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ENERGY TRANSITION PERSPECTIVES: CARBON CAPTURE AND STORAGE IN THE US

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Carbon capture and storage (CCS) technologies have an important role to play in achieving net zero emissions. In the US, Section 45Q tax credits continue to be the primary driver of transactions, and the market is maturing. Flexibility in approach remains vital for parties seeking opportunities as they navigate the associated risks and liabilities. In this extract from a recent webinar, we discuss the state of the CCS market in the US and how projects are being structured, including key documentation, strategies for risk allocation and policy incentives.

How are CCS projects being structured in the US?

Project structures vary, but whether or not the different elements of the process are integrated is an important factor. "CCS can be a good solution for carbon emitters in industries that are difficult to decarbonize," says Jonathan Castelan, a Partner in Clifford Chance's Houston office, "but they typically don't want to enter into multiple separate contracts for capture, transportation and sequestration. Businesses that have been successful in this space are able to offer a turn-key solution for emitters. This is the model that has been successful in the US and has allowed CCS to grow over the last few years."

Until September 2023, CCS was quite costly and there were only 15 CCS facilities operating in the US, most of which were using natural gas to make ethanol, ammonia, fertilizer or blue hydrogen. However, changes to the Section 45Q tax credits adopted in the Inflation Reduction Act (IRA) have changed the game for CCS and provided a very different economic outlook.

There are two typical structures. The first is a point-to-point structure, with a single emitter and a single capture for the dehydration and the compression of the CO_2. "These structures are not so capital intensive, easy to structure and you don't have to think about complex infrastructure," says Castelan. "The problem with them is that there isn't really any opportunity for growth."

As the industry has evolved and matured, we've seen a second structure emerge – a hub and spoke approach. Emitters deliver CO_2 via separate pipelines into a main line which then connects to a sequestration site or to multiple sites. "The downside of this is it's more capex intensive, there are more permitting issues and with a bigger project comes greater complexity. However, there's also more opportunity for growth, because you can add more sequestration or more emitters, allowing for both upsizing in terms of revenue and operational flexibility."

Since there are multiple parties in a hub and spoke system, the emitter is not required to backstop the entire project, and there is greater revenue certainty for the transportation and sequestration provider. This will be particularly important as the market develops and parties start to look at potential project financing for these projects.

What are some of the key issues for project structuring?

"Often, emitters are not used to transporting commodities on pipelines; it's not part of their core business. So they need to understand the risks associated with it," says Castelan. "Everything from off-spec emissions, permitting issues, allocation of benefits, responsibility for obtaining incentives and sourcing of funds needs to be negotiated in the agreements."

There are many different ways to structure the fees – everything from a flat transportation and sequestration fee, to arrangements where the transportation and sequestration provider is also providing the capture, claims all the credits and then passes back a portion of those to the emitter. "If the parties are flexible, that's where a lot of the deal space is, and each deal has different drivers, particularly where the emitters are coming from different industries," Castelan says.

It's important to think about where the financing is coming from. "Right now, we're seeing the majority of these projects be balance-sheet financed, but we are also starting to see people in the market obtaining project financing."

It's especially important in a newer industry like CCS for investors to think through who they will be partnering with. Are they providing the technology, are they providing the injection of cash, are they providing the ability to operate the project? The respective contributions of the parties are likely to be reflected in their equity interest and what governance rights they expect to have.

Joint ventures (JVs) are now becoming more common because it's possible to bring multiple parties together, with different expertise, capital and assets. Parties need to think about how the capital will be distributed once there is revenue coming in, what their equity contribution requirements will be and if for whatever reason a project doesn't end up working out, when can they refuse to fund or exit the JV?

What does the project documentation need to cover?

"The important issue to get right in the early-stage planning is how the responsibility for the four key components of the system will be allocated between the various entities," says Sam Bentley, Associate in Clifford Chance's Houston office.

"Different creative deal structures can be used, but the most common approach is for the capture to be owned and operated by the emitting facility owner and the transport either being part of the sequestration services or contracted through a third-party transporter."

