkhotel Schönbrunn / Hotel Prinz Eugen

Wednesday Afternoon - 25 June 2002 - 14:00-17:40

	Theater Hall #215 PARALLEL SESSION V: CONTROLLING EMISSIONS: CARBON SEQUESTRATION AND CAPTURE CHAIRPERSONS: Hillard Huntington and Stefan Schleicher	Marschall Room I #188 PARALLEL SESSION VI: ENERGY TECHNOLOGY ASSESSMENT CHAIRPERSONS: Socrates Kypreos and Olev Liik	Marschall Room II #177 PARALLEL SESSION VII: RENEWABLE ENERGY AND SUSTAINABLE DEVELOPMENT (2 of 2) CHAIRPERSONS: Richard Loulou and Gunter Stephan	Kamin Room #173 PARALLEL SESSION VIII: ENERGY-ECONOMIC- ENVIRONMENT Scenarios CHAIRPERSONS: Leonardo Barreto and Bertrand Chateau
14:00- 14:20	 IEA Energy Technology Perspectives Project: Using a Global Energy Technology Model to Investigate Technology Policy Scenarios Fridtjof Unander, Carmen Difulio and Dolf Gielen	 What Kinds of HVAC Technology Could Improve Energy Efficiency in Japan? Gas CHP or Advanced Heat Pump System? Masahito Takahashi and Hiroshi Asano	 Global Climate Change and the Equity-Efficiency Puzzle Alan S. Manne and Gunter Stephan	 Internalising Externalities in MARKAL - TIMES Models Denise Van Regemorter and GianCarlo Tosato
14:20- 14:40	 Internalisation of External Costs - Insights from Global Markal Model Peter Rafaj and Socrates Kypreos	 Evaluations of R&D Strategy for Advanced Power Generation Technologies in Japan with a MIP Model Based on GERT Keigo Akimoto, Ayami Hayashi, Takanobu Kosugi, Toshimasa Tomoda	 Linking Developing Country's Cooperation on Climate Control With Industrialized Country's R&D and Technology Transfer Claudia Kemfert and ZhongXiang Zhang	 White Certificates In MARKAL Models of Italy and Europe: Case Studies to Analyze Energy Efficiency Improvement Policies Federico Santi and GianCarlo Tosato
14:40- 15:00	 Long-term Perspectives for Carbon Capture in Power Plants: A Scenario for the 21st Century Keywan Riahi, Leonardo Barreto, Shilpa Rao and Edward Rubin	 A Study on Greenhouse Gas Emission Reduction Potential of Steel and Iron Industry in Korea Heesung Shin and Jongchul Hong	 Integrated Climate Change Strategies of Industrialized Countries Katia Simeonova and Harald Diaz-Bone	 Energy Scenarios for Italy Prepared by a General Equilibrium Model (MARKAL MACRO) Mario Contaldi and Francesco Gracceva

15:00-15:20				
	<p>The Impact of Carbon Sequestration on the Cost of Electricity and Hydrogen in Europe in the Medium Term</p>	<p>Advanced Electric Generating Technologies in a CGE Model of Germany</p>	<p>Modeling Greenhouse Gases Abatement Scenarios with World-MARKAL: A Comparative Analysis of Permit Allocation Schemes</p>	<p>Security of Gas Supply in an Enlarged Europe</p>
	<p>Evangelos Tzimas and S.D. Peteves</p>	<p>Ronald D. Sands and Katja Schumacher</p>	<p>Amit Kanudia, Richard Loulou and Kathleen Vaillancourt</p>	<p>Ruud G. Egging, M.G. Boots and F. van Oostvoorn</p>
15:20-15:40				
	<p>Multipollutant Emissions Reduction and CO₂ Control: The Costs of Regulatory Uncertainty</p>	<p>Supplier Strategies and Responses to Institutional Drivers for an Emerging Energy Technology</p>	<p>Carbon Cycle Impacts of Plantation Land-Owners as Joint Producers of Timber and Fuel: Towards Incentive-Compatible Modeling of Land Use Change Policy Impacts</p>	<p>Roads to Carbon Reduction in Germany</p>
	<p>Tim Johnson and David Keith</p>	<p>Neil Strachan and Hadi Dowlatabadi</p>	<p>Peter Read and Jonathan Lermitt</p>	<p>P. Markewitz, Dag Martinsen and S. Vögele</p>
15:40-16:00	Coffee Break			
16:00-16:20				
	<p>Long-Term Multigas Mitigation Strategies using MESSAGE</p>	<p>A Systematic Approach for Energy Technology Assessment</p>	<p>Sustainable Energy Use and Energy Supply - A Challenge for the Future</p>	<p>An Econometric Analysis of the Interdependence among Economy, Energy, and Environment in China</p>
	<p>Shilpa Rao and Keywan Riahi</p>	<p>Getachew Assefa and Björn Frostell</p>	<p>Jürgen-Friedrich Hake and Regina Eich</p>	<p>Mitsuo Yamada</p>

