

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

EPPM P2W3: Workshop on the Use of CO₂ for EOR and IOR and Gas Hydrates as Potential Energy Source , Danang, Vietnam, 8-11 December 2009

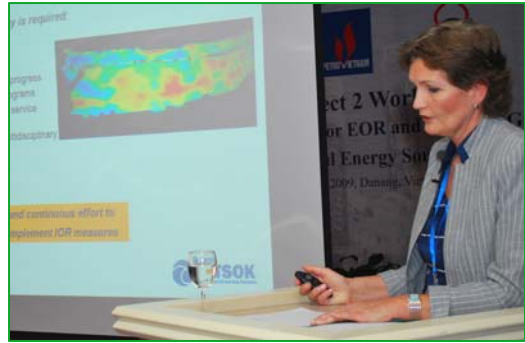
Summary Report:

The workshop is the third activity under *Project 2 (P2), Natural Gas Field Development and Environmental Issues* of the EPPM Program. This is organized with the cooperation of PETRAD (Norway) and PETROVIETNAM and is about the use of CO₂ for enhanced oil recovery (EOR) and improved oil recovery (IOR), and Gas Hydrates as Potential Energy Source in Danang, Vietnam on 8-11 December 2009. The objective is to develop the capacities of the CCOP Member Countries regarding the development of natural gas with high CO₂, capture and use of CO₂ for EOR/IOR, and gas hydrates as potential energy source. The gas hydrates part of the workshop was a follow up to the successful workshop also on gas hydrates that PETROVIETNAM hosted in Hanoi in June 2008.



A total of 45 participants, mostly senior management & technical personnel from the oil and gas regulatory, research agencies and national oil companies of the Member Countries, participated in the workshop. The presentations and group discussions centered on applied

technologies and experiences in the capture and use of CO₂ for EOR and IOR (also including enhanced gas recovery or EGR), screening and criteria for selecting EOR/IOR projects, storage and transportation options, identifying the challenges & possible solutions and roles of the government and industry in the context of greenhouse gas mitigations and creation of a new industry for national wealth creation. The gas hydrates part of the workshop updated the participants on applied technologies for mapping of hydrates and lessons learned from pilot projects.



The resource persons were invited through the PETRAD and CCOP networks – all very capable and representing highly recognized institutions. The presentations and group discussions were led by representatives from INTSOK-Norway, IRIS-Norway, University of Bergen-Norway, and TNO-Netherlands. In addition, the resources from the Member Countries (PETROVIETNAM, KIGAM, PETRONAS, LEMIGAS, and SINOPEC) also made presentations related to the topic.

Conclusions and Summary:

1. The workshop (again) reinforced our desire to learn more from the Norwegian industry's experiences in CO₂ for EOR/IOR technologies and best practices considering that many of CCOP region's oil and gas basins are found to have high CO₂ content.
2. Learning about gas hydrates as new potential energy & CO₂ storage will continue to be an important topic to many CCOP Member Countries in view of the region's strategy for energy security.
3. The main challenges for the implementation of IOR/EOR projects are mainly financial, technical and human resource development. The complexity of the geology in some areas also poses a major hurdle to some countries.
4. Part of the solution - CCOP TS and PETRAD will continue to have an important role to coordinate activities that would help the CCOP Member Countries updated with knowledge and best practices from other countries outside CCOP, notably in areas where pilots and demonstration projects have been successful technically and commercially.



A 1-day field was organized by the PETROVIETNAM around Danang, Hoi An and My Son - to know more about the geology, the people and culture of Vietnam.

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