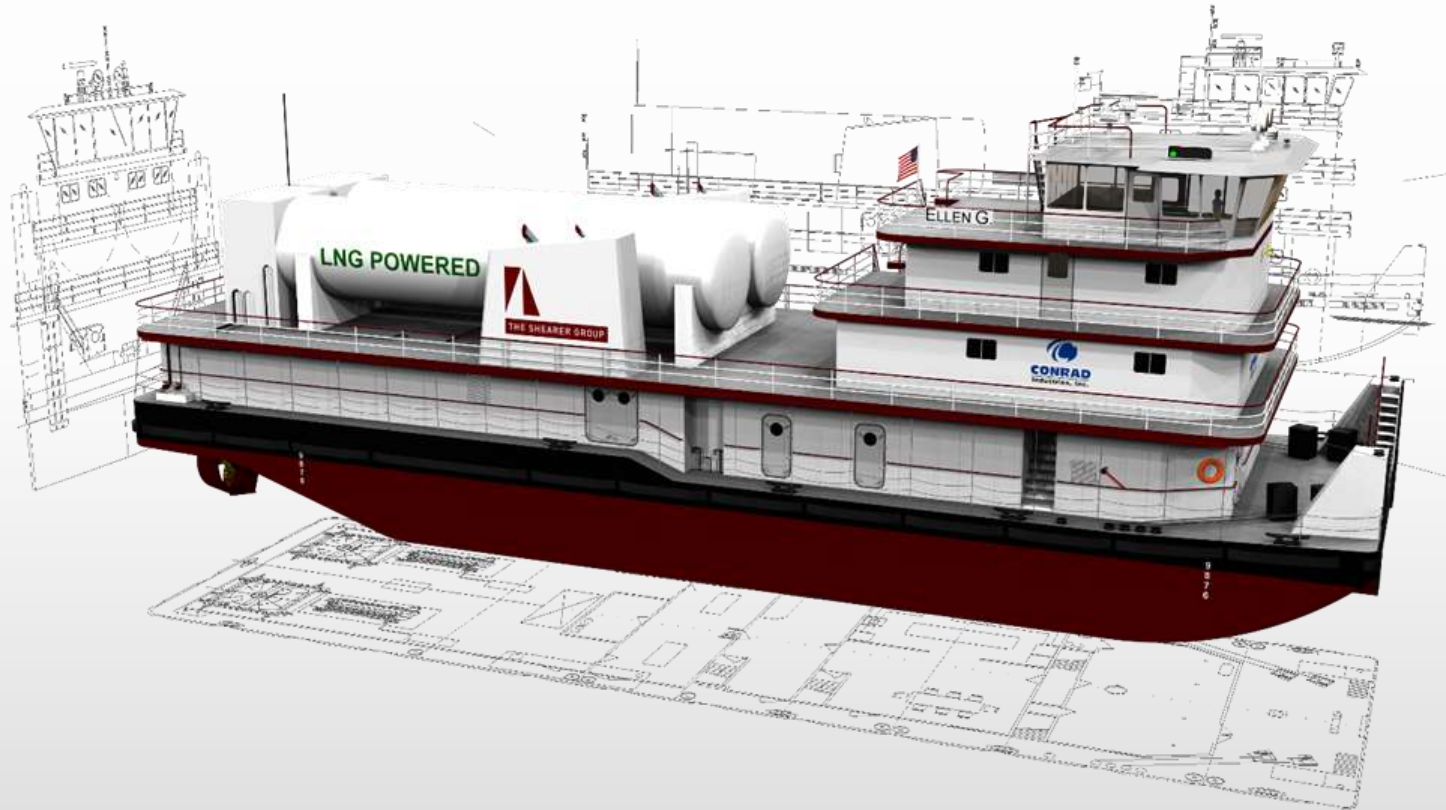




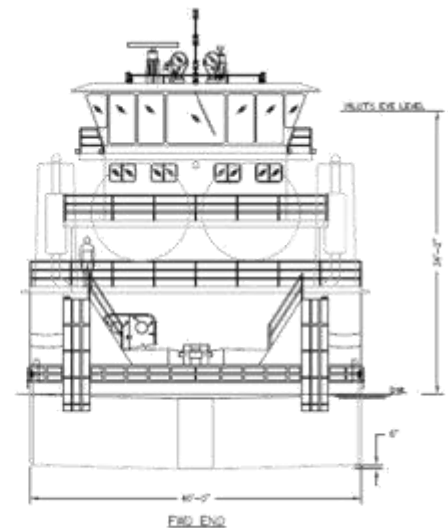
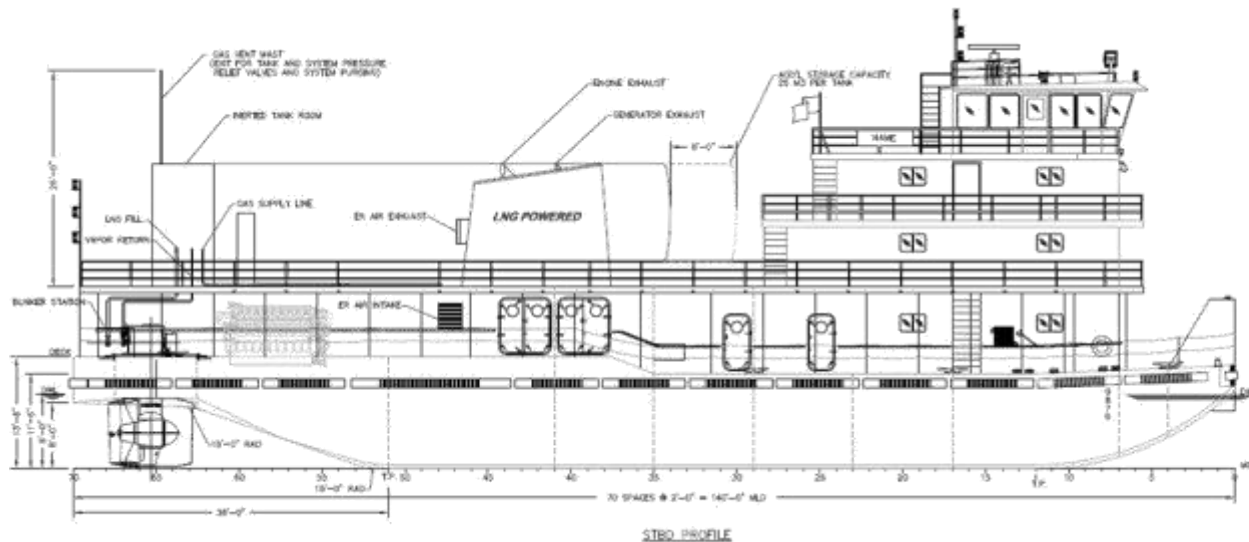
LNG as an Inland Waterways Fuel

4,200HP LNG Towboat



Principle Characteristics

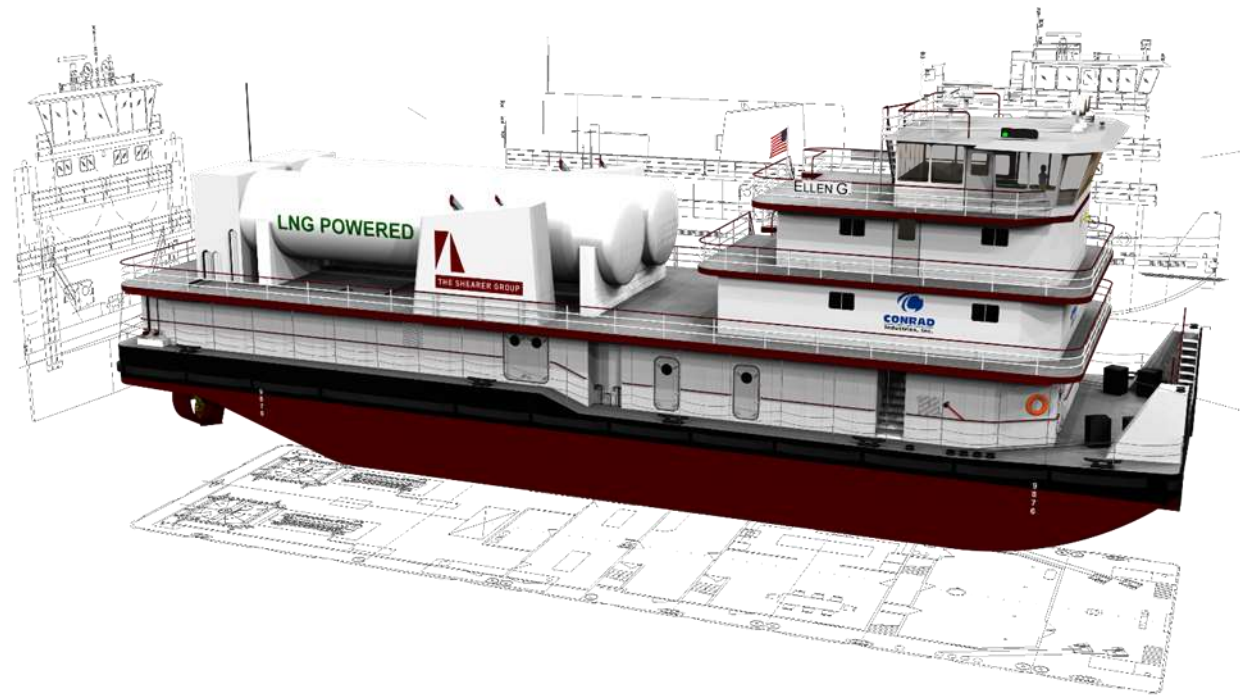
- | | | | |
|-------------------------|---------|-------------------------|----------------|
| • Length, molded | 140'-0" | • Liquefied Natural Gas | 50,200 gallons |
| • Beam, molded | 40'-0" | • Diesel Fuel | 50,500 gallons |
| • Depth, molded at side | 11'-6" | • Potable Water | 15,200 gallons |
| • Draft, design | 9'-0" | • Slop Oil | 1,250 gallons |
| | | • Lube Oil | 1,250 gallons |
| | | • Waste Water | 1,800 gallons |
| | | • Grey Water | 1,800 gallons |



