Development of the First Internationally Accepted Standard for Geologic Storage of Carbon Dioxide – Update from the Public Comment Period*

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Abstract

The Carbon Capture and Sequestration (Storage) (CCS) marketplace is lacking standardization and therefore the ability to allow CCS projects to be considered as Clean Development Mechanism (CDM). There is an international push to change this and recognize CCS. This recognition will allow for standardized and ultimately address a much needed CDM option and international standardization.

The international effort between the United States and Canada, funded by the International Performance Assessment Centre for Geologic Storage of Carbon Dioxide (IPAC-CO2 Research Inc.), and managed by CSA Standards, have partnered to develop the first internationally recognized Standard for the geologic storage of carbon dioxide (GSC). This Committee, with process and editorial support from CSA Standards, will be completely responsible for the content of the final standard. The process is a technical, consensus-based facilitated process. Membership of the Committee is drawn from experts with full GSC project life cycle knowledge and experience – general interest, operators/industry, regulatory, and consultant/service providers, which represent a balance of stakeholder needs.

The technical voting committee developed a draft that has been offered for public comment. The public comments have been received and incorporated into the draft Standard. This paper will provide an update on the development of the standard, discussion of the process, and implications of the completion of the process.



Development of the First Internationally Accepted Standard for Geologic Storage of Carbon Dioxide – update from the Public Comment Period

Eastern Section – AAPG

Session VII - Carbon Capture & Sequestration & Wastewater Disposal

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Unconventional Resources • Enhanced Recovery • Carbon Sequestration

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Presentation Topics

1. Brief Background
2. What is a CDM?
3. Why CCS?
4. Progress

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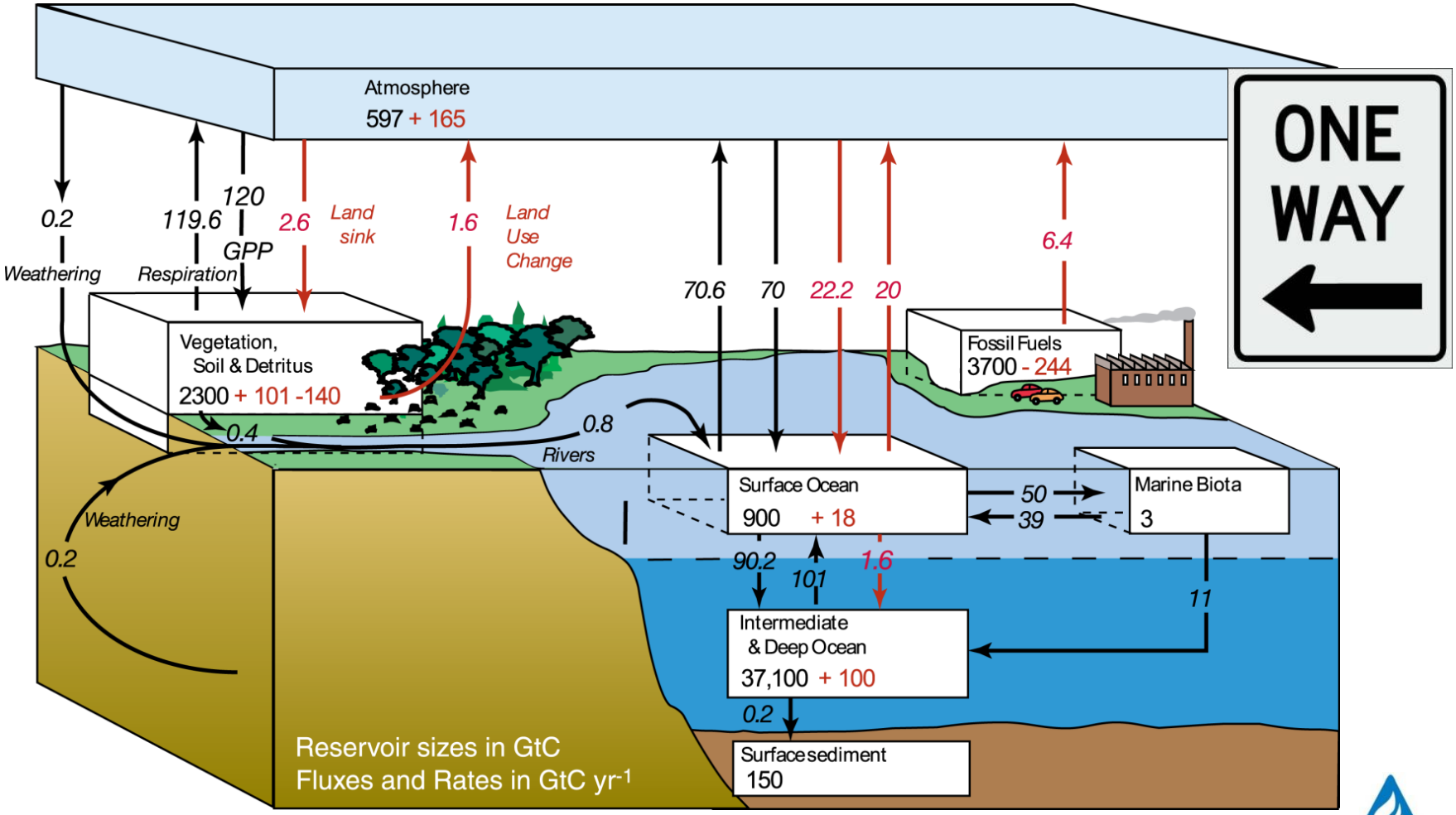
Carbon Cycle (Carbon Flux)



