

November 27, 2019

The Honorable Charles P. Rettig  
Commissioner  
Internal Revenue Service  
CC:PA:LPD:PR (Notice 2019-32)  
Room 5203, Internal Revenue Service  
1111 Constitution Avenue, N.W.  
Washington, D.C. 20224

*submitted online via regulations.gov*

**Re: IRS Notice 2019-32 and Implementation of IRC §45Q;  
Docket No. IRS-2019-0026-0001**

Dear Commissioner Rettig:

The undersigned entities representing the Carbon Utilization Research Council, Clean Air Task Force, ClearPath, Environmental Defense Fund, and The Nature Conservancy submit the below *“Guiding Principles for Demonstrating Secure Geological Storage”* for your consideration.

**GUIDING PRINCIPLES FOR  
DEMONSTRATING SECURE GEOLOGICAL STORAGE**

This white paper outlines a recommended approach for using the ISO 27916 Standard in addition to Subpart RR for demonstrating secure geological storage of carbon dioxide (CO<sub>2</sub>)<sup>1</sup> used for enhanced oil recovery (EOR) purposes as required under section 45Q of the Internal Revenue Code. The paper begins by articulating key guiding principles and substantive criteria for generally demonstrating secure geological storage under section 45Q. This discussion includes specific recommendations on the implementation process that the IRS should establish to assure the proper validation and verification of the substantive criteria set forth in the ISO 27916 Standard through an independent and qualified third party.

**KEY GUIDING PRINCIPLES:**

**Environmental integrity:** Substantive criteria must be established for demonstrating secure geological storage and those criteria must assure environmental integrity for quantifying the amount of CO<sub>2</sub> stored for long-term containment in subsurface geological formations consistent with the IPCC guidelines (2005; 2006)<sup>2</sup> developed for the injection and long-term geological storage of CO<sub>2</sub>.

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<sup>1</sup> Reference to carbon dioxide in this white paper may also refer, as appropriate, to carbon oxide that qualifies for the tax credit under Section 45Q.

<sup>2</sup> See [https://www.ipcc.ch/report/carbon-dioxide-capture-and-storage/\(2005\);](https://www.ipcc.ch/report/carbon-dioxide-capture-and-storage/(2005);) and [https://www.ipcc.ch/site/assets/uploads/2018/03/srccs\\_chapter5-1.pdf](https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_chapter5-1.pdf) (2006).

**Public transparency:** An implementation process must be established for ensuring public transparency in a manner that—

- Allows the public to review key documents and balances the need to protect confidential business information (CBI);
- Establishes procedures for validation and verification of a project's long-term storage of the CO<sub>2</sub> injected into underground geological formations; and
- Allows for coordination between IRS, DOE, DOI and EPA to assure public notice of and access to review key documents.

**Lead role of IRS:** As directed by section 45Q, the IRS should assume the lead role of issuing regulations that establish the general substantive criteria and implementation process for demonstrating secure geological storage for purposes of receiving section 45Q tax credits.

**Key Elements of Substantive Criteria:** The substantive criteria for demonstrating secure geological storage should require that the monitoring, reporting and verification protocols—

- Demonstrate that each subsurface geological formation is suitable for providing long-term containment of qualified CO<sub>2</sub> in that formation with a low risk that the injected CO<sub>2</sub> would ever be released in the atmosphere;
- Confirm that the CO<sub>2</sub> flood is operated in a way to assure long-term containment in the subsurface geological formation;
- Account for all material changes in how the CO<sub>2</sub> is injected and managed in the subsurface geological formation over the life of the project;
- Quantify with precision and accuracy the total cumulative amounts of the injected CO<sub>2</sub> that is stored in the subsurface geological formation through a comprehensive mass-balance methodology; and
- Establish a reliable and efficient process for determining when it is appropriate to discontinue the monitoring of the subsurface geological formation based on sufficient assurances that the injected CO<sub>2</sub> is not expected to migrate from the geological formation to the atmosphere.

