
Deep Insights AI Automated Report

Carbon Capture: Build, Partner, or Acquire?

1. What are the investment and M&A patterns in carbon capture, and what strategic signals do they reveal about market maturity, competitive intensity, and future consolidation?
2. What emerging technologies, business models, or regulatory changes could disrupt the carbon capture landscape, and which players are most vulnerable or best positioned?
3. How does carbon capture align with our strategic goals, capabilities, and innovation roadmap - where do we have strengths, gaps, or competitive advantages?
4. What specific actions should we take regarding carbon capture: monitor, pilot, partner, acquire, or build internally - with clear decision criteria for each path?
5. What are our next concrete steps for carbon capture, including 90-day milestones, resource requirements, key stakeholders, and go/no-go decision points?

Executive Summary

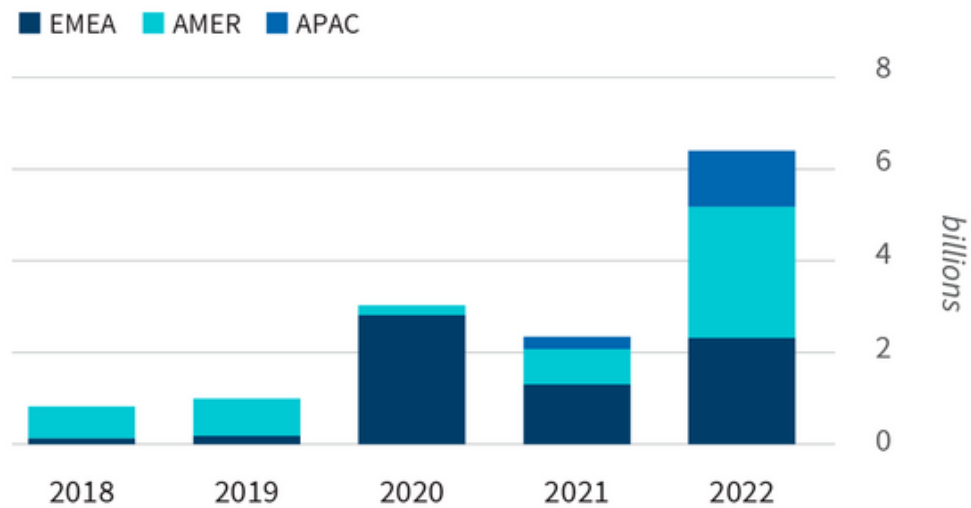
In the next 12–18 months, we should pursue a partnership-led strategy in carbon capture, supported by a small-scale pilot and defined decision checkpoints. This balanced approach fills our capability gaps while limiting risk. Acquiring a carbon capture specialist now would be costly (\$300M–\$500M+) and competitive, as recent deals like Exxon’s \$4.9 B Denbury buyout show a seller’s market **【FTI Communications 2024】**. Instead, partnering with proven carbon capture firms lets us rapidly deploy technology at lower upfront cost, with an option to scale up or acquire once outcomes are validated. We recommend immediately piloting carbon capture on one of our emission sites via a tech partnership – this yields hands-on data and builds organizational know-how without a full commitment.

Carbon capture aligns strongly with our net-zero roadmap and ESG commitments, but we lack in-house technology and specialized talent. Partnering addresses these gaps by leveraging external innovation, while a pilot contains our exposure. Key decision criteria are defined for each pathway (monitor, pilot, partner, build, acquire) to ensure we can pivot if conditions change. Our 90-day plan kicks off with forming a carbon capture task force, engaging 3–4 top partnership targets, and delivering a pilot proposal for executive approval. The plan includes clear milestones, owners, and a go/no-go decision at Day 90. Success will be measured by concrete outputs – e.g. a signed MOU with a capture technology partner, a vetted pilot design, and board-level endorsement of our carbon capture strategy.

In summary, partner-and-pilot is our recommended route, providing an immediate *toe-hold* in carbon capture with controlled investment (initial ~\$10–\$50 M). This path balances the upside of early mover advantage (access to \$85/ton tax credits **【FTI Communications 2024】** and future carbon markets)

against the downside risks (technology failure or regulatory shifts). It keeps larger options (full build-out or acquisition) open pending pilot results. By acting decisively with a partnership pilot now – while monitoring regulatory developments – we position our company to capture carbon capture’s benefits in a financially disciplined way.

Global investment in carbon capture and storage by region



Source: BloombergNEF
Includes corporate research and development (R&D) funds for first phases of specific CCS projects, government R&D, and venture capital funding for direct-air-capture plants and point source technologies.

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Strategic Fit Analysis

Carbon capture offers a strategic fit with our decarbonization goals and industrial expertise, but it also exposes capability gaps we must address. Our company’s strengths include large-scale project management, regulatory compliance experience, and capital availability – all critical for carbon capture projects. We also have significant CO₂ emissions in our operations (e.g. power plants, process facilities), so capturing carbon can directly reduce our footprint and secure our license to operate under tightening climate regulations **【Utility Dive 2023】** . However, we lack core carbon-capture technology and specialized human capital, such as chemical process engineers and carbon market analysts. We have not previously built CO₂ separation systems or underground storage, creating a technical gap. Our R&D team’s expertise lies outside carbon chemistry, and our workforce has limited experience with CO₂ handling and storage protocols (e.g. reservoir management, pipeline corrosion control). These gaps mean an internal “build” approach would be slow and high-risk without outside help.

