

North American LNG construction:
**LNG Export
Project Updates
January 2024**

Organised in association with the
LNG Export Engineering & Construction
Conference & Expo (June 25-26,
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Farhan Mujib
President
JGC Corporation



Bhupesh Thakkar
SVP & General Manager - LNG
Bechtel Corporation



Steve Corbin
VP & Exec Project Director
LNG Canada



Mike VanderMate
SVP Engineering & Construction
Sempra Infrastructure



Raquel Couri
Senior Vice President
Next Decade



Pierre Bechelany
President - LNG
Fluor Corporation



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January 2024 update:

North America's LNG industry continues to take steps forward, with more capacity under construction or advancing towards construction as of early 2024. While mild winter weather and high storage levels in Europe may weigh on LNG demand in the short term, in the longer term, demand remains robust in both Europe and Asia and imports continue to rise to new highs.

On the supply side, both natural gas production and US LNG exports have continued to rise. Canadian and Mexican exports have yet to take off, but once new liquefaction capacity comes online in both countries, they will add to North America's LNG dominance. In the US, though, the political landscape could be a complicating factor as the next US presidential election – scheduled for November 2024 – approaches. In January, media reported that the administration of US President Joe Biden was considering whether to introduce stricter climate-related criteria for approving LNG projects. The Biden administration is trying to strike a balance between appealing to voters with environmental concerns and continuing to support US oil and gas production and exports. It is likely impossible to do this in a way that will be positively received by both sides, and it means that the Biden administration could hold off on any further high-profile decisions relating to energy projects prior to the election. This could include new LNG project approvals, and any delays to the issuing of new export and construction authorizations could push back timelines for pending final investment decisions (FIDs)

Nonetheless, numerous new LNG export projects are trying to move forward to construction. Not all will be approved, but several are close to this point, with financing and offtakers finalized. Others continue to seek long-term buyers, and new offtake agreements have continued to be announced in recent months. Political uncertainty aside, momentum is still there and North America's LNG industry continues to pick up pace.

LNG Canada

Location: Kitimat, British Columbia

Status: Under construction and 85% complete as of July 2023, with the final module delivered from China also in July

Capacity under construction: 14 million tonnes per annum (mtpa) from first two trains

Capacity proposed: a potential second phase, consisting of an additional 14 mtpa from two further trains

Partners: Shell (40%), Petronas (25%), PetroChina (15%), Mitsubishi Corp. (15%) and KOGAS (5%)

EPC contractor: JGC Fluor

Targeted start-up date: 2025

Notes: LNG Canada represents the largest energy investment in Canadian history. The project is relying on a combination of energy-efficient gas turbines and renewable electricity to emit less than half the greenhouse gas emissions of the average LNG facility currently in operation. If the partners proceed with Phase 2, they would initially build it with gas-powered turbines, switching to electric motors as more power becomes available, based on comments made by executives in 2023.

Woodfibre LNG

Location: Squamish, British Columbia

Status: The first of 18 modules was under construction at the Qingdao McDermott Wuchuan fabrication yard in China as of July 2023. Pre-construction at the site was completed in 2023, and equipment was mobilized ahead of a planned construction ramp-up in 2024.

Capacity under construction: 2.1 mtpa from two trains

Capacity proposed: n/a

Partners: Pacific Energy (70%), Enbridge (30%)

EPC contractor: McDermott International

Targeted start-up date: 2027

Notes: Woodfibre aims to be a net-zero emission LNG project during both construction and operation and will be powered using renewable hydroelectricity. All of Woodfibre's planned output was committed to BP following a third offtake agreement in September 2023.

Ksi Lisims LNG

Location: Pearse Island, British Columbia

Status: Proposed, undergoing regulatory review

Capacity under construction: n/a

Capacity proposed: 12 mtpa

Partners: The Nisga'a Nation, Rockies LNG Partners and Western LNG

EPC contractor: Not yet selected, but Black & Veatch, in collaboration with Samsung Heavy Industries (SHI), was awarded a front-end engineering design (FEED) contract for the project's nearshore floating LNG (FLNG) production facility in July 2023.

Targeted start-up date: 2028

Targeted FID date: 2024, dependent on the receipt of regulatory approvals, among other factors

Notes: Ksi Lisims LNG is expected to be one of the most significant Indigenous-led infrastructure projects in Canadian history. The partners are also targeting net zero emissions from the project by 2030. The project's first offtake agreement, with Shell for 2 mtpa, was signed in January 2024.

