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Workshop and Report on Implications of Bio-refineries for Energy and Trade in the APEC Region (EWG 05/2008A)

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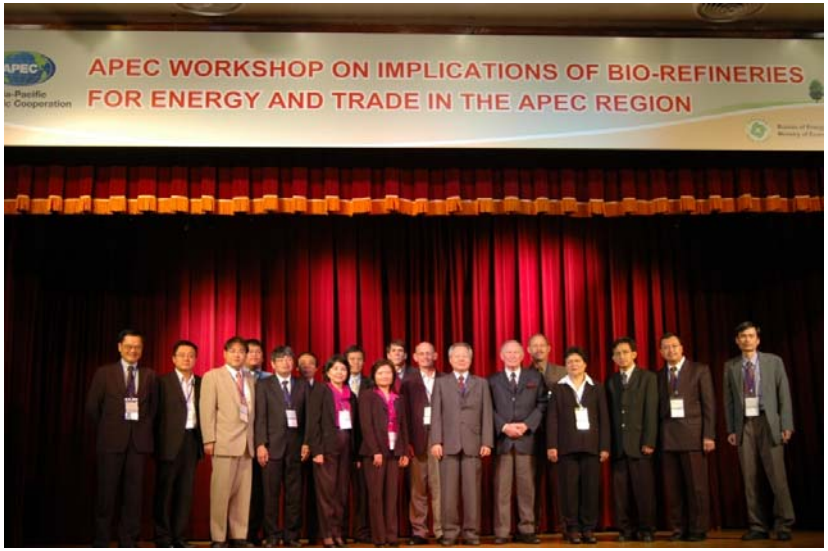
Background

- The bio-refinery facility incorporates biomass conversion equipment and processes to generate fuels, power, and chemicals from a biomass feedstock. It is very likely that bio-refinery applications will get into the APEC region in the near future.
- This project was an effort of Chinese Taipei in close collaboration with Australia, Canada, Korea, Malaysia, Mexico, New Zealand, Thailand, and US as the project partners to build up the capacity to expand the knowledge and awareness of APEC economies in the emerging bio-refinery technologies.

Workshop

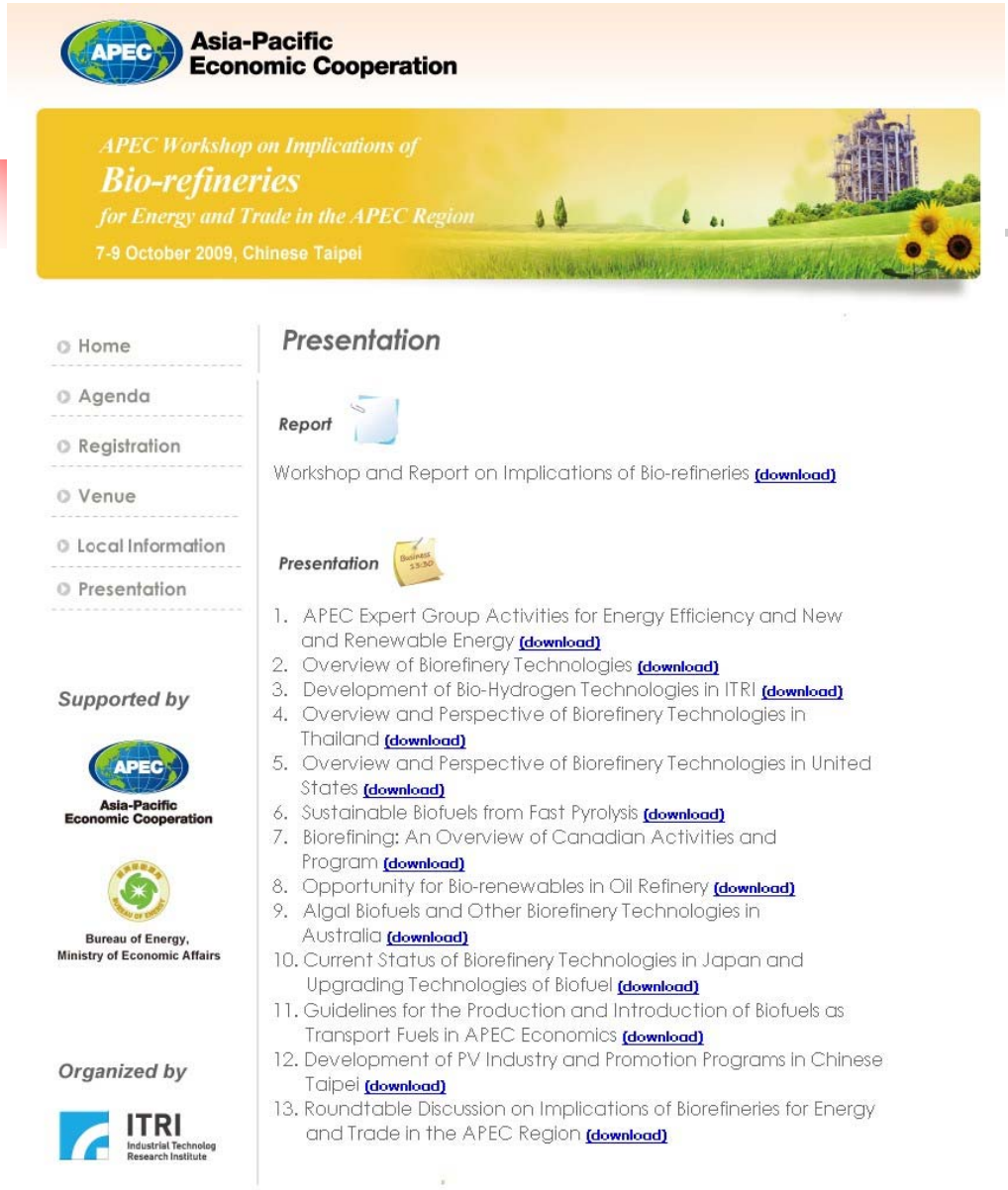
- A Workshop on Implications of Energy and Trade in the APEC Region was held on 7-9 October, 2009 in Chinese Taipei.
- More than 90 bio-fuel scientists and engineers from 12 APEC member economies, representing academia, industry, and government agencies, gathered in Chinese Taipei to discuss the bio-refinery technologies.