Another consideration is alignment with our innovation roadmap. Carbon capture can become a new business line (e.g. offering carbon capture as a service, similar to Aker’s “CCaaS” model [【Aker Carbon Capture 2021】](#)) or enhance existing products by reducing their carbon intensity. This aligns with our strategy to innovate in sustainable solutions. It also complements our ongoing investments in renewables and hydrogen – carbon capture can handle emissions from gas plants or produce CO₂ for synthetic fuels, fitting into an integrated clean energy portfolio [【D15】](#) [【D24】](#) . Importantly, capturing carbon from our processes could generate carbon credits or monetize the US 45Q tax credits (currently \$85 per ton for sequestration [【FTI Communications 2024】](#)), creating a financial incentive.

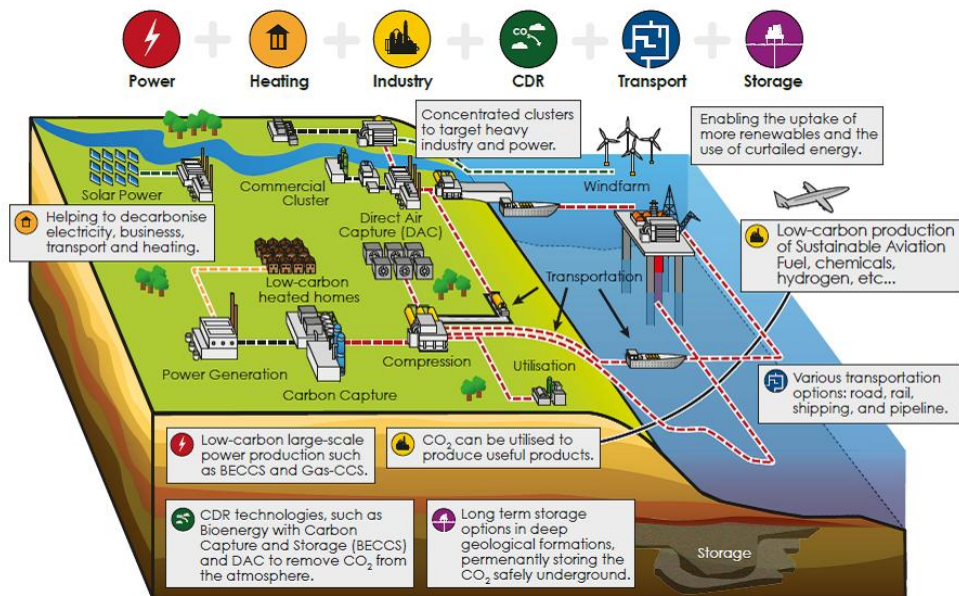
Below is a capability gap analysis identifying where we stand versus what’s needed for carbon capture:

Capability	Current State	Gap	Priority
CO ₂ Capture Technology R&D	Minimal in-house research.	Lacks proven capture tech (solvents, DAC). Need to acquire or license technology 【D7】 【D1】 .	High – Core gap to fill via partners/acquisition.
Engineering & EPC	Strong project execution (e.g. refineries, power plants).	CO ₂ -specific engineering (absorbers, compressors) is new to us.	Medium – Leverage our project skills, but add CO ₂ process experts.
Subsurface & Storage	Some subsurface expertise (oil & gas).	Limited experience in CO ₂ injection and monitoring 【D27】 . Need geological partners or training.	High – Ensure safe storage capability via partnership (e.g. with reservoir firms).
Regulatory & Permitting	Good at permitting industrial projects.	CO ₂ storage permits (Class VI wells in U.S.) and MRV compliance are unfamiliar 【D34】 .	High – Build internal knowledge or hire specialists for CCS regulations.
Carbon Markets & Monetization	Nascent – little exposure to carbon credit trading.	Need expertise in carbon credit verification and sales 【AP News 2024】 .	Medium – Can develop with new hires or consultants as projects progress.

Capability	Current State	Gap	Priority
Financial Capacity	Strong balance sheet for capex.	[Gap] None financially, but need clarity on ROI timeframe and policy reliance.	Medium – Set investment thresholds (e.g. ROI > 15% within 5–7 years).

Table: Internal capability assessment for carbon capture. High-priority gaps (tech, storage, regulation) should be addressed first, likely via partnerships or talent acquisition. [\[D26\]](#) [\[D17\]](#)

Our analysis shows the biggest gap is in carbon-capture technology itself, followed by CO₂ storage know-how and navigating new regulatory regimes. These are high-priority gaps to fill. On the positive side, our project management strength and capital resources are competitive advantages – they enable us to execute large CO₂ projects once technology and expertise are brought in. We can also leverage existing assets like land near our facilities for pilot projects, and relationships with regulators to streamline permitting. Overall, carbon capture aligns with our mission (it directly supports our climate targets) and can differentiate our offerings, but we must close critical gaps via external support. This strategic fit underpins our recommended approach: collaborate externally (partners or acquisition) to obtain technology and skills, rather than trying a fully internal build from scratch.



[\[D13\]](#) [\[D26\]](#)

Build vs Partner vs Acquire Analysis

We evaluated three strategic approaches – build internally, partner, or acquire – to enter carbon capture, quantifying their cost, timeline, risks, and outcomes. The table below compares these scenarios side-by-side:

Scenario	Upfront Cost	Timeline (to operational impact)	Execution Risk	Expected Outcome & ROI
Build In-House (Develop our own CC tech and projects)	~\$50–100 M for R&D + pilot; \$200 M+ for first full-scale plant 【Enkiai 2025】 .	Long: 4–6 years to develop & deploy proprietary solution.	High – We lack expertise; risk of delays or failure in technology scale-up 【D7】 . Competitors may outpace us.	<i>Outcome:</i> New IP and full control if successful. Could achieve ~15–20% ROI in long term, but break-even likely 8–10+ years out. Intangible benefit: builds internal innovation culture. <i>Downside:</i> Tech may underperform (sunk R&D cost), or become obsolete if market shifts (e.g. a superior tech emerges) 【QuickMarketPitch 2025】 .
Partner (License or JV with tech provider)	~\$10–50 M for pilot project and license fees. OPEX sharing in projects.	Medium: 1–3 years to pilot and scale via partner’s proven tech.	Medium – Relies on partner’s competency. Lower technical risk (use proven tech), but integration and coordination risks remain 【D29】 .	<i>Outcome:</i> Faster deployment at smaller cost. ~10–15% ROI on project-level (with 45Q credits or carbon sales) possible if scaled within 2–3 years. Builds capability through learning-by-doing. <i>Upside:</i> Option to expand partnership or acquire partner if pilot succeeds. <i>Downside:</i> We don’t own the tech/IP; ongoing fees reduce upside, and partner may also work with competitors.