Cedar LNG:

Location: Kitimat, British Columbia

Status: Proposed, with environmental approvals received in March 2023 and an LNG Facility Permit from the BC Energy Regulator received in July 2023

Capacity under construction: n/a

Capacity proposed: 3 mtpa from two trains

Partners: The Haisla Nation (50%) and Pembina Pipeline (50%)

EPC contractor: SHI and Black & Veatch selected for the design, fabrication and delivery of the project's FLNG production unit

Targeted start-up date: 2028

Targeted FID date: Recently pushed back to the end of the first quarter of 2024
Notes: Cedar LNG is aiming to become the first Indigenous-majority-owned LNG export facility in Canada. The project will be powered by renewable electricity, which the partners say will make it one of the lowest carbon intensity LNG facilities in the world. The Cedar partners are planning to receive feed gas from the recently completed Coastal GasLink pipeline, which will also supply the nearby LNG Canada project.

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Energia Costa Azul LNG

Location: Baja California

Status: Under construction, with a further expansion stage proposed

Capacity under construction: 3.25 mtpa from one train under construction since late 2020

Capacity proposed: A potential second phase, consisting of an additional 12 mtpa from two further trains

Partners: Sempra LNG (41.7%), IEnova – Sempra's subsidiary in Mexico – (41.7%) and TotalEnergies (16.6%).

EPC contractor: TechnipFMC

Targeted start-up date: 2025

Notes: Phase 1 of ECA LNG is a brownfield project involving conversion of an existing regasification terminal to exports. Feed gas for the project would be shipped in from the US and re-exported from Mexico.

Vista Pacifico LNG

Location: Topolobampo, Sinaloa

Status: Proposed, with authorization received in 2022 from the US Department of Energy (DoE) to re-export US-sourced gas to countries with which the US does not have a free-trade agreement (FTA).

Capacity under construction: n/a

Capacity proposed: 3.5 mtpa according to a Sempra announcement from late 2022, though Sempra's quarterly earnings presentations show only 2 mtpa of capacity at the project as being under development.

Partners: Sempra Infrastructure, IEnova, Mexico's Federal Electricity Commission (CFE) and TotalEnergies, though as of November 2023, plans and partnerships for the project remained preliminary and non-binding, as noted in Sempra's third-quarter earnings presentation

EPC contractor: None yet selected

Targeted start-up date: Unclear, but DoE export authorizations have seven-year deadlines, meaning exports would have to start by 2029 at the latest.

Targeted FID date: Unclear

Notes: Little mention has been made of Vista Pacifico LNG since Sempra announced in December 2022 that it had obtained export authorization from the DoE. The project continues to be listed as being under development on a non-binding, preliminary basis in Sempra's quarterly earnings presentations, but comments made by executives in 2023 suggest the company is prioritizing projects that are already under construction. Feed gas for the project would be shipped in from the US and re-exported from Mexico.

Saguaro Energia LNG

Location: Puerto Libertad, Sonora

Status: Proposed, with a collaboration agreement signed with the state government of Sonora in July 2023, enough sales volumes to proceed to FIDs on the trains comprising the first phase of the project, according to a January 2024 announcement.

Capacity under construction: n/a

Capacity proposed: 15 mtpa from three trains, potentially expandable by an additional three trains and a further 15 mtpa in a future second phase.

Partners: Mexico Pacific

EPC contractor: Mexico Pacific's website lists Bechtel as a partner in the project and touts a fully wrapped lump-sum turnkey (LSTK) EPC contract as part of the company's construction approach, though no announcement on the award of an EPC contract has been made public.

Targeted start-up date: 2027

Targeted FID date: In January 2024, Mexico Pacific was targeting two separate FIDs – first on Trains 1 and 2 and then separately on Train 3 – for later in 2024.

Notes: Like other Mexican projects, Saguaro Energia would source its feed gas from the US. Mexico Pacific lists Bechtel, Techint, ConocoPhillips and Baker Hughes as strategic partners in the Saguaro project. In November 2023, Mexico Pacific awarded an EPC contract for the construction of the Sierra Madre pipeline, which will supply Saguaro Energia.

Altamira Fast LNG

Location: Altamira, Tamaulipas

Status: The first of three planned FLNG projects is mechanically complete and being installed as of August 2023. A further two FLNG units are under construction.

Capacity under construction: 4.2 mtpa across three FLNG units, each with a capacity of 1.4 mtpa, including the one that is mechanically complete but not yet online as of August.

