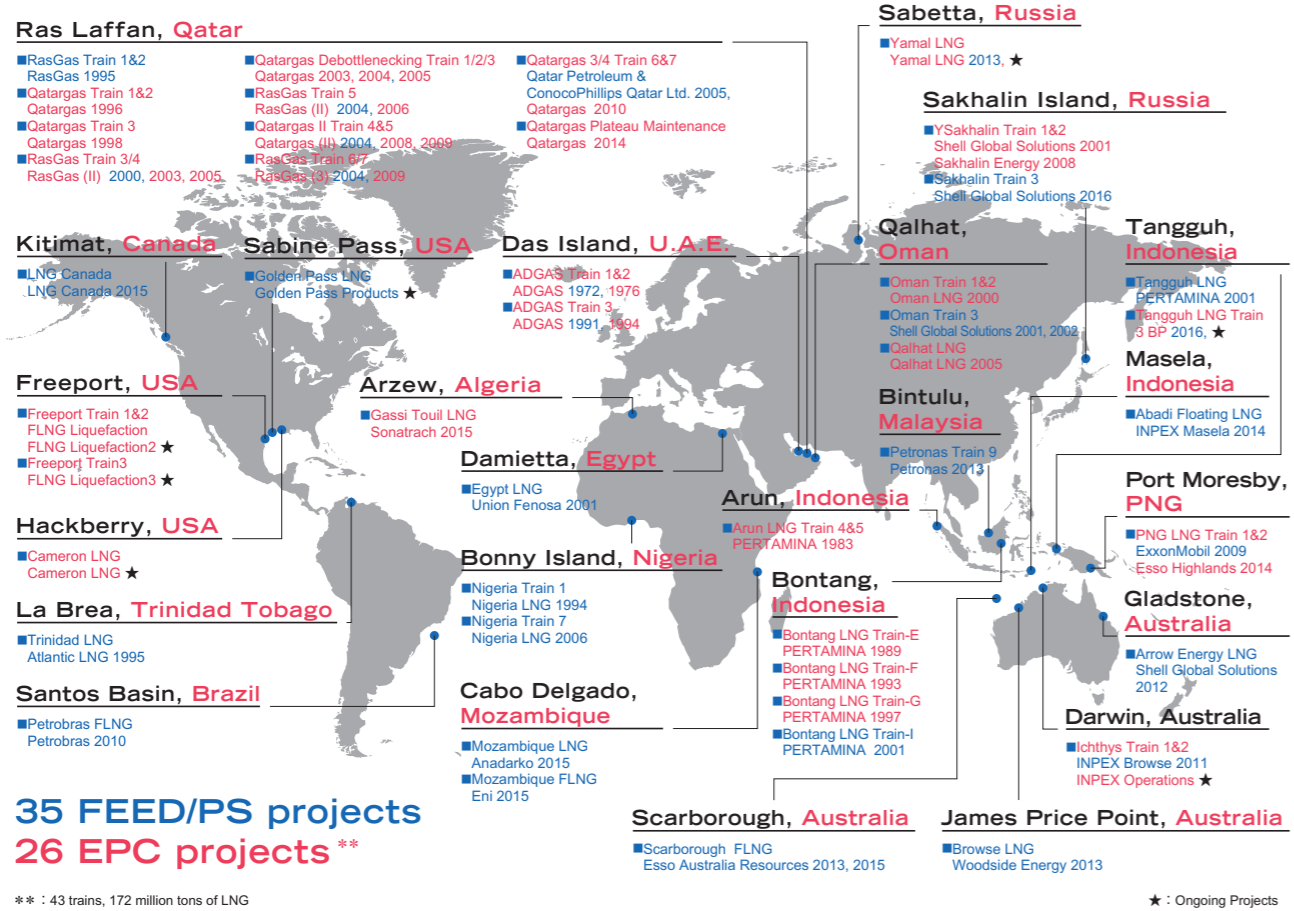


Chiyoda's World Wide LNG Project Experiences



CHIYODA Mid-Scale LNG

The solution for monetization of gas resource

Company Overview

Over 65 years of project experience in more than 100 countries



Chiyoda Corporation
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Selected in the FTSE4Good index series
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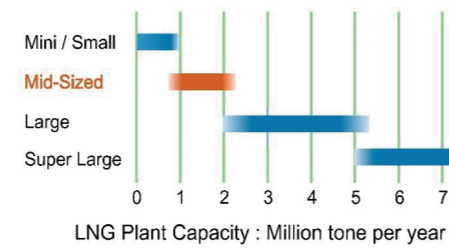
What is Mid-sized LNG?

Definitions for LNG plant size include small, mid and large plants. Many base load LNG plants for international LNG trading in recent years are large size having a production capacity of 3 to 5 million tons per annum (MTPA) to take advantage of economies of scale. Mega LNG plants of 8 MTPA production capacity are in operation in Qatar to liquefy the natural gas from the super large gas field.

Conversely, mini or small scale LNG plants of less than 1 MTPA production capacity are in operation for the LNG supply chain in local and domestic areas. An LNG peak shaving plant is one application of a mini LNG Plant.

