

FIRST REGIONAL SYMPOSIUM ON CARBON MANAGEMENT

CARBON MANAGEMENT CHALLENGES AND OPPORTUNITIES FOR PETROLEUM INDUSTRY

MAY 22-24, 2006

May 22nd	
7:00–8:00	Registration
8:00–8:05	Opening Remarks (Chairman of the Organizing Committee)
8:05-8:15	Symposium Chairman Welcoming Speech
8:15-8:30	Saudi Aramco President & CEO Opening Speech
	Keynote Session Chairman: Nadhmi Al Nasr, VP Engineering Services, Saudi Aramco
8:30-8:50	Energy Efficiencies & Carbon Capture/Storage: Pipe-dream or Reality, Gerald Doucet, Secretary General, World Energy Council
8:50-9:10	Global Energy and Emission Outlook: Key Challenges and Uncertainties, Fatih Birol, Chief Economist, Head, Economic Analysis Division, IEA.
9:10-9:30	International Regulatory Trends Toward Climate Change Mitigation, R. K. Pachauri: Chairman, Intergovernmental Panel on Climate Change (IPCC)
9:30-9:45	Coffee Break
9:45-10:05	Impact of Carbon Constrained World on Petroleum Industry, Adnan Shihab-Eldin, Independent Consultant & Ex OPEC General Secretary
10:05-10:25	Carbon Management Technology Needs; Impact and Role in Minimizing Economic Growth Liability for Industrialized and Emerging Nations, Kelly Sims Gallagher, Director Energy Technology Innovation Project, Harvard University
10:25-11:00	Panel Discussion
11:00-11:15	Coffee Break
	Regulatory, Environmental and Economical Aspects of Carbon Management (A)
11:15-11:30	Factors Shaping Global Energy Supply Priorities, Christopher Frei, Director, Energy Industry & Strategy, World Economic Forum, Switzerland
11:30-11:45	Technological Options to Stabilize Global CO₂ Emissions up to 2050, Robert Socolow, Princeton University
11:45-12:00	Main Findings of the IPCC Report on Carbon Capture and Sequestration, Leo Meyer, Head Technical Support Unit Working Group-III, IPCC, Netherlands
12:00-13:30	Lunch at Dammam Office Building (DOB)
	Regulatory, Environmental and Economical Aspects of Carbon Management (B)
13:30-13:45	Early Opportunities for Application of Carbon Capture and Storage, Harry Audus, General Manager IEA Greenhouse Gas R&D Program
13:45-14:00	Utilizing Clean Development Mechanism (CDM) to Enhance the Economics of CO₂ Capture and Storage (CCS) Projects, Adrian Stott, Mitsubishi UFJ Securities, Japan
14:00-14:15	Methane in Climate Policy, Daniel J.A. Johansson, U. Martin Persson, Department of Physical Resource Theory, Energy & Environment, Chalmers University of Technology, Sweden

14:15-14:45	Panel Discussion
14:45-15:00	Coffee Break
	Addressing the Carbon Challenge Overview of Industrial & Research Alliances
15:00-15:15	Carbon Sequestration Leadership Forum (CSLF) , Justin R. Swift, DOE
15:15-15:30	IEA- GHG Program , Harry Audus
15:30-15:45	Carbon Capture Program (CCP) , Iain Wright, BP
15:45-16:00	CO2-CRC Consortium, Australia , John Kaldi, Manager CO2 Storage Program, CO2CRC
16:00-16:15	Coffee Break
16:15-16:30	CASTOR, CO2 from Capture to Storage , Pierre Le Thiez and <u>Y. Le Gallo</u> , IFP, France
16:30-16:45	CO2 Geological Storage: Research into Monitoring and Verification Technology (CO2ReMoVe) , Emile Elewaut, TNO, The Netherlands
16:45-17:00	PDO Strategy to Climate Change Response , Faisal Al-Lamki, Maisoon Al-Riyami, and Jeganathan Jega, PDO Oman
17:00-17:30	Panel Discussion
19:30-21:30	Tour & Dinner At Oil Exhibition

