

The University of Texas School of Law 16th Annual Renewable Energy Law Institute

Overview of Carbon Capture Utilization and Storage (CCUS) in the US



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January 26, 2020

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Carbon Reduction Opportunities - Existing Industrial and Power Emitters

Heavy industry such as iron, steel, and cement production accounts for a significant proportion of direct greenhouse gas emissions providing great opportunities for reduction through carbon capture.

Figure i. Emitting facilities: 45Q Eligibility and near-term capture opportunities

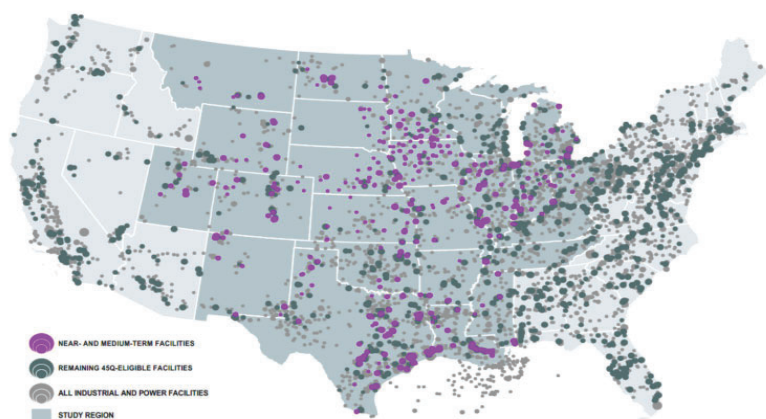


Figure authored by GPI based on data from EPA FLIGHT 2018.

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Optimized CO2 Transportation Network

Figure ii. Optimized transport network for economy-wide CO₂ capture and storage

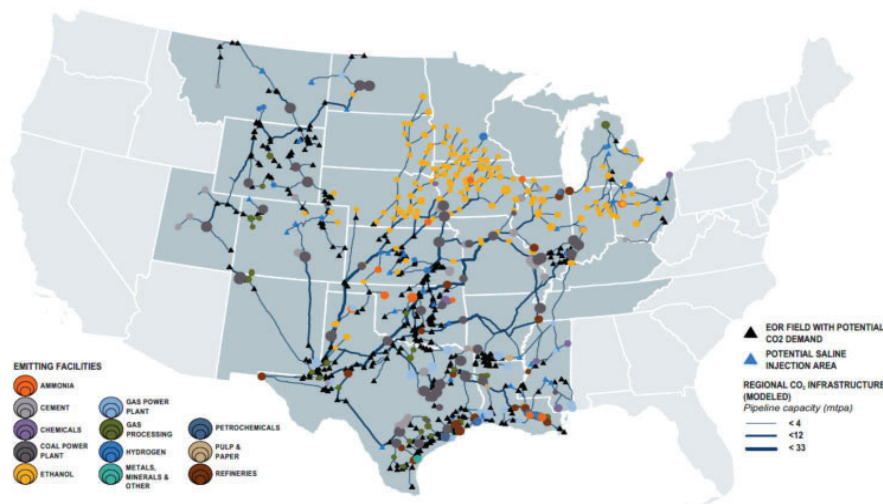


Figure authored by GPI based on results from the SimCCS model.

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Carbon Capture Utilization and Storage Supported by IRC 45Q Tax Credit

- February 2018 amendment paves way for growth of carbon capture and sequestration asset classes in the USA through the monetization of IRC Section 45Q tax credits.
- Credit available for capture and long term storage of carbon oxides through use in enhanced oil recovery (or EOR), geologic sequestration or commercial utilization:
 - Capture of carbon from industrial facilities; power generation.
 - Direct air capture (DAC) technology.
 - Commercial utilization of carbon permanently captured and isolated from the atmosphere or displaced from being emitted into the atmosphere based upon an analysis of lifecycle greenhouse gas emissions.

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Carbon Capture Utilization and Storage Supported by IRC 45Q Tax Credit

- Provides business tax credit to owner of carbon capture equipment for 12 year credit period of \$35 per metric ton of carbon (MTC) stored through EOR and \$50 per MTC for geologic storage. Owner of carbon capture equipment may elect to transfer credits to person sequestering carbon.
- IRS 45Q guidance to date has drawn heavily upon existing safe harbor “partnership flip” structures and “beginning construction” rules applicable to wind and solar, with some exceptions including the required level of a tax investor’s committed equity vs. “Pay-Go” (i.e. 50/50 for CCS but 75/25 for wind and solar), the extent of permitted sponsor indemnities to investor and disallowance of sponsor call rights.

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Carbon Capture Utilization and Storage Supported by IRC 45Q Tax Credit

- Credit value quite significant - credit value during 12 year period for an industrial facility capturing 100,000 MTC per year approx. \$42-\$60 million and for large scale coal power plant capturing 90% of its CO2 emissions per year approx. \$1.89- \$2.7 billion.
- Minimum statutory capture thresholds create opportunity for large scale deployment (min annual 500,000 MTC for power generation, 100,000 MTC for industrial/DAC and 25,000 MTC for commercial utilization).
- Recapture liability based upon leakage of sequestered carbon oxide. Proposed regulations propose five year look back for possible recapture risk.

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[Energy Storage: FERC Action and Project Considerations](#)

First appeared as part of the conference materials for the
16th Annual Renewable Energy Law Institute session

"Alternatives to Renewables – Carbon Capture & Storage/ Waste to Energy"