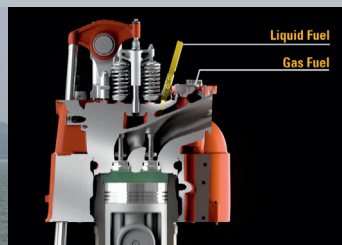


# Time to clean up

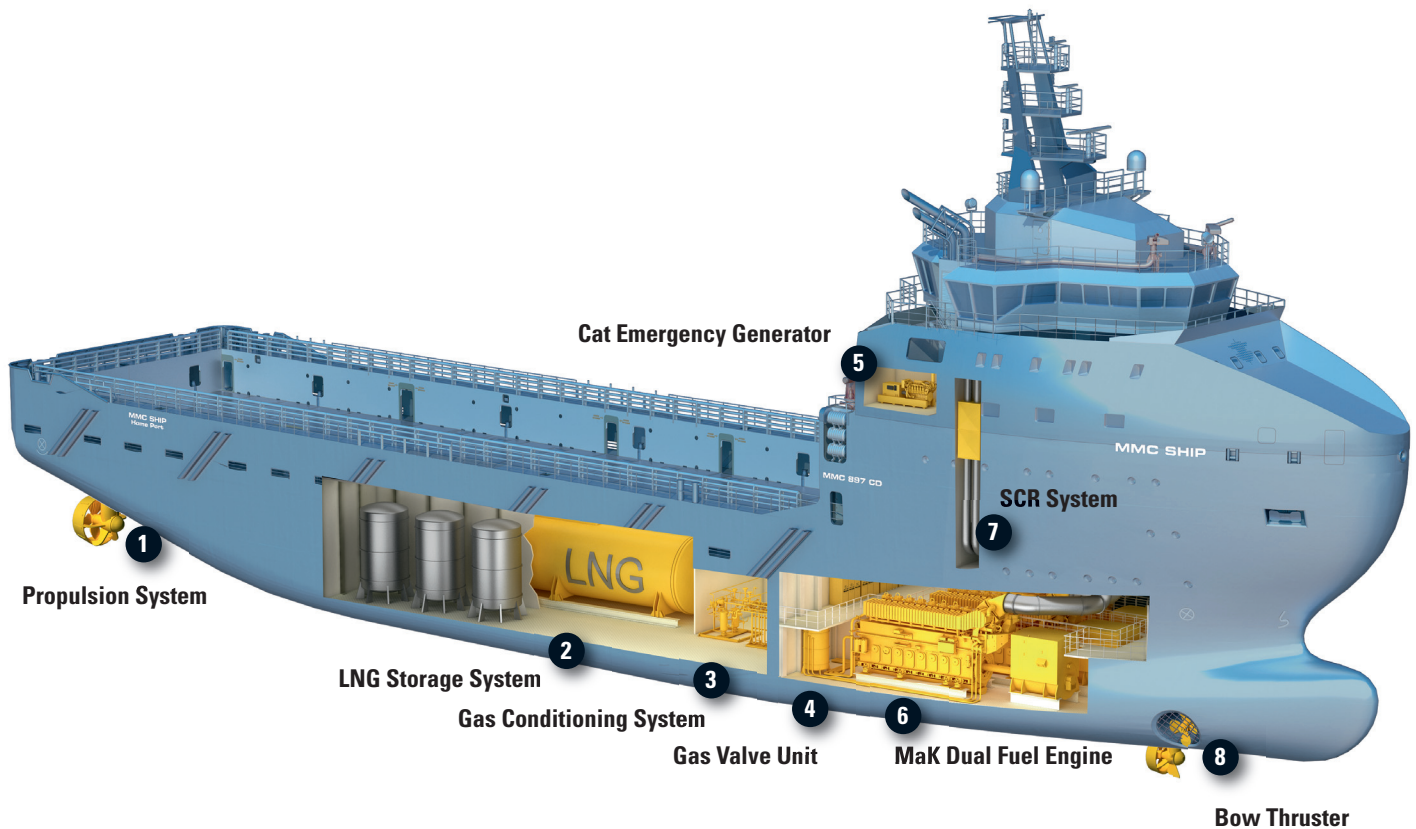
Gas System Technology



# Set a Course for the Future

## Meet emissions regulations and increase revenue

Reduce SO<sub>2</sub> and NO<sub>x</sub> emissions and prepare your vessel to ride the wave for the future. For newbuilds and upgrades alike, there's never been a better time to take advantage of gas as a marine fuel. Suppliers have provided sound logistic chains to ensure LNG's availability worldwide. Ship designs will support the technology. Adopters can depend on strong political support. From gas combustion engines and conditioning systems to bunkering and onboard storage, the technology is ready and reliable.