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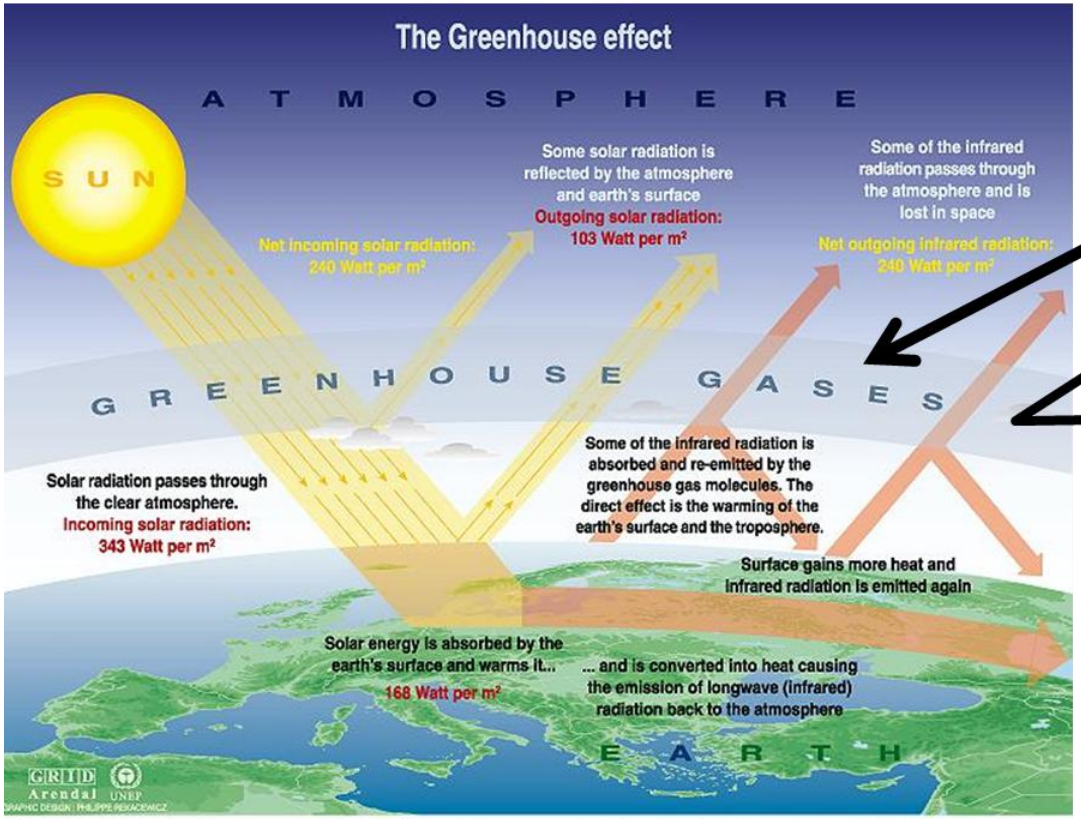
What do we count and why?



Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

Greenhouse Gas	GWP (SAR, 1996)
CO_2	1
CH_4	21
N_2O	310
HFC-134a	1,300
HFC-125	2,800
SF_6	23,900

The GHG's cause heat build-up and it's ability to do so is relative to the GWP compared to CO_2 as a constant of 1.

