



**Asia-Pacific  
Economic Cooperation**

***New Developments in Clean Coal and  
CO2 Reduction Technologies***

***APEC Clean Fossil Energy Technical and Policy Seminar 2010***

***FINAL ANNOUNCEMENT***

(DRAFT#2)

**HILTON FUKUOKA SEA HAWK  
FUKUOKA, JAPAN  
27-29 OCTOBER 2010**

***ORGANIZED UNDER THE DIRECTION OF THE  
APEC EXPERT GROUP ON CLEAN FOSSIL ENERGY (EGCFE)***

***STEERING COMMITTEE***

**Japan:** Ministry of Economy, Trade and Industry (METI)

**USA:** Department of Energy (DOE)

**Canada:** Natural Resources Canada (NRCan)

**Australia:** Department of Resources, Energy and Tourism (DRET)

***SEMINAR SECRETARIAT***

**Japan:** New Energy and Industrial Technology Development Organization (NEDO)

Japan Coal Energy Center-Japanese Center for Asia Pacific Coal Flow (JCOAL- JAPAC)

***SPONSORED BY:***

**Japan:** Ministry of Economy, Trade and Industry (METI)

**USA:** Department of Energy (DOE)

National Energy Technology Laboratory (NETL)

**Canada:** Natural Resources Canada (NRCan)

**Australia:** Department of Resources, Energy and Tourism (DRET)

Day 1

October 27, 2010 (Wednesday)

08:30-9:00 Registration

MC(Japan) Mr. Nobuyuki Hara, Director, Environment Department, New Energy and Industrial Technology Development Organization (NEDO)

09:00-10:50 Opening Session

Chair: (Japan) Mr. Sadao Wasaka, Senior Executive Director, New Energy and Industrial Technology Development Organization (NEDO)

09:00-09:10 Opening Address

Mr. Scott Smouse, APEC EGCFE Chair

09:10-09:20 Welcome Remarks 1

(Japan) TBA, Ministry of Economy, Trade and Industry (METI))

09:20-09:30 Welcome Remarks 2

(Japan) Mr. Wataru Aso, Governor, Fukuoka Prefecture

09:30-09:50 Featured Speech 1 Coal Policy and Contribution towards CO2 Reduction in the World

(Japan) ANRE, METI

09:50-10:10 Featured Speech 2 The Role of Coal in a Low-Carbon Future

(IEA) Mr. Bo Diefalussy, Director, Directorate of Sustainable Energy Policy and Technology, IEA

10:10-10:30 Featured Speech 3

(US) Mr. Jarad Daniels, Director, Office of Planning & Environmental Analysis, Office of Fossil Energy, Department of Energy (DOE)

10:30-10:50 Special Report Outlook of Coal Demand/Supply and Countermeasures towards CO2 Reduction in the APEC Region

(Japan) Mr. Atsuo Sagawa, Senior Analyst, Coal Group, Strategy and Industrial Research Unit, The Institute of Energy Economics, Japan(IEEJ)

