Final report

1. Project details

Project title	IEA-deltagelse som delegate—EOR TCP
File no.	134-21034
Name of the funding scheme	EUDP
Project managing company / institution	Danmarks Tekniske Universitet DTU Kemi Kemitorvet 207 2800 Kgs. Lyngby
CVR number (central business register)	30060946
Project partners	-
Submission date	29 January 2024

2. Summary

- *English version*

The IEA EOR Executive Committee consists of one national expert from each member country in the collaboration. They meet at least once per year in connection with the annual Workshop and Symposium with a focus on various current issues related to EOR. It is a task-based cooperation, i.e., without a central budget, and over the last 20 years, the meetings have changed from being closed to open sessions where the information is shared with the public.

In addition to the Executive Committee, a large international network of about 50 to 75 technical specialists within the field participates every year. This facilitates the creation of many cross-cutting international projects and collaborations.

The unique focus of the IEA, and the biggest impact from this initiative is to share knowledge and collaborate using the core of international experts, who keep in touch through this forum, and thereby ensures that new knowledge from one area of the world can quickly be used elsewhere. This international collaboration also contributes to ensuring the relevance and quality of our national education and research. Thus, there is considerable knowledge-transfer to and from Denmark, and Danish core competencies have gained international visibility.

Amid the transition towards renewable energy, the IEA TCP EOR is also undergoing a transformation. Starting July 2023, the acronym "EOR" represents "Energy Optimization Recovery", encompassing a broader spectrum of subjects beyond oil recovery. This expansion includes sustainable practices such as CO2 storage, hydrogen storage, and geothermal utilization. This change recognizes the ongoing but reduced role for fossil energy in supporting global energy security on the path to net zero by 2050. It also emphasizes the development and deployment of technologies that reduce emissions and the environmental impact of fossil energy production and use. The change has already been reflected in the 2023 workshop and symposium.

- *Danish version*

De internationale eksperter i IEA-EOR Executive Committee repræsenterer hver sit medlemsland i samarbejdet og mødes mindst en gang om året i forbindelse med det årlige symposium med tilhørende workshop inden for forskellige aktuelle emner vedrørende EOR. Det er et opgave-baseret samarbejde, dvs. uden et centralt budget, og møderne har over de seneste 20 år ændret sig fra at være lukkede til åbne sessioner, hvor informationerne således deles med offentligheden.

Udover ExecutiveCommittee deltager hvert år et stort internationalt netværk på omkring 50 til 75 tekniske specialister indenfor området, hvilket faciliterer etableringen af mange tværgående internationale projekter og samarbejder.

Det helt særlige fokus for IEA, og det absolut største afkast fra dette tiltag, er den kerne af internationale eksperter, der via dette forum opretholder faglig kontakt, og derved sørger for at ny viden fra et område af verden hurtigt kan implementeres andre steder. Dette internationale samarbejdet har således bidraget til at sikre relevans og kvalitet af vores nationale uddannelser og forskning. Der er på denne måde overført meget viden til og fra Danmark, og danske spidskompetencer fået international synlighed.

Midt i overgangen til vedvarende energi gennemgår IEA TCP EOR også en transformation. Fra og med juli 2023 repræsenterer akronymet "EOR" nu "Energy Optimization Recovery", som omfatter et bredere spektrum af emner ud over olieindvinding. Denne udvidelse omfatter bæredygtig praksis såsom CO2-lagring, brintlagring og geotermisk udnyttelse. Denne ændring anerkender den igangværende, men reducerede rolle for fossil energi i at understøtte global energisikkerhed på vej mod netto nul i 2050. Den understreger også udviklingen og udbredelsen af teknologier, der reducerer emissioner og miljøpåvirkningen af fossil energiproduktion og brug. Ændringen er allerede afspejlet i 2023-workshoppen og symposiet.

3. Project objectives

The objective is to ensure that Denmark benefits from other countries experience and contributes with our own expertise to the network. The project does not undertake any research activities, it only serves as a forum to exchange knowledge and mutual inspiration.
In July 2023, IEA EOR TCP changed the meaning of the acronym "EOR" to "Energy Optimization Recovery" to reflect the increasing coverage of sustainable initiatives such as CO2 storage, hydrogen storage, and geothermal utilization by the member states. The revised IEA EOR TCP keeps the same technical areas of focus, including (1) dynamic reservoir characterization, (2) fluids and interfaces, (3) physical, chemical, and natural reactions, and (4) emerging technologies (see Figure 1 below). These areas reflect the core competence of this TCP and allow for comprehensive coverage of sustainable processes as illustrated in Figure 2, especially those related to subsurface engineering. The two figures are taken from the slides used for applying the name change of this TCP presented by the current chairman in June 2023.

