



Bangkok Biofuels 2009 - 'Sustainable development of biofuels'

3rd annual MoEN-IEA joint Forum, 7-8 September 2009, Bangkok

Workshop Summary Record

Background

The Thai Ministry of Energy (MoEN) and the International Energy Agency (IEA) have jointly hosted annual fora since 2007. The IEA and its speakers provide MoEN and participants from SE Asia with an international policy perspective on issues topical to Thailand and SE Asia, and it is increasingly being seen as an 'honest broker'.

The fora held to date include a workshop on "Oil Security and National Oil Emergency Preparedness in ASEAN" in September 2007. In 2008, a workshop on "Fuel Options for Power Generation" with a focus on international policy and best practices was held on 22-23 September, in Bangkok. In 2009, two joint events took place. In May a joint 'Emergency Response Exercise' was organised, as the first of its kind outside the IEA headquarters and in co-operation with a non-IEA country.

These fora provide an opportunity for the IEA and invited speakers to meet and develop contacts with SE Asian officials and specialists, and to hear and discuss the latest developments in SE Asia.

Biofuels have become increasingly economic and significant in recent years during the fast rise of international oil prices and increasing concerns for energy supply security and the urgent need for climate change mitigation. Both ethanol and biodiesel have been shown to be technically effective as extenders and substitutes for gasoline and diesel, and the infrastructure for biofuels has been developed and deployed in a few countries. In the ASEAN region, biofuel production increased rapidly over the last 5 years.

But oil prices have plummeted from the highs of 2008, causing uncertainty for the future development of the newly established biofuel industries. Questions arise, what precautions are needed to ensure successful development of biofuel production. With rising discussions on sustainability, challenges occur to ensure further growth while meeting requirements for a sustainable biofuel production. While the status quo in the ASEAN region was presented, the outlook for policies and deployment plans in the medium- and long-term was discussed as well, including the potential for 2nd-generation biofuels.

Participants

Southeast Asian participants were representatives of biofuel producers in Southeast Asia and policy makers, petroleum companies, officials and academics of Thailand. The joint IEA-industry team consisted of biofuels analysts, researchers, and oil market specialists and was led by Deputy Executive Director, Richard H. Jones. The Workshop was opened by Dr Wannarat Channukul, Minister of Energy of Thailand.

Objectives

The objectives of this workshop were:

- To discuss current biofuels policies and international practices and lessons learnt
- To discuss current issues for the deployment of biofuels globally and in Southeast Asia
- To present the 'state of the art' for sustainable production of biofuel feedstocks, acceptable land use, and efficient conversion processes amidst lowering oil prices and tensions between foods and fuel production.
- To share and exchange knowledge on biofuel technologies and the potential for 2nd-generation biofuels amongst ASEAN nations.

Discussions

Workshop discussions focussed on:

- Global outlook for biofuels and IEA projections for future development of the market
- The current status of biofuel production in the ASEAN regions, including lessons learned over the last years
- National deployment plans in ASEAN countries and perspectives for the development of the biofuel industry
- International views on biofuels' sustainability with respect to economic, environmental and social aspects
- Current discussion on land use-change and food vs. biofuel production
- The Brazilian biofuels industry and the strategy to ensure sustainable production of ethanol
- Biofuel production from the perspective of developing countries – taking a holistic view to ensure compatibility with national policies and community needs with particular emphasis on the social contribution of biofuels
- Technical development from 1st- to 2nd-generation biofuel plants and the concept of bio refineries.

Over the last five years, Southeast Asian biofuel production increased rapidly with Thailand as largest producer in the region for both ethanol and biodiesel. SE Asian policy makers recognise the important role that biofuels play to reduce dependency on foreign oil imports and increase energy security. Furthermore, biofuels offer benefits for the national budget and increase income opportunities in the agricultural sector. Currently, biofuel blends are mandatory in Thailand only but many countries have adopted policies to increase domestic deployment in the coming years. Export of biofuels is an important driver in the region but access to international markets is limited.