Capacity proposed: n/a

Partners: New Fortress Energy

Contractor: Fluor has been awarded the engineering, procurement and fabrication management contract for the first two units. No announcement has yet been made on the third unit.

Targeted start-up date: Start-up of the first FLNG unit was delayed from September to December 2023 and no update has been issued, so it now appears to have been pushed into 2024. According to the latest information on New Fortress' website, the second and third FLNG units are still targeted to enter service in 2025.

Targeted FID date: n/a

Notes: New Fortress is deploying its floating, modular Fast LNG technology at Altamira. Together with Mexico's CFE utility, New Fortress is exploring the possibility of installing units 2 and 3 onshore. New Fortress had also talked about deploying a Fast LNG unit at the Lakach deepwater gas field, but media reported in November 2023 that it had terminated its deal with state-owned Pemex for the Lakach project.

AMIGO LNG

Location: Guaymas, Sonora

Status: Proposed, with a DoE re-export authorization to non-FTA countries received in 2020 and further permitting underway

Capacity under construction: n/a

Capacity proposed: 7.8 mtpa across two trains. Phase 1 would comprise a 3.9 mtpa train and a potential Phase 2 would add another train with a capacity of 3.9 mtpa.

Partners: LNG Alliance and its subsidiary, Epsilon LNG

EPC contractor: Contractors had been shortlisted in Singapore and China for the LNG liquefaction modules and in the US for the marine facilities as of September 2022 but there had been no further announcements as of January 2024.

Targeted start-up date: 2026

Targeted FID date: The previously announced target date of 2023 has passed with no updates.

Notes: AMIGO LNG would use feed gas from the Permian Basin in the US, like other planned Mexican export terminals. As of 2022, feed gas availability for the second phase was unconfirmed.



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Sabine Pass LNG

Location: Cameron Parish, Louisiana

Status: In commercial operation, with 30 mtpa online across six trains of around 5 mtpa each and a further phase of expansion proposed.

Capacity under construction: n/a

Capacity proposed: Under the Sabine Pass Stage 5 Expansion Project, a further 20 mtpa of capacity would be added at Sabine Pass, consisting of three large-scale trains of around 6.5 mtpa each and a boil-off gas (BOG) re-liquefaction unit with production capacity of roughly 0.75 mtpa.

Partners: Cheniere Energy

EPC contractor: Bechtel, which built the first six trains at Sabine Pass and has been engaged to complete a FEED study for the proposed expansion project.

Start-up date: 2016

Targeted FID date for next stage: If regulatory approvals are received as expected, construction could start in 2025 according to filings with the US Federal Energy Regulatory Commission (FERC).

Notes: Sabine Pass is the first LNG export terminal in the Lower 48 US states and also the country's largest. Its construction the addition of liquefaction capacity to an existing regasification facility. In September 2022, it also became the first terminal in the world able to accommodate three LNG tankers simultaneously. As of November 2023, Cheniere had started signing offtake agreements for the second train of the Stage 5 Expansion Project.

Corpus Christi LNG

Location: Corpus Christi, Texas

Status: In commercial operation, with 15 mtpa online across three trains of around 5 mtpa each and a further stage of expansion under construction.

Capacity under construction: More than 10 mtpa from seven midscale trains of around 1.49 mtpa each under the Stage 3 expansion project.

Capacity proposed: Two further midscale trains, 8 and 9, have been proposed and are undergoing regulatory review.

Partners: Cheniere Energy

EPC contractor: Bechtel, which built the first three trains and is currently constructing the Stage 3 expansion.

Start-up date: 2019

Targeted start-up date for next stage: 2025, but as of November 2023 construction was ahead of schedule and Cheniere was expecting first LNG production from the expansion by the end of 2024.

Targeted FID date for Midscale Trains 8 and 9: If FERC approval is received as expected in 2024, construction would begin soon after. Cheniere says it already has the commercial support required to build these additional trains.

Notes: Corpus Christi LNG was the first greenfield export terminal to be built in the Lower 48 US states.

Cove Point LNG

Location: Lusby, Maryland

Status: In commercial operation, with a capacity of 5.75 mtpa from one train.

Capacity under construction: n/a

Capacity proposed: n/a

Partners: Berkshire Hathaway Energy (75%) and Brookfield Infrastructure Partners (25%). Berkshire Hathaway took over operatorship of the facility from Dominion Energy in 2020 with the purchase of a 25% interest, and bought Dominion's remaining 50% interest in September 2023.

