



PROPOSAL FOR A NEW FIELD OF TECHNICAL ACTIVITY	
Date of proposal	Reference number (to be given by Central Secretariat)
Proposer	ISO/TS/P

A proposal for a new field of technical activity shall be submitted to the Central Secretariat, which will assign it a reference number and process the proposal in accordance with the ISO/IEC Directives (part 1, subclause 1.5). The proposer may be a member body of ISO, a technical committee or subcommittee, the Technical Management Board or a General Assembly committee, the Secretary-General, a body responsible for managing a certification system operating under the auspices of ISO, or another international organization with national body membership. Guidelines for proposing and justifying a new field of technical activity are given in the ISO/IEC Directives (part 1, annex Q).

The proposal (to be completed by the proposer)

<p>Subject (the subject shall be described unambiguously and as concisely as possible)</p> <p>Carbon Capture and Storage (CCS)</p>
<p>Scope (the scope shall define precisely the limits of the proposed new field of activity and shall begin with "Standardization of ..." or "Standardization in the field of ...")</p> <p>Standardization of materials, equipment, environmental planning and management, risk management, quantification and verification, and related activities in the field of carbon capture and storage (CCS)</p> <p>Excluded; equipment and materials used in drilling, production, transport by pipelines already covered by ISO/TC67</p>
<p>Purpose and justification (the justification shall endeavour to assess the economic and social advantages which would result from the adoption of International Standards in the proposed new field)</p> <p>The United Nations Framework Convention on Climate Change has a primary objective of achieving the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent adverse changes to the climate. This objective will require significant reductions in carbon dioxide emissions. The third assessment report from the Intergovernmental Panel on Climate Change (IPCC) indicated that no single technology option will provide all of the emission reductions needed to achieve stabilization and that a portfolio of mitigation measures will be needed. The IPCC Special Report on Carbon Dioxide Capture and Storage identified CCS as an important option within the portfolio of mitigation options, particularly in light of the expectation that fossil fuels will continue to dominate energy supply until at least the middle of the century.</p> <p>CCS technology exists today and in a few cases is already in commercial use. However widespread commercial implementation of CCS has not occurred for a number of reasons including the high cost, concerns about health and safety, lack of carbon pricing, doubts about its efficacy, and uncertain public acceptance. Another major obstacle is the lack of clear regulations and standards. This obstacle needs to be addressed because industry and governments have indicated that CCS is a priority and that commercial projects should be initiated as soon as possible.</p> <p>Because CCS is a brand new technological field, very few countries have developed the necessary frameworks for CCS regulations and standards and in many cases haven't even determined which regulatory authorities have jurisdiction. Part of the challenge is that CCS is a cross-cutting issue. It touches on the fields of oil and gas, groundwater quality, GHG management, air quality, geology, electricity generation, and risk management. CCS is in part a technology issue, but is also an environmental and GHG management issue. Additionally, since a CCS project is an interrelated system there is a need to ensure that there is integration between carbon capture, transportation,</p>

injection, and storage.

Standardization in the CCS field would provide a necessary element of the framework that could be used to facilitate widespread appropriate implementation. To date, proponents are using different guidelines, best practices, and related standards to select, design, develop, operate, and close CCS projects. There is a need therefore for standards that are specific to CCS and which would address the unique requirements that these projects require. This would be an immense benefit to proponents, regulators, and the public because it could provide assurances that projects have followed internationally accepted practices for safety and environmental integrity.

International standards are a preferred approach. There is a distinct advantage in quickly moving to International CCS standards because it leverages the increasing worldwide expertise and experience in CCS, and it recognizes that CCS projects may cross jurisdictions. Also, many jurisdictions that would benefit from the rapid implementation of CCS do not necessarily have the comprehensive expertise required to produce their own CCS standards. Developing International Standards related to CCS addresses a key need and is a necessary step towards widespread implementation of CCS as a climate change mitigation measure.

Standardization of Carbon Capture and Storage could theoretically be administered under ISO through a number of different options. One option would be for CCS to be administered by a new Technical Committee. A second option would be for CCS, or elements of CCS, to be administered by Working Groups or Subcommittees under existing TCs such as TC67 or TC207. For example, TC 67 has responsibility for equipment and materials in the petroleum and natural gas industries, and some of the equipment and materials used for CCS are related to those equipment and materials. A third option would be for different elements of CCS to be administered by joint working groups between existing technical committees that had interest.