10:50-11:10 Coffee Break

11:10-12:10	<b>Session 1-A: Coal Policy in the APEC Economies(i)</b> Chair: (US) TBA, DOE	<b>Session 1-B: Coal Policy in the APEC Economies(ii)</b> Chair: (Japan) Mr. Masamichi Hashiguchi, Director, Coal Division, Natural Resources and Energy (ANRE), Ministry of Economy, Trade and Industry (METI)
11:10-11:20	<b>Speech 1: Coal Policy and CO2 Reduction in China</b> (China) Mr. Sun Yang, Department of International Cooperation, National Energy Administration (NEA)	<b>Speech 1: Coal Policy and CO2 Reduction in Australia</b> (Australia) Mr. John Karas, Manager, Low Emissions Coal Policy Section, Department of Resources, Energy and Tourism (DRET)
11:20-11:30	<b>Speech 2: Coal Demand &amp; Supply in Canada</b> (Canada) Dr. Frank Mourits, Senior Science & Technology Advisor, Natural Resources Canada (NRCan)	<b>Speech 2: Coal Demand &amp; Supply Situation in Russia</b> (Russia) Mr. Konstantin Alekseev, Director, Coal and Peat Industry Department, Ministry of Energy of the Russian Federation
11:30-11:40	<b>Speech 3: Coal Policy and CO2 Reduction in the Philippines</b> (Philippines) Ms. Alicia N. Reyes, Director of the Energy Resources Development and Management (ERDB), Department of Energy (DOE)	<b>Speech 3: Coal Policy and CO2 Reduction in Indonesia</b> (Indonesia) Mr. Bambang Setiawan, Director-General, Mineral, Coal and Geothermal, Ministry of Energy and Mineral Resources(MEMR)
11:40-11:50	<b>Speech 4: Coal Policy and CO2 Reduction in Korea</b> (Korea) Dr. Sungchul Kim, Project Leader, KEPCO Research Institute	<b>Speech 4: Coal Policy and CO2 Reduction in Vietnam</b> (Vietnam) Mr. Le Tri Hung, General Manager, International Cooperation Division, VINACOMIN(tentative)
11:50-12:00	<b>Speech 5: Coal Policy and CO2 Reduction in Malaysia</b> (Malaysia) Ms. Loo Took Gee, Secretary-General, Ministry of Energy, Geen Technology and Water(MEGW)(tentative)	<b>Speech 5: Coal Policy and CO2 Reduction in Chinese Taipei</b> (Chinese Taipei) Dr. Jyuung-Shiau Chern, Chief, Energy Affairs, Bureau of Energy, Ministry of Economic Affairs (MOEA)(tentative)
12:00-12:10	<b>Speech 6: Coal Policy and CO2 Reduction in Thailand</b> (Thailand) Dr. Boonrod Sajjakulnukit, King Monglut's University of Technology Thonburi (KUMUTT) (former Senior Official, Ministry of Energy)	<b>Speech 6: Coal Policy and CO2 Reduction in India</b> (India) Mr. ICP Keshri, Joint Secretary (Thermal), Ministry of Power (MOP)(tentative)

12:10-13:30 Lunch

13:30-13:50 Featured Speech 4: Clean Energy in Asia

(Japan) Prof Dr. Hideo Nagashima, Vice President, Kyusyu University

13:50-15:10 Session 2: CO2 Reduction by Diffusion of High-Efficient Coal-Fired Power Generation (i)

**Chair: (Japan) Mr. Tadahisa Okabe, Director General, Environment Department, New Energy and Industrial Technology Development Organization (NEDO)**

- 13:50-14:10 **Keynote Address1; Japan's Role for solving the Environmental Issues in APEC region**  
(Japan) Mr. Yoshihiko Nakagaki, Chairman, Japan Coal Energy Center (JCOAL)/ Corporate Adviser, J-Power
- 14:10-14:30 **Speech 1: Introduction and the Issues of USC Technology in China**  
(China) Ms. Xiaolu Zhang, Vice President, China Power Investment Corporation (CPI)
- 14:30-14:50 **Speech 2: Introduction and the Issues of USC Technologies in Korea**  
(Korea) Dr. Seonman Loh, General Manager, Power Department, Korea South-East Power Co.(KOSEP)
- 14:50-15:10 **Speech 3: CO2 Reduction by Development of High-Efficient Coa-Fired Power Generation in Japan**  
(Japan) Mr. Kazuhiro Izaki, General Manager, Thermal Power Department, Thermal Power Generation Division, Kyushu Electric Power Co., Ltd.

**15:10-15:30 Coffee Break**

**15:30-15:50 Featured Speech 5: ADB's Support towards Efficient Coal-Fired Power Generation**  
(ADB) Mr. Jong-Inn Kim, Lead Professional(Energy), Sustainable Infrastructure Division, Regional and Sustainable Development Department, Asian Development Bank (ADB)

**15:50-16:50 Session 3: CO2 Reduction by Diffusion of High-Efficient Coal-Fired Power Generation (ii)**  
**Chair: (Australia) Mr. John Karas, Manager, Low Emissions Coal Policy Section, Department of Resources, Energy and Tourism (DRET)**

- 15:50-16:10 **Speech 1: IGCC and ICS – Advanced Technology from Japan to the World – From Demonstration To Commercial Application -**  
(Japan) Mr. Takao Hashimoto, General Manger, IGCC & Gasification Business, Power Systems HQ, Mitsubishi Heavy Industries, Ltd. (MHI)
- 16:10-16:30 **Speech 2: China's GreenGen Project and CO2 Reduction**  
(China) Mr. Zhang Suian, Department of Coal, National Energy Administration (NEA)
- 16:30-16:50 **Speech 3: IGCC plus CCS Project in US**  
(US) Dr. Roe-Hoan Yoon, Mining and Minerals Engineering, Virginia Polytechnic Institute and State University