Roundtable Discussion

- What are your suggestions for the promotion of bio-refinery and related trade?
- What is needed to link bio-refinery emission reduction with carbon credit?
- In what way can distributed bio-refineries help develop zero emission communities?
- What is needed to promote the trade of feedstocks, intermediates and final products from bio-refinery?
- Provide your top 2-3 needs for the promotion of trade and bio-refinery technologies for use in defining follow-up actions?

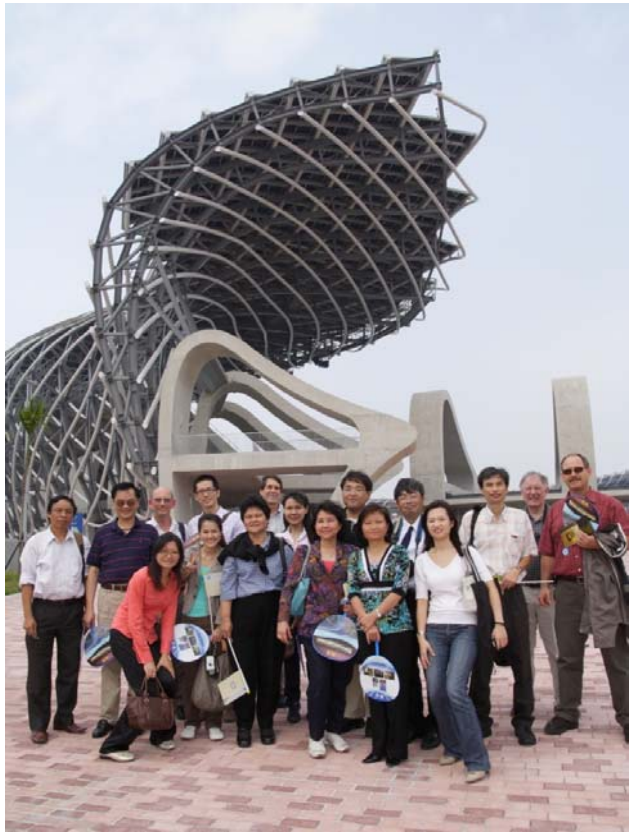
presentation files available at
http://www.netd.itri.org.tw/apec_biorefinery2009/Presentation.html



