



12th IAEE European Energy Conference



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Energy challenge and environmental sustainability

September 9-12, 2012 in Venice, Italy
 Ca' Foscari University of Venice

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The Conference Objectives

Recent events - such as the conflicts within several North African and Middle East oil and gas-exporting countries, and the nuclear disaster in Japan - have added elements of uncertainty in the already complex evolution of the energy situation in the world and in Europe in particular.

Security of supply, geopolitical aspects and environmental problems are once more at the forefront.

The Conference aims at providing a forum for an analysis of the new developments and a new vision of the future.

No better stage can be imagined for this discussion than the magic and fragile environment of one of the most beautiful cities in the world.

The first plenary sessions of the **12th IAEE European Energy Conference** will therefore be dedicated to the evolution of demand and to the new energy markets less dependent on major commodities.

A debate will follow on how to deal with climate change through better regulation of CO2 emissions and what opportunities Europe can get from these new regulations.

The last sessions of the Conference will deal with energy security in a geopolitical context that is getting more and more complex and difficult in all the main areas of the world.

Besides these main topics the 12th IAEE Conference will also discuss all the issues related to the environmental change and its new perspectives, such as energy efficiency, developing renewable sources, biofuels and sustainable transportation. 8 plenary and 80 concurrent sessions will be organized by the AIEE - together with the International Association for Energy Economics - IAEE in cooperation with Fondazione Eni Enrico Mattei and Ca' Foscari University of Venice.



FUTURE PERSPECTIVES OF BIOENERGY TRADE IN MODEL BASED SCENARIOS

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Overview

Global bioenergy use is expected to undergo major changes in the coming years and decades. Factors such as biomass availability and prices, conversion technologies, sustainability requirements and energy demand, will develop differently in various regions around the world. These factors will have strong impacts on bioenergy trade on local, regional and global levels. The evolution of future bioenergy trade is highly dependent on various influencing factors, including economic growth, population growth, the associated demand for biomass, biomass supply potentials and the future cost and performance of biomass supply and end-use technologies as pointed out by the IPCC's Special Report on Renewable Energy Sources. The objective of this paper is (1) to assess to which extent bioenergy trade is explicitly investigated by different energy sector models covering bioenergy, (2) to derive the implications of different energy scenarios on bioenergy trade and (3) discuss perspectives of international bioenergy trade in various scenarios.

Methods

A review of 28 trade models were conducted and methods, assumptions and scenarios regarding bioenergy trade were specified in a database. A detailed literature review on the key global energy models, reports and publications will be carried out. Out of 28 considered trade models we selected specific models to be analysed and investigated in particular scenarios from the IEA WEO, IMAGE TIMER, MESSAGE, GLOBIOM, Global energy assessment. Further models may be added in the full paper.

Based on this review, we investigated, to which extent different global energy models take into account bioenergy trade explicitly and which implicit or explicit assumptions regarding bioenergy trade are made.

Based on this scenario database we compare regional demand with potential supply and discuss corresponding perspectives of net bioenergy trade from the specified region, as well as the implications and perspectives on international bioenergy trade.

Results and conclusions

A comprehensive overview of biomass trade in the specified models will be given in the full paper. As an example in the baseline scenarios (A2r, B1, B2) of the IIASA GGI Scenariobase the biomass demand for primary energy production rises by 392% - 625% between 2000 and 2100 on a world level compared to 234% - 2526% on a regional level (11 regions specified), which will affect interregional trade.

We will further identify and discuss key drivers in the selected models with special emphasis on bioenergy trade. One of the key conclusions will refer to the relevance of bioenergy trade for different regions (supply vs. demand regions) and for different biomass fractions.

The work of this paper has been carried out in the frame of IEA Bioenergy Task 40.

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