

Shared heavy trucking in urban areas

Summary of the first report (Literature review and field interviews)

Introduction and context

In 2019, the transportation sector in Quebec generated 43% of the province's greenhouse gas (GHG) emissions.¹ Faced with a climate emergency and the recent surge in freight transport, it is becoming increasingly necessary to decarbonize these activities, particularly in the case of heavy trucking in urban areas.

This is the first part of a two-part study. The second and final report will include data analyses and modeling and focus on the best locations of urban logistics spaces in the CMM (Montreal) and CMQ (Quebec City). Its publication is scheduled for H2 2022

It is important to note that this first report was concluded in March 2022, and therefore has not taken into account the recent and rapid increase in diesel prices. However, it does reinforce one of our conclusions that a major shock would be necessary to instill a structural change in the industry.

Origins and objectives of the report

To address the aforementioned issues, Coop Carbone is conducting a feasibility study of a shared heavy trucking network, in the urban areas of Montreal and Quebec, with the financial support of the Government of Quebec.

¹ https://www.environnement.gouv.qc.ca/infuseur/communique_en.asp?no=4427

The study, in its first part, contains an international literature review coupled with local field interviews, serving to paint a portrait of heavy trucking in urban areas and the challenges it must face to succeed in transitioning towards a rapid and significant reduction in GHG.

The second part of the study is currently being written. Its purpose is to identify opportunities for installing shared infrastructure in the metropolitan areas of Quebec and Montreal and to model their potential economic, operational and GHG impacts based on different implementation scenarios.

Summary of the first part: heavy trucking in urban areas facing the challenges of decarbonization

The stakeholders approached were from the public sector (MTQ, cities), industry (road carriers, delivery companies, logistics services and technologies), and included additional expertise in mobility, innovation and marketing.

By consulting a wide array of stakeholders, we sought to identify their current practices, the opportunities, and the obstacles encountered in reducing the negative externalities of heavy trucking in urban areas (GHG, safety, congestion...). We have grouped the key issues and solutions under 4 major areas of intervention.

Key learnings and recommendations

- 1. Infrastructure:** Urban Logistics Spaces (ULS) bring together a wide range of fixed and mobile infrastructure solutions such as micro-consolidation centers, transshipment centers, mobile depots, nearby delivery spaces and collection points. These solutions are often at the pilot project stage, but are already demonstrating substantial operational and environmental gains.²

² [1] Janjevic et al., 2020 [2] [Freeman, 2021](#) [3] [DPD, 2019](#) [4] Entrevue 01, 2021 [5] Entrevue 23, 2021 [6] [DHL, 2020](#) [7] [Schubert, 2021](#) [8] [Verlinde et al., 2014](#) [9] [LAFT, 2018](#) [10] [van Amstel, 2018](#)

The challenge is now to scale these ULS projects, all the while working with public authorities to obtain a favorable and homogeneous regulatory framework.

- 2. Technology:** Heavy-duty electric vehicle technology will take time to break through and disrupt the market. It cannot however, be the only solution to replace diesel.

The electrification of heavy-duty truck fleets is still facing technological uncertainties, including range and maximum payload questions, but is currently suitable for the shorter routes encountered in urban areas (<100 kms).

Other important issues were raised, such as the lifespan of trucks, the inertia of fleet renewal, or the leasing economic model currently based on the resale value on an unknown second-hand market.

Companies must seek support and expertise to ensure the most appropriate technological choices are made in relation to their use case, and educated on how to seamlessly integrate them into their operations and their economic model.

The positive GHG impacts of heavy-duty electric trucking will not be visible for a long time (10-20 years)³ unless current trucking operational practices are changed with the aim to reduce the km traveled and increase utilization rates.

- 3. Carriers:** Long-distance carriers intend to continue “business as usual” in the conduct of operations, are cautious in the operational innovations and apply a “wait-and-see” approach in relation to new trends. A lack of strategy and

³ [44] [Langlois-Bertrand et al., 2021](#)

clear messages from the public authorities exacerbates this “wait-and-see” attitude.⁴

The support mentioned in the previous section will serve to educate and help transport companies in their transition, and ensure these new practices and technologies can scale in an economically viable way.

- 4. Practices:** Mutualization, sharing and collaboration practices offer faster and greater operational gains and GHG reductions than technology and electrification alone. However, it is often the least considered option by the sector as it is considered economically risky for well-established business models in an ultra-competitive sector.⁵

It will be important to concretely demonstrate the impact of collaborative projects and provide help for the integration of various solutions in a distributed and shared network. The interoperability of route management systems should be further promoted. The legal and economic stakes of pooling will have to be de-risked.

Conclusion and acknowledgments

At this preliminary stage, we argue that no rapid structural change seems possible within the current framework, unless an external shock arises, coupled with convergent interventions on the economic, regulatory, operational and technological levels.

The full study provides essential details and nuances to avoid any error in generalizing this conclusion. Any feedback on its content will be carefully studied and integrated following the steps.

⁴ [42] Entrevue 08, 2021 [43] Entrevue 16, 2021

⁵ [46] Sarrazin, 2021 [49] [Montreuil, 2011](#) [50] [Hakimi et al., 2012](#)

We would like to thank all the stakeholders who participated in this study. The full list of organizations is included in the attached study document.

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