Each party may bear some responsibility for transportation, with the emitter responsible for transporting to existing transportation lines (perhaps to a trunk line) and the sequestration provider or a third-party transporter taking it from there to the applicable sequestration area(s). Alternatively, a sequestration provider might provide a single source service all the way from capture to sequestration.

However, if a third party is operating the pipeline, somebody has to be responsible if that third party doesn't perform. "It's not always easy to align liabilities between the sequestration provider, the emitter and the pipeline company in the middle," Bentley continues. "Whether it's the emitter contracting directly with the transporter to deliver to the sequestration provider at the well, or the sequestration provider contracting farming out that portion of the system when acting as a sole-source service provider, in either instance, there's potential for a gap in the flowthrough of liabilities that needs to be looked at very carefully right from the beginning of the project planning."

Many of the project agreements will be similar to other large projects, and will need to be structured as a unified package. "The key provisions need to be considered early in the term sheet stage and then again at every phase of drafting and negotiation to ensure that the package works as a whole and that there are no conflicts between the documents," says Bentley. Particularly important areas to focus on are: alignment of term length; conditions precedent; in-service dates and termination and suspension rights; and flowthrough of force majeure provisions.

Who is liable for CO_2 leakage?

Leakage can occur during transportation or post-injection at the sequestration site. There are two aspects to this issue: the loss of incentives; and general liability for pollution and damages. The agreements should address allocating both between the emitter and the sequestration provider.

Section 45Q tax credits operate on a "last in, first out" methodology. If CO_2 is sequestered and a credit is claimed, the CO_2 must remain sequestered through the end of the year. If leaked CO_2 exceeds sequestered CO_2 in a given year, the most recently claimed tax credit can be recaptured, subject to a three-year lookback period. The regulations provide some protection for events that are not the sequestration provider's fault, but there is still the potential for significant liability.

General liability for pollution or damages arising from CO_2 leakage doesn't usually have much attention in negotiations, but it needs to be carefully considered in light of the allocation of such liability at law. In certain States, after a lengthy period of time, it may be possible to transfer the liability. This is a rapidly evolving area of the law that may inform several aspects of the contract negotiations.

What role do Section 45Q tax credits play?

"The Section 45Q tax credit is the primary economic driver for these projects, so we cannot say enough about this credit and how important it is", says Alex Leff, Partner in Clifford Chance's Houston office. "The Section 45Q tax credit is a production tax credit, meaning that its size is based upon the amount of carbon that's captured and either sequestered, utilised or used in enhanced oil recovery."

Using the Section 45Q credit prior to the IRA was a difficult, but now there are two new monetization mechanisms.

Under a "direct pay" mechanism, the Section 45Q credit, along with two other tax credits, can be taken by taxpayers to the extent that the credit exceeds their federal income tax liability. Under the "transferability" mechanism, the credits can be sold to an unrelated taxpayer.

In addition, an election can be made that allows the party that contractually ensures the disposal, utilization and sequestration of the CO_2, rather than the owner of the capture equipment, to claim the credit on their own tax return, but that party cannot transfer or receive direct pay.

"The IRA brought a lot of changes. The value of the credits increased, the carbon capture thresholds were lowered and the date by which you can begin construction on a project was extended out to 2033," says Leff.

There are three variables that determine the amount of the credit: the number of metric tons of qualified carbon oxide that are captured and sequestered or utilized; the Applicable Dollar Amount (which varies depending on whether the CO_2 is sequestered in secure geologic storage, or captured and sequestered using direct air capture (DAC)); and a factor based on compliance with applicable wage and apprenticeship requirements. After 2026, the Applicable Dollar Amount will be adjusted by an inflation adjustment factor.

The Section 45Q tax credit can be generated for a period of 12 years from the date that the capture equipment is placed in service. However, direct pay can only be used to monetize the credit for five years. That means another monetization mechanism is needed for the remaining seven-year period of the 12 years that the tax credit is available.

Leff continues, "we expect to see, and have seen, transferability become the primary monetization mechanism for CCS projects in the US. We have worked on a number of projects that have already used it and it's really interesting to see how the markets are developing to support these transactions."

