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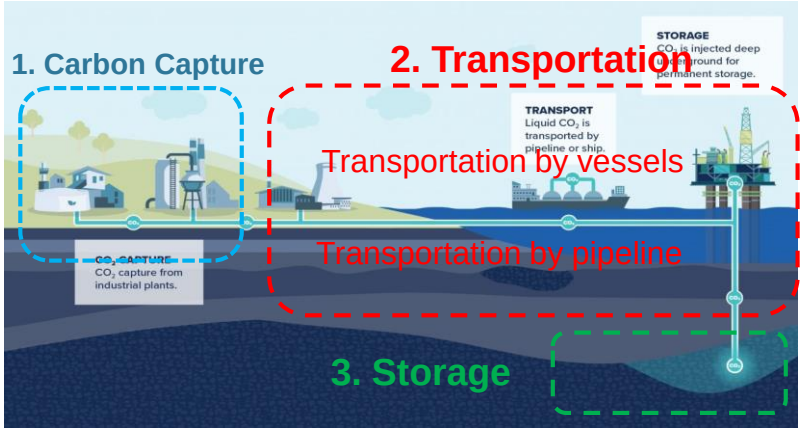
CCS– High Level Bankability Considerations



2 + 3 = Transportation and Storage (T&S) business model

Project Finance (PF) is a suitable way to finance large-scale projects with long loan tenor

Bankability consideration (for PF)

Risks and mitigations typically found in infrastructure PF transactions (based on precedents).

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CCS specific risks and mitigations (highlighted in blue)

Key risks to be addressed to ensure bankability

Risk Categories	Key Considerations
Revenue risks	Need to ensure stable project cash flow for long term (for more than [10-15] years) ✓ T&S Co should be insulated from **CO2 volume and price risks and "project-on-project" risks** on the emitter side (as they are out of control of T&S Co) → ideally it should receive **revenue based on the availability of the T&S service, from creditworthy counterparties** ✓ Different revenue models can be considered → see the next page ✓ Contract structure enabling the borrower to receive enough termination payment from counterparties ✓ Need to give economic incentives to the parties involved, such as subsidies or carbon pricing. However, for the T&S Co, relying solely on such forms of support with high volatility may pose difficulties
Construction / operation/ technology risks	✓ Construction delay / under-performance / operation shut-down / CAPEX & OPEX overrun ✓ **Reservoir risk (lower annual / total volume of CO2 injected, CO2 leakage)**
Other risks	✓ Regulatory / Environmental & Social risks ✓ Force Majeure etc.

(Source) illustration from Global CCS Institute website

CCS– High Level Bankability Considerations (Revenue risks)

Potential CCS revenue models

- **Stable** (rather than high but volatile) **revenue** is important to ensure bankability and maximize leverage
- There could be several ways but each has pros & cons and the best approach would depend on project-specific situations

Case 1
Long-term T&S service contracts with emitters

- ✓ **Long-term contracts with emitters** (fee payers) which covers the loan tenor (e.g. construction + [10-15] years)
- ✓ **Creditworthy fee payers** (e.g. Investment Grade)
- ✓ **Availability based fee structure**

Case 2
Tolling contracts with T&S Co sponsors

- ✓ Similar to Case 1, but **the fee payer (toller) is T&S Co sponsor**
- ✓ The toller will enter into T&S service agreements with emitters to recover fees

Case 3
PPP scheme

- ✓ Similar to Case 1, but **the fee payer is a public entity**
- ✓ Cost to be recovered by carbon tax or other measures - incentive mechanism for emitters can be flexibly designed
- ✓ **Technical challenges to apply it to cross-border T&S transactions**

Case 4
Regulated Asset Base (RAB) model

- ✓ Similar to Case 3, but **suitable for the specific environment with some pre-conditions, including the well designed regulation**
- ✓ T&S Co charges fees to the emitters based on CO2 volume
- ✓ The adjusted fee level for the T&S Co to recover a certain level of return on asset investment, depreciation and other costs

CCS– High Level Bankability Considerations (Other risks)

Risks	Possible mitigations
Construction risks - e.g. construction delay, underperformance, CAPEX overrun	✓ Technical DD and conservative budgeting (contingency) and scheduling ✓ Sponsor support, Lump-sum turnkey EPC contract, warranty/LD mechanism
Operation risks - e.g. shutdown, underperformance, OPEX overrun	✓ Technical DD and conservative budgeting ✓ Risk sharing with the O&M service provider, ongoing performance warranty by the EPC contractor / licensor ✓ Risk sharing under the revenue contract
Reservoir risk - e.g. insufficient capacity, CO2 leakage	✓ Technical DD ✓ Sufficient allowance of reservoir capacity / securing alternative reservoir ✓ Limiting T&S Co's liability on leakage (risk sharing with the Insurance company and the government by contract or regulation)
Regulatory / sovereign risks	✓ Legal DD, establishing clear regulatory framework, agreement with the host country government (London Protocol, CCS Business Act, JCM) ✓ ECA cover
Environmental & Social risks	✓ E&S DD and covenants in loan agreements ✓ Community engagement
Force Majeure	✓ Insurance

Additional point – Shipping technology risk

- For long-distance transportation (e.g. cross-border T&S), CO2 would need to be transferred by ships in liquid form
- Mid-temperature, mid-pressure (-25° C, 15-18 bar) technology has been used for commercial shipping, but not suitable for larger scale. Low-temperature, low-pressure (-50° C, 6-8 bar) and high-temperature and high-pressure (20° C, 40-60 bar) technologies are being developed

MIZUHO (Source) Mizuho bank

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