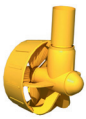
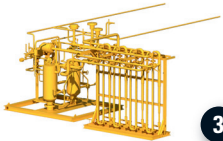
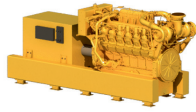
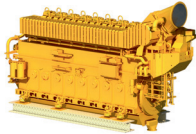
### Our service includes:

- Gas/dual fuel engines
- FEED study (Front End Engineering and Design study)
- A&I engineering
- Bunker station
- LNG storage tank
- Gas handling system
- Gas and LNG piping
- Gas valve unit
- Control and monitoring
- Safety systems



# Not components. complete solutions

As an industry leader in the development of dual fuel engine technology, we bring over 90 years' experience with gas engines to bear in designing and integrating complete solutions – from propellers to engines and all onboard gas systems. Whether for cruise ships, container vessels, or tugboats, you can count on us to provide the best solution for your specific application. And we back it up with the best support network in the world, our strong dealer organization.

- **1 Propulsion System**  
CP propeller 500 kW to 30,000 kW.  
Thruster 200 kW to 3,600 kW.  
Azimuth thruster 500 kW to 3,500 kW.
- **2 LNG Storage System**  
According specific customer and vessel demand.
- **3 Gas Conditioning System**  
Optimized for all installed gas consumers.
- **4 Gas Valve Unit**  
Adopted for the specific gas consumer.
- **5 Cat Emergency Generator**  
Up to 940 kWe.  
Cat auxiliary generator sets (gas and Dynamic Gas Blending/DGB) up to 1,550 kWe.
- **6 MaK Dual Fuel Engine**  
Up to 15,440 kW.
- **7 SCR System**  
Adopted for the specific engine.
- **8 Bow Thruster**  
200 kW to 3,600 kW.

## Retrofit Conversion

**Caterpillar Marine is currently underway on another dual fuel engine retrofit conversion onboard the 472 foot Fure West tanker, owned by Furetank Rederi A/B.**

The MaK M 43 C diesel engine onboard the tanker will be retrofitted in hull to the 7 cylinder M 46 dual fuel platform, with each cylinder offering 900 kW of rated power. Additionally, Caterpillar Marine is also supplying the complete gas system for the tanker, including bunker stations, two LNG tanks measuring 4.15 meters by 24 meters and the vaporizer as well as the engineering for the integration. Caterpillar will be supported by its strong local dealer network for the whole duration of the project.



## The Power You Need.

The Cat® and MaK brands of Caterpillar Marine offer premier high- and medium-speed propulsion, auxiliary, and generator set solutions, as well as optional dual fuel, diesel-electric, and hybrid system configurations. With the launch of Caterpillar Propulsion our comprehensive and evolving product line gives customers one source for the most extensive engine power range available, complete propulsion systems, controllable pitch propellers, transverse and azimuth thrusters, and controls. Cat and MaK products and technologies are proven reliable and are built to last in all marine applications, demonstrating superior productivity and the lowest lifecycle cost.

The Cat Global Dealer Network, more than 2,200 global service locations strong, ensures that you'll have local expertise, highly-trained technicians, rapid parts delivery, and the proper equipment and services to keep you working – anytime, anywhere.

Construction, term, or repower financing through Cat Financial helps you make Cat and MaK power a reality. With our knowledge of customer needs, local markets, and legal and regulatory requirements, we've been providing tailored financing solutions and exceeding expectations since our start in 1986.

For more information and to find your local dealer, please visit our website: [www.cat.com/marine](http://www.cat.com/marine)

Visit Cat Financial at: [www.finance.cat.com/power](http://www.finance.cat.com/power)

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# MaK