EPC contractor: IHI E&C and Kiewit Energy

Start-up date: 2018

Targeted FID date: n/a

Notes: Cove Point is a bidirectional facility and liquefaction capacity was added to an existing import terminal.

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Elba Island LNG

Location: Chatham County, Georgia

Status: In commercial operation, with 2.5 mtpa online across 10 modular trains of 0.25 mtpa each

Capacity under construction: n/a

Capacity proposed: No new capacity is planned, but an application was filed in 2023 to optimize the project, which would involve new installations and modifications to existing liquefaction facilities and would increase the terminal's capacity to around 2.9 mtpa. Company executives also said in April 2022 that there could be an opportunity for small-scale expansion, but no further news has come on this since.

Partners: Elba Liquefaction Co., which is a joint venture between Kinder Morgan (25.5%), Blackstone Credit (49%) and an unnamed partner that bought a 25.5% interest from Kinder Morgan in 2022. Kinder Morgan also operates the LNG terminal via its 100% ownership in Southern LNG, which also provides LNG storage, vaporization and ship-loading services.

EPC contractor: IHI E&C

Start-up date: 2019

Targeted FID date: n/a, but a regulatory decision on the optimization project is expected in 2024.

Notes: The small-scale Elba Island project involved conversion of an existing regasification terminal to liquefaction. The liquefaction facility was built using Movable Modular Liquefaction technology.

Cameron LNG

Location: Hackberry, Cameron Parish, Louisiana

Status: In commercial operation, with 13.5 mtpa online across three trains of around 4.5 mtpa each and a further stage of expansion proposed

Capacity proposed: Cameron LNG Phase 2 would consist of a single train, Train 4, with a capacity of 6.75 mtpa.

Partners: Sempra LNG (50.2%), Mitsui Group (16.6%), TotalEnergies (16.6%) and Japan LNG Investment (16.6%). Japan LNG Investment is a joint venture between Mitsubishi and Nippon Yusen Kabushiki Kaisha on a 70:30 basis.

EPC contractor: McDermott International and Chiyoda were the EPC contractors for Phase 1, comprising the first three trains. Sempra said on its second-quarter earnings call for 2023 that it had selected Bechtel for Phase 2.

Start-up date: 2019

Targeted start-up date for next stage: The current export authorization for Train 4 has a start-up deadline of May 2026. Sempra indicated in July 2023 that it could seek an extension, though this process is now more challenging after the US DoE tightened up its policy on extensions.

Targeted FID date for next stage: 2024

Notes: Phase 1 of the Cameron LNG export project entailed adding liquefaction capacity to an existing regasification terminal. In March 2023, the US FERC authorized Cameron LNG's amendment to its Phase 2 expansion plans. Under the amended plan, a single, larger train would now be built, instead of two trains previously. The amended expansion project also included plans to replace gas turbine drives with electric drive (e-drive) motors and tie-in facilities to enable the sequestration of carbon dioxide (CO₂). Efforts to expand production from the existing three trains by 5% via debottlenecking are underway. Sempra is also collaborating with a consortium of Japanese firms on assessing the feasibility of liquefying e-methane at Cameron LNG for export to Japan from 2030.

Freeport LNG

Location: Freeport, Texas

Status: In commercial operation, with 15 mtpa online across three trains of around 5 mtpa each and a further stage of expansion proposed

Capacity under construction: n/a

Capacity proposed: Train 4, with a further 5 mtpa of capacity

Partners: Freeport LNG Development, which in turn is owned by Freeport LNG Investment (63.5%), JERA (25.7%) and Osaka Gas (10.8%). Freeport LNG-GP is the sole general partner in the project.

EPC contractor: Zachry Group and C&I were awarded the EPC contract for Trains 1 and 2. For Train 3, the EPC contract went to an expanded venture comprising Zachry, CB&I and Chiyoda. Subsequently, CB&I was acquired by McDermott International in 2018, while construction of Freeport was underway.

Start-up date: 2019

Targeted start-up date for next stage: The current export authorization for Train 4 has a start-up deadline of August 2028.

Targeted FID date for next stage: Unclear, as it was previously targeted for 2022 but was delayed amid a 10-month outage at the existing terminal following an accident in mid-2022. FID on Train 4 has now been pushed into 2024 at the earliest.

Notes: The first phase of the Freeport LNG export project involved the addition of liquefaction capacity to the existing regasification terminal. The liquefaction facility uses all-electric compression motor drive technology, and has been touted as the world's largest electric power-driven LNG facility of its kind.

