GE COmbined Gas turbine Electric and Steam (COGES) System: By the Numbers

$1+ million per year savings over 20 years
The standard 174,000 cubic meter liquefied natural gas (LNG) carrier design using GE’s COmbined Gas turbine Electric and Steam (COGES) system offers savings calculated at about US$20 million over the life of the ship.

100% ship power and propulsion and 99% reliability
Efficient and reliable COGES system provides for all ship power and propulsion needs. The GE gas turbine is dual fuel capable and fuel flexible. For instance, it can operate either on an LNG carrier’s cargo of Boil Off Gas (BOG) or on Marine Gas Oil (MGO).

$400,000 per year cost OPEX reduction
With little crew required underway, COGES makes possible this savings via the reduction of four licensed crew members versus diesel-powered ships.

4,000m³ additional LNG cargo space
Hudong-Zhonghua Shipbuilding Co. Ltd.’s 178,000m³ COGES LNG carrier design will provide additional LNG cargo space versus a traditional 174,000m³ LNG carrier powered by dual fuel engines.

40% lighter with a 60% smaller footprint
A gas turbine-based system versus a medium speed diesel system produces the same power but within a much smaller space. Gas turbine propulsion arrangements onboard a ship require reduced structural steel to support the system within and free up more revenue generating payload space.
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0 methane slip, no pilot fuel and exhaust after treatment equipment
Along with these cost-savings, a COGES system has negligible lubricating oil consumption.

45 state rooms on *Queen Mary 2* cruise ship
Gas turbines placed inside the exhaust stack at the top of the world’s largest transatlantic liner opened up additional space in the hull below.

300 man-hours per year
Maintenance of the COGES system is easy, requiring minimal crew.

24 to 48 hours
The entire turbine can be removed onboard and replaced to reduce downtime, and with minimal interruption to ship operations.

90 marine gas turbines delivered for commercial ships
GE engines operate on 17 cruise ships (8 with COGES arrangements), 19 fast ferries, 8 fast cargo ships and 5 high-speed yachts in various propulsion configurations.

70 million hours
GE gas turbines operating on gas -- more than 21 MILLION of those hours on dual fuel-equipped engines -- both on and offshore.

35 navies globally
Some 1,500 GE marine gas turbines power nearly 600 military ships, logging some 15 million operating hours.

GE marine gas turbines meet Tier III IMO/Tier 4 United States Environmental Protection Agency NO\textsubscript{x} requirements today….all the while providing owners and operators with a flexible design and reduced life cycle costs.

GE’s 25.1 MW marine gas turbine

GE Aviation (Cincinnati, OH)
www.ge.com/marine

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