Design Philosophy

Mitigate Design Risks while Maximizing Fuel Cost Reductions

- Proven Vessel Design
 - Based on industry leading Southern Towing Z-Drive design by TSGI
- Proven LNG Package
 - Wärtsilä's proven complete package of tanks, controls, and engines.



Proven Design

Conrad Shipyard, LLC. and The Shearer Group, Inc. (TSGI) worked together to develop the design of a Liquefied Natural Gas (LNG) powered towboat utilizing a proven design from TSGI.

The team was awarded an *“Approval in Principle”* (AIP) by the American Bureau of Shipping (ABS) for the design of the 4,200 horsepower Liquefied Natural Gas (LNG) towboat.

The Towboat is based on TSGI’s proven azimuth drive (z-drive) towboat design that debuted in 2008 with the “FRANK T. STEGBAUER”. To date, eight of these towboats have been built for Southern Towing Company since 2009. The original Southern boats helped pioneer the use of z-drives for brown water operations and have show significant fuel savings relative to conventional towboats.

Proven LNG Package

This new LNG powered towboat design ***capitalizes on Wartsila's proven dual fuel technology***. Wartsila's existing dual fuel engines are medium speed diesels.

It is anticipated that future engine developments will result in lighter and smaller high speed units. The design is flexible enough to allow for the use of either engine option as determined by the operator.

The Wartsila system specified is basically a smaller version of the system currently installed on the Harvey Gulf Multi Purpose Supply Vessels.

The economic and environmental benefits of using LNG as a fuel source for high horsepower applications like towboats are widely understood. The beauty of the TSGI design is that it ***marries these benefits with the proven benefits of utilizing z-drives*** on a towboat. These efficiencies compound, providing an owner with operational cost savings that exceed 35% of the cost of operating a conventional towboat.

LNG Package

- Two (2) Wartsila 9L20DF marine dual fuel engines
- Two (2) Wartsila gas valve units
- Two (2) Schottel SRP 1215 FP thruster units
- Nitrogen Storage System at 10 barg
- Two (2) Type C vacuum insulated pressure tanks
- Water Spray System with capacity of 450 gal/min
- Dry Chemical Powder Fire-Extinguishing System with capacity of 10 kg/s