May 23rd	
7:00-8:00	Registration
7:00-8:00	Coffee & Refreshments
	Carbon Management for Stationary Sources (A)
8:00-8:15	<i>The Future Role of CO2 Capture in the Electricity Sector</i> , Dolf Gielen, IEA, France
8:15-8:30	<i>CO2 Capture – a Multi-dimensional Challenge</i> , Barry Hooper, and Luke Murray, The Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC), Canberra, Australia
8:30-8:45	<i>CO2 Capture and Exaction Using Amines and Formulated Reactive Solvents: ITC Perspective and Pilot Plant Experience</i> , Paitoon Tontiwachwuthikul, Dean of Engineering and Project Leader of International Test Centre for CO2 Capture (ITC), University of Regina, Canada.
8:45-9:00	<i>Progress in Post Combustion CO2 Capture Technologies</i> , Paul Feron, TNO, The Netherlands
9:00-9:15	<i>CO2 Recovery from Flue Gas Using Hindered Amines</i> , Masaki Iijima, Mitsubishi Heavy Industries, Yokohama, Japan
9:15-9:45	Panel Discussion
9:45-10:00	Coffee Break
	Carbon Management for Stationary Sources (B)
10:00-10:15	<i>Ultra-thin Membranes and Applied Desalination for CO2 Capture and Separation from Industrial Gas Streams</i> , S. Julio Friedmann, Kevin O'Brien, Roger Aines, Bill Bourcier Lawrence Livermore National Laboratory, USA
10:15-10:30	<i>Chemical-Looping Combustion as a New CO2 Management Technology</i> , Qamar Zafar ^{1*} , Tobias Mattisson ² , Marcus Johansson ¹ and Anders Lyngfelt ² , ¹ Department Chemical and Biological Engineering ² Department of Energy Conversion, Chalmers University of Technology, Göteborg, Sweden
10:30-10:45	<i>Oxyfules Conversion of Refinery Process Equipment Utilizing Flue Gas Recycle for CO2 Capture</i> ", Vince White, Air Products PLC, UK
10:45-11:00	<i>Compression and High-Pressure Pipeline Transportation of Carbon Dioxide-Rich Fluids</i> , John J. Carroll, Gas Liquids Engineering, Ltd., Calgary, Alberta, Canada
11:00-11:30	Panel Discussion
11:30-13:00	Lunch at DOB
	Carbon Management for Mobile Sources
13:00-13:15	<i>Contributions of the Transportation Sector to Global CO2 Emissions</i> , Dolf Gielen, IEA, France
13:15-13:30	<i>Air Transportation: Emissions and Effects</i> , Joyce E. Penner, University of Michigan
13:30-13:45	<i>Reducing CO2 Emissions from Land Transportation: IC Engine Design Considerations</i> , Dominique Herrier, Deputy Director, Engines-Energy Technology Unit, IFP
13:45-14:00	<i>Utilizing Metal-Organic Frameworks for CO2 Capture</i> ", O. M. Yaghi, Department of Chemistry and Biochemistry, University of California - Los Angeles.
14:00-14:15	<i>Direct Extraction of CO2 from Air, a Fixed Solution for a Mobile Problem</i> , Frank Zeeman, Center for Carbon Management, Columbia University, New York
14:15-14:45	Panel Discussion
14:45-15:00	Coffee Break

	Enhanced Oil Recovery by CO2 Injection (A)
15:00-15:15	<i>Game Changer, Improvements in Oil Recovery Efficiency Using CO2 EOR</i> Vello A. Kuuskraa, President, Advanced Resources International (ARI), USA
15:15-15:30	<i>Weyburn-Midale CO₂-EOR and Sequestration Project</i> , Michael Monea, Exec. Director, Petroleum Technology Research Centre (PTRC), Regina, Canada
15:30-15:45	<i>BP's DF-1 CO₂-EOR and Sequestration Project in Miller Field, North Sea</i> Paul Bryant, BP
15:45-16:00	<i>Past Experiences and Future Challenges for CO2 Injection</i> , Stephen Goodyear and Peter Jensen, Shell International Exploration and Production.
16:00-16:15	Coffee Break
	Enhanced Oil Recovery by CO2 Injection (B)
16:15-16:30	<i>The Rangely Weber Sand Unit , A Long History of CO2 Injection</i> , Jeff Roedell, and Ron Wackowski, Chevron North America E&P Co., USA
16:30-16:45	<i>Injectivity Impairment due to Dissolution / Precipitation Processes During a CO2 Injection in a Carbonate Rock Type</i> , J.-M. Lombard, P. Egermann, S. Bekri, B. Bazin and O. Vizika, IFP, France.
16:45-17:00	<i>EOR Technology - Service Companies Point of View</i> , Dr. M Sengul, Vice President Schlumberger Carbon Services, Middle East and Asia.
17:00-17:15	<i>Prospects of CO2 EOR at Saudi Aramco</i> , A. Towailib, Sunil Kokal and A. Jaziri
17:15-18:00	Panel Discussion
20:30-22:30	Dinner at DOB