Therefore: 1+1+1≠ 3 = 332 CO_2e

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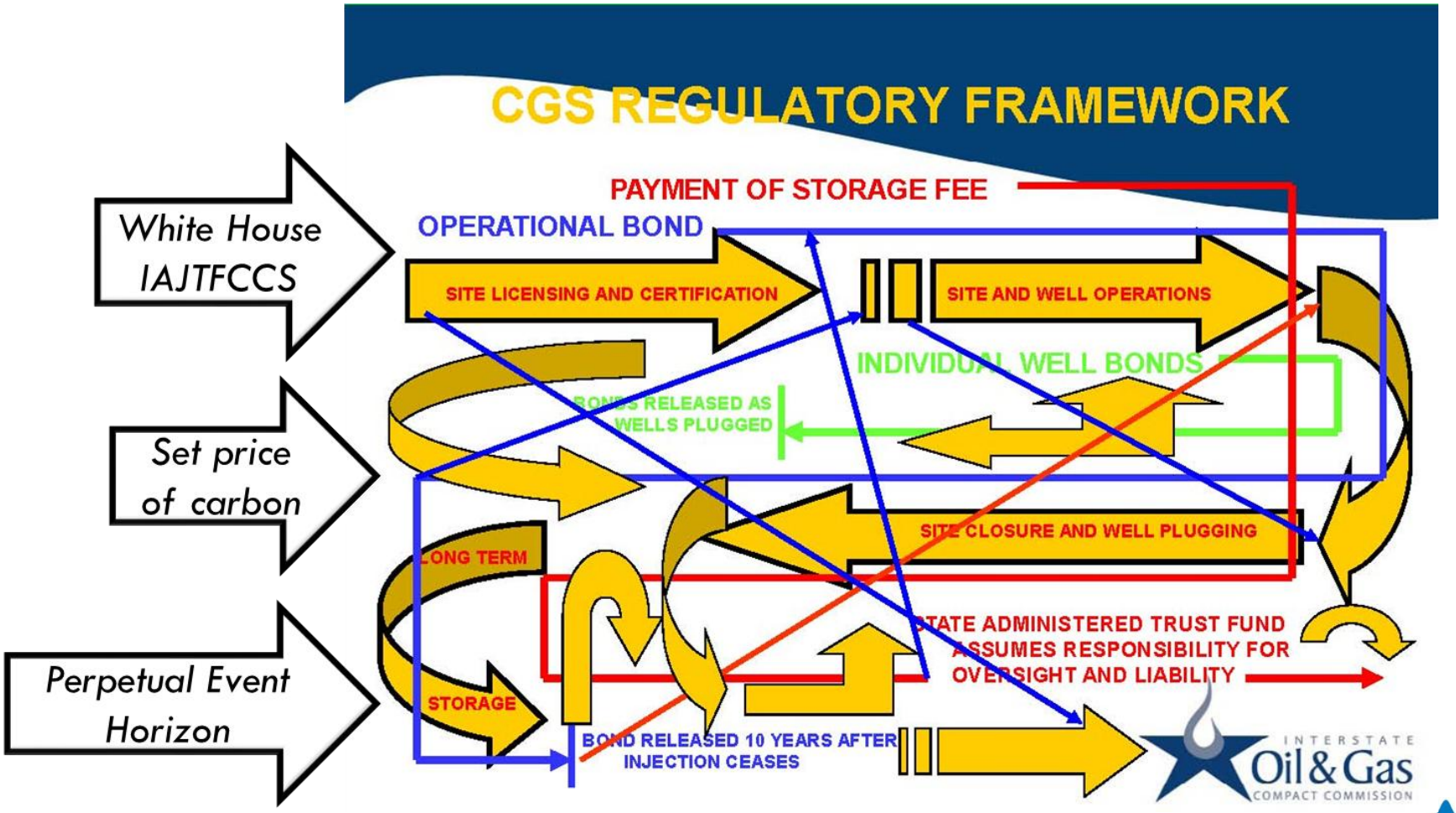
CCS Roadmap is Political Issue



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DOE – NETL 10th Annual CCS Conference

"Building on a Decade of Progress to Assure Commercial Deployment"

Stuart Dalton, Director of Generation, EPRI concluded his plenary presentation discussing EOR as it relates to CCS…

"Policy trumps funding and funding trump technology"

…CCS as a CDM is not a technological issue, and CO_2-EOR is one way to achieve commercial deployment!

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What is a CDM?

