CO2 Feasibility Study

Independent go or no-go before you commit to FEED.

Ismail Zeitoun Independent Cryogenic, Hydrogen, and CO2 Engineering i@ismailzeitoun.com

WHAT IT IS

Technical and economic assessment of a CO2 capture, utilization, or storage project. The output is a defensible go or no-go recommendation and a defined next-phase scope, sized so a board, an investor, or an internal capital review can act on it.

WHAT IS COVERED

- Source characterization: flow, composition, temperature, pressure, and variability.
- Technology screening across amine, membrane, adsorption, and cryogenic options.
- Equipment sizing for the screened technology.
- CAPEX and OPEX estimation with assumptions stated.
- Economic model: IRR, payback, and dollars per ton of CO2 abated, with sensitivities.

STANDARDS AND TOOLS REFERENCED

Source characterization, technology screening, equipment sizing, CAPEX and OPEX estimation, and economic modeling using industry-standard methods. Process simulation in Aspen HYSYS and Aspen Plus where the screened technology requires it. Senior design background is directly relevant: an ethanol-amines plant for carbon capture and industrial use.

DELIVERABLE

Feasibility report with a go or no-go recommendation, a defined next-phase scope, stated assumptions, sensitivity analysis, and a risk register. Written so it can stand up to an independent technical review.

TIMELINE

3 to 4 weeks from kickoff.

WHO IT IS FOR AND WHEN THEY NEED IT

Industrial facilities with emissions reduction targets, companies pursuing 45Q tax credits, and CCU or CCS startups needing independent technical validation. Engaged before committing to FEED, when an investor or board is asking for an independent assessment, or when internal teams disagree on technology selection.

HOW IT WORKS

- Discovery call, 30 minutes, to confirm fit and frame the scope.
- NDA and document review: PFDs, P&IDs, datasheets, procedures, operating data.
- Fixed-scope written proposal with price, timeline, and deliverable defined.
- Technical review and analysis.
- Written report.
- Final review call to walk findings and recommendations.

PRICING

- CO2 Feasibility Study: $20,000 fixed fee.

- Initial Technical Screen: $3,500. Low-commitment entry to review a specific issue, system, P&ID, or operating concern. Credits 100 percent toward a fixed-scope engagement on conversion within 60 days.
- Advisory and ongoing project support: $175 per hour.

Fixed-scope engagements exclude PE-stamped drawings, field installation, procurement, construction management, and regulatory submission unless separately scoped. PE-stamped drawings and AHJ submission are coordinated with a licensed PE where required.

PRACTICE SNAPSHOT

Independent cryogenic, hydrogen, and CO2 engineer. EIT certified in California, B.S. Chemical Engineering, UC Davis. Experience across Nikkiso (turboexpander and expander-compressor systems, and hydrogen electrolyzer and CO2 purification process engineering) and Fennessy Engineering (cryogenic pump and skid systems for industrial gas and LNG, ASME and API standards). Current independent engagements support a Fortune 500 pharmaceutical operator, an industrial cryogenic facility, and a consumer products manufacturer. Technical writing on LinkedIn has reached over 150k engineers in the field: 157,200+ impressions and 114,000+ unique members reached, with top viewer companies including Nikkiso Clean Energy, Airgas, and Air Liquide.

CONTACT

Email: i@ismailzeitoun.com

Book a call: calendly.com/i-ismailzeitoun/calendar

Website: ismailzeitoun.com