



**Carbon dioxide capture, transportation
and geological storage—
Geological storage**



AS ISO 27914:2019

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- Australian Energy Council
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- Department of Premier and Cabinet (SA)
- Engineers Australia
- Geoscience Australia
- Petroleum Exploration Society of Australia (Victorian Branch)
- University of Melbourne

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Preface

This Standard was prepared by the Standards Australia Committee EE-002, Carbon dioxide capture, transportation, and geological storage.

The objectives of this Standard are as follows:

- (a) establishes requirements and recommendations for the geological storage of CO₂ streams, the purpose of which is to promote commercial, safe, long-term containment of carbon dioxide in a way that minimises risk to the environment, natural resources, and human health;
- (b) applicable for both onshore and offshore geological storage within permeable and porous geological strata including hydrocarbon reservoirs where a CO₂ stream is not being injected for the purpose of hydrocarbon production or for storage in association with CO₂-EOR;
- (c) includes activities associated with site screening and selection, characterization, design and development, operation of storage sites, and preparation for site closure;
- (d) recognizes that site selection and management are unique for each project and that intrinsic technical risk and uncertainty will be dealt with on a site-specific basis;
- (e) acknowledges that permitting and approval by regulatory authorities will be required throughout the project life cycle, including the closure period, although the permitting process is not included in this Standard;
- (f) provides requirements and recommendations for the development of management systems, community and other stakeholder engagement, risk assessment, risk management and risk communication;
- (g) does not apply to, modify, interpret, or supersede any national or international regulations, treaties, protocols or instruments otherwise applicable to the activities addressed in this Standard; and
- (h) does not apply to or modify any property rights or interests in the surface or the subsurface (including mineral rights), or any pre-existing commercial contract or arrangement relating to such property.

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The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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

Introduction

Geological storage of carbon dioxide (CO₂) is recognized as a key technology for abatement of CO₂ emissions to the atmosphere or ocean and is an essential component in the process of carbon dioxide capture and storage (CCS)^[1]. The objective of this document is to provide recommendations for the safe and effective storage of CO₂ in subsurface geologic formations through all phases of a storage project life cycle (see [Figure 1](#)). While CCS is a nascent industry, this document is supported by a wide range of operational experiences in pilot to commercial scale carbon dioxide storage projects that have used methods and technologies mostly developed and widely deployed by the oil and gas industry including CO₂-enhanced oil recovery (EOR). This document applies to injection of CO₂ into geologic units for the sole purpose of storage and does not apply to CO₂ injection for hydrocarbon recovery, or storage of CO₂ that occurs in association with carbon dioxide enhanced hydrocarbon recovery. [ISO 29716 is in development to address carbon dioxide storage using enhanced oil recovery (CO₂-EOR)]. This document is supplemented by recommended practice manuals for CO₂ storage and numerous standards and technical recommendations developed for the oil and gas industry. [See Bibliography for selected references (References [\[1\]](#) to [\[12\]](#))].

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