



Press release
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**Use of liquefied natural gas as an alternative to heavy fuel oil
for maritime transportation:
ENGIE signs a first Memorandum of Understanding with CMA CGM**

- The agreement focuses on a study about liquefied natural gas (LNG) uses.
- It follows up CMA CGM research programs to design LNG powered container vessels.
- ENGIE is a pioneer in the development of LNG as a marine fuel.

CMA CGM and ENGIE announce today the signing of a Memorandum of Understanding to promote LNG as the marine fuel for tomorrow's container vessels.

Farid Salem, Executive Officer of the CMA CGM Group, and Isabelle Kocher, CEO of ENGIE, signed the agreement today at the Marseille headquarters of CMA CGM.

The agreement focuses on:

- A joint CMA CGM and ENGIE technical and economic study on LNG as a fuel for tomorrow's container ships;
- A study about the development of engineering specifications for a bunkering vessel¹ adapted to LNG powered container ships, so as to improve over time the logistics chain necessary to fueling this type of vessels, thus promoting their deployment.

On the occasion of the signing, Isabelle Kocher declared: *"We are most pleased with this cooperation with CMA CGM, which is a leader of maritime transport at the international level. For ENGIE, natural gas is a key element in the energy transition. The Group is actively engaged in the development of the diverse uses of retail LNG, especially for a greener mobility. Ultimately, LNG as marine fuel could lead to a massive reduction in pollutant emissions."*

According to Farid Salem, Executive Officer of the CMA CGM Group, *"Liquefied natural gas has many environmental advantages. It is undoubtedly the fuel of the future of the maritime shipping industry that will progressively substitute heavy fuel oil over the next few decades. CMA CGM wishes to be a pioneer in this area. And with the agreement with ENGIE this allows the company to move one step closer."*

LNG use offers many environmental advantages compared to the use of heavy fuel oil: it significantly reduces CO₂ emissions, eliminates sulfur oxide (SOx) emissions, and drastically reduces nitrogen oxides (NOx) and particulate matters.

The two groups consider that the use of LNG as a marine fuel is destined to expand in the near future and intend to be active players in this development.

This agreement rounds out the research program undertaken since 2011 by CMA CGM to design ever more environment-friendly large capacity container ships. In that regard, CMA CGM participates in two programs:

¹ Vessel supplying fuel for use by ships.



- The first is about the development of a “Dual-Fuel” large capacity container ship whose propulsion system offers to choose between using liquefied natural gas or fuel oil only. Launched in 2011 by CMA CGM, through its subsidiary CMA Ships, in partnership with the Korean shipbuilder DSME, the design of this vessel, as a proof of its success, was approved by Bureau Veritas.
- The second project aims at designing a vessel propelled without fuel using a combined gas and steam turbine system to power this ultra large container ship. The project was launched in 2015 in partnership with DNV GL, GTT, ABB, Caterpillar, and OMT.

ENGIE manages a large LNG supply portfolio and has a significant presence in regasification terminals in Europe and worldwide. In 2014, the Group initiated a partnership with Mitsubishi Corporation and NYK in LNG marine fuel development and ordered the first purpose-built LNG bunkering vessel in the market. Delivery to their first customer is expected in early 2017 at Zeebrugge, Belgium. To go even further, last September the three groups launched a joint new brand, [Gas4Sea](#), offering a clean, reliable, safe, and cost-effective ship-to-ship supply of LNG for the maritime sector.

About CMA CGM:

CMA CGM, founded and led by Jacques R. Saadé is a leading worldwide shipping group.

Its 536 vessels call more than 420 ports in the world, on all 5 continents. In 2015, they carried 18 million TEUs (twenty-foot equivalent units).*

CMA CGM has grown continuously, and has been constantly innovating to offer its clients new sea, land and logistics solutions.

With a presence in 160 countries, through its 600 agencies network, the Group employs 29,000 people worldwide, including 2,400 in its headquarter in Marseilles.

**Combined proforma CMA CGM and NOL*

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About ENGIE:

ENGIE develops its businesses (power, natural gas, energy services) around a model based on responsible growth to take on the major challenges of energy's transition to a low-carbon economy: access to sustainable energy, climate-change mitigation and adaptation and the rational use of resources. The Group provides individuals, cities and businesses with highly efficient and innovative solutions largely based on its expertise in four key sectors: renewable energy, energy efficiency, liquefied natural gas and digital technology. ENGIE employs 154,950 people worldwide and achieved revenues of €69.9 billion in 2015. The Group is listed on the Paris and Brussels stock exchanges (ENGI) and is represented in the main international indices: CAC 40, BEL 20, DJ Euro Stoxx 50, Euronext 100, FTSE Eurotop 100, MSCI Europe, DJSI World, DJSI Europe and Euronext Vigeo (World 120, Eurozone 120, Europe 120 and France 20).

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