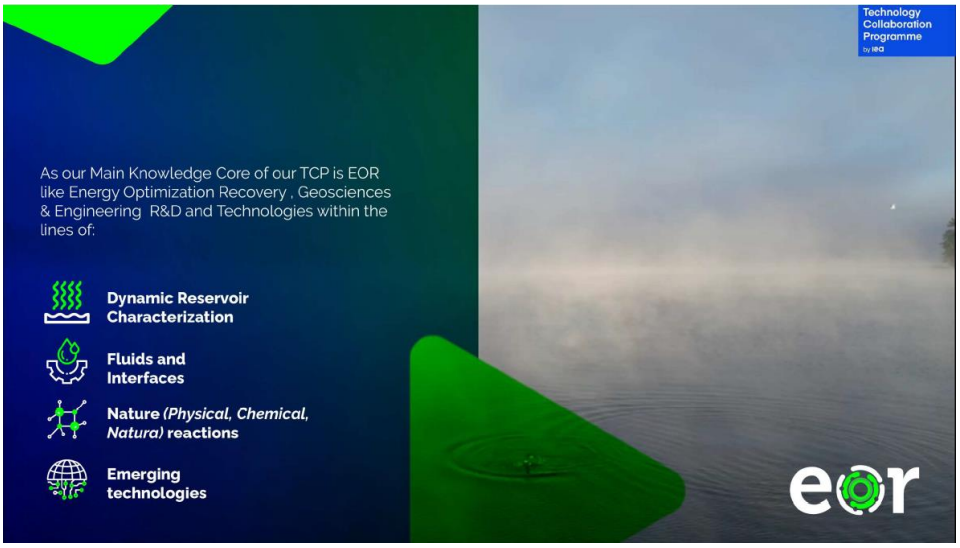

Figure 1. Technology areas of focus in IEA EOR TCP.

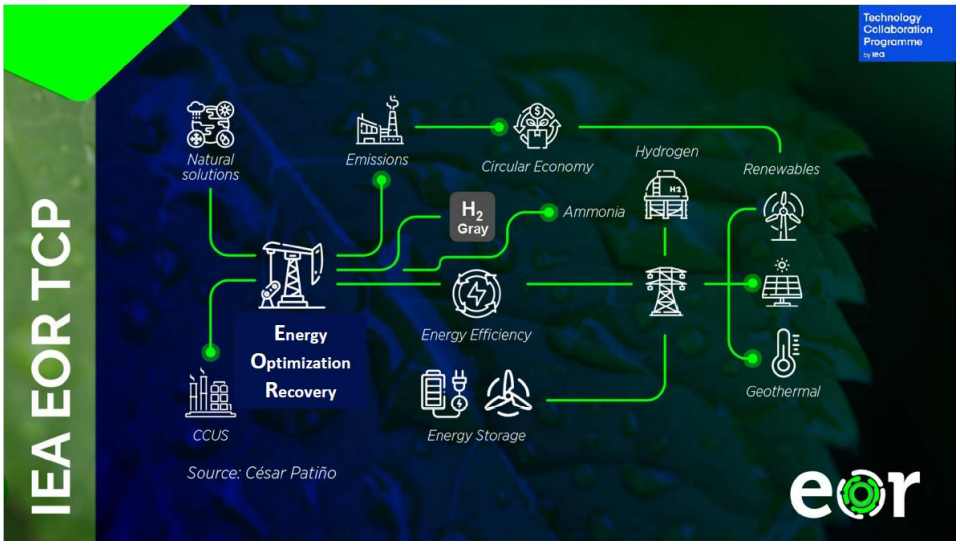

Figure 2. Extended application scope of IEA EOR TCP.

7. Project conclusion and perspective

The project has achieved its objectives and is deemed highly successful. The focus of this TCP (Technology Collaboration Programme) has shifted towards sustainable initiatives related to reducing emissions and the environmental impact of fossil energy production and use. In the meantime, it recognizes the ongoing but reduced role for fossil energy in supporting global energy security on the path to net zero by 2050.

As a result of the transition, more topics presented in the annual workshop & symposium are about utilization of subsurface for sustainable initiatives especially CO_2 storage, and individual panel discussions were arranged on the role of oil and gas in energy transition and attaining net zero. It is a consensus that the core competence of this TCP in subsurface-related description and engineering will be the crucial technology needed for the ongoing and future CO2 or hydrogen storage projects.

This TCP is highly relevant to the CCS community in Denmark. The Danish delegate has presented CO2 storage R&D results in the 2022 and 2023 workshops & symposia and attended the two annual ExCo meetings.

In our view, it remains crucial for Denmark to remain informed about the ongoing developments in this TCP, which emphasizes both transitions to net-zero emissions and energy security through a unique perspective of sub-surface engineering.

8. Appendices

Relevant links:

2022 IEA TCP EOR annual workshop and symposium:

https://www.npd.no/en/about-us/events/iea-eor-tcp/

2023 IEA TCP EOR annual workshop and symposium:

https://www.eortcp2023.com

The following link is the main website created for IEA EOR TCP. On this web site the program and many presentations from the IEA-EOR Workshop and Symposium can be found going back to 2000.

http://eortcp.com/login

Username: Denmark

Password: eortcp-Denmark