DECARBONIZATION STRATEGY 2030-2050

CO2 EMISSIONS AND ENERGY PERFORMANCE

On 2nd June 2020, in front of the Global Compact of the United Nations, [redacted] CMA CGM Chief Executive Officer committed to reaching carbon neutrality for all Group activities by 2050.

- In 2019, CMA CGM's global (maritime) CO2 emissions reached 24,3 million tons
- In 2019, these global emissions registered a 6% decrease compared to 2018
- Since 2008, the energy efficiency of ships has improved by 48%, to reach 54g CO2/TEU-km

As part of its C02 reporting obligations, CMA CGM declared:

- Monitoring, Reporting & Verification (EU MRV): 3,2 million tons of CO2 for our owned fleet
- Data Collection System (IMO DCS): 11,6 million tons of CO2 for our owned fleet
- In 2019, these global emissions registered a 6% decrease compared to 2018

DECARBONIZATION INITIATIVES

Over the past ten years, the Group has favored solutions aiming to improve the hydrodynamic performance of ships, the efficiency of engines and the optimization of routes and speed.

- Bulbus retrofit to adapt them to ship operations, propeller switch, design of more efficient bows in strong swell, hull painting reducing friction.
- Heat recovery for power generators with boilers
- Speed reduction (implementation of slow steaming from 20 to 18 knots) and optimization of ship routing, with the help of our fleet and navigation center, which analyzes the most energy efficient routes for main shipping lanes.

Most ships in our fleet have benefited from these investments and improvements. We plan to pursue our efforts taking into account the gains we can achieve and the frequency of ships' technical stops.

An ambitious Research and Development (R&D) program is currently being deployed. It will enable the following :

- Enhancing of the performance and emissions of LNG engines, which are still very recent on our ships,
- Improving the real-time tracking of ships to pinpoint any overconsumption and optimize all our marine operations: reduction of time spent at berth, to decrease the speed between two terminals, optimization of routes taking into account environmental implications, adjustment of our fleet to reduce its footprint.

Today, the Group uses alternative fuels. They will make up at least 10% of our energy mix by 2022.

- Liquefied natural gas (LNG): 26 vessels in fleet by 2022, including nine 23,000 TEU ships. LNG appears to be the best transition solution available today:
  - It emits almost no air pollutants (-99% SOx and PM; - 85% Nox)
  - It reduces CO2 emissions by about 15% (Tank to Wake)
  - It paves the way for biogas (CMA CGM will carry out an LBG test by the end of 2020) and synthetic gas with very low emissions

- 2nd generation biofuels: in 2020, the Group ordered several tens of thousands of tons of biodiesel from recycled vegetable oils, which will enable its ships to cover a million kilometers.

Tomorrow, the Group will rely on zero-emission solutions for which it is investing heavily in research and development.

- An energy modeling tool for the fleet will make it possible, from 2020 onwards, to identify the best energy mix to achieve the IMO 2050 objectives, using available technologies and developing hypotheses, so as to program the investments to be made;
- A pilot “zero emission” ship by 2027 carrying a mix of technologies:
  - Hydrogen: CMA CGM responded to IPCEI on hydrogen opened by the European Commission. The Group has entered into a strategic partnership with the laboratory vessel Energy Observer, which will allow the testing of a combination of zero emission technologies in real conditions on a small scale.
  - Wind assistance: rigid sail technology developed by the French company VPLP for example
- In-depth LCA studies on other alternative fuels: Amoniac, Methanol (with partners such as IFP Energies Nouvelles and the Commissariat à l'énergie atomique et aux énergies alternatives - CEA and other experts in this field to ensure the best technological and environmental choices)
- Improvement of the energy performance of port terminals: French Smart Port in Med project - the startup Helion was selected by CMA CGM to develop a device for supplying Reefer containers with green hydrogen

THE CONTRIBUTION OF THE REGULATORY FRAMEWORK

The International Maritime Organization:

- The CMA CGM Group is satisfied with the adoption by IMO member countries of binding emission reduction targets for 2030 and 2050
- In relation with the IMO 2030 objective, short-term measures are currently under discussion and should be adopted for entry into force in 2023
- The Energy Efficiency for Existing Ship Index (EEXI) and the Carbon Intensity Indicators (CII) seem to be extremely restrictive for the container shipping sector.
- They do not apply to fleets but to each vessel
- Simulations carried out by CMA CGM experts show that recent ships that have benefited from all the most up to date innovations would not meet the criteria
- The only viable solution to meet these requirements would be operational measures to reduce speeds or curb engines, which for transporting the same volume of goods would require increasing the number of vessels, in turn reducing the expected environmental gains.

We would like to draw your attention to the fact that poor implementation of the IMO rules could have the opposite effect on reducing emissions. If to achieve the objectives the speed of ships must be significantly reduced, maritime transport will no longer be competitive compared to land transport (by truck for regional transport or by train over longer distances). These two means of transport are far less efficient (per ton of goods transported per kilometer) than maritime transport and would therefore emit much more CO2.

The European Union

- CMA CGM supports the Green Deal objectives announced by the European Commission.
- Extension of the ETS to maritime transport:
  - It is likely to introduce unfair competition, disadvantaging European shipowners vis-à-vis their foreign counterparts
  - The Group, like the French Government, favors a global solution, negotiated within the International Maritime Organization (IMO)
  - It is essential that an ETS is accompanied by a European carbon adjustment mechanism at the borders (carbon tax), to ensure a level-playing field for all global companies
  - Finally, the public revenue stream from the ETS must help finance R&D in the maritime sector, in order to enable a real technological breakthrough

• Operational efficiency standard

  - It would impose a 40% improvement in energy efficiency by 2030 on a 2018 basis
  - A 2018 baseline is an easy solution for the EU since it coincides with the entry into force of the MRV mechanism.
  - It would effectively exclude all efforts made over the past ten years.

FuelEU

- Revising the directives on energy taxation or infrastructure for alternative fuels can be an effective lever
- The system put in place in the Netherlands, which requires oil companies to offer a share of biofuels, includes maritime transport. Today, biodiesel can be bought in Rotterdam at the same price as heavy fuel oil. A generalization of this system could help develop maritime biofuels.