Through consultation with stakeholders from a variety of interests and geographies, it was determined that a new technical committee was the best option. Therefore, this proposal is for Carbon Capture and Storage to be treated as a new field of technical activity and for it to come under the responsibility of a new technical committee. There are a number of reasons for this conclusion. For one, CCS does not fall comfortably under the scope of any existing Technical Committee. Materials and equipment are related to TC67, risk management is related to ISO TMB WG RM, quantification and verification is related to TC207/WG7, air monitoring and measurement systems are related to TC146/SC1, and environmental systems and tools are related to TC207. Another reason is that proponents of carbon capture and storage have indicated that CCS is an integrated system or chain and all of the different elements and considerations should not be artificially separated. Capture issues affect transportation and storage, transportation issues affect capture and storage, quantification and verification is a system wide issue. Even within specific CCS topics, integration is evident. For example, the geological storage of carbon is its own field of study according to carbon storage experts, but it includes carbon storage specific drilling equipment and materials, risk management, water and air monitoring, geological considerations, quantification challenges, etc. A further reason for a new technical committee is that the experts in CCS are rarely the same people that populate the existing ISO technical committees, subcommittees, and working groups.

Programme of work (list of principal questions which the proposer wishes to be included within the limits given in the proposed scope, indicating what aspects of the subject should be dealt with, e.g. terminology, test methods, dimensions and tolerances, performance requirements, technical specifications, etc.) It is also possible to attach a detailed programme of work showing proposed work item titles.

The proposed program of work would include the full life cycle of a CCS system from capturing the carbon dioxide, transporting it to a final location, storing it, and finally closing the facility and preparing it for long term stewardship. It would include CCS technology, terminology, environmental considerations, risk management, GHG quantification and verification, health and safety, and other related activities.

The program of work will involve the production of standards covering at least each of the major topics in CCS; namely Capture, Transport, Storage, Risk Management, and Quantification and Verification. It is anticipated that Working Groups would be formed to address standard(s) in each of the topic areas. Further details are provided in Annex A.

Survey of similar work undertaken in other bodies (relevant documents to be considered: national standards or other normative documents)

There are no known accredited national standards specific to CCS however there are best practices, guidelines, and related standards. These include but are not limited to:

ISO 14064-1 Greenhouse gases -- Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

ISO 14064-2 Greenhouse gases -- Part 2: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

ISO 14064-3 Greenhouse gases -- Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions

ISO 14040 Environmental management -- Life cycle assessment -- Principles and framework

ISO 14044 Environmental management -- Life cycle assessment -- Requirements and guidelines

DNV CO2QUALSTORE Guideline for selection and qualification of sites and projects for geological storage of CO2

Directive 2009/31/EC on the geological storage of carbon dioxide

DNV-RP-J202 Design and Operation of CO2 Pipelines

World Resources Institute CCS Guidelines: Guidelines for Carbon Dioxide Capture, Transport, and Storage

EPA Federal Requirements Under the Underground Injection Control Program for Carbon Dioxide Geologic Sequestration Wells

Liaison organizations (list of organizations or external or internal bodies with which cooperation and liaison should be established)

ISO TC207; Environmental management

ISO TC67; Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries

ISO TC207/WG7; Greenhouse gas management and related activities

ISO TMB WG RM; Technical Management Board/Risk Management

ISO TC146; Air Quality

ISO TC147; Water Quality

World Resources Institute (WRI)

International Association of Oil and Gas Producers (OGP)

Other comments (if any)

It is proposed that Canada provide the Secretariat for the Technical Committee and the Working Group for carbon storage. See Annex A for more detail.

Signature of the proposer

Comments of the Secretary-General (to be completed by the Central Secretariat)

Signature

ANNEX A
Proposed Standards Program and TC Organization

Introduction

The proposed program of work for the Technical Committee on Carbon Capture and Storage (CCS) would be based on the major CCS issues that need to be addressed to facilitate wide scale implementation. CCS is an important element within the portfolio of climate change mitigation options and should not be held back for lack of credible and recognized standards.

