December 2, 2022

The Honorable Lily Batchelder
Assistant Secretary (Tax Policy)
Department of the Treasury
1500 Pennsylvania Avenue, NW
Washington, DC 20220

The Honorable Charles P. Rettig
Commissioner
Internal Revenue Service
1111 Constitution Avenue, NW
Washington, DC 20224

RE: Request for Comments on the Credit for Carbon Oxide Sequestration (Notice 2022-57). Submitted electronically via the Federal eRulemaking Portal at www.regulations.gov.

Dear Honorable Batchelder and Honorable Rettig,

Thank you to you, the Treasury Department and the Internal Revenue Service (IRS), for moving forward with guidance on §45Q of the Internal Revenue Code (45Q) as amended by the Inflation Reduction Act (IRA). The following organizations appreciate your invitation to respond to the request for comments on the amendments to the carbon dioxide sequestration credit under 45Q (45Q credit). This letter is submitted from:

- Carbon Business Council, a nonprofit trade association of more than 75 innovative carbon management companies;
- OpenAir Collective, a volunteer network dedicated to the advancement of carbon removal via open-source policy development and advocacy;
- AirMiners, a global community and accelerator for early-stage innovators across all methods of carbon removal.

We encourage the IRS to implement changes to the 45Q credit in a manner that unleashes the full potential of the tax incentive and encourages carbon removal innovation. Based on the challenge and necessity of carbon removal, and great potential for continuing and accelerating the sector's growth, the recommendations below can help advance and scale methods of carbon removal by innovators as well as help the U.S. achieve its climate goals.

We concur with the IRS's statement of "broadening the definition of a 'qualified facility' by reducing the required carbon capture thresholds." We recommend an inclusive approach to a "qualified facility" for existing and emerging methods of carbon removal and storage, encouraging the 45Q tax credit to include multiple methods that are capable of durably sequestering carbon.

We provide more detailed comments below in regards to Section 3 of the Request for Comments, including the following sections:

- (.01) (1); (.01) (2) Direct Air Capture;
- (.02) (1)) Definitions;
- (.03) (4); Records and Recordkeeping;
- (.05) Specific Technologies

.01 Direct Air Capture. The IRA modifies the applicable dollar amounts under § 45Q(b)(1) for purposes of § 45Q(a)(3) and (a)(4) for qualified carbon oxide captured by DAC facilities.

(1) What types of existing and emerging technologies potentially meet the definition of a DAC facility?

The definition of carbon oxide that qualifies for the 45Q credit has three categories under §45Q. Categories A and B are specific to point source capture and Category C is specifically intended to address atmospheric carbon dioxide removal. We believe an inclusive and technology-neutral definition of what constitutes a 'DAC' facility in Category C is key to maximize the impact of the 45Q tax credit. Such a facility includes traditional direct air capture methods, which can include solid sorbent, liquid solvent, temperature swing, electroswing, moisture swing, electrodialysis, carbonate mineralization with or without looping, and other novel methods. We encourage the IRS to also define a DAC facility to encompass approaches that a) remove carbon dioxide from the atmosphere, b) provide a measurement-based verification of the amount of carbon dioxide removed, and c) convert the removed carbon dioxide into stable carbon forms alongside other durable forms of storage and utilization, which may or may not generate electricity and/or renewable energy. These can include approaches with facilities such as biomass carbon removal and storage (BiCRS); ocean-based carbon removal methods including direct ocean capture and ocean alkalinity enhancement; enhanced weathering (via basalt and other ultramafic rock); synthetic biology; and other approaches to carbon mineralization including land-based mineralization methods that result in long-duration carbon removal.

(2) What methodologies could taxpayers use to best determine and verify the amount of qualified carbon oxides captured by a DAC facility?