**Multiple Pathways for Demonstrating Secure Geological Storage:** The IRS should establish a flexible regulatory framework that allows for multiple pathways to demonstrate secure geological storage under section 45Q. At this time, the following two pathways, depending on implementation procedures, meet the substantive criteria (as outlined above) for making this demonstration—

- Subpart RR requirements that EPA has adopted for monitoring and reporting CO<sub>2</sub> injected for long-term containment under an Underground Injection Control (UIC) Class VI permit or EOR under an UIC Class II permit; and
- The ISO 27916 Standard that was developed for quantifying and documenting the amount of CO<sub>2</sub> incidentally stored in association with the injection of CO<sub>2</sub> for EOR purposes under an UIC Class II permit.

Other possible pathways that meet acceptable procedures for demonstrating secure geological storage as represented in this document could be considered by IRS in the future.

**Implementation Process:** Subpart RR contains an already established and acceptable process for implementation of the monitoring, reporting, and verification protocols for demonstrating secure geological storage of the CO<sub>2</sub> injected into underground formations.

By contrast, the ISO 27916 Standard does not specify a mechanism or process for its implementation in order to validate and verify a project's secure geological storage of the CO<sub>2</sub> injected into underground geological formations for EOR purposes. To fill this gap, the IRS should establish a process for third-party validation and verification by a qualified and independent body that is transparent, creditable, and verifiable. Key elements of this validation and verification process should include requirements to—

- Certify the accuracy and completeness of all project-specific documentation posted on the public website, including the initial documentation for demonstrating secure geological storage, any periodic documentation, and termination demonstration as described above;
- Obtain validation and verification from a qualified, independent third-party (as described below) that the initial, periodic, and termination plans and documentation – including any subsequent updates – conform with the ISO 27916 Standard, and:
  - Post and make available prior to injection the initial documentation, as specified in section 4.3 of the ISO 27916 Standard, for demonstrating secure geological storage of the injected CO<sub>2</sub> at the project level on a public website for review by interested parties and in a manner that assures the protection of CBI;
  - Post and make available the periodic documentation, as specified in section 4.4 of the ISO 27916 Standard, on a public website for review by interested parties and in a manner that assures the protection of CBI;
  - Post and make available any revisions to operational containment assurance that are necessary based on changes that have the potential to adversely affect containment, as specified in section 6.1.3 of the ISO 27916 Standard, on a public website for review by interested parties and in a manner that assures the protection of CBI; and
  - Post and make available prior to termination the final termination plan and termination documentation, as specified in sections 10.3 and 10.4 of the ISO 27916 Standard, for demonstrating secure geological storage of the injected CO<sub>2</sub> at the project level and conformance to the requisites for termination on a public website for review by interested parties and in a manner that assures the protection of CBI; and
- Retain all relevant records that document the amount of CO<sub>2</sub> being injected and stored by a specific EOR project for purposes of receiving section 45Q tax credits and make those records available for any audit to be performed retrospectively by a competent authority as designated by the IRS.

**Requirements for Third-Party Validation and Verification:** The IRS should establish minimum eligibility requirements for the independent third parties who will validate and verify that the specific EOR project satisfies the substantive criteria and requirements of the ISO 27916 Standard for demonstrating secure geological storage at the project level. Those minimum eligibility requirements should require that the third-party validation and verification be

conducted by an independent, qualified, and competent individual or team of individuals. Exemplary qualifications of an individual or team could include demonstrated experience and a high degree of knowledge regarding the design and implementation of systems for monitoring geological storage of CO<sub>2</sub> and evaluating the quality and predictive capability of subsurface models. In addition, the individual or team should have experience in an earth science discipline relevant to monitoring, such as reservoir engineering, geophysics, geology, hydrology, geomechanics, geochemistry, or other relevant discipline. Engineers should be registered professional engineers and geologists should be registered professional geologists in states where this is an option.

While we recognize a period of transition is necessary, we also believe that establishing a process for formal accreditation of third-parties is essential, particularly for increasing public and private sector confidence in geologic storage. At some point in the future, the American National Standards Institute (ANSI), National Accreditation Board (ANAB) may establish an accreditation program for accreditation of validating and verifying individuals or bodies (third-parties) to review the demonstration for assuring the secure geological storage of CO<sub>2</sub> incidental to EOR production pursuant to the ISO 27916 Standard.<sup>3</sup> Once ANAB has established an accreditation program for the ISO 27916 Standard, that program could be used by the IRS as the accreditation process for certifying qualified, independent individuals or bodies to review all of the relevant documentation for verifying long-term storage of CO<sub>2</sub> injected into EOR projects under the ISO 27916 Standard.