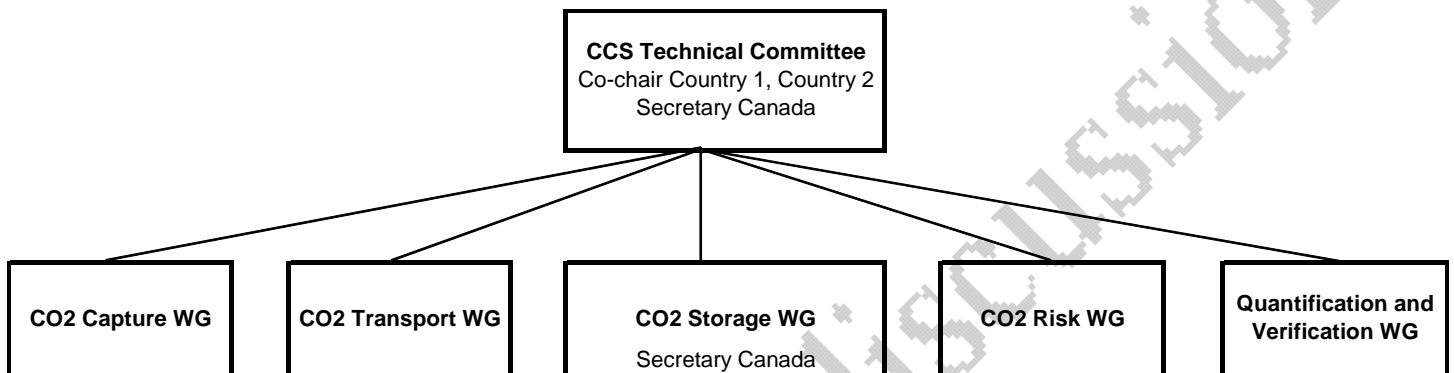


Figure 1

Figure 1 shows the proposed organization of the Technical Committee. It is expected that CCS will be of significant interest worldwide and it would be appropriate to share leadership of the Technical Committee. The proposal is for two leading countries to provide Co-chairs for the committee and for Canada to provide the Secretariat. Initially, five Working Groups would report to the Technical Committee. It is anticipated that each Working Group would be responsible for the development of at least one standard. The CO2 Capture Working Group would be responsible for the development of a standard for CO2 Capture; the CO2 Transport Working Group would be responsible for a standard covering CO2 Transport, etc. Of course there is a strong likelihood that additional standards may be needed to cover specific aspects under the scope of a Working Group. There would obviously be a need for strong liaison between the Capture, Transport, and Storage Working Groups to ensure that the interactions between them were properly considered. Also the Working Groups for Risk and Verification would need to have strong connections to the Capture, Transport, and Storage Working Groups.

CO2 Capture WG

The CO2 Capture Working Group would be responsible for the development of a standard covering carbon capture systems technologies and processes. Capturing CO₂ by separating it from the other components in the emissions from power plants and other carbon emitting sources has similarities with other processes that have been in existence for many years. Where appropriate, existing standards and guidelines covering these processes could be referenced in a new standard, however, there are also many specific considerations and best practices for carbon capture that would need to be developed separately. Standardizing the existing body of knowledge through an ISO standard would help facilitate the efficient adoption of carbon capture systems.

CO2 Transport WG

The CO2 Transport Working Group would be responsible for the development of a standard covering the transportation of CO₂ from its source to a permanent storage facility. The long distance movement of CO₂ can be by pipeline or shipping, but pipelines are by far the most likely form. In fact, transporting CO₂ by pipeline is already being used in some jurisdictions for enhanced oil recovery. There are a great number of international and national standards covering pipelines, and in many ways the transport of CO₂ is not that much different than those other products. However there are particular aspects of CO₂ transportation that are unique and appropriate for separate standardization. DNV- RP-J202 Design and Operation of CO₂ Pipelines, and specific CO₂ requirements in national pipeline standards could form the basis of an ISO standard.

CO2 Storage WG

The CO2 Storage Working Group would be responsible for the development of a standard covering the geological storage of carbon dioxide. The standard on the geological storage of CO₂ would cover the full lifecycle of a storage project from site selection through development, operation and finally to closure and long term stewardship. Regulators and the public are looking for assurance that the design, development, operation, and closure of a carbon storage facility are conducted in a safe and environmentally responsible manner. A wide body of information that has been developed from pilot projects around the world is now available for standardization activities. CSA Standards is in the process of developing a consensus standard on the geological storage of carbon which could form the basis of an ISO standard.

CO2 Risk WG

The CO2 Risk Working Group would be responsible for the development of a risk standard for carbon capture, transport, and storage of CO₂. Risk assessment, risk management, and risk communication are fundamental elements of a CCS system. CCS is a new field and there still remain a significant number of uncertainties. Effectively identifying, managing, and communicating health, safety, and environmental risks will be necessary to address legitimate concerns from regulators and the public. An ISO standard on risk would help proponents achieve and demonstrate due diligence in addressing uncertainties.

CO2 Quantification and Verification WG

The CO2 Quantification and Verification Working Group would be responsible for the development of a standard for quantifying and verifying CCS GHG emission reductions. For CCS projects to proceed there is a need for measurement and reporting mechanisms that can demonstrate that GHG reductions are real and permanent. Regulatory requirements or market based solutions also require confidence that assumptions are valid and that reduction outcomes have truly been achieved. ISO 14064-2 would form the basis of requirements for the CCS quantification and verification standard. This standard would be particularly necessary to facilitate carbon trading.

Summary

It should be expected that the portfolio of standards under the Carbon Capture and Storage Technical Committee will expand over time as the field evolves and new technology, opportunities and approaches emerge. For instance, ocean carbon dioxide storage through direct injection is an area that holds promise for the future. New processes in carbon capture are also being investigated. Carbon Capture and Storage is a new cross cutting field that has unique requirements and new specializations. A technical committee that focuses on the standardization needs of the different components and needs of CCS should help facilitate adoption on this necessary climate change mitigation option.