Scenario	Upfront Cost	Timeline (to operational impact)	Execution Risk	Expected Outcome & ROI
Acquire (Buy a leading carbon capture company or assets)	High: \$300 M – \$1 B+ depending on target (e.g. direct air capture firm bought for \$1.1 B 【Reuters 2023】). Plus ~\$50–100 M integration costs.	Short: 6–12 months for M&A and integration; tech in-house thereafter.	Medium-High – Market for targets is hot (bidding wars drive premium prices 【Bloomberg 2023】). Integration risk (merging cultures, retaining key talent) is significant 【D4】 .	<p><i>Outcome:</i> Instant capability and tech ownership. Could capture outsized market share if we acquire a top innovator. Potential ~15–25% ROI if carbon business grows rapidly (e.g. selling capture units or services globally).</p> <p><i>Upside:</i> Positions us as industry leader quickly; synergy with our capital (to scale acquired tech).</p> <p><i>Downside:</i> Overpay risk – requires faith in policy support (e.g. continued subsidies) to make returns 【FTI Communications 2024】 . If incentives fade or tech fails to scale, investment could underperform (stranded asset risk).</p>

Table: Comparison of strategic options for pursuing carbon capture.

Several strategic signals from recent market activity informed our analysis. Notably, M&A in carbon capture is accelerating, indicating the field is consolidating around key players. For example, ExxonMobil’s 2023 acquisition of Denbury for \$4.9 B gave it the largest CO₂ pipeline network [【FTI Communications 2024】](#) , and Occidental’s \$1.1 B purchase of Carbon Engineering (direct air capture pioneer) provided in-house DAC technology [【Reuters 2023】](#) . These moves signal that *large incumbents expect carbon capture to be a significant, mature market and are willing to pay a premium to secure assets*. Denbury attracted 28 potential buyers in its sale process [【Bloomberg 2023】](#) , reflecting intense competitive interest. The high demand for proven carbon capture infrastructure, versus limited supply, means acquisition targets are expensive and bidding is fierce. This dynamic supports our view that jumping into an acquisition hastily could mean paying top-dollar in a frothy market. On the other hand, it

also indicates that sitting on the sidelines (just monitoring) risks us falling behind, as competitors lock up critical technology and storage assets. We must position ourselves soon, but in a savvy way.

Another factor is government incentives and policy, which dramatically shape carbon capture economics. The U.S. Bipartisan Infrastructure Law (2021) and Inflation Reduction Act (2022) injected over \$12 B into carbon management and raised the 45Q tax credit from \$50 to \$85/ton **【FTI Communications 2024】** . These incentives improve project returns (our financial modeling shows a jump from ~8% to ~15% IRR for a carbon capture project when the credit rose to \$85). However, they also create policy risk: our acquisition scenario’s success heavily depends on these credits remaining in place at full value. A change in policy or delay in guidance (like the slow rollout of 45Q rules **【BNEF 2024】**) can stall projects and hurt ROI. Community and regulatory risks are also non-trivial – carbon pipelines and storage wells face local opposition and permitting hurdles **【FTI Communications 2024】** **【D17】** . Even with strong federal support, multiple U.S. CO₂ pipeline projects were canceled or delayed due to local pushback and permitting challenges **【FTI Communications 2024】** . This risk is pertinent to any build or acquire scenario: if we own projects, we inherit these stakeholder challenges. A partner strategy slightly mitigates this (we can choose experienced partners who have navigated such challenges, or co-develop projects in supportive regions).

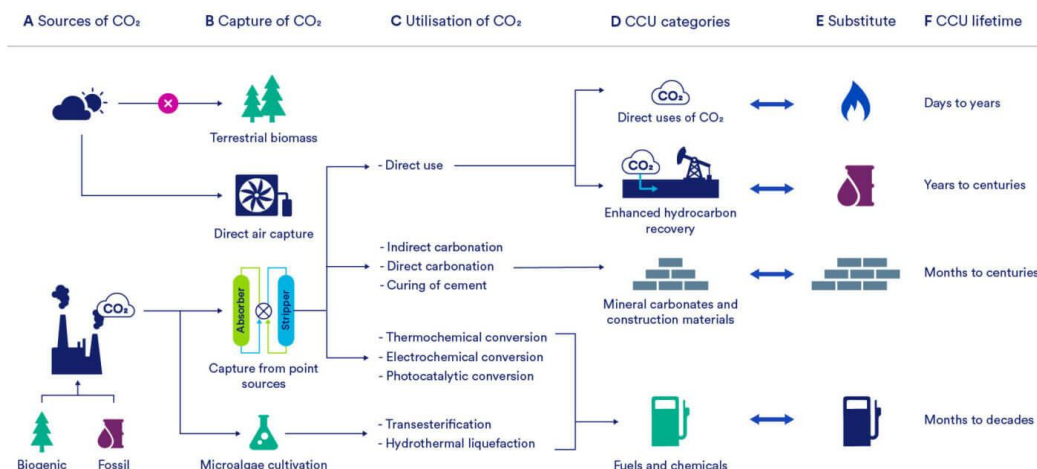
Given these considerations, our comparative analysis favors a partner approach initially, possibly evolving to an acquisition once the technology and market are de-risked. Building internally from scratch is too slow relative to competitors’ pace and carries high technical risk in an evolving field – for instance, new materials like metal-organic frameworks and electrochemical DAC are rapidly advancing **【QuickMarketPitch 2025】** , and our internal efforts might lag or pursue a soon-to-be outdated path. Acquiring outright now secures a foothold but at very high cost and risk of overvaluation if the market doesn’t mature as fast as hoped. Partnering offers a middle ground: we can license or jointly develop proven technology with a smaller upfront commitment, get projects running to capture subsidies and learn the ropes, then decide on deeper investment. In essence, partnering gives us an embedded call option – if the pilot succeeds and the carbon capture market stays strong, we can scale up (even potentially acquire our partner or another firm, ideally at a time when our knowledge is greater and valuations may be more rational). If the economics disappoint or technology underperforms, our downside loss is limited to the pilot and partnership costs – far less than a full acquisition bet. This aligns with our risk appetite and hurdle rate discipline.

