The LNG Leader
Spring 2017
Integrated Self-Perform EPC

Bechtel’s distinctive, fully-integrated approach to engineering, procurement, and construction provides continuity and flexibility in every element of project execution.

This approach unites our engineering centers in Houston, Calgary, and New Delhi with our global supply chain, module yards, and project sites across the world. Bechtel’s integrated approach ensures a seamless flow of work from design to construction, providing unparalleled execution excellence.

Execution Excellence

Delivering the world’s landmark LNG projects

Bechtel is the global leader in design and construction of LNG liquefaction facilities. Our commitment, experience, and resource base provide benefits that are unparalleled in the industry as evidenced by a successful LNG track record spanning five decades.

When customers are faced with complex projects in remote areas, challenging environmental or social conditions, a need for international financing, or intricate logistics, they turn to Bechtel.

With 18 trains completed in the last 18 years and six trains in EPC today, we have generated thousands of local jobs, established award-winning training programs, achieved industry-leading safety records, and optimized construction performance. Such know-how and a high level of innovation are what Bechtel brings to our customers and their neighboring communities.

That’s why customers know they can count on Bechtel’s unmatched execution experience and dedication to superior plant performance. We are one of few firms in the world that can take your LNG project from concept to production.

We are with you every step of the way. That means continuous collaboration and alignment with customers through every phase of project execution.

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GLNG Curtis Island, Australia
truly is your single point of contact for all project design and construction needs. We self-perform the majority of the work at site including civil and earthworks, piping, structural, electrical and instrumentation, storage tanks, and marine infrastructure (jetties and breakwater structures).

Our self-perform model provides for control of the work process and execution, confidence in planning and scheduling, and the ability to better manage project risk — ensuring a cost competitive solution and certainty of outcome on our projects.

**Direct-Hire**

Our Industrial Relations team has access to experienced craft teams around the world. Because we prefer to hire our own skilled and experienced craft professionals, all Bechtel construction sites and module fabrication facilities follow the same safe work processes and commitment to quality, no matter the location.

**Modularization**

Bechtel's approach to modular design and construction sets us apart from other contractors. Whether a project requires full modularization or selected pre-assembly, we use the same suite of project management tools — from the engineering office, to the module yards, and to the plant sites for seamless execution.

In the planning phase, our engineering team works with you to assess the viability of modularization and determine the best approach to successful project delivery. Rigorous scope analysis provides options to optimize project cost and schedule. Our in-depth analysis includes a review of the traffic and logistics requirements by our experts who have first-hand experience with international open-water transport of some of the largest modules ever built.

During execution, Bechtel embeds experienced construction teams in selected yards to directly manage production, using our industry-leading processes for ethics, safety, quality, productivity, and schedule.

**Infrastructure**

Building on Bechtel’s self-perform model, we are able to leverage the experience and expertise in our Infrastructure business unit to execute critical systems including the civil and earthworks, marine and water systems. Our Civil Infrastructure division has delivered more than:

- 80 ports and harbors
- 27,700 km of highways
- 10,000 km of railway
- 30 major bridge projects
- 150 wastewater projects
- 2,000 buildings
- 100 tunnel projects
- 50 hydroelectric power plants
- 550 fossil-fired power units
- Numerous master plans for urban and industrial projects

**Tanks**

There is no need to subcontract this scope of work — Bechtel's in-house tank experts have the capability to design and build LNG storage and other field-erected tanks.

This team recently completed construction of four full containment LNG tanks in Australia and is currently building three more in British Columbia and on the US Gulf Coast.

**Commissioning and Start-up**

By working directly with our customers and operators from day one, we can provide overall management and control of the plant until turnover of the operating facility.

We incorporate the expertise of our commissioning and start-up professionals throughout the project life cycle so they can directly influence the work from start to finish and enable full transfer of knowledge to operations.

Bechtel's comprehensive, multi-yard modular fabrication strategy resulted in the safe, on-time delivery of 367 modules (244,000 MT) supporting simultaneous construction of four LNG megaprojects in Australia.
First-time LNG operators have continued to choose Bechtel for our EPC expertise, including Atlantic LNG for BP, Egyptian LNG for BG, Equatorial Guinea LNG for Marathon Oil, Gladstone LNG for Santos, and Sabine Pass LNG for Cheniere Energy.

But our commitment does not end with EPC execution. For all completed plants and facilities, Bechtel offers expansion, revamp, and debottlenecking projects as needed, and a full suite of services to assist LNG operators throughout the facility life cycle.

Our longtime relationship with ConocoPhillips and the Optimized Cascade® LNG process will continue to serve our customers and baseload LNG market requirements.

For midscale LNG, our alignment with Chart focuses on the application of the IPSMR® liquefaction technology for onshore and near-shore LNG solutions.