16:20-16:40	 <p>Is Carbon Sequestration in Geological Formations an Option to Buy Time?</p> <p>Ottmar Edenhofer and Nico Bauer</p>	 <p>The Role of Technology Development in Greenhouse Gas Emission Reductions - Case of Finland</p> <p>Sanna Syri, Antti Lehtilä, and Ilkka Savolainen</p>	 <p>Sustainable Development in Energy: Comparative Assessment of Energy Options</p> <p>Alfred Voß and Ulrich Fahl</p>	 <p>An Introduction to the EnFore System: A Computerized Decision Support System 3-E Model for Taiwan</p> <p>Yunchang Jeffrey Bor and Cheng Yee Chiu</p>
16:40-17:00	 <p>Timescales for CO₂ Storage: How Long is Long Enough?</p> <p>David Keith</p>	 <p>Wind Power in Finland until the Year 2025</p> <p>Vilja Varho and Petri Tapio</p>	 <p>CDM, FDI and Climate Change: Where Foreign Direct Investment Flows and Where They Should Flow</p> <p>Enzo Di Giulio, Stefania Migliavacca and Alessandro Vaglio</p>	 <p>Burden-sharing Rules for Stabilizing Greenhouse Gas Concentrations: A First Assessment of Their Equity and Cost Implications</p> <p>Asami Miketa Ger Klaassen, Leo Schratzenholzer and Bing Zhu</p>
17:00-17:20	 <p>Mocking at MACs</p> <p>Ton Manders and Johannes Bollen</p>	 <p>The Role of Technology in Inter-Fuel Substitution: A Combined Cross-Section and Time Series Approach</p> <p>Kurt Kratena and Michael Wueger</p>	 <p>Approaching the Kyoto Targets: Key strategies for Local Communities</p> <p>Monica Salvia, F. Pietrapertosa, C. Cosmi, M. Macchiato, G. Marmo</p>	
17:20-17:40	Discussions/Conclusions	Discussions/Conclusions	Discussions/Conclusions	Discussions/Conclusions
18:00	Shuttle Bus to the Parkhotel Schönbrunn / Hotel Prinz Eugen			

Thursday Morning - 26 June 2003 – 9:30-12:30

08:15 Shuttle Bus from Parkhotel Schönbrunn/Hotel Prinz Eugen to IIASA
Conference Center

PLENARY SESSION III

CHAIRPERSON: Alan Manne

09:00-09:30



Fatih Birol

Global Energy Investment Challenges

09:30-10:00



Priyadarshi R. Shukla

Climate Change Mitigation in Developing Countries

10:00-10:30



Nebojša Nakićenović

The Methane Age and Beyond: The Emergence of New Energy Technologies

10:30-11:00

Coffee Break

11:00-11:30



Robert Ayres

The Economy as a Materials Processing System: A New Evolutionary Paradigm

11:30-12:00



GianCarlo Tosato

ETSAP and Standardized Tools for Long Term Economic Modeling of Energy Systems

12:00-12:30

Discussions

12:30-14:00

Lunch

14:00 Shuttle Bus to the Parkhotel Schönbrunn / Hotel Prinz Eugen

The organizers wish to thank EPRI, Palo Alto, California for their financial support of the meeting.