What other incentives are available to CCS projects in the US?

California's low carbon fuel standard (LCFS) program has enabled CCS projects with an additional economic credit. First adopted in 2009, and formally implemented in 2011, it requires a reduction in the carbon intensity (CI) of transportation fuels that are sold, supplied or offered for sale in the State of California.

The California Air Resources Board (CARB) sets annual CI benchmarks – fuels that are above the benchmark generate deficits, and fuels that are below the benchmark generate credits.

CCS projects can qualify for LCFS credits, wherever they are located, as long as the resulting transportation fuel is sold and used in California. Direct air capture projects can qualify if they're located anywhere in the world, even if no transportation fuel is sold in California.

Unlike Section 45Q credits which are fixed, the value of LCFS credits is market driven and can fluctuate very widely depending on supply and demand.

This has resulted in substantial variability in the prices of LCFS credits, trading as high as above $200 per metric ton in 2020 to as low as $44 per metric ton in 2024. This is challenging for project developers when thinking about how to model the financial viability of a project.

Other States have similar incentive schemes that are intended to work like the California LCFS. These include the Oregon Clean Fuels Programme, which was implemented in 2016 and largely mirrors California's LCFS, and the Washington Clean Fuel Standard Programme.

What does the regulatory landscape look like in the US?

"The regulatory regime is one of the biggest determiners of project viability in the US," says Marcia Hook, Partner in Clifford Chance's Washington, D.C. office. Generally CCS projects that involve injection must obtain a Class VI permit, which historically has been a lengthy process involving the Environmental Protection Agency (EPA), a US federal agency. Although the EPA estimates that the Class VI permitting process should take only 24 months from start to finish, there have been some cases where the applications took as long as six years.

"When you're trying to develop a project, and arrange contracts for offtake or line-up financing, the difference between 24 months and six years is pretty substantial," continues Hook. Some US States – North Dakota, Wyoming, Louisiana and, most recently, West Virginia – have now obtained "primacy", where the EPA delegates its authority under the Class VI programme to the State. This has accelerated the Class VI permitting process in those States, for example, taking an average of nine months in North Dakota.

Any related CO_2 pipeline infrastructure also has to obtain State authorization because there's no Federal siting authority for carbon dioxide pipelines. For interstate natural gas pipelines, Federal siting authority is vested in the Federal Energy Regulatory Commission (FERC). That means that one agency can authorize the route for an interstate natural gas pipeline, but for a CO_2 pipeline it will be necessary to get authorization from every State that it passes through, which can lead to some substantial legal challenges.

Funding for projects may be available from the Department of Energy (DOE), but that may trigger additional environmental review under the National Environmental Policy Act.

How do parties address regulatory risk in structuring and contracting for CCS projects in the US?

"It's important for parties to think about how they will deal with permitting challenges and potential changes in law. If no position is taken, it's assumed that the parties are content with the structure being the way it is and the allocation of risk in the contract won't be reopened," says Hook.

Where the risk is known or quantifiable, allocation can be done "as of today". For example, in the event of impacts to the schedule resulting from a permitting delay that's outside the control of the developer, a specific mechanism can be drafted to address what will happen.

The "allocate tomorrow" strategy is more appropriate for the risks that the parties cannot foresee. These are provisions where the parties will agree that if there's a change in law affecting one party, the affected party will notify the other and they'll set a time to negotiate to try and amend the agreement to fix the issue.

With this strategy, it's important to specify what the guiding principles will be for the negotiations. For example, the parties could meet and agree to changes necessary to restore them to their original economic bargain. This has practical knock-on effects, as the parties would potentially have to share their economic data.

One of the challenges is what happens if resolution is not possible and in that situation the parties may terminate the agreement. However, financing parties generally do not like to see termination rights, even if they are unlikely to occur, so the decision whether or not to include that type of provision may depend on the financing strategy.

There's not really a standard market approach to these issues at the moment. The identity of the contracting parties, the financing strategy of the facility and many other variables will determine the approach taken.

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