An Overview of EOR Activity in Japan

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Background

Aiming to bring the oil volume ratio on exploration and development by Japanese companies to 40% by 2030, (New Energy Strategy by METI*, May 2006)

* METI: Ministry of Economy, Trade and Industry

EOR/IOR is one of the prioritized technological fields in the long term R&D strategy of JOGMEC.

Japan (JOGMEC) has 30 years more experiences in technology development and technical support for EOR. (JOGMEC is a member of this IEA project since 1979.)

But…..

Limited domestic oil fields (10) and its oil production (6.2MMbbl/Y).

Small and matured oil field. Limited future EOR potential.

Driver on EOR in Japan

- Effective Development of Oversea Oil Fields by Japanese Companies
- Technical Cooperation to Oil Producing Countries
- Application of Leading-Edge Technology
- Handling of Environmental Problems
- Effective Development of Domestic Resources
Specific governmental support (in general)

- Financial and technical support for research projects (including international joint project and joint project with domestic university) by JOGMEC
- Financial investment for overseas EOR projects of Japanese oil companies by JOGMEC.
- Financial support for CCS projects (for future field demonstration tests) by METI
Current EOR Projects

- International joint study with oil producing countries (JOGMEC & NOC)
  - CO2-EOR study in Lower Zakum oil field offshore Abu Dhabi with ADNOC
  - Development optimization thorough waterflood and IOR/EOR in turbidite reservoir with PEMEX (Mexico)
  - Feasibility study on CO2 EOR in Vietnam offshore oil field with Petrovietnam
    (“Valuable Article of the Year 2009” of Petrivietnam Journal)

- Hydrocarbon gas injection to the offshore oil and gas field (JAPEX)
  The first commercially successful gas-based IOR project in Japan

- A feasibility study on a CCS total system in the depleted offshore gas field, Evaluation study for site screening in Japan, acquiring of benchmarks for CCS deployment and field surveys at candidate sites for future CCS demonstrations (JCCS)
Current R&D Activities

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• JOGMEC
  (in progress)
  • Fluid behavior in porous media and reservoir,
  • Reservoir characterization of heterogeneous reservoir,
  • Wettability evaluation,
  • Carbon cycle (Microbial Restoration of Methane Deposit with Subsurface CO$_2$
    Sequestration into the Depleted Oil Fields), etc.
  (in planning)
  • Application of new technologies to IOR/EOR: bio, Nano technology, etc.

• University: Kyoto, Tokyo, Waseda, Kyushu, etc.
  • Basic research on chemical EOR, MEOR, reservoir characterization, fluid behavior in porous media and reservoir, heavy oil, carbon cycle, etc.
    (including JOGMEC joint research projects with financial support)

• Others
  • Joint basic research project on CCS-EOR by NEDO* and CNPC (in planning)

* NEDO: New Energy and Industrial Technology Development Organization

(End of the presentation)