



# Standard LNG Liquefaction

Where Green is the new Blue

DESIGN | ENGINEERING | MANUFACTURING | PROJECT MANAGEMENT | INSTALL | COMMISSIONING | TRAINING | LIFECYCLE MAINTENANCE



**BUILDING A SUSTAINABLE  
ENERGY FUTURE**



## ***Modular standard plant solutions for small-scale liquefaction***

*Chart's small-scale liquefaction systems enable our customers to bring LNG to the market faster and minimize execution risks.*

C50N — 50K gallons per day (80 tons per day) liquefaction capacity

C100N — 100K gallons per day (165 tons per day) liquefaction capacity

C250N — 250K gallons per day (400 tons per day) liquefaction capacity

- Complete modular plant solutions
- Basic plant design includes pre-treatment for pipeline quality gas
- Choice of liquefaction technology – typically Reverse Brayton Nitrogen Cycle but Single Mixed Refrigerant (SMR) is available where desired (C50MR, C100MR, C250MR).
- Electric or gas turbine drivers
- Principal equipment, including brazed aluminum heat exchangers, cold box, air coolers, cryogenic storage tanks, vaporization, vacuum jacketed pipe and load out skids is engineered and built in-house
- If required, plants can incorporate 'bolt on' modules to handle additional gas pre-treatment, including nitrogen rejection, natural gas liquids (NGL) recovery and removal of benzene, toluene, xylene, mercury, H<sub>2</sub>S and mercaptans



## Concept to Reality

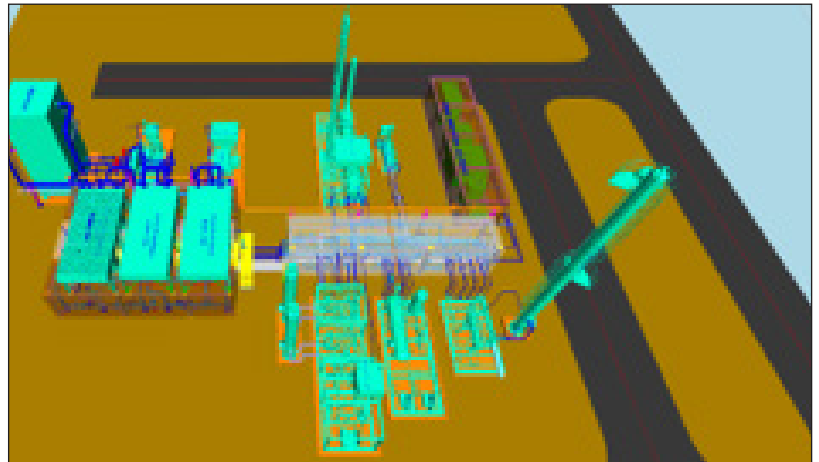
Project specific C50N LNG plant with 50K gal/day capacity. Pre-treatment, liquefaction system.



## Engineering, Procurement, Fabrication

A Chart standard LNG plant is a package solution comprising process technology, detailed mechanical design, Chart manufactured proprietary equipment and other specialized capital equipment.

- Standardized 'off the shelf' plant designs
- Truck transportable modules
- Maximized shop fabrication, minimized field construction
- Proven technology, minimal (re) engineering, low risk
- Simple plant operation
- Reduced maintenance downtime
- Flexibility to add storage capacity by incorporating additional modules
- Complete project lifecycle support