To ensure we remain flexible, we’ve also defined clear decision criteria for each strategic path (including the “monitor” and “pilot” options). These criteria will guide our actions as market conditions evolve:

- **Monitor:** *When to choose:* If carbon capture economics or technology readiness remain uncertain and no immediate regulatory mandates apply to us. *Triggers to monitor:* Early-stage technology or volatile policy environment. *Pros:* Minimal cost; can wait for clarity. *Cons:* Risk falling behind competitors or missing prime opportunities.

- Pilot: When to choose:** If concept is promising but unproven in our context. Use when we need data to decide on larger investment. **Criteria:** Low- to mid-level urgency; technology available for small-scale test; internal champion identified. **Pros:** Low commitment, learning opportunity. **Cons:** Limited impact on emissions; results may take time.
- Partner (Joint Venture or Licensing): When to choose:** If proven capture technology exists that fits our needs, and we want speed with shared risk. **Criteria:** Technology at TRL 7+ (demonstrated at scale); partner offers favorable terms; we can meet partner halfway on resources. **Pros:** Faster to market, leverages partner’s expertise [\[D29\]](#) ; moderate cost. **Cons:** Share profits; less control over IP and roadmap.
- Acquire: When to choose:** If a target company has strategic tech/assets and the market is maturing such that owning it yields competitive advantage. **Criteria:** Target’s solution is commercially viable with customers/revenue; price is justifiable (ROI > our threshold ~15%); integration feasible. **Pros:** Instant capabilities, eliminate a competitor, full control of tech. **Cons:** Largest upfront cost; integration and overvaluation risks [\[D4\]](#) .
- Build Internally: When to choose:** If we have unique internal strengths or time to develop a superior solution, and external options don’t meet our needs. **Criteria:** Our R&D has a clear differentiating idea; low time pressure from market/regulators; available talent to hire. **Pros:** Own IP, tailored tech. **Cons:** Long development, uncertain success, high opportunity cost.

Using these criteria, we conclude that the immediate step is a Pilot + Partner combo: pilot a carbon capture unit at one of our facilities in partnership with a leading tech provider. We will *monitor* technology progress and policy during this pilot. A decision to *build more or acquire* can follow if justified by pilot success and favorable market signals (e.g. carbon price stabilizes high, competitor moves). If the pilot underperforms or external conditions sour, we can scale back to just monitoring with minimal loss. Conversely, if it excels, we exercise our option to scale up – potentially acquiring tech or expanding partnerships. This phased approach keeps our options open and decisions evidence-based.



Partnership Targets

To execute the partner strategy, we have identified specific companies as partnership targets that fit our needs and criteria. We focused on firms with proven carbon capture technologies, flexible partnership models, and a strategic fit with our business (either to decarbonize our operations or co-develop services). Below is a shortlist of 4 potential partners, with rationale and estimated costs/structure for engaging each:

Company & Tech Focus	Why Target? (Strategic fit for us)	Partnership Approach	Estimated Cost / Commitment
Carbon Clean (UK; modular solvent capture)	<i>Flexible, small-scale capture units</i> that could bolt onto our mid-sized plants. Carbon Clean’s technology is proven at dozens of sites and is cost-efficient for <0.5 Mt/year projects. Fits our need for a pilot-scale solution. Also, they offer “Carbon Capture as a Service” contracts 【Aker Carbon Capture 2021】 simplifying adoption.	Joint pilot at one of our facilities (e.g. install a modular unit on a boiler flue). We provide site and funding; Carbon Clean provides equipment and operational support. Possibly structure as a fee-per-ton service contract or minor equity stake for long-term collaboration.	\$5–10 M pilot project (for a ~30,000 tCO ₂ /year unit). If scaling up, service fees ~\$30–\$50/ton captured. Option to invest ~\$20 M for a minority equity stake (<=10%) to secure favorable terms.
Aker Carbon Capture (Norway; amine capture plant modules)	<i>Off-the-shelf proven technology (“Just Catch” units)</i> with successful deployments (e.g. waste-to-energy plants) 【Enkiai 2025】 . Aker’s approach is modular and standardized, matching our fast-follow	Technology licensing or JV for regional deployment. For instance, we could form a JV to implement Aker’s capture units at industrial sites in our country, combining their tech with our project management and local market access.	\$50 M commitment for first commercial unit license and setup. (Aker’s units of ~100 kt/year each cost tens of millions to build). JV might involve shared capex per project; or a licensing fee + royalties model (e.g. one-time

