FAQs About 45Q: The Carbon Capture Tax Credit

Practising Law Institute

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CCUS BACKGROUND

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- Carbon dioxide is a “greenhouse gas” contributing to global warming.
- The EPA measures the global warming potential of all greenhouse gases in terms of their equivalent to CO2 (“CO2*e*”)
- Carbon capture is a key element of strategy to address climate change

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What is Carbon Capture? Not this:

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CCUS = Carbon Capture Use and Storage

The capture of carbon dioxide (CO2) and its precursor, carbon monoxide (CO), generally from large point sources, such as power plants and industrial facilities, which would otherwise be released into the atmosphere

AND

its **use** in producing products or materials

OR

its **storage** in permanent underground geological sequestration.

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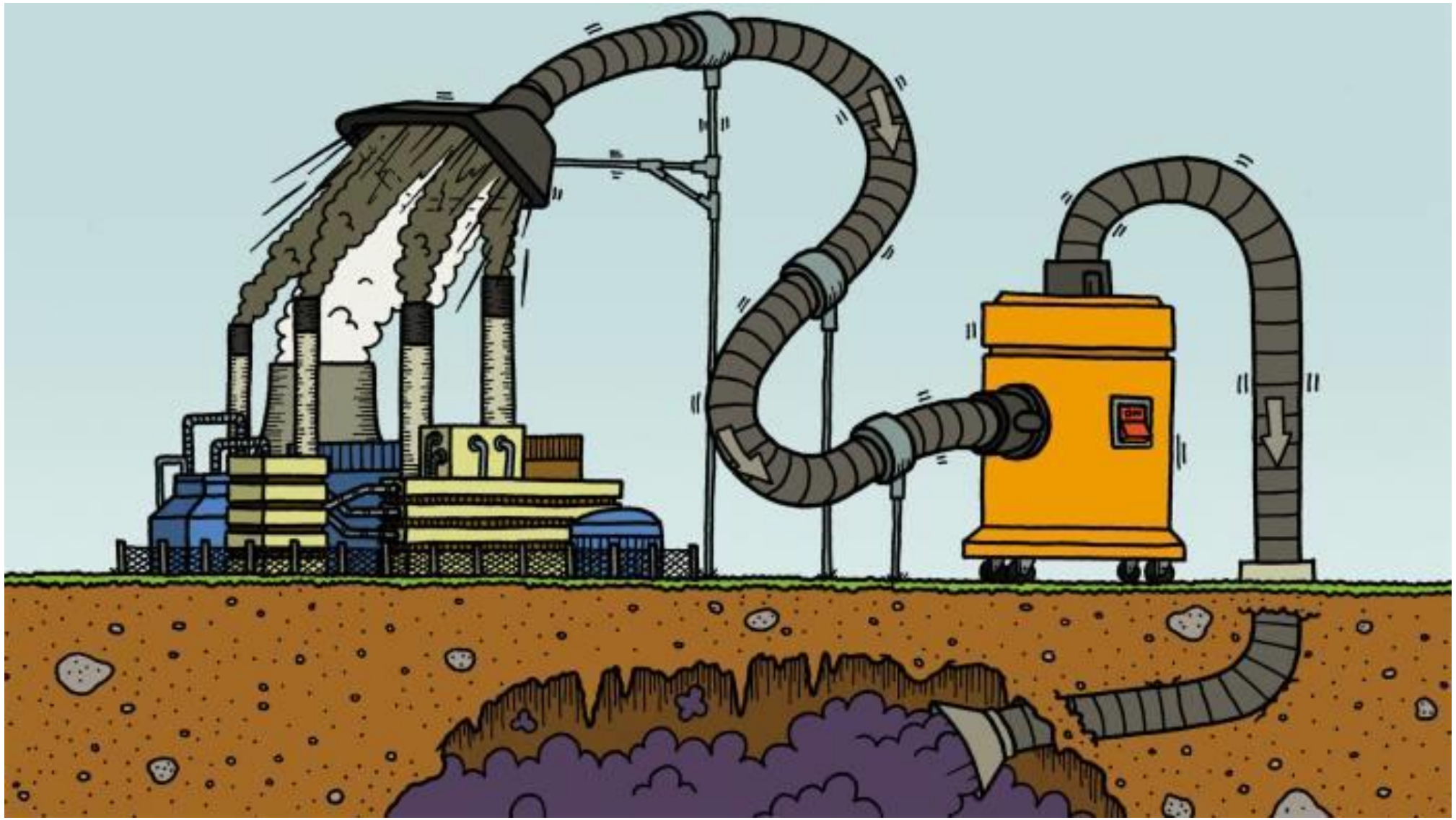

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If it's not stored, what can it be used for?

