



**ISO/TR 27926**

**Carbon dioxide capture,  
transportation and geological  
storage — Carbon dioxide  
enhanced oil recovery (CO<sub>2</sub>-EOR) —  
Transitioning from EOR to storage**

*Captage du dioxyde de carbone, transport et stockage  
géologique — Récupération assistée du pétrole par le dioxyde de  
carbone (RAP-CO<sub>2</sub>) — Transition de la RAP au stockage*

**First edition  
2024-12**

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CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
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Published in Switzerland

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This document was prepared by Technical Committee ISO/TC 265, *Carbon dioxide capture, transportation, and geological storage*.

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Across the globe, interest in and development of projects for the geological storage of captured anthropogenic CO<sub>2</sub> continues to increase. One subset of these projects consists of those that would find some way to increase CO<sub>2</sub> storage through the use of existing hydrocarbon fields and infrastructure. There is a continuum of projects from hydrocarbon fields near the end of their lives that start CO<sub>2</sub> injection before the end of production, thereby accelerating transition to storage and potentially reducing costs, to full-fledged carbon dioxide enhanced oil recovery (CO<sub>2</sub>-EOR) projects that can be optimized to maximize CO<sub>2</sub> storage while still producing oil. Alternatively, operators of a producing field can decide to begin storage operations in that field before ceasing production. Such operations would instead be designed to achieve storage simultaneously with production.

Due to the availability of existing infrastructure for CO<sub>2</sub> transport, handling, injection and storage, modifying CO<sub>2</sub>-EOR projects nearing maturity to increase CO<sub>2</sub> storage can be a particularly cost-effective way to reduce atmospheric emissions of CO<sub>2</sub>. Some such modified projects can also defer project decommissioning, again helping to expand commercial carbon capture and sequestration (CCS) as an emissions-reduction option. CO<sub>2</sub> transport and injection infrastructure, as well as the generally well-characterized geologic formations where CO<sub>2</sub>-EOR operation are already undertaken or where operations at CO<sub>2</sub>-bearing geological formations occur, can be modified too for CO<sub>2</sub> storage.

Similarly, for producing oil and gas fields, starting CO<sub>2</sub> injection before cessation of production (i.e. having overlapping storage and production licenses) can have significant economic benefits. The CCS project can have certainty in timing and can potentially avoid having to compensate the hydrocarbon operator for “lost production”. There is also no gap between production and storage leading to no challenging questions over who pays for mothballed infrastructure.

There is considerable overlap in technology and infrastructure between standard CO<sub>2</sub>-EOR, other hydrocarbon recovery processes and dedicated geological storage of CO<sub>2</sub>. Each of the processes – and many of the operational variations discussed in this document – can present different advantages or disadvantages. For example, a number of the operational techniques for maximizing CO<sub>2</sub> storage would tend to increase reservoir pressures affecting the containment risk assessment, CO<sub>2</sub> movement through the storage complex or certain subsurface-engineered facilities. The technical and operational portion of this document examines these issues.

Similarly, the legal, regulatory and even consensus standards framework developed for typical CO<sub>2</sub>-EOR operations can no longer be applicable to a modified operation. A given framework can be appropriate for some operational changes, but not for others. [Clause 10](#) provides an overview of these issues.

This document does not address the quantification of greenhouse gases (GHGs) other than CO<sub>2</sub> for carbon dioxide storage projects. CCS projects can address quantifying, monitoring, reporting, and validating or verifying other GHG emissions reductions or removals through the application of ISO 14064-2 or other documents in the ISO 14064 series.