

CF Industries: When Should Blue Point Reach FID?

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Industry: Fertilizers & Agricultural Chemicals

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A strategy case for MBA students and working professionals

Decision date: March 1, 2024

Information cutoff: March 1, 2024; public information through February 29, 2024

Case status: Constructed strategy exercise. CF Industries and Mitsui had not announced the specific decision posed here.

A major project, with more to learn

On February 14, 2024, CF Industries said it and Mitsui had completed a front-end engineering and design study for a proposed low-carbon ammonia plant at Blue Point, Louisiana. The studied design used steam methane reforming (SMR) with carbon capture and sequestration (CCS). The study estimated total project cost at about \$3 billion: roughly \$2.5 billion for the ammonia plant and CCS, plus about \$500 million for scalable shared infrastructure such as storage and vessel-loading facilities. This was a project estimate, not a disclosed CF-only investment share or approved budget. [P1, Item 1, p. 2, ¶¶164-168; P2, pp. 1-2]

The companies were also studying two alternatives: autothermal reforming (ATR) with CCS, and SMR with added flue-gas capture. CF expected both studies to finish in the second half of 2024, the same period in which it and Mitsui targeted a final investment decision (FID) on the proposed plant. A new world-scale ammonia plant typically takes about four years to construct and commission after construction begins. [P1, Item 1, p. 2, ¶¶166-168]

That schedule created a practical question: should the companies make an FID during the planned window using the completed design, wait for the other studies and more market information, or set conditions that would determine which path to take?

Customers and the market

In 2023, CF signed a memorandum of understanding with JERA, a Japanese power company, concerning possible long-term supply of up to 500,000 tonnes of clean ammonia per year beginning in 2027. JERA's stated requirement was at least 60% lower carbon emissions than conventionally produced ammonia. CF's filing described the MOU as a framework for assessing supply under a long-term offtake agreement; the companies were still evaluating supply options. It did not disclose a binding Blue Point volume or price contract. [P1, Item 1, p. 3, ¶¶176-179]

CF said it expected greater clarity later in 2024 about low-carbon ammonia demand, customers' carbon-intensity requirements, government incentives, and regulatory developments in customers' jurisdictions. Its filing also warned that the market might develop slowly, that carbon

standards and incentives could change, and that pipelines and permitted carbon-storage wells remained important third-party dependencies. [P1, Item 1A, pp. 24-25, ¶¶811-835; P2, p. 2]

Other Gulf Coast projects were moving ahead. OCI and Linde had announced that construction had started on a Beaumont, Texas project. Linde planned to supply clean hydrogen and nitrogen under a long-term agreement for an OCI ammonia plant described as having capacity of 1.1 million “tons” per year; the announcement did not qualify the unit as metric or U.S. short tons. The headline said capture and sequestration of “up to 1.7 million metric tons” of CO₂ per year, while the body said “more than 1.7 million metric tons.” OCI and Linde stated a 2025 startup target. These were company projections for a different project configuration. [P4, lines 42-53]

Process and policy questions

SMR and ATR produce hydrogen from natural gas, which is then used to make ammonia. CCS can capture and store some carbon dioxide from the production process. Different designs may capture different portions of process and flue-gas emissions, and lifecycle carbon intensity also depends on emissions beyond the plant, including natural-gas supply. Buyers may apply their own carbon thresholds.

Federal policy added another uncertainty. Treasury and the IRS had issued proposed rules for the Section 45V clean-hydrogen credit in December 2023. The proposal addressed lifecycle emissions and verification, and the comment period had closed on February 26, 2024; a hearing was scheduled for March. The rules were not final at the case cutoff. Any credit value would depend on the final requirements and the project’s eligibility. [P3, 88 FR 89220]

CF was also investing in changes to its existing network. At its Donaldsonville, Louisiana complex, a 20-megawatt electrolyzer was being commissioned for a project designed to enable about 20,000 tons of green ammonia per year. A separate CCS project, with an estimated cost of \$200 million, was designed to process up to 2 million tons of process CO₂ per year and had a definitive transport-and-sequestration agreement with ExxonMobil. Those projects provided relevant company experience, but did not establish Blue Point’s cost or carbon intensity. [P1, Item 1, p. 2, ¶¶158-163]

Capital context

CF generated \$2.76 billion in operating cash flow and reported \$1.80 billion in company-defined free cash flow in 2023. It reported \$2.03 billion in cash at year end, estimated 2024 capital expenditures of about \$550 million, and repurchased \$580 million of shares in 2023. These company-wide figures provide scale and context; they do not identify a pool set aside for Blue Point or state how its project cost would be divided between partners. [P1, Item 7, pp. 50-56; P2, pp. 1, 5]

Exhibit 1. Decision evidence at the cutoff

Evidence	What was public by March 1, 2024
Completed design	SMR plus CCS FEED; estimated total cost about \$3bn, including about \$0.5bn shared infrastructure
Designs still under study	ATR FEED and SMR with added flue-gas capture; both expected in 2H2024
Publicly stated decision window	CF and Mitsui targeted FID in 2H2024
Customer signal	JERA MOU: up to 500,000 tonnes/year beginning in 2027; at least 60% lower carbon emissions than conventional ammonia; long-term offtake still being assessed
Market and policy questions	CF expected greater clarity later in 2024; 45V regulations were proposed, not final
External project	OCI/Linde Beaumont construction underway; company-stated design, capacity and schedule differ from Blue Point

Sources: [P1] Item 1, pp. 2-3 and Item 1A, pp. 24-25; [P2] pp. 1-2; [P3]; [P4]. Estimates, plans and customer discussions are attributed to the named source.

The decision

Assume you are advising CF and Mitsui's project teams as they prepare for their stated FID window. Which course should they recommend?

1. Advance the completed SMR-plus-CCS design toward FID, subject to conditions you specify.
2. Wait for the ATR and additional flue-gas-capture studies, then compare designs before deciding.
3. Defer FID or stage further commitments until specified customer, carbon-accounting, policy, or carbon-storage evidence is available.

You may combine options, but identify the decision date, evidence gates, and what would trigger a change of course. Do not assume a fixed CF capital contribution, binding offtake terms, final tax-credit eligibility, or project returns that are not provided.

Discussion questions

1. Which information is available now, which is expected later in 2024, and which may remain uncertain at FID?
2. How should the team compare the completed SMR design with the two alternatives still under study?
3. What customer and carbon-intensity evidence is needed to support the project's expected market?
4. Which policy, permitting, transport, and storage conditions could materially alter the decision?
5. What FID gates or monitoring plan would make your recommendation robust if demand, costs, or standards change?

Sources and conventions

- **[P1]** CF Industries Holdings, Inc., FY2023 Form 10-K, filed Feb. 22, 2024, SEC accession 0001324404-24-000008. [SEC filing](#).
- **[P2]** CF Industries Holdings, Inc., Q4/FY2023 results release, Feb. 14, 2024, SEC accession 0001324404-24-000003, Exhibit 99.1. [SEC exhibit](#).
- **[P3]** U.S. Treasury/IRS, Section 45V proposed regulations, REG-117631-23, 88 FR 89220, Dec. 26, 2023. [Federal Register](#).
- **[P4]** OCI N.V. and Linde plc, Feb. 6, 2023 announcement. [Company announcement](#).

All facts are limited to information public by February 29, 2024. The companion teaching note is private instructor material and is not part of the student case.