- **Enhanced Oil or Gas Recovery** ("**EOR**")
  - Primary use of captured carbon to date
  - Use of CO2 in EOR is not new but the CO2 has primarily been drawn from natural underground deposits of CO2. Using captured CO2 replaces that.
- **Utilization**
  - As an ingredient in chemicals or other products such as building materials or low-carbon fuels
  - Commercial markets: use in food and beverage industry, to make dry ice, medical uses

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Carbon Removal (CR)

Direct Air Capture ("DAC") =

- The use of chemical or physical processes (think high-powered fans) to extract carbon dioxide directly from the ambient air.
- Instead of capturing a fugitive emission of carbon oxide produced from industrial sources, DAC removes CO2 currently in the atmosphere.

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SECTION 45Q OVERVIEW 02

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Section 45Q Tax Credit for Carbon Capture and Sequestration

- A dollar amount **per metric ton of carbon oxide** that is captured and:
  - **sequestered in secure geological storage**
  - **used in enhanced oil recovery** ("**EOR**") **or**
  - **utilized** in chemical products and other **commercial operations**.
- Unlimited amount for **12 years** from date carbon capture equipment is placed in service.
- Deadline? Need only begin construction before 1/1/2033
- To obtain full credit, **prevailing wage and apprenticeship requirements** must be met in construction
- The credit may be subject to **recapture in the case of leakage** of sequestered carbon
- **Credit can now be sold** or turned in for cash from government ("direct pay")

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How Much is the 45Q Credit Worth?

- Higher amount for sequestration than for use in EOR or other utilization
- Inflation adjustments will apply to these amounts
- **Example:** at **500,000 MT** annual sequestration, the credit over 12 years would total approx. **$510 million**

	Placed in service before 2023	Placed in Service after 2022*
Permanent Sequestration	$50	$85
EOR or other utilization	$35	$60
Direct air capture ("DAC")	$85	$180

* Assumes compliance with prevailing wage and apprenticeship requirements

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What type of project has a credit opportunity?

- Power plants
- Ammonia/fertilizer
- Hydrogen plants (“blue hydrogen”)
- Ethanol plants
- Petrochemical plants
- Natural gas processing plants
- LNG trains
- Any industrial production process (cement, steel)
- Lifting some other gas (helium, nitrogen, lithium) and CO2 comes with it
- Direct Air Capture (“artificial trees”)

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How Did the Inflation Reduction Act Affect the 45Q Credit?

- **Section 45Q existed since 2008; in 2018 revamped to current form**
- **In 2022:**
  - **IRA increased credit amount**
    - From $50 to $85 for CO2 that is captured and sequestered;
    - From $35 to $60 for CO2 that is used in EOR
  - Extended: must **begin construction before 1/1/33**
  - **Relaxation of minimum** capture amount requirements, now:
    - for most facilities, minimum is 12,500 metric tons/year.
    - For electricity-generating facilities, 18,750 metric tons/year AND 75% reduction in emissions from baseline CO2 emissions, tested on a per-power generating unit basis. Baseline looks at 3-year average annual CO2 production. If new, compare to the "designed annual CO2 production assuming 60% capacity."

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Qualifying for the 45Q Credit

Carbon oxide must be:

- **Captured** from **industrial sources** or from direct air capture
- **Measured and verified** at source of capture and at disposal
- Captured at a **qualified facility** (must meet minimum annual capture amount)
- **Sequestered, used or utilized** in:
  - Sequestered in secure geological storage
  - Used in EOR
  - Utilized in other chemical or commercial applications

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FAQS 03

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FAQ #1: Who can claim the credit?

- The **credit is attributed to the owner of the carbon capture equipment** who physically or contractually ensures capture and sequestration.
- What is the CCE? All **components used to capture or process** carbon oxide up until the point where it is ready to be transported for disposal, injection or use
  - Separating, purifying, drying and/or capturing industrial source carbon oxide
  - Direct air capture equipment; or
  - Compression equipment
- Not transportation equipment, except for gathering and distribution lines away from facility
- Only one claimant allowed per carbon capture process train, however, may be a party that owns less than all of the train (e.g., just the compression equipment and not the separation equipment). See Rev. Rul. 2021-13
- Credit can be transferred to sequestering party under section 45Q(f)(3)

What does a carbon capture project look like?

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FAQ #2: Can I get the new credit amounts for old equipment?