Calcasieu Pass LNG

Location: Cameron Parish, Louisiana

Status: Operating on a pre-commercial basis since March 2022. The project consists of 18 liquefaction trains, each with a capacity of 0.626 mtpa, configured in nine blocks for a total capacity of over 10 mtpa.

Capacity under construction: n/a

Capacity proposed: n/a

Partners: Venture Global LNG

EPC contractor: Kiewit

Start-up date: March 2022 on a pre-commercial basis

Notes: Venture Global used a midscale, modular approach and touts Calcasieu Pass as being the fastest large-scale greenfield LNG facility to ever be built, moving from FID to LNG production in just 29 months. However, as of January 2024, the facility still remained in what has become the longest-ever commissioning period for a US liquefaction project, which the company has attributed to time required to finish repairs. As a result, Venture Global has run into disputes with foundation customers, some of whom have started arbitration proceedings against it. However, Venture Global maintains that it has remained in full compliance with all obligations under its long-term contracts, including timing. In a January 2024 letter to the FERC, Venture Global said Calcasieu Pass was not yet ready to meet certain criteria in its long-term contracts, and therefore it could not yet supply LNG to the customers involved.

Plaquemines LNG

Location: Plaquemines Parish, Louisiana

Status: Phase 1 under construction since May 2022 and Phase 2 since March 2023, with the first four liquefaction train modules reported to have been delivered to site by early September 2023.

Capacity under construction: 20 mtpa in total, with Phase 1 accounting for 13.33 mtpa of this

Capacity proposed: n/a

Partners: Venture Global LNG

EPC contractor: KBR as lead contractor, with the KZJV joint venture comprising KBR and Zachry Group executing the development, engineering, procurement and construction under the EPC contract

Targeted start-up date: In early September 2023, equipment supplier Baker Hughes said Phase 1 was on track to produce first LNG in 2024. This could be followed by Phase 2 in 2025.

Notes: Venture Global is replicating the approach it used at Calcasieu Pass at Plaquemines. The Plaquemines facility will comprise up to 36 liquefaction trains, each with a capacity of 0.626 mtpa configured in 18 blocks. In December 2023, Venture Global's CEO, Mike Sabel, told Reuters that Plaquemines would undergo a similar extended commissioning process to the one currently underway at the company's Calcasieu Pass terminal. Thus, if Plaquemines begins production in 2024 as expected, long-term customers may still not begin receiving contracted cargoes until around 2026 or 2027.

CP2 LNG

Location: Cameron Parish, Louisiana

Status: Proposed, with 9.25 mtpa of the terminal's 20 mtpa nameplate capacity sold as of September 2023 and further marketing discussions ongoing

Capacity under construction: n/a

Capacity proposed: 20 mtpa nameplate capacity with a peak capacity of around 24 mtpa

Partners: Venture Global LNG

EPC contractor: Worley for Phase 1, with a reimbursable contract

Targeted start-up date: 2026

Targeted FID date: According to an update from equipment supplier Baker Hughes in September 2023, Venture Global was set to begin construction on CP2 later in 2023, once it received FERC authorization. The FERC issued an environmental approval for the project in July 2023, paving the way for a final decision, but this is still pending, as is a non-FTA export authorization from the DoE. As of January 2024, Venture Global had not issued any further updates on CP2.

Notes: The design of CP2 would be similar, and equipment would be identical, to Venture Global's midscale, modular Calcasieu Pass LNG and Plaquemines LNG facilities. CP2 would consist of 18 liquefaction blocks, each with a nameplate capacity of around 1.1 mtpa of LNG. Nine blocks would be constructed per 10 mtpa phase.

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Delta LNG

Location: Plaquemines Parish, Louisiana

Status: Proposed

Capacity under construction: n/a

Capacity proposed: 20 mtpa, consisting of 36 liquefaction trains, each with a capacity of 0.626 mtpa, configured in 18 blocks.

Partners: Venture Global LNG

EPC contractor: Not yet selected

Targeted start-up date: Unconfirmed

Targeted FID date: Unconfirmed

Notes: Little has been reported on Delta LNG as Venture Global focuses on building Plaquemines and reaching FID on CP2. However, the company would be expected to deploy the same midscale, modular approach at Delta, which it said may be built in two 10-mtpa phases.