May 24th	
7:30-8:00	Coffee & Refreshments
	CO2 and Carbon Based Applications
8:00-8:15	<i>Technical Challenges and Opportunities for Developing High Performance Carbon Based Materials to Reduce CO2 Release to the Atmosphere</i> ”, Isao Mochida, Kyushu University, Japan
8:15-8:30	<i>Petroleum Based Feedstock for Making Carbon Fibers, a Material at the Cutting Edge of Alternative Clean Energy Technologies</i> , Vince Kelly, Consulting Engineer, Carbon Fiber Technology, Ireland
8:30-8:45	<i>Carbon Black Manufacturing Challenges and Opportunities in View of Global Warming</i> ”, Yoshitaka Hisazumi, Tokai Carbon CO. LTD., Japan
8:45-9:00	<i>Carbon Dioxide Stream to Value-added products</i> , Abdulaziz Al-Jodai and Ijaz Ahmed, SABIC, Saudi Arabia
9:00-9:15	<i>Enhancing Methanol Production by CO2 Injection</i> ”, Abdulatif M. Al-Musabbeh and Sayer Al-Shammari, Saudi Methanol Company (Arrazi), Saudi Arabia
9:15-9:30	<i>Environmental and Economical Benefits of Using CO2 for Wastewater Neutralization</i> , E. M. Elkanzi, Department of Chemical Engineering, University of Bahrain
9:30-10:00	Panel Discussion
10:00-10:15	Coffee Break
	Geological Sequestration of CO2 (A)
10:15-10:30	<i>Planning Multi-parameter/Multidimensional Monitoring of CO2 Storage, Using the Otway Basin as an Example</i> , Kevin Dodds, CO2CRC, AUSTRALIA
10:30-10:45	<i>CO2 Sequestration in a Gas Field- The Insaheh Project, Algeria</i> , Iain Wright, BP
10:45-11:00	<i>CO2 Sequestration in Saline Formations-The Frio Brine Pilot Project-</i> Susan D. Hovorka, Eric C. Potter, Ian Duncan and Mark Holtz, Bureau of Economic Geology, John A. and Katherine G. Jackson School of Geosciences, The University of Texas at Austin.
11:00-11:15	<i>A methodology for CO2 geological storage: Feedback from European Projects for a Conditional Implementation in the Saudi Context</i> ”, Yves-Michel Le Nindre, BRGM, France
11:15-11:45	Panel Discussion
11:45-13:00	Lunch at DOB
	Geological Sequestration of CO2 (B)
13:00-13:15	<i>Long Term Geological Storage of CO2 in Mature Oil Field</i> , Yann Le Gallo, IFP, France
13:15-13:30	<i>Monitoring of Sequestered CO2 : Meeting the Challenge with Emerging Geophysical Technologies</i> , Shivaji Dasgupta, Saudi Aramco
13:30-13:45	<i>Possible chemical reactions between limestone reservoirs and CO2-charged, waters: implications for downhole injection and geological sequestration of CO2</i> , Langhorne Smith ¹ and Rami Kamal ² ¹ Smith Stratigraphic, Westerlo, NY, USA ² Saudi Aramco
14:00-14:30	Panel Discussion
14:30-15:00	Closing Remarks
May 25th : Trip To Shaybah	