- To qualify to the new, higher credit amounts, the carbon capture equipment must be placed in service after December 31, 2022. See section 13104(i) of the Inflation Reduction Act.
- Existing carbon capture projects (carbon capture process trains) may qualify for the new 45Q credit amounts if equipment is added with a market value of at least 4 times the value of the existing equipment— known as the "80-20 Rule"
- See Reg. 1. 45Q-2(g)(5):
  - (5) Retrofitted qualified facility or carbon capture equipment (80/20 Rule). A qualified facility or carbon capture equipment may qualify as originally placed in service even if it contains some used components of property, provided the fair market value of the used components of property is not more than 20 percent of the qualified facility or carbon capture equipment's total value (that is, the cost of the new components of property plus the value of the used components of property) (80/20 Rule). In determining the value of the used components of property as compared to the new components, the general principles of Revenue Ruling 94–31 will apply.

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FAQ #2 continued: Can I get the new credit amounts for old equipment?

- A special provision in this regulation permits the **cost of pipeline** to be included in the calculation even if that is not traditionally considered carbon capture equipment.
  - "Solely for purposes of the 80/20 Rule, properly capitalized costs of a new qualified facility or carbon capture equipment may, at the option of the taxpayer, include the cost of new equipment for a pipeline (the cost of equipment for a new pipeline, not equipment used to repair an existing pipeline) owned and used exclusively by that taxpayer to transport carbon oxides captured by that taxpayer's qualified facility or carbon capture equipment that would otherwise be emitted into the atmosphere."
- Most important aspect of test: the valuation of the existing equipment.
- Note that the 80/20 test only applies when there is an existing complete carbon capture process train. If some equipment exists (e.g., separation) but additional equipment is necessary to prepare CO2 for disposal (e.g., compressor), 80/20 test does not apply.

FAQ #3: What are the risks? Recapture? Other insurable risks?

Insurable Risks:

1. **Recapture risk**: Will the tax credits, properly taken, nonetheless be recaptured?
   - Section 45Q(f)(4): recapture in event carbon oxide ceases to be captured, disposed of or used
     - Exception: if leak is unrelated to operations like volcano, terrorism, then no recapture. Not mentioned: seismic event causing leak
   - Recapture event = leaked amount EXCEEDS stored amount in same year
   - Recapture period is 3 years (not 5 as originally proposed)
   - Must allocate recapture pro rata if more than one taxpayer claimed
2. **Qualification risk**: Will the tax credits claimed be allowed in full?
   - Prevailing wage and apprenticeship requirements
   - Placed in service date
   - 80/20 Rule
   - Disposal contracts (binding written contract)
3. **Structure risk**: Will the tax equity structure or transfer be respected?
   - Partnership and partner status
   - Allocation of tax credits
   - Ownership of the carbon capture equipment

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FAQ #3 continued: What are the risks? Recapture? Other insurable risks?

- **Tax Insurance Key Considerations**:
  - **Pricing**:
    - Still in a period of price discovery.
    - Currently, cost is approx. 3-5% of limits purchased (one-time premium payment) but expect 2-4% in 1-2 years.
    - Pricing largely a function of limits purchased.
  - **Policy periods**:
    - Most tax insurance policies are 7-10 years—mismatch with 45Q's 12-year credit period plus 3-year recapture period.
  - **Required information**:
    - Overview of underlying project,
    - MRV plan,
    - Base case model,
    - Underlying transaction documents,
    - Memo of counsel (structure risk and qualification risks), and
    - Memo or other product from management/advisors on why risk of recapture is low (management track record, technology being used, etc.).

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FAQ #4: Sequestration: Does the well permit class matter?

- Is an EPA Class VI well permit necessary? Class VI is specifically for CO2 sequestration. Very few have been issued and process currently can take years.
  - Several states have primacy for Class VI wells, greatly facilitating the permitting process
- However, the 45Q ***regulations do not specify the class*** of well permit that must be obtained for secure geological sequestration; require only that sequestration occur "in compliance with applicable EPA regulations."
- Preamble to 45Q regulations indicates that in certain situations a Class II permit may be appropriate.
- EPA or states have issued Class II permits for sequestration of CO2 in connection with disposal of natural gas production or processing waste.

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FAQ #5: Can I get 45Q if I sell the CO2 instead of storing it?

The 45Q credit is available for carbon oxide that is "used" in enhanced oil recovery ("EOR) or "utilized" in a certain chemical processes or any other purpose for which a commercial market exists.

