





CCOP-Norway Program for Enhancing Public Petroleum Management of the CCOP Member Countries (EPPM)

PROGRAM LEAFLET

EPPM P2W6: Workshop on Developing Strategies for Public Awareness and Acceptance of Carbon Capture Storage (CCS) into the Geological Reservoirs

7-9 June 2011, Bangkok, Thailand

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CCOP – Norway Program for Enhancing Public Petroleum Management of the CCOP Member Countries (EPPM)

Project 2 (P2), Natural Gas Field Development and Environmental Issues

P2W6: Workshop on developing strategies for public awareness and acceptance of Carbon Capture and Storage (CCS) into the geological reservoirs

A. Objectives:

• To enhance the capacities of the CCOP Member Countries for a sustainable energy policy with Carbon Capture and Storage (CCS) into the geological formation as part of the solution to global climate change. The workshop will focus on helping the Member Countries develop strategies for public acceptance of CCS.

B. Participants & Resource persons

- 1. Representatives from the CCOP Member Countries with background on the topic will be invited to participate in the workshop. Also to be invited are representatives from ASCOPE, National Oil Companies of other Member Countries as well as academic institutions and research institutes.
- 2. Resources persons from the CCOP and PETRAD networks.

C. Date & Venue

1. Date: 7-8 June 2011 for workshop and 9 June for fieldtrip

2. Venue: Bangkok, Thailand

Program

| TIME | ACTIVITY | RESPONSIBLE |
|------|--|--------------------------------------|
| | | PERSON/ORGANIZATION |
| | Day 1:7 June 2011, Tuesday | |
| 0830 | Registration | CCOP TS |
| 0900 | Opening Ceremony | |
| | Welcoming Remarks | |
| | CCOP Technical Secretariat | Prof. Dr. He Qingcheng |
| | | Director, CCOP Technical Secretariat |
| | | |
| | • PETRAD | Dr. Oystein Berg |
| | | Managing Director |
| | | PETRAD, Norway |
| | Opening Remarks | |
| | Deputy Director-General, DMR and | Dr. Tawsaporn Nuchanong |
| | First Deputy Permanent | Deputy Director-General |
| | Representative of Thailand to CCOP | Department of Mineral Resources |
| | | (DMR), MONRE |
| | | Thailand, First Deputy Permanent |

| | | Representative of Thailand to CCOP |
|------|--|------------------------------------|
| | Exchange of Tokens | CCOP TS |
| | Group Photo | CCOP TS |
| 0930 | Coffee/Tea | |
| 1000 | Introduction of participants | |
| | Background of P2W6 | Mr. Simplicio P. Caluyong |
| | Update on the EPPM Program | EPPM Program Coordinator |
| | Objectives & contents of P2W6 | CCOP TS |
| 1030 | CCS Developments – The Big Picture | Ms. Gøril Tjetland |
| | An overview of CCS developments- | CCS and Energy Advisor |
| | What are the issues? What has been | The Bellona Foundation, Norway |
| | done, who are the players and where | |
| | are we now? | |
| | How CCS into geological reservoir is (!: a) a second and the three parts 2. | |
| | (likely) perceived by the public? | |
| 1130 | case histories & lessons learned Caplarial Starage of CO2 | Dy Kim Joans Chan |
| 1130 | Geological Storage of CO2potential geological storage | Dr. Kim-Jeong Chan Director |
| | Risks and implications for Public | KIGAM , Korea |
| | acceptance | RIGAIVI , ROTCU |
| 1200 | Lunch | |
| 1330 | DNV CO2QUALSTORE – CCS risk management | Mr. Jens P. Tronskar |
| 1330 | guidelines | VP and Chief Technology Officer |
| | Samees | DNV, Singapore |
| 1500 | Coffee/tea | , 01 |
| 1520 | Indonesia (perspectives from a | Ms. Letty Brioletty |
| | research organization) | Lemigas, Indonesia |
| | Thailand (perspectives from a | |
| | regulatory agency) | Dr. Trin Intaraprasong |
| | Q & A | DMF, Thailand |
| 1630 | Summary for Day1 | EPPM Program Coordinator |
| 1830 | Dinner (smart casual) | Venue to be announced |
| | | |
| | Day 2 : 8 June 2011 | |
| 0845 | Order of the day | EPPM Program Coordinator |
| 0900 | Public awareness on CCS– Overview of our | Ms. Anne - Maree Dowd |
| | research findings (CSIRO) | Science into Society Group (SISG) |
| | Ice breaker exercise – Delegates to | Commonwealth Scientific and |
| | share their experiences in relation to | Industrial Research Organisation |
| | CCS communication and Engagement | (CSIRO), Australia |
| | How aware is the public on CCS? What is the level of acceptance? | |
| | What is the level of acceptance? What products he done from a project. | |
| | What needs to be done from a project Is also propositive? Proving upon past | |
| | level perspective? Drawing upon past | |
| | experience from five demonstration | |
| | sites (based on the CSIRO report: Communication, project planning and | |
| | management for carbon capture and | |
| | management joi carbon captare and | |