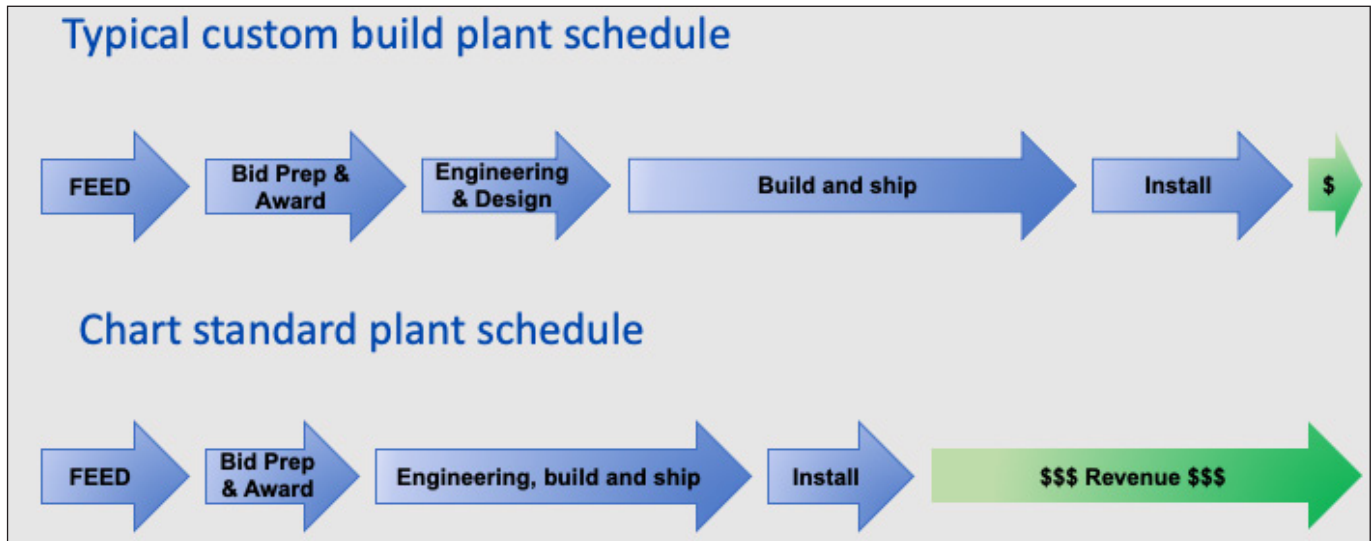


***Chart uses design, drawing and calculation templates than can be quickly optimized for project specific requirements such as gas compositions, local ambient conditions and other owner stipulated requirements.***



# Execution Improvement

Standard plant concept significantly reduces overall project schedule for earlier revenue recognition.

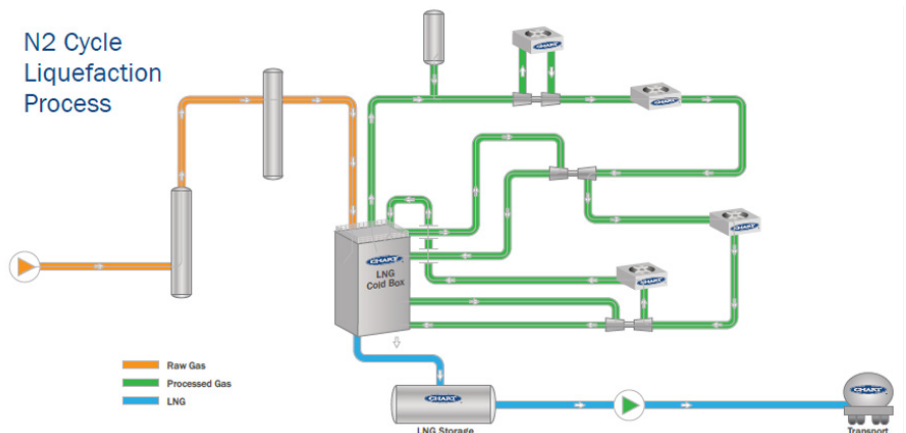


All inter-connecting piping is shop built and supplied with flanged connections to eliminate on-site cutting, welding, NDE and pressure testing requirements .

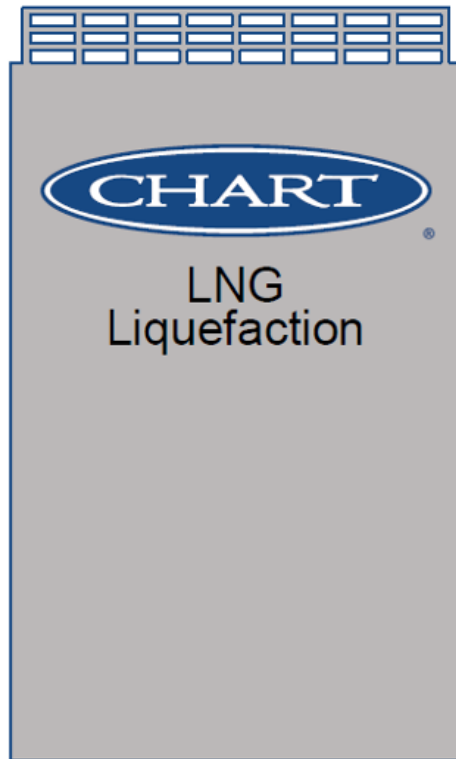
## Advancements in process and equipment efficiency

By optimizing the Reverse Brayton Cycle process technology with Chart's Standard Plant design while working with our key equipment suppliers, Chart small-scale liquefiers deliver greater efficiencies, lower cost and reduced schedule, particularly where pipeline gas is used as the feedstock.

- Greater operational flexibility
- Wide turndown range with proportional power savings
- Ability to process a wide range of feed gas compositions
- Standard off the shelf rotating equipment
- Smaller footprint



While still retaining the benefits of nitrogen cycle plants – proven, simple to operate, low risk, no on-site storage and mixing of liquid hydrocarbons.



**Vehicle Fueling Infrastructure** – heavy haulage, marine, rail

**Drilling Rigs/Fracturing** – diesel replacement for drilling rigs and other heavy horsepower industrial and agricultural machinery

**Virtual Pipeline** – providing remote areas, not linked to the natural gas pipeline grid, with LNG

**Monetizing Stranded Gas** – exploit small or remote gas reserves that are not commercially viable for custom built LNG facilities

**Environmental** – turning waste gas – coal mine methane and flare gas – into a revenue stream

*As part of our total scope Chart also engineers and builds the skids for LNG loading into trucks, ISO containers, railcars and ships.*

Chart's standard, modular small-scale LNG plants provide customers with a cost efficient, safe alternative to diesel and other distillate fuels.



**Chart Vacuum Technology®** is at the core of why Chart is recognized around the world as the premier supplier of cryogenic equipment. Our total scope incorporates in-house engineered and built vacuum jacketed pipework vaporizers and other equipment essential for the storage and transfer of liquid gases.





Engineered for Efficiency – Built to Last



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