- For utilization, the taxpayer must show the amount of carbon oxide captured and permanently isolated from the atmosphere OR displaced from being emitted into the atmosphere.
- Utilization prong requires that the taxpayer prepare a **lifecycle analysis ("LCA")** of greenhouse gas emissions from feedstock generation through distribution, delivery and use by consumer demonstrating the amount of CO isolated or displaced.
- **IRS pre-approval of LCA**. The LCA must be reviewed by the IRS and DOE. Final regs provide that credit cannot be claimed until *after* IRS reviews and approves LCA.
- LCA approval process is broken: few, if any, LCAs have been approved.

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FAQ #6: Do I have to comply with prevailing wage and apprenticeship requirements?

- To obtain the 5x multiplier on the statutory credit amount (i.e., $85/ton) must comply with prevailing wage and apprenticeship requirements in construction, alteration or repair of qualifying facility or carbon capture equipment.
  - **Exception**: Begin construction of both qualified facility and carbon capture equipment before Jan. 29, 2023
    - If began construction of qualified facility before January 29, 2023, then only have to satisfy PWA as to carbon capture equipment.
- Clarification needed as to whether must satisfy PWA for qualified facilities built without any plans for carbon capture. E.g., facility built in 2024 with no plans for carbon capture so no PWA compliance. Later, CCE is added and complies with PWA. Since requirement is that both facility and CCE comply with PWA, does failure of facility to comply mean no multiplier even if CCE construction complies?
  - IRS recently released proposed prevailing wage regs. See Prop. Treas. Reg. 1.45Q-6.

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FAQ #7: How do I get direct pay for 45Q?

- Section 6417(d)(1)(C) allows any credit claimant to elect direct pay for first five years after carbon capture equipment is placed in service.
- Limited to "so much of the credit as is attributable to carbon capture equipment placed in service after 12/31/2022."
- Must be elected in the year of placement in service.
- A project-by-project (process train) election.
- If placed in service late into year, direct pay will apply to fewer credits than if placed in service at beginning of year and get a full first year.
- Tax-exempts and government entities can elect direct pay for all 12 years of project.
- Non-tax-exempts, 5-year period must end by 1/1/2033.
- Proposed regulations would not allow direct pay for 45Q credits acquired pursuant to a section 45Q(f)(3) transfer from the CCE owner
- Pre-registration of credits required

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FAQ #8: How can I finance my 45Q project?

- Unlike solar and wind, the market for tax equity in CCUS is merely **nascent**.
- There have been several deals that have closed.
- Most deals are project company financed without third party tax equity investment.
- Many projects are considering either direct pay or the sale of tax credits, rather than tax equity.
- Tax equity can serve to monetize the value of the depreciation/opex generated by the project.
- Proposed regs permit forward contract for sale of future stream of credits but require consideration for sale of credits to be paid no earlier than the year in which the credit is generated.
    - Presents a problem for upfront funding off of future stream of credits.
- If the project company is a tax-exempt or governmental entity, direct pay is available for 12 years.
- For other taxpayers, direct pay is available for only 5 years. After the 5-year period, credits could be monetized through sale or via a tax equity investment at that time.
- Tax-exempt bonds may be used to finance 45Q projects with a nominal 15% haircut on credit value.

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FAQ #9: Can I stack the 45Q credit with other credits?

Credit	Rule	Comment
45V – clean hydrogen PTC	45V(d)(2): "no credit shall be allowed under this section with respect to any qualified clean hydrogen produced at a facility which includes carbon capture equipment for which a credit is allowed to any taxpayer for the taxable year or any prior taxable year."	Guidance needed. What if the facility has CCE that is co-located but it is unrelated to the hydrogen production process? Commenters have asked for clarification that 45Q not precluded in that case.
45Z – clean fuel	45Z(d)(4)(B): "qualified facility" does not include a facility allowed 45Q for the taxable year	Reference to taxable year implies ability to toggle between 45Z and 45Q
48 ITC	Generally, no prohibition on stacking with 45Q	
48(a)(15) – clean hydrogen ITC	No credit under section 45Q with respect to any carbon capture equipment included at a clean hydrogen production facility.	
48E – tech neutral ITC	48E(b)(3)(C) excludes from "qualified facility" any facility receiving 45Q credits	

FAQ #9 continued: Can I stack the 45Q credit with other credits?

Credit	Rule	Comment
48C – ITC for certain manufacturing and GHG reduction projects	No – 48C(f) prohibits both 48C and 45Q for same facility.	
45 – renewable energy PTC	No prohibition	
45Y –tech-neutral renewable energy PTC	"Qualified facility" does not include any facility for which a credit under 45Q is allowed.	

THANK YOU

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