



GASTON DÉRY
STRATEGIC ADVISOR
BIOÉNERGIE AE CÔTE-NORD

Question 1: Rémabec wants to revitalize the Bioénergie AE Côte-Nord plant by prioritizing the maritime sector as a consumer of the biofuel that could be produced there. Why focus on the Québec maritime sector in the context of this resumption of activities in Port-Cartier?

Answer 1: First off, let me point out that global warming is no longer a prediction but a worldwide reality.

Québec and Canada have made commitments to reduce greenhouse gas (GHG) emissions and implement green economic recovery.

Biofuels produced using forest biomass are an asset for enabling Québec to become a bioenergy leader. In its current phase, the biofuel produced at Port-Cartier can easily become a solution, in the medium term, for reducing heavy fuel oil volumes.

The maritime industry is a key sector that has set itself the goal of achieving carbon neutrality by 2050. Using biofuels to run ships is one of the high-potential means of reaching this goal. In a meeting that took the form of a webinar organized by Atelier MeRLIN in May 2022, we were able to put this avenue, which was also addressed at the Assises québécoises

du secteur maritime (Québec maritime sector conference) and Greentech, into perspective.

Question 2: The maritime industry will face many challenges as it strives to become carbon neutral. How can the biofuel produced in the Bioénergie AE Côte-Nord plant help the industry achieve this goal?

Answer 2: A few years ago, certain maritime companies began testing the use of biodiesels with conclusive results. However, supply is the main issue.

The pyrolysis oil (renewable fuel oil - RFO) produced at Port-Cartier was tested by Arcelor Mittal (2015) - investments bordered on \$2 million - and allowed this alternative fuel to be used in one of a furnace's nine burners. Some 1.373 ML of RFO were burned in this zone, replacing 0.688 ML of heavy fuel oil (HFO) and, therefore, reducing GHG emissions by 2 166 MT.

Tests currently under way have found that RFO can safely replace HFO in these zones. The Arcelor (Port-Cartier) process engineer has accepted RFO as a substitute. Bioénergie AE Côte-Nord signed a major pyrolysis oil supply contract with Arcelor Mittal last April.

In the maritime sector per se, tests conducted by a US laboratory and by Serex in Amqui to assess use of the Port-Cartier plant's biofuel on board ships have also shown interesting results. By continuing the test phase, we can continue development and become a solution to biofuel supply problems in Québec for the maritime industry.

Question 3: Certain steps still need to be completed before arriving at a partnership enabling biofuels to be used on board certain ships. What are they?

Answer 3: First, we have to continue operational research to be able to clearly define the conditions for using pyrolysis oils and determine how they perform with heavy fuel oil. A research protocol is under way with Serex, IMAR and Bioénergie AE Côte-Nord.

The Québec maritime industry would do well to participate in developing this strong potential. The research protocol has allowed us to begin testing aimed at finding a concrete, efficient use of biofuel for ships. This situation is promising for achieving the maritime industry's goals.

Question 4: Forestry and the maritime sector are two important parts of the Québec economy. Do you believe that this project has the potential to become a model for collaboration thereby making it possible (by recovering timber waste) to create a type of circular economy?

Answer 4: Québec has a rich industrial sector. The forest industry is active throughout Québec and generates substantial economic spinoffs for it. The livelihood of more than 145 Québec

municipalities depends on the forest industry. The maritime industry ensures indispensable supply logistics for many key products that are important for citizens, companies, etc.

By having the maritime industry as an outlet for biofuel, we breathe new life into the forest industry, which must seek new markets in the current world context.

Environmentally speaking, we are repurposing forest by-products and promoting their use locally, a prime example of a circular economy. This avenue gives the maritime industry access to a high-quality, home-grown product.

Collaboration between these two key Québec industries is definitely a sign of the willingness to contribute to government goals of reducing GHG emissions and to benefit society as a whole.

Such collaboration could enable the forestry sector to recover its waste to facilitate the maritime sector's energy transition. This reflects a significant sense of responsibility on the part of both of these key Québec industries while highlighting the concept of a circular economy.

About Bioénergie AE Côte-Nord

The Bioénergie AE Côte-Nord (AECN) plant, which is a SODES member, results from a partnership between Arbec Lumber, Groupe Rémabec and Ensyn Technologies.

A world-class operation, located next to the ARBEC Inc. sawmill in Port-Cartier, it is the first to use Rapid Thermal Processing (RTPMC) pyrolysis technology to convert softwood log harvesting residues and ARBEC sawmill by-

products to renewable biofuels. This pyrolysis process (RTPMC) is the result of almost 20 years of research and constant improvement. Note that the plant necessitated investments of more than \$110 M.

Gaston Déry, who was a speaker at Québec Marine Day in October 2021, is currently a strategic advisor for Bioénergie AE Côte-Nord helping the company to promote its forest by-product-based biofuel production plant and to forge ties with the maritime industry, which strives to achieve carbon neutrality by 2050, notably through biofuel use.