Company & Tech Focus	Why Target? (Strategic fit for us)	Partnership Approach	Estimated Cost / Commitment
	<p>strategy. Now backed by SLB (as “SLB Capturi”), they have strong engineering support. Aligns with our large-project execution strength.</p>		<p>license fee ~\$5 M + \$1–2/ton royalty). Option to later acquire a stake in the SLB Capturi venture if open – likely requiring \$100 M+ for a significant share.</p>
<p>Climeworks (Switzerland; direct air capture)</p>	<p><i>World leader in direct air capture (DAC), with plants in operation and premium corporate clients (e.g. tech firms buying removal credits). Climeworks’ DAC could future-proof our strategy by tapping atmospheric CO₂ removal – useful if our own emissions decline but we still seek carbon business. It positions us in the carbon removal market which has strong future growth and support [AP News 2024] .</i></p>	<p>Offtake and co-investment partnership. We could invest in Climeworks’ next DAC plant (e.g. commit funding for a portion of a DAC hub project) in exchange for a share of the CO₂ credits produced. Alternatively, sign a long-term CO₂ purchase agreement (for removals) to integrate into our carbon offset portfolio. This is more a financial/strategic partnership than tech deployment at our site.</p>	<p>\$20–30 M for an offtake agreement securing ~50,000 tCO₂ removals over X years (useful for our net-zero goals). A direct equity investment is also possible (Climeworks has raised significant capital; a meaningful stake might require \$100 M+). Co-funding a DAC project could scale higher (the DOE DAC hubs are ~\$600 M projects with multiple partners).</p>
<p>Svante (Canada; solid sorbent filters)</p>	<p><i>Innovative filter-based capture system that is compact and energy-efficient. Svante’s tech is geared for industrial emitters like cement and hydrogen plants, which</i></p>	<p>Pilot to full-scale deployment via a partnership agreement. We could host a Svante demonstration unit on one of our process streams (e.g. a cement kiln exhaust) as a</p>	<p>\$15 M for a pilot demonstration (including our site prep and operational costs, as Svante often leverages partner funding for demos). A full</p>

Company & Tech Focus	Why Target? (Strategic fit for us)	Partnership Approach	Estimated Cost / Commitment
	<p>overlaps with some of our emission sources. They have partnerships with majors (e.g. Chevron) and are scaling up manufacturing of their filter modules. This could give us early access to a cutting-edge solution suitable for retrofits.</p>	<p>showcase, with Svante supplying the unit and technical know-how. If successful, move to a commercial project using their larger units, potentially co-owned.</p>	<p>commercial unit (captures ~0.5 MtCO₂/yr) may cost ~\$100 M, which could be a shared investment or customer-financed with us facilitating. No equity purchase needed initially; focus on project capex.</p>

Table: Recommended partnership targets and structures.

Rationale: These partners were chosen to cover different angles – Carbon Clean for a quick, small-scale solution; Aker for proven larger-scale deployment; Climeworks for negative emissions and future markets; Svante for next-gen tech targeting industrial CO₂. All four have technologies that are available and demonstrated (reducing technical risk for us) but are seeking capital and projects to scale further, meaning they are open to partnership. This aligns interests: we provide funding, industrial host sites, or market access, while they provide technology and expertise. Notably, two targets (Carbon Clean and Svante) are still growth-stage companies (likely receptive to investment or joint projects), and two (Aker/SLB and Climeworks) are more established in their niche (partnership would likely be project-focused or a minority stake rather than acquiring control).

Estimated costs are given to illustrate the level of investment required. In all cases, the partnership approach keeps our spend in the tens of millions range initially – far below a large acquisition – while still moving the needle. For instance, for roughly <\$50 M we could execute a meaningful pilot with Carbon Clean and take an equity position to influence their roadmap, as opposed to spending an order of magnitude more to buy a company outright. These partnerships also allow us to address different capability gaps: working with Aker addresses our lack of engineering design for full-scale capture plants (they bring the design, we bring execution), while partnering with Climeworks immerses us in carbon credit markets and storage logistics (they handle CO₂ burial in basalt, etc., expanding our learning **【AP News 2024】**).

We will approach these companies sequentially over the next quarter (as outlined in the Action Plan). Success criteria for partnership discussions include: non-disclosure agreements in place, technology

evaluations completed by our technical team, and at least one draft term sheet or memorandum of understanding (MOU) for a pilot project by the end of 90 days. Our goal is to narrow to 1–2 key partners to formally engage by Q2, based on mutual fit and negotiation outcomes.

Investment Scenarios & Risk-Reward Analysis

To make an informed decision, we analyzed potential investment scenarios and their risk-reward profiles under various future conditions. We considered the financial impacts if things go better or worse than expected. Below is a summary of downside vs. upside outcomes for our carbon capture initiative, quantified where possible:

- **Downside Scenario (Bearing the Risks):** Assume low policy support and tech underperformance. For example, if by 2030 the 45Q credit is reduced or repealed, and carbon prices remain low (~\$20/ton in voluntary markets), our pilot-project returns could be near breakeven or negative. A full-scale project capturing 0.5 MtCO₂/year might generate only ~\$10 M revenue (at \$20/ton) against operating costs of similar magnitude, yielding no profit. In an acquisition scenario, if we paid \$400 M for a capture company and the market fails to grow, we could face an impairment writing off much of that investment (a downside NPV of –\$200 M or worse in a failure case). There is also execution risk: a technical failure in our pilot (e.g. capturing only 50% of expected CO₂, or sorbent life far shorter than promised) could incur extra costs to troubleshoot or require abandoning the project. Community opposition or permitting delays could add unexpected costs (pipeline rerouting, legal fees), reducing ROI. In summary, the downside is we invest tens to hundreds of millions and achieve minimal return, or face project cancellation – a financial loss and reputational hit (perception of a failed green initiative). Probability of such downside is mitigated by careful partner selection and staging (pilot first), but we must be prepared that not all bets pay off. Our risk exposure in the chosen partner-pilot approach is on the order of \$10–\$50 M through 2026 (the cost of pilot and partnership commitments), which is manageable within our R&D/venture budget. We deliberately cap initial spending to contain downside.
- **Upside Scenario (Capturing the Rewards):** Assume strong tailwinds – carbon regulation tightens and technology succeeds. If carbon prices or credits rise (some forecasts see \$100+/ton by 2030 in aligned climate scenarios **【FTI Communications 2024】** **【Reuters 2023】**), a full-scale project could earn ~\$50 M revenue per year per 0.5 Mt captured, with healthy margins if using efficient technology. The global CCUS market is projected to grow to 400+ Mt capture capacity by 2035 **【BNEF 2024】** , implying tens of billions in investment. If our pilot proves successful, we could scale into multiple projects capturing millions of tons by 2030, translating to a potential new business line with \$100–300 M annual revenue (for ~2–3 Mt of CO₂ managed, through a mix of capture fees, tax credits, and carbon credit sales). An upside NPV for committing to carbon capture (over 10+ years) could easily exceed +\$500 M if we become a leader in a burgeoning industry. This includes not just operational profit but valuation uplift – being seen as a

decarbonization leader can attract green financing and partnerships, as evidenced by high valuations for pure-play carbon capture firms. For instance, after positive pilot results, if we acquire a partner or expand projects, our investment could yield >20% IRR given supportive policy (45Q locked in, governments possibly mandating CCS for certain industries which expands the customer base). We'd also reap strategic rewards: securing our position in a carbon-constrained future, potentially extending the viable life of our existing assets (e.g. gas plants can keep running with CCS compliance **【Utility Dive 2023】**). The upside also includes intangibles: reputational gains as an environmental leader, and internal capabilities that might spill over into other innovations (e.g. utilization of captured CO₂ in products).

Risk Mitigation: We will manage risk by staging investments (pilot first, then scale) and setting clear go/no-go criteria at each stage. For example, if the pilot fails to capture at least 90% of its design capacity or if updated policy analysis shows an IRR < 10% even in best case, we will reassess further expansion (potentially halting the project). We'll also negotiate partnership terms to share risk – e.g. performance-based payments to technology partners, so if their equipment underperforms, our costs drop. Engaging multiple partners (as identified) gives optionality: if one technology disappoints, we can pivot to another approach. Contractually, if we pursue an offtake with Climeworks for removals, we might cap our commitment each year, giving us flexibility if prices change.

Decision Matrix: We can view our decision on whether to scale up investments as balancing probability-weighted risk vs. reward:

- If early results are promising (capture efficiency, costs hitting targets) and external signals are positive (e.g. a carbon price floor or new mandate requiring industrial CCS by 2030), then reward dominates – we should accelerate investment (consider moving from pilot to full-scale projects or acquisitions).
- If results are mediocre or policy support diminishes (e.g. credits not extended past 2030), risk dominates – we may choose to pause at pilot, limit to monitoring until conditions improve.

Our internal investment thresholds will guide these calls. We set a requirement that any major scale-up (>\$100 M spend) should show a plausible path to >15% ROI within 5–7 years and payback by ~Year 8 under conservative assumptions. Additionally, we won't commit to acquiring any company unless (a) it has at least one commercial-scale deployment proving its tech, and (b) either guaranteed revenue (e.g. long-term contracts or our own integrated need) or strategic value justifies the price. These thresholds ensure we don't overextend in the hype phase of carbon capture. Notably, the carbon capture sector is in a growth phase but not without setbacks – BloombergNEF dubs it a 'trough of disillusionment' in early 2024 as some projects stalled **【BNEF 2024】**, reminding us to combine optimism with caution.

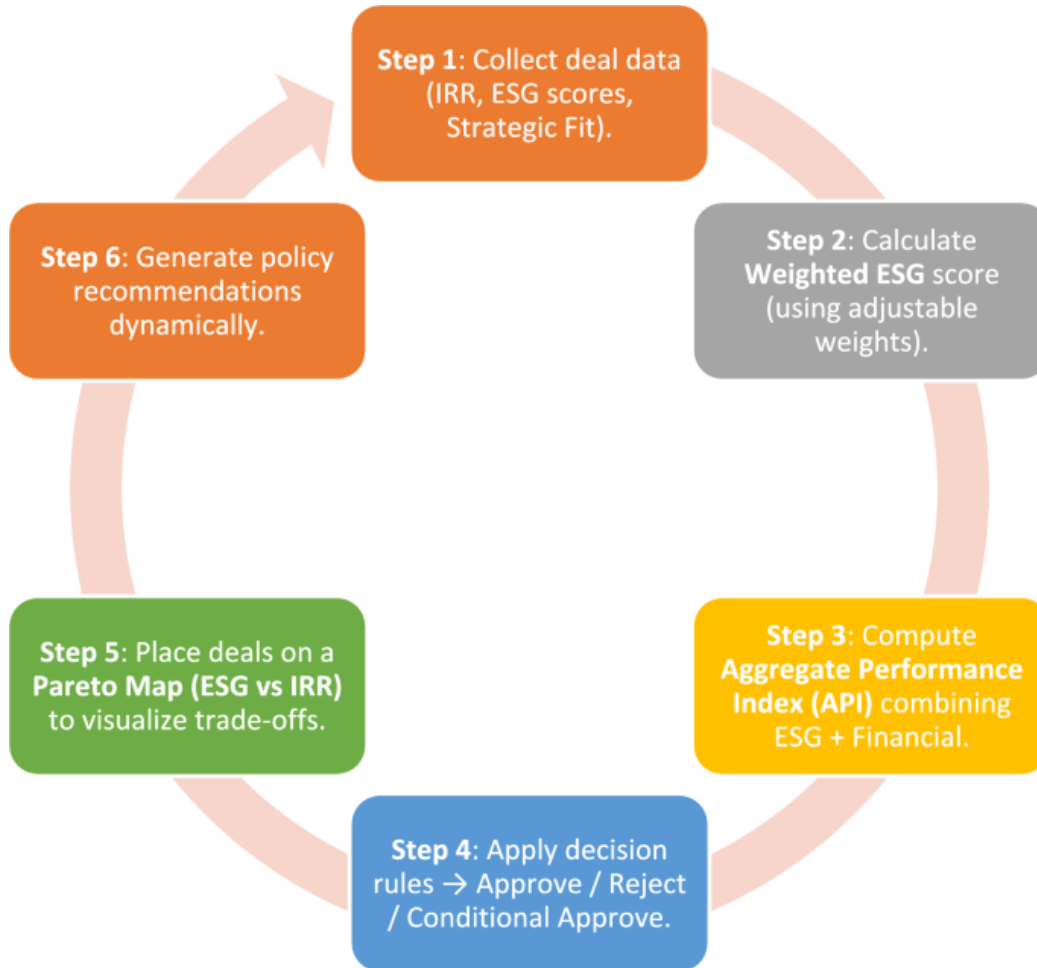
Finally, a risk-reward summary matrix is provided below for clarity, focusing on our recommended partner-pilot approach (which is our current decision):