The increasing need to reduce carbon emissions is a global challenge and new energy technologies are needed to achieve emission reduction targets. Biofuels play an important role and are one of the key-technologies to mitigate climate change. In the discussion on sustainability of biofuels, food vs. fuel and the impact of direct and indirect land use change are two main points of arguments. However, all three dimensions of sustainability –society, economy and environment- have to be considered when evaluating the effects of biofuels.

Presentations by major countries in the region highlighted current status and future plans for their biofuel production and deployment.

- Thailand: More than 50% of domestic crude oil demand was covered by foreign imports, accounting for 942 kbbbl/day in 2008. The Thai government adopted national biodiesel and ethanol development plans in order to increase use of biofuels and promote R&D on biofuel technologies over the next 15 years. With 17 operating biofuel plants, Thailand has already established a prosperous industry and capacity continues to grow within the next years, including R&D on 2nd-generation biofuels.
- Indonesia: Indonesia is the 2nd-largest producer of biofuels in the region and has adopted a roadmap for biofuel development over the next 15 years. As a first step, the roadmap requires a biofuel share of 2% in total energy supply in 2010. Biofuel support policies are seen as strategy to reduce oil import dependency, create new jobs and alleviate poverty. The future outlook for the biofuel industry is promising with a projected capacity of 9 billion litres/year by 2010.
- Malaysia: The country is currently the largest exporter of palm oil in the world with an annual production of 17.7 Mt of crude palm oil in 2008. The biodiesel capacity of the 14 producing plants totals 1.9 Mt/year, of which roughly 140 000 tonnes were exported during the first half of 2009. Price fluctuations in both crude oil and palm oil have meant that palm biodiesel production is currently not economic. Therefore, the industry is looking into the production of value-added products from palm biodiesel and the vertical integration of the biofuel production. The Small Renewable Energy Programme helps to pursue these effort by allowing also small producers of renewable electricity to sell their power and thus gain additional income.

International perspectives:

- Globally, sustainability of biofuel production gains considerable attention. Currently, the impact of direct and indirect land use change induced by biofuel production is discussed on many levels. With new biofuel policies in the European Union and the United States, questions arise how to measure the environmental impact of biofuel production and on what base certification can be undertaken. It is in this respect indispensable to understand different perspectives in various producing regions and to create fora in which constructive discussions on these matters can be undertaken.

Conclusions

Biofuels have a considerable potential to increase energy supply dependency and create economic and social benefits in SE Asia. Rapidly growing biofuel industries in many ASEAN countries reflect the positive impact of biofuel production for the respective economies. However, questions over land use, the debate on food vs. fuel, and the environmental sustainability continue to hang over 1st-generation biofuels and the views are diverse. While for developed economies, environmental aspects are most important when discussing sustainability of biofuels, Thailand and ASEAN economies take a more holistic view including social development and local employment.

The different points of view create a need to harmonise sustainability criteria at the international level, with involvement of all stakeholders. The IEA Bioenergy Implementing Agreement is a suitable platform to exchange expertise and discuss different views. Non-IEA countries and their R&D institutions and industry are welcome to become partners in the Implementing Agreements, in particular in Task 38 and 39. Former, called the 'Greenhouse Gas Balances of Biomass and Bioenergy Systems' (www.ieabioenergy-task38.org), focuses on understanding the climate change mitigation benefits of bioenergy and effects of different land use systems on carbon sequestration. Task 39 deals with the commercialisation of 1st- and 2nd-generation biofuels and is currently working on the

potential of algae biofuels, the lifecycle assessment of different 2nd-generation biofuels and the updating of 2nd-generation biofuel plants.

Furthermore, interested countries can participate in the Global Bioenergy Partnership (GBEP), in order to build international principles and criteria for sustainability of biofuels. Both biofuel producing and importing countries participate in the GBEP, whose next meeting will be held on 16-18 November in Jakarta.

Future IEA-MoEN joint forums

MoEN and IEA are planning to hold another joint workshop in 2010. The IEA-MoEN series of workshops examining topical energy issues in Southeast Asia is building good discussion, policy exchange, and trust between Southeast Asia policy makers and industry and the IEA.

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