- Clean Development Mechanism, established under the Kyoto Protocol
- Managed by the United Nations Framework Convention on Climate Change (UNFCCC)
- Primary International Offset Program for GHG reduction in developing countries
- Generates Certified Emission Reductions (CER) or “carbon credits” = financial mechanism for implementation

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GHG offset under CDM must be:

1. Additional(ity) – in addition to BAU
2. Measurable – MVA, MMV, MRV
3. ***Independently Audited – 3rd party, no OCI***
4. ***Unambiguously Owned – based clearly on domestic and international law, no double counting***
5. Address/Account for leakage – outside of the project boundary – MVA, MMV, MRV
6. Permanent – non-reversible

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Types of CDM Projects

- Afforestation
- Electric generation fuel switching
- SF_6 emission reductions
- Landfill methane (CH_4) collection
- CMM & VAM
- Manure management
- *CCS?*

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Why CCS?

- >50% Base load power comes from coal/fossil fuel
- Future fossil fuel power generation won't occur ***without*** CCS
- 87% of all CCS projects are in NA, Europe & Australia – ***and no standardization exists***
- NA, Europe & Australia are NOT developing economies – ***and therefore not eligible***
- USA is NOT a signatory the Kyoto Protocol – ***and therefore not eligible***

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Z-741-12 "Kills 2 Birds with 1 Stone"

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World's first formally recognized CCS standard – Geologic Storage

- International Standards Organization - 31000, 17024, 14064, 14065
- International Performance Assessment Centre for Geologic Storage of CO_2 – Seed document
- Canadian Standards Association - ISO Secretariat, standards developer
- Bi-national agreement between USA & Canada

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Brings together 2 nations, multiple stakeholders

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TOC and Working Groups

- Reference Publications
- Management Systems
- Site screening, selection & characterization
- Risk Management
- Site & Well Development
- Monitoring and Verification (MVA)
- Closure

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Must INCLUDE any and all…

- *UNFCCC - IPCC*
- *ISO*
- *EU European Directives*
- *CSA*
- *DOE*
- *WRI*
- *IPAC-CO2*
- *Federal, Provincial, State regulations*
- *Future expected directives*

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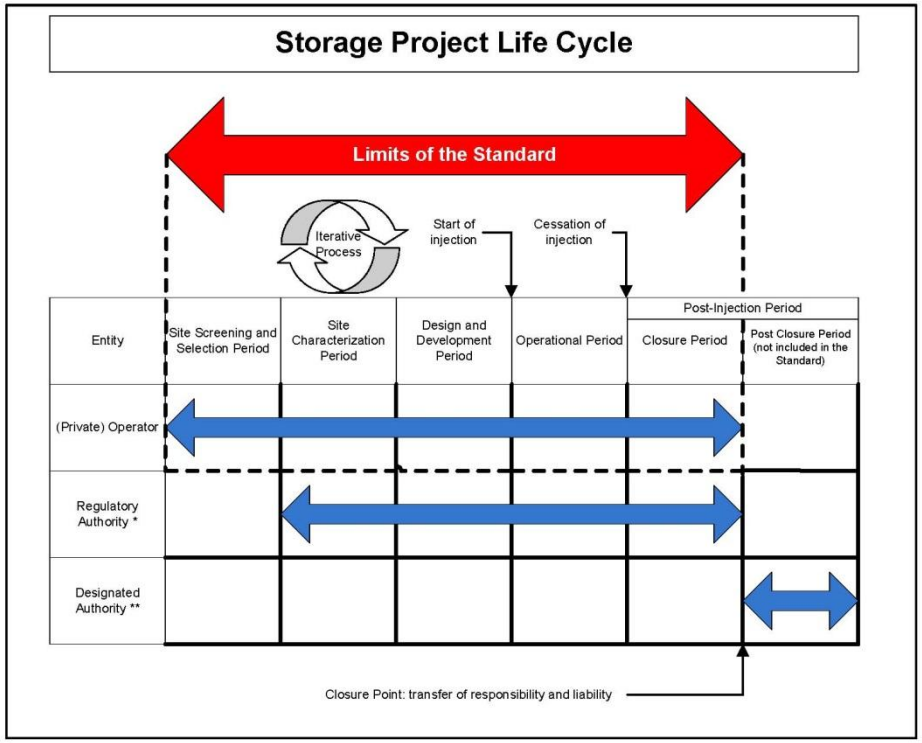
40 people, beer, pizza & hockey

40 = 52 = 47



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Schedule & Participation…

- December 2010 – Calgary KO meeting
- January to May 2011 - Monthly meetings
- June 2011 – Denver full committee meeting
- September 2011 – public comment opened
- November 2011 – public comment period closed
- December 2011 – begin to address public comments

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…Progress

- December 2011 to April 2012 – Address ***532 public comments***
- Primary public concerns were focused on inclusion or EOR, Closure, and Risk Management
- August 2012 – Consensus vote to adopt Z-741-12
- Z-741-12 at ANSI and SCC for adoption