**16:50 Day 1 Adjourns**

**17:30-20:00 Official Welcome Dinner**

**Day 2**

**October 28, 2010 (Thursday)**

**08:30-09:00 Registration**

**09:00-09:20 Featured Speech 6: Support towards CCS Demonstration Project by GCCSI**  
(GSSCI) Mr. Mark Bonner, Senior Specialist, Policy and Strategy, Global CCS Institute

<b>09:20-12:00</b>	<b>Session 4-A (i): Low Rank Coal Utilization Technology (i)</b> <b>Chair: (Japan) Prof Isao Mochida, Kyushu University</b>	<b>Session 4-B (i): CCS Development in APEC Economies</b> <b>Chair: (Korea) Dr. Byungmoo Min, Principal Research Engineer, Korea Institue for Energy Research (KIER)</b>
09:20-09:40	<b>Speech 1: Low Rank Coal Utilization by HWT</b> (Japan) Mr. Yoshiki Ueno, Senior Engineer, Technology and Development Department, JGC Corporation	<b>Speech 1: Current Status of CCS R&amp;D in Japan</b> (Japan) Dr. Masato Takagi, Director, Tokyo Branch, Expert Director, Research Planning Group, Research Institute of Innovative Technology for the Earth (RITE)
09:40-10:00	<b>Speech 2: Manufacturing of Chemical Materials by Low Rank Coal Gasification in China</b> (China) TBA, Institute of Coal Chemistry	<b>Speech 2: Overview and Status of CCS Developments in Canada</b> (Canada) Dr. Frank Mourits, Senior Science & Technology Advisor, Natural Resources Canada (NRCan)
10:00-10:20	<b>Speech 3: Investigation of Clean Methane Production from Low Rank Coal</b> (Japan) Mr. Masataka Masuda, Manager, Process Engineering Team, AATG Process Development PJ Team, Engineering Department, Osaka Gas Co., Ltd.	<b>Speech 3: Current Status of CCS Project in Korea</b> (Korea) Dr. Kynwoo Han, Senior Research Engineer, Research Institute of Industrial Science and Technology (RIST)

**10:20-10:40 Coffee Break**

10:40-12:00	<b>Session 4-A (ii): Low Rank Coal Utilization Technology (ii)</b> <b>Chair: (Indonesia) Mr. Bambang Setiawan, Director-General, Mineral, Coal and Geothermal, Ministry of Energy and Mineral Resources(MEMR)</b>	<b>Session 4-B (ii): CCS Development in APEC Economies (ii)</b> <b>Chair: (Canada) Dr. Frank Mourits, Senior Science &amp; Technology Advisor, Natural Resources Canada(NRCan)</b>
10:40-11:00	<b>Speech 1: Low Rank Coal Utilization in Indonesia</b> <i>(Indonesia) Mr. Jeffrey Mulyono, Vice Chairman, Standing Committee, Indonesia Chamber of Commerce and Industry (KADIN) / President Director, PT Bhakti Energi Persada</i>	<b>Speech 1: Toshiba's Activity in Post Combustion CO2 Capture Technology</b> <i>(Japan) Mr. Kiyoshi Miyaike, Senior Fellow, Thermal &amp; Hydro Power Systems &amp; Services Division Toshiba Corporation Power Systems Company</i>
11:00-11:20	<b>Speech 2: New Brown Coal Utilization</b> <i>(Australia) TBA, Monash University</i>	<b>Speech 2: Current Status of CCS Project in US</b> <i>(US) Dr. Nsakala Nsakala, Principal Consulting Engineer Alstom Power Co., Ltd.(tentative)</i>
11:20-11:40	<b>Speech 3: Twin IHI Gasifier(TIGAR) Technology for Chemical Feedstock</b> <i>(Japan) Mr. Shuzo Watanabe, General Manager Gasification &amp; Oxy-Fuel Combustion, Power Plant Division, IHI Corporation</i>	<b>Speech 3: Current Status of CCS Project in Chinese Taipei</b> <i>(Chinese Taipei) Dr. Simon Chin-Yu Tung, Vice President and General Manager, Industrial Technology Research Institute (ITRI), Energy and Environment Research Laboratories (tentative)</i>
11:40-12:00	<b>Speech 4: Future Perspective of Low Rank Coal Utilization</b> <i>(Japan) Dr. Shunichi Yanai, Director, Environment Department, New Energy and Industrial Technology Development Organization (NEDO)</i>	<b>Speech 4: Assessment of the Capture and Storage Potential of CO2 Co-Produced with Natural Gas in South-East Asia</b> <i>(Australia) Dr. Guy Allinson, Senior Lecturer, School of Petroleum Engineering, University of New South Wales (UNSW)</i>