Agreeing to measurement, reporting and verification (MRV) frameworks will help ensure the efficacy of carbon removal approaches. MRV frameworks are already developed or being developed by companies and third party verifiers. Clear definitions from the federal government, where they have or when they can gain the required information, can help to codify and standardize MRV frameworks. MRV guidance can benefit from robust statistical sampling using scientifically valid carbon oxide measurements. With the efficacy of carbon removal solutions remaining paramount, we encourage a 45Q credit framework that encourages innovation of new ideas, approaches, methodologies, and the continued review of life-cycle analyses.

.02 Definitions. The IRA modifies the definition of a "qualified facility" under § 45Q(d) and related definitions under § 45Q(e).

(1) What clarifications are needed regarding key terms and requirements including original planning and design, capture design capacity, principal electric generating unit, designed annual carbon oxide production, average annual carbon oxide production, and actual versus potential electric output from an applicable electric generating unit?
Clarification of key terms and requirements can provide more certainty and inclusiveness for 45Q. Current requirements include secure geologic storage, which can include gaseous subsurface injections; however, other forms of secure geologic storage, such as via mineralization, are durable as they reduce the risk for leakage. Therefore, we will elaborate that additional forms of durable storage should qualify under the existing credit, including 1) secure in situ mineralized geological storage, such as in domestic basalt formations both onshore and offshore, and 2) above-ground carbon mineralization, to properly qualify as "secure geological storage" within section 45Q(c)(2). Many DAC technologies encompass the sequestration of carbon dioxide from the atmosphere from a variety of methods; with this in mind, the storage mechanism as the primary component of the 45Q credit should also become more neutral as there are various evolved pathways that store carbon more durably and permanently with minimized potential for leakage.

Approaches like these incorporate important technologies that achieve permanent carbon storage through methods such as the carbonation of stable, non-reactive rocks at the surface level, without the need for underground disposal of CO2 in a gaseous form. Yet, in discussing the pathway for secure geological storage, the existing 45Q regulations reference only underground injection. We therefore request that the 45Q guidance clarify that the underground injection method for secure geological storage described in 26 CFR § 1.45Q-3 does not preclude other forms of secure geological storage, and, in particular, that secure 'geological storage' also includes durable approaches such as: above-ground, below-ground gaseous, below-ground in situ mineralization, and aqueous mineralization; and the integration of long-duration storage within the built environment as well as biochar and biocarbon. In the event the underlying regulations are modified, we also request an amendment to specifically list surface-level geologic mineralization and aqueous (e.g., ocean and surface water) carbon oxide conversion (i.e., via alkalinity) as forms of secure geologic storage.

.03 Records and Recordkeeping

(4) Using technology currently available to industry, how could project developers that incorporate carbon capture equipment into electric generating units demonstrate that the carbon capture equipment meets the 75 percent baseline carbon oxide requirement under § 45Q(d)(2)(B)(ii)?

Many conventional direct air capture facilities generate CO2 at purity levels that meet or exceed the 75 percent baseline (NASEM 2018). Consistent purity standards from sequestered CO2 tanks can help ensure that this baseline requirement is being met.

.05 Specific Technologies. What clarifications, if any, are needed regarding the classification of industry-specific or emerging technologies that qualify for the § 45Q credit?

Any approach, technology, or method that a) reduces the concentration of carbon dioxide from the atmosphere and or/aqueous environments (for aqueous environments, as in reaching equilibrium via permeation from the atmosphere to the ocean); b) can demonstrate with reliability the quantity of carbon dioxide that was removed; and c) stores the carbon dioxide in a new mineral, material, or location in which it is separated from the environment and not to return as carbon dioxide, should qualify for the 45Q credit, including those existing and those to emerge with continued innovation. Methods including those listed in Section .01 (1) above should be considered for qualification of the 45Q credit. As countries from around the world advance carbon removal policy, clarifications to harmonize and standardize definitions will help carbon removal reach an economy of scale.

Thank you again for the opportunity to submit our response. We're grateful for the IRS and Treasury Department's request for comments.

Sincerely,

Benjamin Rubin
Ben Rubin
Executive Director
Carbon Business Council

Toby Bryce
Policy & Market Development
OpenAir Collective

Tito Jankowski
Chief Executive Officer
AirMiners