Golden Pass LNG

Location: Sabine Pass, Port Arthur, Texas

Status: Under construction since 2019

Capacity under construction: 18.1 mtpa across three trains, each with a capacity of 6 mtpa

Capacity proposed: n/a

Partners: QatarEnergy (70%) and ExxonMobil (30%)

EPC contractor: CCZJV, a joint venture comprising Chiyoda, McDermott International and Zachry Group

Targeted start-up date: Pushed back from 2024 to the first half of 2025

Notes: The Golden Pass LNG export project entails adding liquefaction capacity to the existing regasification terminal. The partners are using a traditional, stick-built approach to constructing the plant. The partners were initially authorized to build the plant with a capacity of 15.6 mtpa, but an increase to 18.1 mtpa was subsequently approved by the Biden administration. The companies said the increase had been driven by production efficiencies with the same equipment they had originally planned to build, rather than any changes to the plant's design.

Port Arthur LNG

Location: Port Arthur, Texas

Status: Under construction since March 2023, with a further stage of expansion proposed and granted FERC approval in September 2023. In Phase 1, the developers will have to reapply to the Texas Commission on Environmental Quality (TCEQ) for an emissions permit that was revoked by a US Court of Appeals in November 2023. However, the court ruling does not appear to have stalled construction.

Capacity under construction: 13.5 mtpa across two liquefaction trains with a capacity of 6.75 mtpa each

Capacity proposed: Port Arthur LNG Phase 2 would add a further two trains, also with a combined capacity of 13.5 mtpa.

Partners: Sempra Infrastructure Partners, which is 70% owned by Sempra, 20% by KKR and 10% by Abu Dhabi Investment Authority (ADIA), owns and operates Port Arthur. Phase 1 is 28% owned by Sempra Infrastructure Partners, 30% by ConocoPhillips and 42% by KKR, after Sempra completed the sale of an indirect, non-controlling interest to KKR in September 2023.

EPC contractor: Bechtel has been awarded the contract for Phase 1.

Targeted start-up date: 2027 for Phase 1

Targeted FID date for next stage: Unclear, but comments from Sempra executives have previously suggested that it could come in 2024.

Notes: Port Arthur LNG is a greenfield facility. Sempra is also planning to build carbon capture and storage (CCS) capacity to serve the Port Arthur terminal.

Rio Grande LNG

Location: Brownsville, Texas

Status: Under construction since July 2023 with a further stage of expansion proposed. As of September 2023, Phase 1 was on schedule with trains 1 and 2 around 8.1% complete.

Capacity under construction: 17.6 mtpa across three liquefaction trains, each with a capacity of 5.9 mtpa

Capacity proposed: Two additional trains are proposed to bring Rio Grande LNG's total capacity to 27 mtpa. FIDs on trains 4 and 5 are expected to be made separately.

Partners: NextDecade owns and operates Rio Grande LNG. For Phase 1, the company retains a 20.8% equity interest, Global Infrastructure Partners owns 46.1%, TotalEnergies holds 16.7%, GIC owns 9.9% and Mubadala Investment holds 6.5%. TotalEnergies has also acquired a 17.5% interest in NextDecade and Mubadala owns a 5.4% interest in the company.

EPC contractor: Bechtel has been awarded the EPC contract for Phase 1. As of January 2024, NextDecade had started the FEED and EPC contract processes with Bechtel for Train 4 and said it expected to finalize the EPC contract in the first half of 2024.

Targeted start-up date: 2027

Targeted FID date for next stage: An FID on Train 4 is being targeted for the second half of 2024.

Notes: The original FEED for Rio Grande LNG was based on six trains, each with a capacity of 4.5 mtpa. NextDecade redesigned the project to produce 27 mtpa from five trains instead of six, unveiling the updated plans in 2020. The company has also planned to reduce CO2 emissions from the project by more than 90% and intends to deploy CCS to achieve this.

Lake Charles LNG

Location: Lake Charles, Louisiana

Status: Proposed and fully permitted, with almost 8 mtpa of its capacity sold as of August 2022. However, an application was filed with the US DoE for a new export authorization in August 2023 after a request for an extension of the project's existing authorization was rejected.

Capacity under construction: n/a

Capacity proposed: 16.45 mtpa across three liquefaction trains, each with a capacity of 5.5 mtpa

Partners: Energy Transfer, which said on its third-quarter earnings call for 2023 that it was in negotiations with potential equity partners and was aiming to retain around 20% equity ownership. In January 2024, Kyushu Electric Power said it was considering an equity investment into Lake Charles LNG.