Mid-sized LNG plants, with production capacities in the **1 to 2 MTPA range**, to develop medium size gas fields and medium size LNG value chains, have the following advantages;

- » Easier to step in due to smaller investment costs and smaller risks
- » Easier to secure long-term product off-takers
- » Increased chances of new player participation



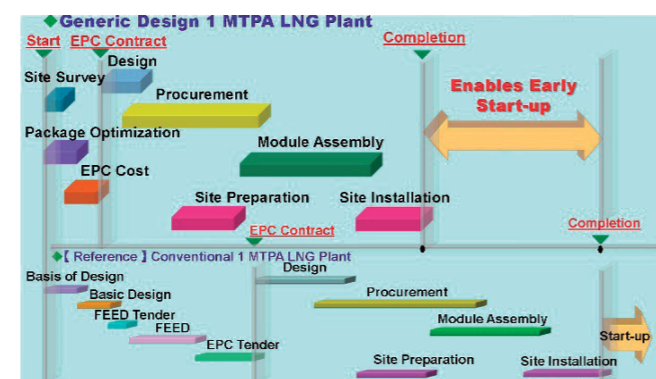
Fastest Project Delivery

LNG projects require many stages including long design, procurement and construction periods. Investors constantly seek to recover costs in the shortest time.

Chiyoda Mid-sized LNG delivers faster LNG production, **shortens payback periods** and **delivers additional gains** for investors, by:

- » Seamless Pre-EPC & EPC
- » Standardized Design
- » Modularized Design

Fast Path to Best Solution

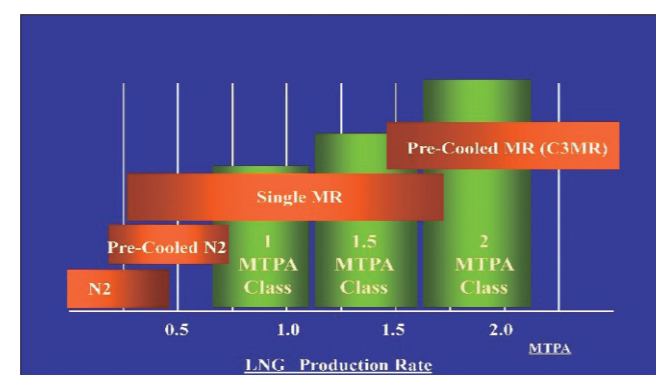


Standard Design

Chiyoda provides three standard design packages for mid-sized LNG plants, each delivering significant schedule improvements:

- » 1.0 MTPA Production Class
- » 1.5 MTPA Production Class
- » 2.0 MTPA Production Class

Liquefaction Process Technology



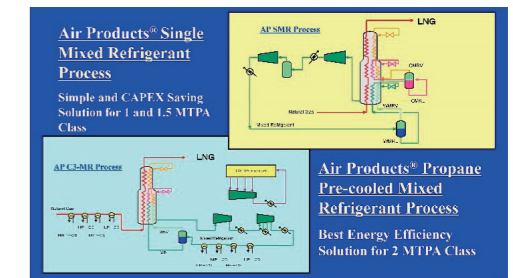
Each plant consists of a gas treating section (Inlet Facility), Acid Gas Removal, Dehydration, Mercury Removal and Liquefaction where the treated gas is liquefied by refrigeration. Suitable liquefaction technology is selected depending on production capacity.

For 1 and 1.5 MTPA plants, the Single Mixed Refrigerant (SMR) process is applied because of its simple plant configuration and low investment cost.

For 2 MTPA plants, a Propane Pre-cooled Mixed Refrigerant (C3-MR) process is applied because of its improved energy efficiency.

Both liquefaction processes are licensed by Air Products and Chemicals Inc. who supply a special heat exchanger for the liquefaction process.

Liquefaction Process Technology

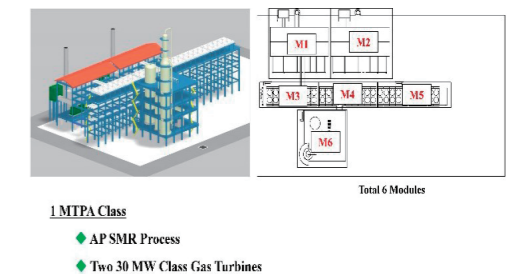


Modular Construction

Construction schedule and cost largely depend on the site location in terms of climate condition, regulations, environmental requirement, labor availability and cost etc. To minimize such uncertainties, Chiyoda provides Modular Construction design as a standard design package.

The liquefaction facility consists of a Compressor / Driver module, a Heat Exchanger module and Air-cooler/Pipe-rack modules

Liquefaction Facility 3D Model Modular Construction



Lowest CAPEX

Optimized design is embedded into the standard design package to realize the lowest CAPEX considering minimum plant layout, minimum pipping/cable length and minimum construction work volume without compromising HSSE standards, constructability, operability and maintainability. The standard design packages are developed on the basis of Chiyoda's original "LNG Design Standard & Specification", which are based on the philosophy of "fit for purpose" and "necessary and sufficient for safe and reliable continuous operation".

LNG Production, Receiving & Regasification Plants

Chiyoda provides comprehensive Support to Clients from Feasibility, FEED, EPC and O&M for the entire LNG business value chain.

LNG Business Value Chain