| | storage projects: An international comparison) • What tools are needed for successful engagement and communication? (Based on the CSIRO report: Communication/Engagement Toolkit for CCS Projects) | |
|------|---|----------------------------|
| 1000 | Coffee/Tea | |
| 1120 | Workshop (Group exercise) | All participants |
| 1200 | Lunch | |
| 1330 | Continue with workshop | All participants |
| 1600 | Coffee/Tea | |
| 1620 | Panel Discussions and Conclusions | EPPM Program Coordinator & |
| | Ways forward | Resource Persons |
| 1700 | Closing Remarks | Dr. Oystein Berg |
| | | Managing Director, PETRAD |
| | | Norway |
| | | |
| | Day 3: 9 June 2011 | |
| 0800 | Fieldtrip (complete program to be | CCOP TS |
| | announced) | |







EPPM P2W6: Workshop on Developing Strategies for Public Awareness and Acceptance of Carbon Capture and Storage (CCS) into the Geological Reservoirs 7-9 June 2011, Bangkok, Thailand

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|---|--|
| DISTINGUISHED GUESTS | |
| NAME | POSITION / ADDRESS |
| DR. TAWSAPORN NUCHANONG | First Deputy Permanent Representatiave of Thailand to CCOP Deputy Director-General Department of Mineral Resources (DMR) Ministry of Natural Resources and Environment 75/10, Rama VI Road, Ratchathewee Bangkok 10400, Thailand Tel: +66 (0) 2621 9650 (DL), 2621 9652 Fax: +66 (0) 2621 9651 |
| DR. ØYSTEIN BERG | Managing Director, International Programme for Petroleum Management and Administration (PETRAD) Prof. Olav Hanssensv. 10 P.O. Box 600, N-4003 STAVANGER, Norway Tel: +47 51 87 61 39, Fax: +47 51 87 64 28 Mob: +47 90 87 82 55 |
| PROF. DR. HE QINGCHENG | Director CCOP Technical Secretariat CCOP Building 75/10 Rama VI Rd., Phayathai, Ratchathewi, Bangkok 10400, Thailand Tel. +66(0) 2644 5468 Ext. 401, Mobile: +66(08) 1839 8488 |
| RESOURCE PE | RSONS - by alphabetical order |
| NAME | POSITION / ADDRESS |
| MS. ANNE - MAREE DOWD | Social Scientist CSIRO 1 Technology Court, Pullenvale, 4075, Australia Tel. / Mobile: +61 7 3327 4468 |

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| DR. JENS P. TRONSKAR | Vice President and Chief Technology Officer | |
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| | | |
| FINAL NAME LIST OF PARTICIPANTS | | |
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10) MR. MUHAMMAD NAZAM BIN **Development Geoscientist SAMSURI PETRONAS** Level 28, Tower 1, PETRONAS TWIN TOWERS, Kuala Lumpur City Centre, 50088 Kuala Lumpur, Malaysia Tel: +60323313845 Fax: +60323313306 **PHILIPPINES** 11) MR. NEIL O. PESA Senior Geoscientist Petroleum Resources Development Division (PRDD) Department of Energy (DOE) Energy Center, Merritt Road, Fort Bonifacio, Taguig City **Philippines** Tel: (+63 2) 812 4016 Fax: (+63 2) 840 2206 Sciencetist Research Specialist 12) MR. DAN EMMANUEL M. **MONTEALEGRE** Petroleum Resources Development Division (PRDD) Department of Energy (DOE) Energy Center, Merritt Road, Fort Bonifacio, Taguig City **Philippines** Tel: (+63 2) 812 4016 Fax: (+63 2) 840 2206 **TIMOR LESTE** 13) MS. ELGA ANITA TORREZAO Director **PEREIRA** Secretary of State for Natural Resources 1st Floor Fomento Mandarin Rua Dom Aleixo Cortereal Fomento Mandarin Dili Tel: +670 7326971

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| 31) MR. VU TU HOAI | Process Engineer |
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| MR. NIRAN CHAIMANEE | Geo-Environment Sector Coordinator |
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| MRS. MARIVIC P. UZARRAGA | Geo-Information Sector Coordinator |
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RESOURCE PERSONS' SHORT CV - by alphabetical order



Name: Ms. Anne-Maree Dowd Designation: Social Scientist

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Short Bio data:

Anne-Maree Dowd is a Team Leader and Lead Research Scientist in the Science into Society Group at CSIRO Earth Science and Resource Engineering Division. She is an applied research expert in the areas of climate change, mitigation, adaptation, behaviour change, public perceptions/awareness on energy technologies and community engagement. Ms Dowd has an academic background in organisational behaviour, business communication, social network analysis and small group dynamics.

