Gaffney Cline

CCS Guidelines - Which To Follow

Introduction

GaffneyCline has a long history of Carbon Capture and Storage (CCS) and Carbon Capture Utilisation and Storage (CCUS) projects, having completed over 30 projects across the world with most of these within the last five years.

Our clients' needs are diverse and so the scope of our projects has covered everything, from CCS regulations and guidelines to independent subsurface modelling of CO_2 injection, to integrated project economics, to M&A, and discussions with lenders about U.S. Class VI well applications.

In our experience there is no "best" set of assurance guidelines; however, there may be a best choice of guidelines for each project. GaffneyCline has no pre-defined preference as to which guideline we adopt for each project because they have differing focuses. Past projects have been guided by the SPE's Storage Resources Management System (SRMS), or by ISO 27914, or by the client's internal guidelines, and/or government regulation and this experience uniquely positions us to meet all our client's CCS needs.

SRMS, which covers ranges of uncertainty over a broad range of project maturities, may be more applicable for M&A, for portfolio management and/or internal/external reporting. For some specific purposes e.g. an external due diligence prior to FID (e.g. as part of a pre-FID Gate Review), then ISO 27914 might be appropriate as it is prescriptive and includes risk management and Measurement Monitoring and Verification (MMV). SRMS and ISO 27914 are different, but also complimentary, systems.

GaffneyCline has prepared the table below which is a comparison of aspects covered in selected guidelines. This table shows that the SPE SRMS and ISO 27914 provide the largest coverage of topics, with the former being the only guideline to cover commerciality. The British Geological Survey (BGS) Storage Readiness Level (SRL) guidelines are also useful for handling storage resources at early stages of project maturity prior to the definition of an associated project. GaffneyCline is happy assisting Client's needs in their CCS or CCUS projects.

Comparison of Key Reference Guidelines to Other CCS Guidelines

Aspect	CSLF[1]	EU Directive[2]	DoE[3]	SRMS[4]	ISO 27914[5]	BGS[6]
Published	2007	2011	2015	2017	2017	2021
Project based	×	√	×	√	√	×
Project maturity or readiness?	√	×	×	√	×	√
Commerciality	×	×	×	√	×	×
Storable quantities, Volumetric estimates	√	√	√	√	√	×
Storable quantities, Dynamic model estimates	×	√	×	√	√	×
Storable quantities, Range of estimates	×	√	×	√	√	×
Injectivity	√	√	×	√	√	×
Facilities	×	×	×	√	√	×
Storage Integrity (Containment)	×	√	×	×	√	×
MMV	×	√	×	×	√	×
Risk Management System	×	√	×	×	√	√

Notes:

1. Carbon Sequestration Leadership Forum (Bachu, et al., 2007).
2. European Union CCS Directive Guidance Documents (2011). Note that the Directive is largely a Regulatory document.
3. US Department of Energy (US Department of Energy, 2015).
4. SPE SRMS (Society of Petroleum Engineers, 2017; Society of Petroleum Engineers, 2022).
5. The International Organization for Standardization (International Organization for Standardization, 2017).
6. British Geological Survey Storage Readiness Levels (Akhurst, et al., 2021).

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bd@gaffneycline.com | www.gaffneycline.com | Follow us on LinkedIn

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