EPC contractor: None yet selected, though Energy Transfer had told the DoE in its application for a new export authorization that it was in negotiations with a bidder and expected to finalize these negotiations by the end of September 2023. Subsequently, in its third-quarter earnings call in November 2023, the company said it was still in negotiations to finalize the EPC contract.

Targeted start-up date: 2028, though Energy Transfer is seeking an extension of its deadline for placing the terminal into service to 2031 via a new application

Targeted FID date: Energy Transfer has requested the DoE to grant it a new export license by February 19, 2024. In its third-quarter earnings call, the company noted that it was tough to provide an exact estimate given that FID depended on receiving a new DoE authorization, among other factors. However, if Energy Transfer receives a new authorization in the first quarter of 2024, it has indicated that an FID could follow in the second quarter.

Notes: The Lake Charles LNG export project entails adding liquefaction capacity to an existing regasification terminal. However, the company has said it cannot complete the project by the current deadline and needs more time. It has attributed this to unplanned delays, including those caused by the Covid-19 pandemic, and a decision to add a CCS component to the plant.

Texas LNG

Location: Brownsville, Texas

Status: Proposed and fully permitted

Capacity under construction: n/a

Capacity proposed: 4 mtpa across two liquefaction trains, each with a capacity of 2 mtpa

Partners: Glenfarne Group, with Samsung Engineering holding a minority interest Lead contractor: Technip Energies USA and Samsung Engineering

Targeted start-up date: Late 2027 or early 2028

Targeted FID date: Pushed back from 2023 to 2024

Notes: Glenfarne expects that Texas LNG's liquefaction process will eliminate most CO2 emissions by using e-drive compression powered by renewable generation. The Texas LNG project will use Technip Energies' SnapLNG technology, which combines a compact modular design concept for mid-scale trains with standardized components and technology. As it works towards FID, Glenfarne has announced various deals related to Texas LNG, including separate equipment contracts with Baker Hughes and ABB and a preliminary LNG tolling agreement with EQT.

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Magnolia LNG

Location: Lake Charles, Louisiana

Status: Proposed and had been fully permitted, including to export LNG to non-FTA countries, but that authorization had required Magnolia to begin commercial operations before December 2030 and has since expired. Operator Glenfarne had applied for an extension in March 2023, requesting to extend the deadline to April 2026, but the US DoE introduced stricter rules for granting extensions in April. Glenfarne amended its request to seek an extension until November 2028, hoping it would still be considered under old DoE rules. However, the DoE ruled in August 2023 that it would consider the amended request under its new rules, which will see extensions only being granted to projects that have not yet entered construction under extenuating circumstances. Subsequently, Glenfarne withdrew its request for an extension in November 2023 and requested a new authorization to export LNG to non-FTA countries.

Capacity under construction: n/a

Capacity proposed: 8.8 mtpa across four liquefaction trains, each with a capacity of 2.2 mtpa

Partners: Glenfarne Group

EPC contractor: Originally, the EPC contract was awarded to KSJV, a joint venture between KBR and SK Engineering & Construction. However, in 2020 KBR announced it would exit most of its LNG construction projects. Glenfarne executives said at the time they had received interest from other potential contractors, but there has been no update since.

Targeted start-up date: Unclear, given that Glenfarne is now seeking a new non-FTA export authorization.

Targeted FID date: Unclear

Notes: Glenfarne intends to deploy its OSMR liquefaction technology at Magnolia, which it says will allow the facility to generate lower greenhouse gas (GHG) emissions than other conventional LNG processes.

Driftwood LNG

Location: Calcasieu Parish, Louisiana

Status: Under limited, pre-FID construction since March 2022 but still seeking financing and buyers after its last offtake agreement was terminated in August 2023. The piling and compressor foundations for the first block of trains had been completed by early September 2023.

Capacity under construction: n/a

Capacity proposed: 27.6 mtpa across 20 liquefaction trains, each with a capacity of 1.38 mtpa, with the trains configured in five blocks of four trains each. Phase 1 would comprise 11 mtpa of capacity and two blocks of trains.

Partners: Tellurian, which is seeking partners to invest 55% of equity for 6 mtpa of capacity in Driftwood Phase 1 according to an August 2023 investor presentation. EPC contractor: Bechtel

Targeted start-up date: In October 2023 Tellurian asked the US FERC for a three-year extension on the grounds that timelines for receiving key equipment mean it would not be ready to place the second phase of the facility in service until 2029. However, as of November 2023, Tellurian was still saying it would be on schedule to start LNG production in 2027.