Abstract:

Anne-Maree Dowd will be conducting an interactive session on public awareness and acceptance of CCS. The session will address the following areas from a global perspective:

- How aware is the public on CCS?
- What is the level of acceptance?
- What needs to be done from a project level perspective? Drawing upon past experience from five demonstration sites (based on the CSIRO report: Communication, project planning and management for carbon capture and storage projects: An international comparison)
- What tools are needed for successful engagement and communication? (Based on the CSIRO report: Communication/Engagement Toolkit for CCS Projects)
- Delegates to participate in an interactive activity to apply what they have learnt



Name: Ms. Gøril Tjetland

Designation: CCS and Energy Advisor

Company: Bellona

Full Address: Maridalsveien 17B, Postboks 2141, 0505 OSLO, Norway

Email: goril@bellona.no

Tel. / Mobile: +47 481 22 159

Short Bio data:

Gøril Tjetland holds a MsC in Applied Earth Sciences the Norwegian University of Science and Technology, and worked with oil and mineral exploration before joining Bellona. At Bellona her work is focused towards CO₂ capture and storage where she has participated in research programs under the EU and various advisory groups.

Abstract:

The implementation of carbon dioxide capture and storage (CCS) projects is challenging not only from a technical perspective, but also due to the way that CCS technology touches on controversial subjects. These include human health and safety, climate change, power plant construction, use of fossil fuel resources, risk perception, and several social issues that do not necessarily relate directly to CCS technology.

Concerns are often raised over the prevailance of storage and increased seismicity, but local factors like fear of lower property values might also play a role. Common for all the mentioned CCS projects is that CCS is not understood. CCS is typically looked upon as an end-of-pipe solution not addressing the root cause or a bad excuse for investments in coal. Very often the positive vision and reason for storing CO₂ in the first place is not acknowledged. A lasting dialogue with the local communities, local media, teachers, politicians and industry, together with economic and other benefits for the local communities have proven successful in order to envision carbon capture and storage as an opportunity.

Although CO_2 is in soft drinks and in the breath that human exhale, it can be harmful in high concentrations. So, as for any industrial project, responsible operations and safety must be the top priority. Nevertheless, understanding all the technologies - capture, transport and storage - is important from a public education standpoint and it is not advisable to isolate storage when communicating with the public.

Although the type of risks involved will vary at each stage of a CCS project, the main challenge from a community engagement perspective lies in the storage component. When it comes to storage safety a bad driver can turn the safest car into a wreck in seconds. The industry carries the responsibilities that follow with proper site selection, sensible injection rates and monitoring aimed at preventing and detecting leakages. A CCS project is a local project, but is carried out within the context of national and even international debate. This means that the group of stakeholders or potentially interested parties is considerably broad. The social process of creating support for a CCS project must occur in parallel with that of storage site selection and moreover, knowledge of social factors within local communities is required to execute projects successfully. A proactive approach to education and an outreach programme designed to identify real and perceived risks, whilst engaging stakeholders, can build public trust through transparency and information delivery.



Name: Dr. Jens Petter Tronskar

Designation: VP, Chief Technology Officer **Company:** DNV Clean Technology Centre

Email: jens.p.tronskar@dnv.com Tel. / Mobile: +6591777605



Short Bio data:

Dr. Jens P. Tronskar M.Sc., PhD, CEng, SenMWeldI, IWE, received his M.Sc. degree in Materials' Physics and Physical Metallurgy from the Technical University of Norway (NTH) in 1980, and was awarded his Doctor of Philosophy (Ph.D.) degree in Probabilistic Fracture Mechanics applied to Floating Production Storage and Offloading vessels and Ships by the National University (NUS) of Singapore in 2002. He completed an extensive post doctorate program at University of California at Berkeley, Center for Executive Education, September 2008 – April 2009. This program focused on renewable energy, new energy sources, asset management and carbon capture and storage.

Dr. Tronskar is currently Vice President & Chief Technology Officer of DNV's Clean Technology Centre in Singapore. Prior to this he was Vice President and Director of Business Development and Technology for DNV Energy in Asia and Middle East, based in Singapore.