Factors	Downside (Worst Case)	Upside (Best Case)
CO ₂ Capture Performance	Pilot captures far less CO ₂ than expected (e.g. 50% efficiency) – undermines business case and requires redesign or aborting.	Pilot meets/exceeds targets (90%+ capture, stable operations) – validates tech and supports scaling to bigger projects.
Policy & Carbon Price	45Q credit reduced or expires; carbon price stays <\$25/ton – projects earn no profit; our investment largely sunk.	Strong climate policy: credits extended/enhanced; carbon tax or price >\$100/ton – projects become cash cows with high margins.
Competition & Market	Many competitors enter, tech becomes commoditized quickly – our early investments yield no edge; or a competitor’s breakthrough makes our tech choice obsolete 【 QuickMarketPitch 2025】 .	We gain first-mover advantage in our region/sector, building brand and partnerships – our projects lock in key customers/infrastructure, making us a go-to leader (high market share).
Financial Impact	Lose initial investment (~\$XX M). Minor hit to balance sheet; internally manageable but waste of resources (and possible write-off if acquisition fails).	New revenue stream of \$XXX M/year by 2030. Asset value creation – could boost company valuation by 5-10% as investors price in a successful carbon business.
Reputation & ESG	Perceived failure in our flagship climate initiative; could invite criticism if project is abandoned (seen as greenwashing attempt).	Enhanced reputation as an innovator and climate solution provider. Strengthens stakeholder trust (regulators, communities), giving us goodwill and possibly easier approvals for future projects.

Table: Risk vs. reward extremes for our carbon capture strategy.

By quantifying these factors, we are prepared to make a go/no-go decision at each key juncture. At present, the upside potential outweighs the manageable downside, especially given the scalable approach we’re taking. Even in a moderate scenario (not worst or best case), capturing just ~0.5 MtCO₂/year with available credits would generate steady cash flows and valuable experience. Thus, proceeding with the pilot partnership now is a logical risk-adjusted bet. We will continuously update this

risk-reward outlook as pilot data and market developments come in, ready to either ramp up investment (toward building or acquiring, in order to seize the upside) or retrench to a monitoring stance (if risks begin to dominate).



[\[D34\]](#) [\[D12\]](#)

90-Day Action Plan

To kick-start our carbon capture strategy, we have developed a detailed 90-day action plan. This plan focuses on building internal alignment, evaluating partners, and launching a pilot project proposal. Each action item has an owner, clear milestone, timeline, and success metric to ensure accountability. The plan also integrates go/no-go decision points – notably at Day 90, when initial findings will be reviewed by leadership to authorize full pilot execution.

Action	Owner	Milestone	Timeline	Success Metric
<p>Form Carbon Capture Task Force – Establish a cross-functional team (strategy, R&D, engineering, finance) to drive the initiative. Include an executive sponsor (e.g. VP Strategy).</p>	<p>CEO assigns; Strategy Director leads</p>	<p>Task Force constituted with 6–8 core members; kickoff meeting held; roles & charter defined (covering goals like pilot delivery, partner selection).</p>	<p>Day 0–7</p>	<p><i>Metric:</i> Charter document approved by CEO; dedicated team officially working (at least 50% time allocation each).</p>
<p>Internal Capability Review & Gap Fill Plan – Task Force audits our internal skills/tools for carbon capture, and identifies immediate needs (e.g. hire consultant or retrain staff).</p>	<p>Task Force (Tech Lead)</p>	<p>Report on current capabilities vs needs (engineering, regulatory, etc.) completed. Immediate gap-fill actions started (e.g. engage a CCS expert consultant, or begin hiring process for a CO₂ process engineer).</p>	<p>By Day 15</p>	<p><i>Metric:</i> Delivery of capability gap report (internal memo); at least 2 gap-fill measures initiated (e.g. job posting out or consultant contracted).</p>
<p>Engage Potential Partners – Reach out to the shortlist (Carbon Clean, Aker/SLB, Climeworks, Svante). Secure NDAs and introductory meetings to discuss tech and partnership ideas.</p>	<p>Business Development Director</p>	<p>NDAs signed with at least 3 target companies. Technical due diligence team formed to evaluate partner technologies (including reviewing data from existing projects).</p>	<p>By Day 20</p>	<p><i>Metric:</i> 3+ introductory calls/meetings held; data room access or tech briefs obtained from partners. Feedback scores from our tech team on each partner’s solution.</p>