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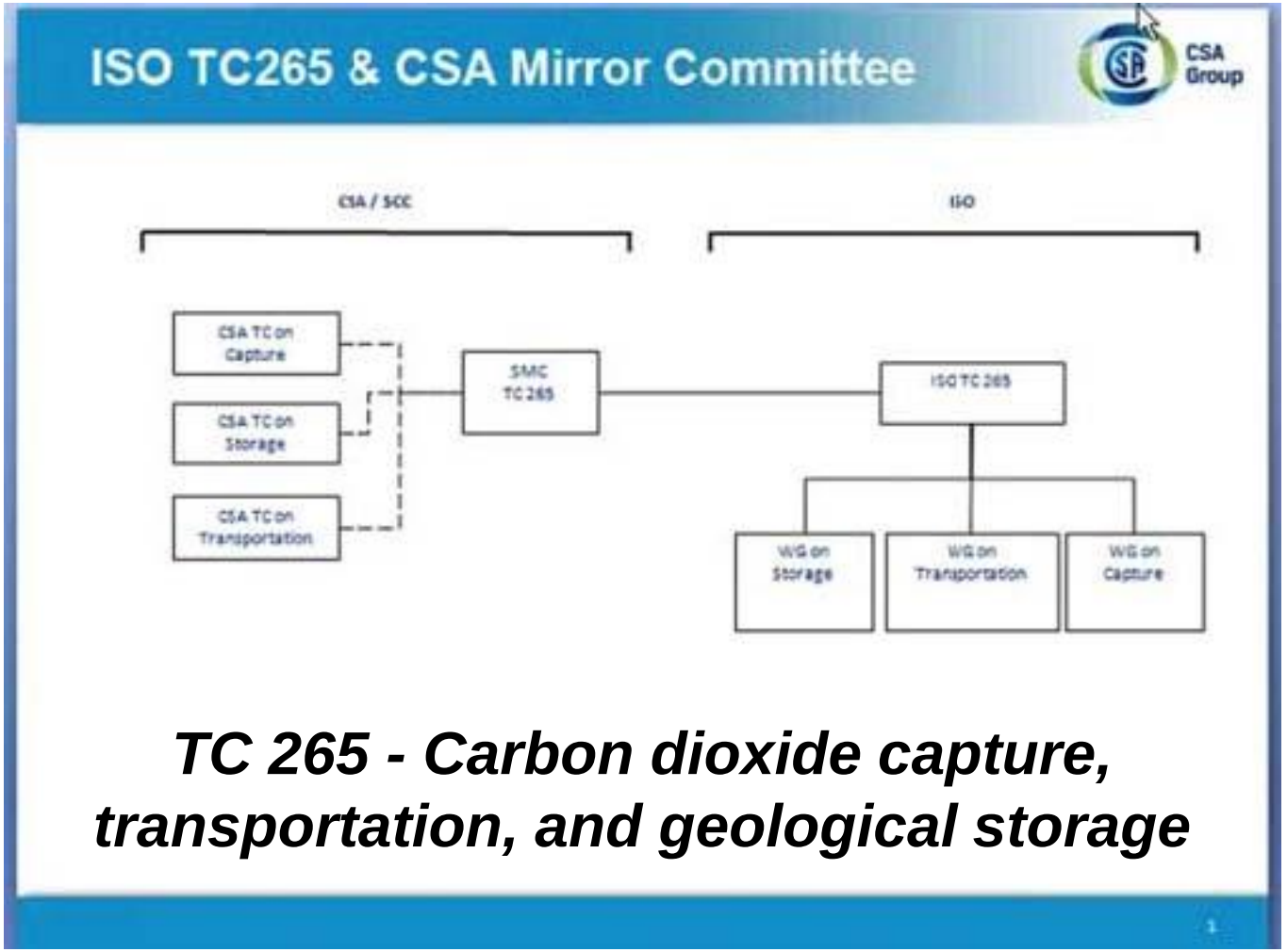
…Progress



TC 265 - Carbon dioxide capture, transportation, and geological storage

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TC-265

Twined Secretariat: Canada & China

Participating Countries:

- *Australia*
- *France*
- *Germany*
- *Italy*
- *Japan*
- *South Korea*
- *Netherlands*
- *Norway*
- *South Africa*
- *Spain*
- *Switzerland*

Observing Countries:

- Argentina
- Brazil
- Czech Republic
- Egypt
- Finland
- India
- Iran
- New Zealand
- Serbia
- Sweden
- ***USA***

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Thank you!

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