Dr Tronskar has facilitated independent project reviews of CCS projects (including IGCC, capture technology, CO₂ pipeline transportation and geological storage) and conducted workshops on Carbon Capture and Storage in Middle East, South East Asia and Taiwan. Currently he is DNV's project manager for an ongoing CCS project in Thailand.

Dr Tronskar has 30 years of experience of materials technology research, asset integrity management consulting, technology qualification of new systems and components for oil and gas exploration as well as for aerospace applications, failure investigations and deterministic/probabilistic fracture mechanics analyses risk and reliability analysis of structural and piping/process components and pipelines for the offshore and onshore oil & gas, refineries and petrochemical industry.

He has worked 17 years in Asia based in Singapore from 1994 until 2004, in China from 2004 till end of 2006. The last four years he has been based in Singapore.

Presentation title: Carbon Capture and Storage - risks and opportunities

Short abstract

- Introduction
 - Some major challenges in the realization of CO2 geological storage
 - Why risk-based approach?
- The CO2 storage guideline
 - The objectives of the CO2QUALSTORE Joint Industry Project
 - Basic principles of the guideline
 - The qualification principles
 - The three-stage approach to risk acceptance
- CO2 capture, pipeline transportation and integrity of CO₂ wells
- Project examples

Company Profile

DNV is a global provider of services for managing risk, helping customers to safely and responsibly improve their business performance. DNV is an independent foundation with the purpose of safeguarding life, property and the environment. Through its network of 300 offices in 100 countries, DNV serves a range of industries, with a special focus on the maritime and energy sectors, combining its technology expertise and industry knowledge.

PETRAD'S REPRESENTATIVE



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Dr. Øystein Berg

Dr. Berg holds a BSc in Civil Engineering from Queens University of Belfast, Northern Ireland, as well as a Postgraduate Diploma in Industrial Administration and PhD in Business Administration from The Management Centre, Bradford, England.

Dr. Berg worked as a Management Consultant for the IKO Consultancy Group from 1976 to 1978. He was then appointed by the Norwegian Petroleum Directorate as Project Manager for 1/3 of the largest Safety Research Programme ever undertaken in Norway, 'Safety on the Norwegian Continental Shelf'. Dr. Berg was managed a total of 51 R&D projects from 1978 until 1981.

Between 1981 and 1989, Dr. Berg held various positions in the Norwegian Petroleum Directorate such as Director for the Department of Marine Technology, Director of the Strategy Department in the Safety Division and also deputized as Director of Safety.

In 1989 Dr. Berg was called upon by the Norwegian Government to develop the Petrad Programme (International Programme for Petroleum Management and Administration). Currently Dr. Berg serves as Managing Director for Petrad.

Dr. Berg has participated in a large number of national and international advisory committees in the petroleum sector and within R&D. He has since 1984 been Advisor to Government Agencies and National Oil Companies in East and South East Asia through the CCOP and ASCOPE Organizations. Prior to establishing Petrad, Dr. Berg also lectured on topics related to industrial maintenance, risk and reliability and safety in the offshore petroleum industry in USA, Asia and Europe.

Dr. Berg received in 2004 the "Friendship Award" from the Chinese Government for long standing cooperation on knowledge transfer in the petroleum sector. This is the highest award given to foreigners by the Chinese Government.

Dr. Berg was in May 2006 appointed to the Academic Advisory Board of University Teknologi Petronas, Malaysia, under the Chairmanship of former Prime Minister of Malaysia, Dr. Mahathir Mohamed. From 2007 Dr. Berg has been a member of the 3 man nominations committee for the Malaysian 'Merdeka Award' – Health, Science and Technology category.