Targeted FID date: Pushed back from 2023 to 2024, but Tellurian continues to seek offtakers, which could delay the process further still.

Notes: Tellurian has suffered a series of setbacks including the termination of its previous offtake agreements and it continues its efforts to find new equity partners, which could result in further delays to its schedule for building Driftwood. It is making progress in other areas, and announced in early September 2023 that Baker Hughes had agreed to supply eight main refrigerant compression packages for Phase 1 of Driftwood LNG. In December, Tellurian ousted its former executive chairman, Charif Souki.

Alaska LNG

Location: Nikiski, Alaska

Status: Proposed and fully permitted

Capacity under construction: n/a

Capacity proposed: 20 mtpa across three liquefaction trains, each with a capacity of 6.7 mtpa

Partners: Alaska Gasline Development Corp. (AGDC), which is owned by the State of Alaska and is seeking equity partners to take over a 75% interest in Alaska LNG

EPC contractor: Not yet selected

Targeted start-up date: 2030

Targeted FID date: Unclear, but AGDC executives said in April 2023 that once new owners are found and fund the FEED process, it could take 12-16 months to reach FID.

Notes: Proposals for Alaska LNG has undergone various changes since the project was first conceived. Producers BP, ExxonMobil and ConocoPhillips pulled out as partners in the project in 2016 amid concerns over Alaska LNG's economics in a period of abundant gas supplies and low prices. AGDC has lowered the cost of the project from \$45bn to \$38.7bn, including the costs of developing the feed gas pipeline from the North Slope, but the price tag is still thought to be deterring potential investors. AGDC is also trying to improve the project's environmental credentials, for example by adding a carbon capture plant to the proposal. An additional complicating factor is that Enstar Natural Gas is proposing to take over the pipeline project from the North Slope and repurpose it to serve domestic demand instead of an LNG project, according to media reports from September 2023. However, even if the pipeline project is repurposed, concerns over its costs remain.

Commonwealth LNG

Location: Cameron Parish, Louisiana

Status: Proposed, with authorization to construct the terminal and to export LNG to FTA countries but still awaiting a non-FTA export permit from the US DoE. Capacity under construction: n/a

Capacity proposed: 9.3 mtpa across six liquefaction trains, each with a capacity of 1.4 mtpa

Partners: Commonwealth LNG and Kimmeridge Energy Management, which agreed in August 2023 to take a minority stake of undisclosed size in Commonwealth LNG.

EPC contractor: Technip Energies

Targeted start-up date: 2027

Targeted FID date: First half of 2024

Notes: Commonwealth is taking a modular approach to construction, with the aim of lowering costs and minimizing the time required to build its facility. The company anticipates starting pre-FID construction before the end of 2023. Aside from a non-FTA export license, Commonwealth needs to have 8 mtpa of its capacity covered by long-term contracts in order to reach FID. As of September 2023, the company had signed supply deals totaling 6 mtpa, and talks with potential customers for the remaining 2 mtpa were ongoing. In November 2023, Commonwealth entered into a preliminary agreement on the development of CO2 capture capacity near its LNG site.

Gulfstream LNG

Location: Plaquemines Parish, Louisiana

Status: Proposed, with permitting in process and an authorization to export to FTA countries received as of January 2024

Capacity under construction: n/a

Capacity proposed: 4 mtpa across an unspecified multiple number of liquefaction trains, each with a capacity of less than 1 mtpa

Partners: Gulfstream LNG

EPC contractor: None yet, but in October 2023, Gulfstream announced that it had selected Kiewit to provide support developing the appropriate EPC model for the project during the FEED process.

Targeted start-up date: Gulfstream said it anticipated initial production within six years but still needs to apply to the US FERC for construction authorization.

Targeted FID date: Unclear

Notes: Gulfstream has taken steps forward since the proposal was first launched in 2023. In the first half of the year, the company also entered into a term sheet agreement with a gas transportation firm that operates an extensive pipeline network in the area surrounding the project. As of October 2023 it was still preparing to submit a FERC application once an initial round of equity funding had been completed. In October 2023, Gulfstream said it had selected Baker Hughes and Honeywell UOP to provide equipment to the project. The company said it was designed its facility based on the use of mid-scale, modular liquefaction trains like those being deployed by other projects in the region. It also intends to use e-drive technology to lower Gulfstream LNG's emissions.

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