Wartsila 20DF Engine

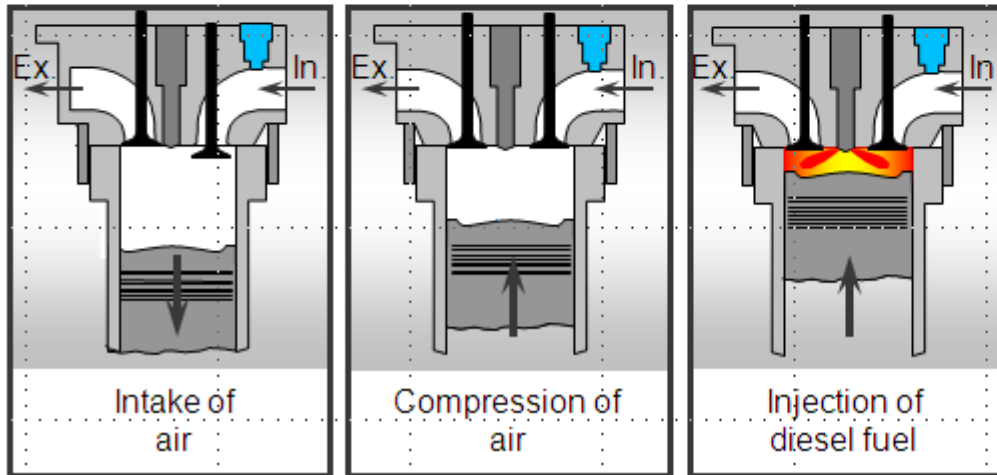
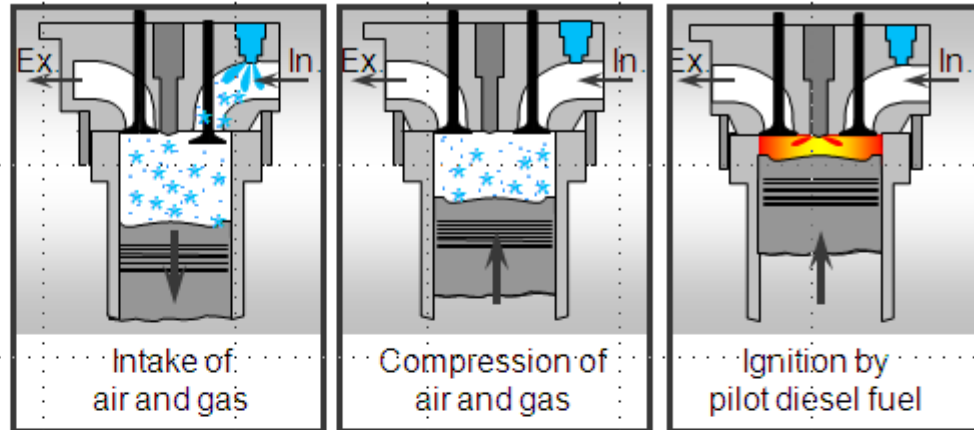
Dual Fuel Engine ... Otto & Diesel Operating Modes

Gas mode:

Otto principle

Low-pressure gas admission

Pilot diesel injection



Diesel mode

Diesel principle

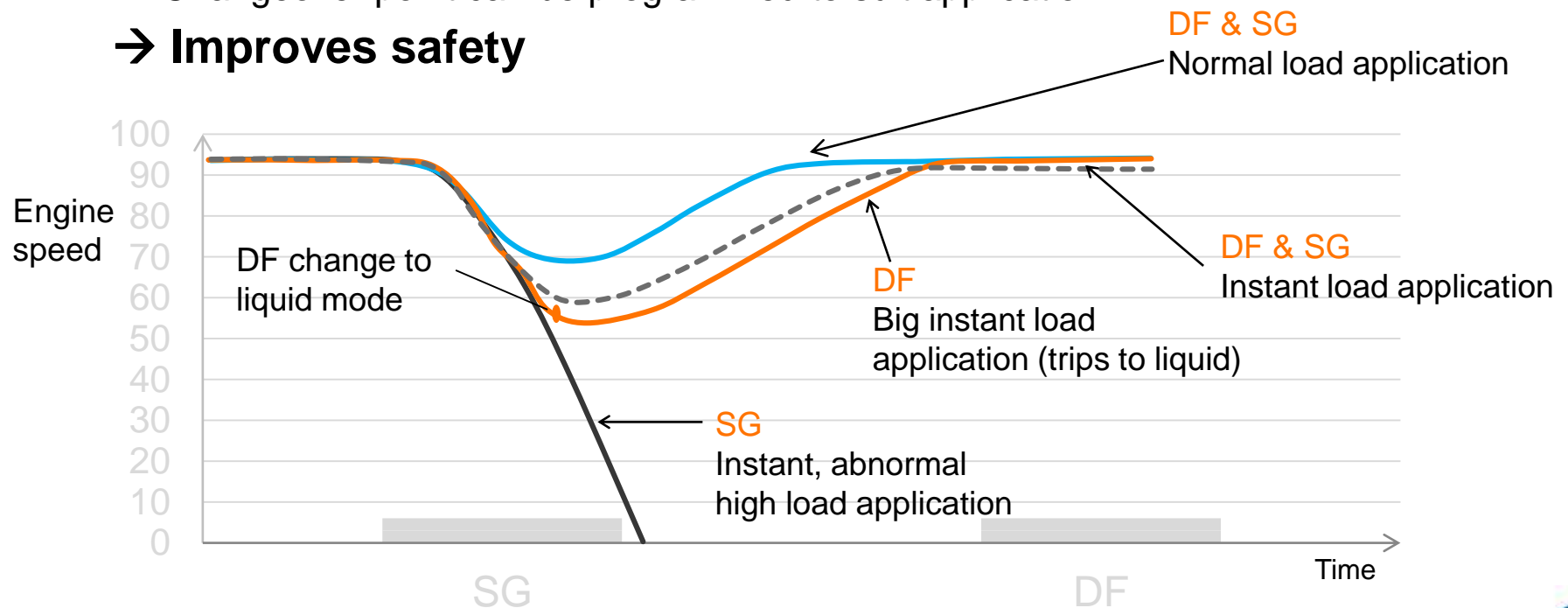
Diesel injection

Dual-Fuel advantages

Main advantages of the Dual-Fuel 4-stroke engine compared to SG (spark ignited):

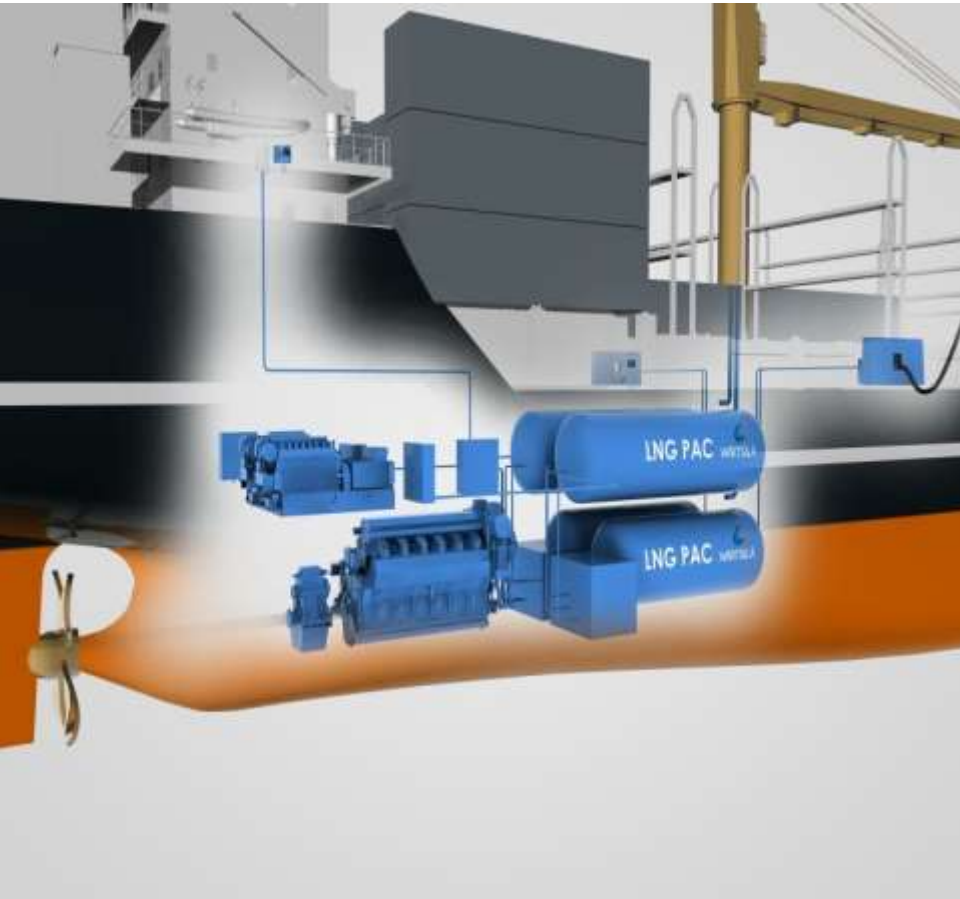
- Simple mechanical propulsion application
 - Full power available in both fuel operation modes
- Load application capability
 - Load application capability is equal between dual-fuel and SG
 - Dual-fuel can change to liquid fuel in case instant abnormal high load / unload requirement (no shut-down)
 - Changeover point can be programmed to suit application