The use of qualified third-party reviews has strong precedent in similar GHG reporting programs both in the United States and internationally. Third-party review is required under the *Carbon Capture and Sequestration Protocol* that California has adopted under the Low Carbon Fuel Standard.<sup>4</sup> While not related to GHG emissions, IRC §179D, *Energy Efficient Commercial Buildings Deduction*, is another example of a requirement for certification by a qualified individual to verify that code requirements have been met by the taxpayer (Qualified Individuals in IRC §179D are individuals “not related to the taxpayer...and an engineer or contractor licensed in the state where the building is located.”).<sup>5</sup>

ISO standards, through ANSI, are often referenced by public policies in the United States and in other countries.<sup>6</sup> A separate but conceptually related standard to the ISO 27916 is the ISO 14065 for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition. The standard is incorporated into numerous regulatory and voluntary programs internationally. These include:

- Alberta’s [Technology Innovation and Emission Reduction Program](#);

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<sup>3</sup> ANSI has established accreditation programs for other ISO standards, including for other greenhouse gas reductions and removals. See <https://www.ansi.org/accreditation/environmental/greenhouse-gas-validation-verification/>. It is reasonable to expect that ANSI may determine it is appropriate to develop a process for accreditation program for certifying qualified third-party individuals and bodies for the validation and verification of CO<sub>2</sub> injected for EOR purpose under the ISO 27916 Standard.

<sup>4</sup> See <https://ww2.arb.ca.gov/resources/documents/carbon-capture-and-sequestration-protocol-under-low-carbon-fuel-standard>.

<sup>5</sup> See [https://www.irs.gov/pub/irs-utl/dce\\_p\\_250\\_05\\_01.pdf](https://www.irs.gov/pub/irs-utl/dce_p_250_05_01.pdf)

<sup>6</sup> See [https://www.iso.org/sites/policy/national\\_examples.html](https://www.iso.org/sites/policy/national_examples.html)

- British Columbia's Greenhouse Gas Emission Reporting Regulation ([Part 5](#)) and Emission Control Regulation ([section 13](#));
- Quebec's Regulation respecting a cap-and-trade system for greenhouse gas emission allowances ([Ch. Q-2, r.46.1](#)) and Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere ([Ch. Q-2, r.15](#));
- Newfoundland and Labrador's regulation on Management of Greenhouse Gas Reporting Regulations under the Management of Greenhouse Gas Act ([Regulation 14/17](#));
- Nova Scotia's [Greenhouse Gas Emissions Regulations](#);
- Ontario's Regulation on Greenhouse Gas Emissions: Quantification, Reporting, and Verification ([O. Reg. 390/18](#));
- Saskatchewan's [The Management and Reduction of Greenhouse Gas Emissions: Quantification, Reporting, and Verification](#);
- Federal Government of Canada's [Output-Based Pricing System](#);
- Federal Government of Canada's [Clean Fuel Standard – Proposed Regulatory Approach; and](#)
- Voluntary Programs
  - o American Carbon Registry, [ACR Standard v6.0](#),
  - o Climate Action Reserve, Verification Program Manual, [Section 3](#),
  - o Verra (Verified Carbon Standard), [VCS Program Guide v.4](#),
  - o The Climate Registry, [General Verification Protocol](#) v.2.1, and
  - o International Civil Aviation Organization (ICAO) [Carbon Offsetting and Reduction Scheme for International Aviation \(CORSIA\)](#).

Thank you for the opportunity to submit these joint comments outlining a set of recommended principles for demonstrating secure geologic storage. Please contact us with any questions.

Respectfully submitted,



Kurt Waltzer  
Managing Director  
Clean Air Task Force



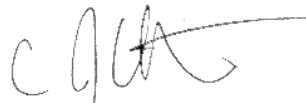
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