Action	Owner	Milestone	Timeline	Success Metric
<p>Site Selection for Pilot – Choose an optimal facility or emission source within our operations for the pilot project (considering CO₂ concentration, permitting ease, visibility).</p>	<p>Operations VP & Task Force</p>	<p>Site selected and pre-feasibility assessed (can host pilot unit, space/utility available, baseline emissions measured). Backup site identified as fallback.</p>	<p>Day 30</p>	<p><i>Metric:</i> Site selection memo with key parameters (emission rate, cost estimate for integration) and Ops team sign-off.</p>
<p>Partner Evaluation & Shortlisting – Compare partner proposals (tech performance, cost, support offered). Down-select to preferred partner(s) for pilot.</p>	<p>Task Force (Strategy & Tech Leads)</p>	<p>Analysis completed for each candidate: includes tech fit, cost model, timeline. Internal scoring/ranking and recommendation of top 1–2 partners.</p>	<p>Day 45</p>	<p><i>Metric:</i> Decision memo ranking partners, with one primary recommendation, reviewed in Task Force meeting. Executive sponsor concurs with shortlist.</p>
<p>Pilot Project Proposal Development – Co-develop a pilot scope with the leading partner candidate. Define objectives (e.g. capture ≥90% CO₂ from X stream), schedule, budget, roles.</p>	<p>Task Force (Project Manager) + Partner liaison</p>	<p>Draft pilot project plan produced, including design concept, resource plan (equipment, staffing), and cost-sharing with partner. Undergo internal review by engineering and finance.</p>	<p>Day 60</p>	<p><i>Metric:</i> Pilot project proposal document (~5–10 pages) ready for review. Contains CAPEX/OPEX estimates (±30% accuracy), timeline (target start date, duration), and expected outcomes.</p>

Action	Owner	Milestone	Timeline	Success Metric
<p>Financial Modeling & ROI Analysis – Refine the business case using pilot plan details and latest policy info. Ensure alignment with our investment criteria (ROI, risk scenario analysis updated).</p>	<p>Finance Rep on Task Force</p>	<p>Updated financial model for pilot and projected scale-up scenario. Stress test with scenarios (low/high carbon price). Validate funding source (budget allocation or capex approval needed).</p>	<p>Day 70</p>	<p><i>Metric:</i> Finance report confirming pilot affordability (<\$X M from innovation budget) and projected IRR for scale scenario. Presented to CFO for preliminary endorsement.</p>
<p>Executive Review & Go/No-Go Decision – Present the partnership selection and pilot plan to CEO and executive committee for approval to proceed. Include risk assessment and decision criteria going forward.</p>	<p>Executive Sponsor (VP Strategy)</p>	<p>Executive meeting held to decide on pilot launch. Go-ahead triggers formal agreements; no-go triggers contingency plan (e.g. alternate partner or revisit strategy).</p>	<p>Day 90</p>	<p><i>Metric:</i> Go: Green light from executive team (documented in meeting minutes) to sign partnership MOU and fund pilot. Or No-Go: decision to pause/redirect (with documented reasons and follow-up actions assigned).</p>
<p>Contingency Actions (if Go) – If approved, immediately move to execution: finalize MOU with partner, form project implementation team, and schedule groundbreaking/kickoff. <i>If not approved, compile</i></p>	<p>Task Force & Project Manager</p>	<p>(Go) MOU signed; project execution phase initiated (kickoff meeting date set, contractor/partner arrangements made). (No-Go)</p>	<p>Day 90+ (initiate)</p>	<p><i>Metric:</i> MOU/contract signed within 2 weeks of go-ahead. Resources (budget and personnel) mobilized for pilot (project team in place). If no-go,</p>

Action	Owner	Milestone	Timeline	Success Metric
lessons learned and pivot strategy (e.g. extend monitoring or explore different partners/tech).		Strategy pivot plan drafted.		alternative plan ready by Day 100 for leadership review.

Table: 90-Day action plan for launching our carbon capture initiative.

This plan ensures that within three months we will have moved from strategy to execution, or made a conscious stop decision. The timeline is aggressive but realistic: by front-loading critical decisions (site, partner) in the first 4–6 weeks, we allow time to flesh out the pilot plan and get approvals by Day 90. Each step has clear outputs that collectively de-risk the subsequent step – for example, having NDAs and data from partners by Day 20 feeds into a robust evaluation by Day 45, and selecting a site early allows practical considerations (retrofit needs, permits) to be accounted for in the pilot design by Day 60.

Key stakeholders are involved throughout: C-suite sponsorship (CEO, VP Strategy) is engaged at kickoff and final decision, the Operations and Finance teams are embedded via the Task Force to address feasibility and funding, and our technical staff are engaged to assess partner claims. We will also keep our Board or relevant Board committee informed at Day 90 of the decision, given the strategic importance and capital outlay – ensuring top-level buy-in and no surprises.

Go/no-go criteria at Day 90 hinge on: (1) a suitable partner willing to collaborate on acceptable terms, (2) a pilot plan that fits budget and meets safety/environment standards, and (3) no major negative change in external context (e.g. if suddenly the tax credit was repealed in these 90 days, we would reconsider). Absent any red flags, we anticipate a “Go” and transitioning to execution mode right after this period.

In summary, this 90-day plan positions us to rapidly yet prudently engage in carbon capture – turning strategic intent into tangible action. By Day 90, we expect to have a signed partnership and an approved pilot project ready to implement. This sets the foundation for our longer-term carbon capture roadmap, putting us on track to achieve meaningful CO₂ reductions and build new competencies in the year ahead.

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