We have built a market share of over 105 MTPA, with 39 LNG trains completed and six under construction.

In 2013, the Bechtel-constructed Equatorial Guinea LNG plant achieved operational availability of 97% with a best ever 0.18% of unplanned downtime. The plant exceeded the company’s annual delivery goals by shipping 8 excess LNG cargoes. There were zero lost-time or recordable incidents.
Signature Projects

- **Corpus Christi Liquefaction**, Trains 1-2
  EPC, commissioning, start-up
  Texas, USA

- **Wheatstone LNG**, Trains 1-2
  EPC, commissioning, start-up
  Western Australia

- **Tilbury LNG Expansion Project**
  EPC, commissioning, start-up
  British Columbia, Canada

- **Sabine Pass Liquefaction**, Trains 1-5
  EPC, commissioning, start-up
  Louisiana, USA

- **Australia Pacific LNG**, Trains 1-2
  EPC, pre-commissioning
  Queensland, Australia

- **GLNG**, Trains 1-2,
  EPC, commissioning, start-up
  Queensland, Australia

- **Queensland Curtis LNG**, Trains 1-2
  EPC, commissioning, start-up
  Queensland, Australia

- **Angola LNG**, Train 1
  EPC, commissioning, start-up
  Zaire Province, Angola

- **Equatorial Guinea LNG**, Train 1
  EPC, commissioning, start-up
  Bioko Island, Equatorial Guinea

- **Darwin LNG**, Train 1
  EPC, commissioning, start-up
  Northern Territory, Australia

- **Egyptian LNG**, Trains 1-2
  EPC, commissioning, start-up
  Egypt

- **Atlantic LNG**, Trains 1-4
  EPC, commissioning, start-up, debottlenecking
  Trinidad and Tobago

**TERMINALS**

- **Sabine Pass LNG Terminal**, Phases 1 and 2
  EPC
  Louisiana, USA

- **Elba Island LNG Terminal**, USA
  EPC
  Georgia, USA

**THE EARLY YEARS**

- **Arun LNG**, Trains 1-3
  EPC
  Indonesia

- **Arzew GL1Z**
  EPC, renovation, financing
  Algeria

- **PT Badak Bontang**, Trains A-D
  EPC
  Indonesia

- **Das Island LNG**, Trains 1-2
  EPC, project management
  Abu Dhabi, UAE

- **Marsa El Braga LNG**, Trains 1-4
  Engineering and procurement
  Libya

- **Kenai LNG**, Train 1
  EPC
  Alaska, USA
Floating LNG

Bechtel can bring FLNG concepts to reality. Our strength in executing engineering, procurement, and construction projects allows us to optimize CAPEX and OPEX and realize significant value to our customers. Long-term relationships with key global vendors and access to yards in Southeast Asia and the Gulf of Mexico (GOM) are at the heart of our FLNG strategy.

When embarking on new frontiers, time and again Bechtel and our people have answered the challenge and delivered operational excellence to our customers. If you want reliable solutions done right the first time, where safety is a core value, cost and schedule are optimized, and technical know-how is second to none, look no further than Bechtel.

EPCIC
Integrated, self-perform execution process allows Bechtel to fully wrap FLNG projects and decrease interface risks.

Hull
Fit-for-project hull concepts using new built and converted hulls from Chinese, Korean, Japanese, or Singaporean yards.

FLNG Solutions

**0.5 – 3.0 MTPA**
- Converted LNG

**3.0 MTPA and greater**
- New Build Barge-Shape
- Proprietary Conversion Design
- New Build Ship-Shape

Topsides
Proposed topside fabrication in Southeast Asia or GOM. Our self-perform, cost-effective solution marries our 40 years of LNG excellence with demonstrated success with Asian and GOM fabricators.

Moorings and Risers
In-house design of mooring and riser system, driven by field location and integrated across Bechtel’s global systems and work processes.

Offloading LNG Transfer
Work with specialists (FMC Technologies) for both side-by-side and tandem options driven by the FLNG solution.

Containment
Existing relationships with containment providers, such as GTT and IHI. Depending on the FLNG solution, Bechtel will provide seamless integration of containment systems.

- Concept Study 5.3 MTPA
- Pre-FEED 5.3 MTPA
- Pre-FEED 2.0 MTPA
- Pre-FEED 1.2 MTPA
- Pre-FEED MTPA 1.2 & 1.8
- Concept Study 2.0 MTPA
- Pre-FEED 6.0 MTPA
- FEED Study 3.0 MTPA

Ongoing Projects

For 119 years, we have built a proud legacy based on our deep capabilities, global resources, and far-reaching capacity to design and build the most complex projects in the world.

No other contractor has executed six multi-train LNG projects at the same time for a total of 15 trains on two continents. Customers know they can depend on Bechtel to successfully deliver their projects.
For more information, please contact us:

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