→ Improves safety



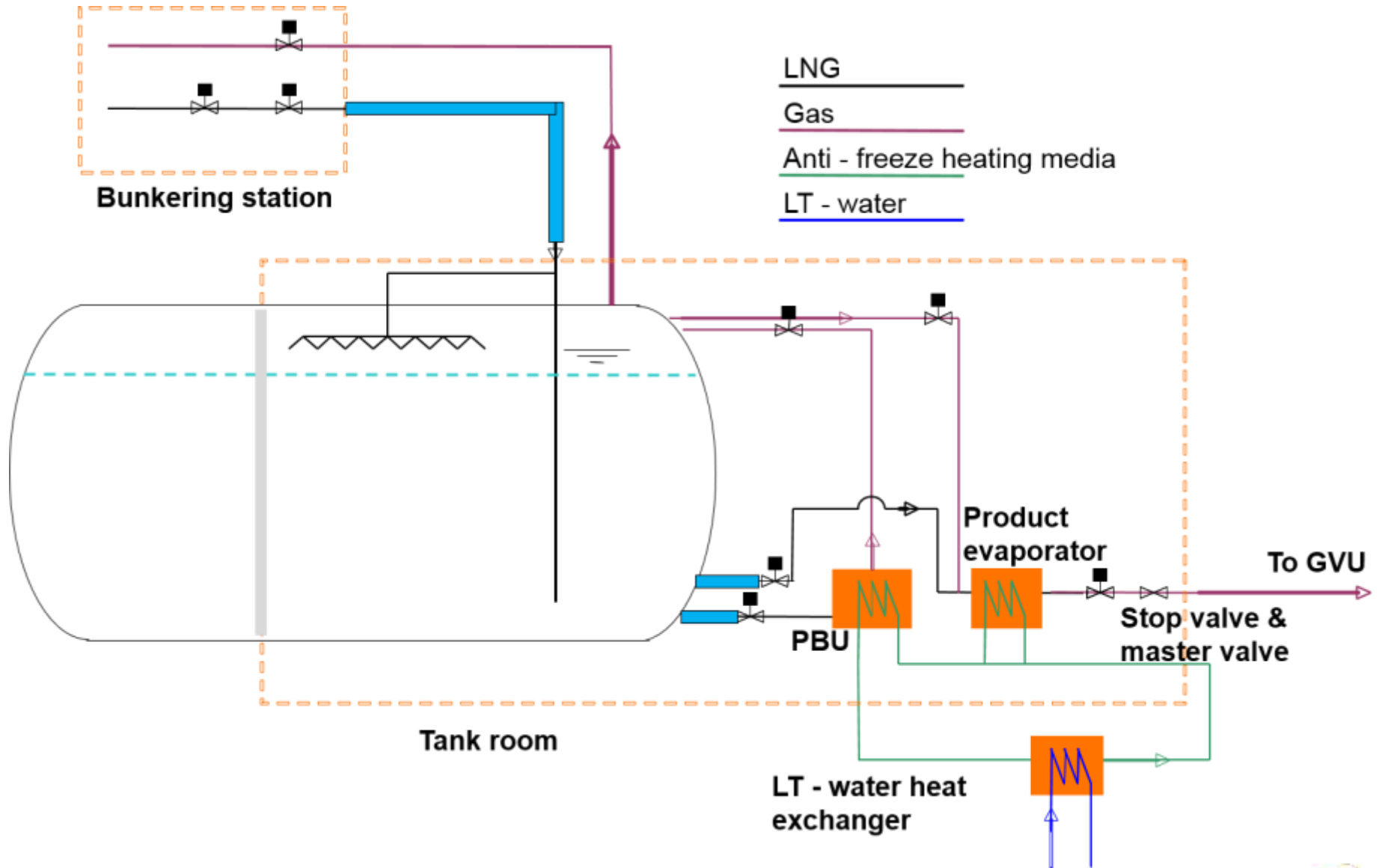
What is Wärtsilä LNGPac?