Site tour: Building Integrated PV

Installed Cap.: 1 MWp

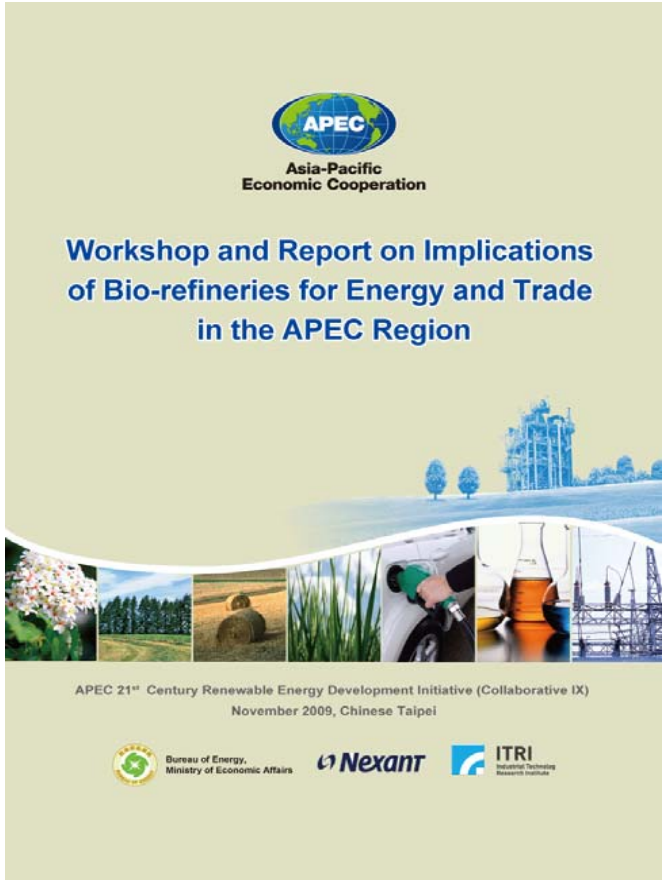
Generation: 1,100 MWh/yr



Main Stadium for 2009 World Game, Kaohsiung, Chinese Taipei

Report

- The 305-page report discussed the emerging “second generation” biofuel technologies such as bio-refinery technologies with feedstocks from non-food biomass. It also included the technical and commercial applications of the “first generation” biofuel technologies with most of the feedstocks from food crops, such as corn ethanol, sugarcane ethanol, and fatty acid methyl ester (FAME) biodiesel. Results of the workshop were presented to articulate the role that bio-fuels trade and thermal processing and engineering play in the conversion of lingo-cellulosic biomass into bio-fuels.



available on the website: http://www.egnret.ewg.apec.org/reports/index.html

Recommendation

- Many APEC economies have sufficient amounts cellulosic biomass and non-edible crop feedstocks. Therefore APEC economies should continue to focus on these feedstocks for biorefinery application. In addition, FOG (Fats, Oil, Grease) feedstocks have potential to be a stable feedstock for biorefineries if APEC economies can efficiently gather this feedstock for processing.
- With respect to biorefinery technologies, fermentation technologies based on food crops such as corn and sugarcane are well established. However, these feedstocks garner controversy as their use as biorefinery feedstocks competes with food supply. As such, focus on non-edible crop and cellulosic biomass based technologies will continue to receive the most attention and development. APEC economies should therefore focus on the development and application of these non-food based technologies.

Recommendation (cont'd)

- Biomass pyrolysis currently pursued in Canada, China and Malaysia can also be easily adopted in other APEC economies if similar feedstocks are available. Gasification and FCC cracking are well established technologies in the petroleum-based industries and can be further developed and utilized for biorefinery applications using the feedstocks covered in this study.
- Government incentives and supports are needed for bio-refinery technologies, bio-fuels production and trade in the APEC region. There is a danger when governments intervene with incentives and mandates, but the reality is that government has its own reasons for wanting to drive alternative fuels and so they need to encourage them.

The 2010 Asian Bio-Hydrogen Symposium
and
The 2010 APEC Advanced Bio-Hydrogen Technology Conference
with
Asia Bio-HyLinks Meeting
IAHE - Biohydrogen Sub-division Meeting
The 2010 APEC Short-term Training Course

- An APEC Project supported by APEC ISTWG
- Date: Nov. 15-19, 2010
- Venue: Feng Chia University, Taichung
- Website:www.apec-bioH2.org

- Biomass to hydrogen
- Biohydrogen by dark fermentation
- Biohydrogen by photobiological fermentation
- Bioreactor design for biohydrogen production
- Biohydrogen applications

	Dates
Abstract submission	1 June 2010
Notification of acceptance	15 July 2010
Full manuscript submission	15 September 2010
Early registration	30 September 2010
Conference date	16-17 November 2010
Short-term training course	16-19 November 2010