**12:00-13:00 Lunch**

**13:00-14:45 Session 5 Panel Discussion : Direction on CO2 Reduction in APEC Region**  
**Moderator: (Japan) Prof Takeo Kikkawa, Graduate School of Commerce and Management, Doctor of Economics, Hitotsubashi University**

- Panelist 1 *(Australia) Mr. John Karas, Manager, Low Emissions Coal Policy Section, Department of Resources, Energy and Tourism (DRET)*
- Panelist 2 *(US) Mr. Jarad Daniels, Director, Office of Planning & Environmental Analysis, Office of Fossil Energy, Department of Energy (DOE)*
- Panelist 3 *(Indonesia) Mr. Bambang Setiawan, Director-General, Mineral, Coal and Geothermal, Ministry of Energy and Mineral Resources(MEMR)*
- Panelist 4 *(China) Mr. Sun Yang, Department of International Cooperation, National Energy Administration (NEA)*
- Panelist 5 *(Canada) Dr. Frank Mourits, Senior Science & Technology Advisor, Natural Resources Canada (NRCan)*
- Panelist 6 *(Japan) Mr. Masamichi Hashiguchi, Director, Coal Division, Natural Resources and Fuel Department, Agency for Natural Resources and Energy (ANRE), Ministry of Economy, Trade and Industry (METI)*

**15:00-15:10 Closing Remarks: Mr. Scott Smouse, APEC EGCFE Chair**

**15:10 Day 2 Adjourns**

**15:30-18:00 APEC EGCFE Business Meeting (Official Representatives Only)**

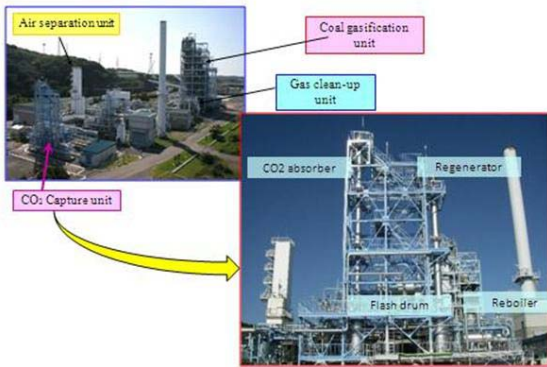
**TECHNICAL TOUR**  
8:30 ~ 16:00  
**EAGLE (Coal Gasification) Pilot Plant, J-POWER**

- 08:30 Depart from Hilton Fukuoka Sea Hawk by bus
- 10:00 Plant tour
- 12:30 Depart from the Plant
- 13:00 Lunch
- 16:00 Arrival back to Hilton Fukuoka Sea Hawk

**INFORMATION**

**EAGLE (Coal Gasification) PILOT PLANT, J-POWER**

**EAGLE Pilot Plant facilities**



**Specifications of EAGLE Pilot Plant**

<p><b>Coal Gasifier</b></p> <ul style="list-style-type: none"> <li>Coal Feed Rate</li> <li>Gasification Pressure</li> </ul> <p><b>Cleanup System</b></p> <ul style="list-style-type: none"> <li>Syngas Flow</li> <li>Sulfur Recovery</li> </ul> <p><b>Air Separation Unit</b></p> <ul style="list-style-type: none"> <li>Air Feed Rate</li> <li>Oxygen Production</li> <li>Oxygen Purity</li> </ul> <p><b>CO<sub>2</sub> Capture</b></p> <ul style="list-style-type: none"> <li>Processed Gas Volume</li> <li>CO shift reactor</li> <li>CO<sub>2</sub> absorption</li> </ul>	<p><b>Oxygen-blown Entrained-flow</b></p> <ul style="list-style-type: none"> <li>150 tons per day</li> <li>2.5 MPag</li> </ul> <p><b>Cold Cleanup Using MDEA</b></p> <ul style="list-style-type: none"> <li>14,800 m<sup>3</sup>N/h</li> <li>Limestone-gypsum process</li> </ul> <p><b>Pressurized Cryogenic Separation</b></p> <ul style="list-style-type: none"> <li>27,500 m<sup>3</sup>N/h</li> <li>4,600 m<sup>3</sup>N/h</li> <li>95.0 vol%</li> </ul> <p><b>Sweet CO shift &amp; MDEA</b></p> <ul style="list-style-type: none"> <li>1,000 m<sup>3</sup>N/h</li> <li>3-stage shift reactor (HTS× 2, LTS× 1)</li> <li>MDEA base absorbent</li> </ul>
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