NOTE FOR INFORMATION

| Accommodation | Imperial Queen's Park Hotel |
|------------------------------------|---|
| | Address: 199 Sukhumvit Soi 22, Bangkok 10110, Thailand |
| | Tel: (66) (0) 2261 9000 Fax: (66) (0) 2261 9496 |
| _ | Website: www.imperialhotels.com |
| CCOP Group Hotel Room Rates | Special Rates (Baht/Room/night) inclusive of Buffet Breakfast and Free Broadband Internet Access in the Room. |
| | Deluxe Single Room: THB 2,000 nett |
| | Deluxe Twin Room: THB 2,300 nett |
| | The above rates are inclusive of service charge and government tax. Upon checking in at the hotel, delegates may be requested to provide your credit card imprint or cash payment for one-night accommodation for guarantee. Please be prepared for such request. |
| | CCOP, as the organizer, will reserve the hotel rooms on behalf of all delegates. Single rooms will be automatically reserved for each nominated delegate both sponsored and own-cost unless requested otherwise. Cancellation of room or no show will incur one night room charge which will fully be borne by the delegate. Any inquiry in regard to room reservation should be directed to the organizer. |
| Meeting Venue | |
| | Bangkok Panorama Room, 3 rd Floor |
| Meeting Package | 2 coffee breaks and 1 Buffet Lunch during the workshop will be sponsored by the EPPM Program to both sponsored and own-cost delegates. |
| Meeting Package Evening Functions | 2 coffee breaks and 1 Buffet Lunch during the workshop will be sponsored by the |
| | 2 coffee breaks and 1 Buffet Lunch during the workshop will be sponsored by the EPPM Program to both sponsored and own-cost delegates. Welcome Dinner on Tuesday, 7 June (hosted by CCOP-EPPM) Details to be |

| Visa Requirements | Delegates will receive "Acceptance Letter" issued by the CCOP as organizer via fax |
|---|---|
| | and/or E-mail for the travel approval from their organizations and /or to apply & |
| | obtain entry visa to Thailand in advance, if it is required. |
| | Note: The delegates must possess a passport valid for at least six months upon arrival. |
| Sponsorship | Daily Subsistence Allowance (DSA): will be distributed to sponsored participants at registration on Tuesday, 7 June from 8:30-9:00 am. This DSA covers accommodation (based on single occupancy rate), meals and any incidental expenses. Sponsored participants are to settle the payment of their room and personal expenses with the hotel directly. In case of compulsory overnight transit, the cost of extra nights will also be calculated into the DSA and assistance can be provided for hotel reservation. Air-tickets: Sponsored participants are kindly requested to purchase the air-ticket for |
| | reimbursement upon the provision of original receipt indicating CCOP-approved airfare. |
| 1-Day Field Trip | 1-field trip will be organized and sponsored by CCOP-EPPM. The details programme will be announced later. |
| Travel Insurance | Delegates are strongly recommended to obtain the travel insurance plan that suits their needs. |
| Activity Record | A USB drive will be provided to all participants to record the presentations, final name list with contact details of delegates and pictures. |
| Currency | USD 1 ~ THB 30 (as of March 2011) |
| Climate | Rainy Season, temperature is 27-33°C |
| Time Zone | GMT+8 |
| For more information, please contact | Mr. Simplicio P. Caluyong |
| | EPPM Program Coordinator |
| | CCOP Technical Secretariat |
| | CCOP Building |
| | 75/10 Rama VI Rd., Phayathai, Ratchathewi, Bangkok 10400, Thailand |
| | Tel: +66 (0) 2644 5468 ext. 503, Fax: +66 (0) 2644 5431, Mobile +66 (0) 81 827 0527 |
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| | |

Short Note:



Petrad is a non-profit Norwegian Government Foundation established in 1989 to facilitate sharing of knowledge and experience on Petroleum Management, Administration and Technology between managers and experts within Governments and National Oil Companies.

Petrad arranges tailored courses and seminars covering a wide range of topics on the management of petroleum resources. The activities are conducted in Norway and abroad lasting from 1 day to 18 weeks. The courses and seminars have a practical focus.

Petrad also conducts Training Needs Assessments and assistance with Institutional Development.

Petrad assists nations with capacity building programs in the petroleum sector lasting several years.

Petrad draw on resource persons and lecturers from the total Norwegian and International petroleum industry. They hold considerable experience from senior managerial and technical positions with Government, Operating-, Engineering and Service Companies, Consultancies, R&D Institutions and Universities.

Petrad has arranged a total of more than 500 courses and seminars with more than 15.000 participants from 103 countries.

8-WEEK COURSES: (Stavanger, Norway – annually)

- -Petroleum Policy and Resource Management
- -Petroleum Development and Operations

TRAINING MODULES: (World wide – On request)

- Policy and Management of Petroleum Sector development
- Good Governance
- Resource management
- Revenue management
- Environment management
- Legislation
- Licensing
- Contracts for the Petroleum Sector
- Local Content
- Anti-corruption
- Petroleum Sector Understanding for the Civil Society
- Fiscal Metering
- Data Management
- Downstream Petroleum Management
- HSE Health, Safety and Environment Management

TAILOR MADE SEMINARS: (World Wide – On request)

- All topics within petroleum management, administration and technology

TNA – TRAINING NEEDS ASSESSMENT:

(World Wide – On request)

INSTITUTIONAL DEVELOPMENT:

(World Wide – On request)

For further information please contact:

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