A complete and modularized solution for LNG fuelled ships



- LNG tank (pressurized - IMO type C)
- Bunker station with valves and connections to shore
- Vacuum insulated pipes (liquid LNG)
- Tank room
- Process skid (valves and evaporators)
- Gas Valve Unit (included in engine scope)
- Water/glycol system design
- Automation and controls
- Gas detection system (offered separately)
- Operating manual and class approval

LNGPac Simplified P&ID



Marine LNG Expertise



THE SHEARER GROUP INC.



BRISTOL HARBOR GROUP INC.

Two Companies, One Mission: To Create

Bristol Harbor Group, Inc. Awarded Task for Alternative Fuel (LNG/CNG) Initiative

Bristol, Rhode Island, December 10, 2013- Recently, Bristol Harbor Group, Inc. (BHGI) was awarded a task order for an Alternative Fuel (LNG/CNG) Initiative through its Indefinite Delivery Indefinite Quantity (IDIQ) Naval Architecture and Marine Engineering contract with the U.S. Army Corps of Engineers (USACE) Marine Design Center (MDC).

BHGI will analyze a subset of the USACE fleet regarding its suitability for conversion to Liquid Natural Gas (LNG) and/or Compressed Natural Gas (CNG) power. As part of that effort, sources of LNG or CNG will be investigated so that fuel availability can be considered in a down select process. BHGI was awarded this task order in September 2013 and it is expected to be completed by June 2014.

Once the analysis stage is complete, USACE will down select to a single vessel for further investigation. BHGI will then design the modification, and USACE will decide whether or not to move forward with physical modifications.

Quote: “Bristol Harbor Group, Inc. is very excited to be working with such a forward looking organization as Marine Design Center, who understands the potential benefits that LNG propulsion represents.”

Marine LNG Expertise

Bristol Harbor Group, Inc. and Conrad Shipyard, L.L.C. Receive ABS Approval in Principle for LNG Transport Barge

Bristol, Rhode Island, August 22, 2014 - Conrad Shipyard, L.L.C. engaged Bristol Harbor Group, Inc. (BHGI) to develop a 3,000 cubic meter Liquefied Natural Gas (LNG) transport barge utilizing a Bristol Harbor Group proven hull design built by Conrad. Bristol Harbor Group has been awarded an "Approval in Principle" (AIP) by the American Bureau of Shipping (ABS) for the design of the 3,000 cubic meter Liquefied Natural Gas (LNG) Transport Barge design on behalf of Conrad Shipyard, L.L.C. of Morgan City, Louisiana.

BHGI has a decade long relationship with Conrad Shipyard, L.L.C. that has traditionally focused on coastal liquid cargo barges from 26,000 BBL to 80,000 BBL. It is the 300' version of these successful double hull oil barges that serves as the basis for this LNG Transport Barge.

This new design will serve the purpose of primarily transporting LNG in blue water along the United States coastline. Storage containment consists of four Type C pressure tanks, all equally sized at 750 cubic meters. The tank design offers suitable hold times for cargo transport without the need for reliquefaction. The design is focused on constructability and ensuring cargo safety.



Marine LNG Expertise

WesPac to Build N. America's First LNG Bunker Barge (BHGI Design)

WesPac Midstream LLC (WesPac), a provider of energy infrastructure and liquefied natural gas (LNG) solutions, and its affiliate Clean Marine Energy LLC (CME), the global facilitator of tailored solutions for Emission Control Area (ECA) compliance, announced a construction contract with Conrad Orange Shipyard, Inc., a division of Conrad Shipyard, LLC, to build the first dedicated LNG bunker barge for the marine market in North America. This barge will be a critical supply chain component in ongoing efforts around the world to reduce the environmental impact of maritime activity through the conversion of ships to LNG.

The first 2,200 cubic meter (cbm) barge is expected to be delivered in early 2016 and planned to initially be deployed in Tacoma, Washington, to service shipowner Totem Ocean Trailer Express's Orca class RO/[RO vessels](#), in addition to other LNG-powered vessels. Subsequently the barge will be relocated to Jacksonville, Florida to serve TOTE's (parent company to Totem Ocean) newbuild Marlin class container vessels and other LNG-powered vessels in the Port of Jacksonville.

The LNG barge will feature one tank equipped with MARK III Flex cargo containment technology, from the French engineering and technology company GTT (Gaztransport & Technigaz), to be constructed by Conrad Orange Shipyard under GTT license. Bristol Harbor Group, Inc. will be responsible for the vessel's design, with the American Bureau for Shipping (ABS) acting as the classification society.

