# Electric truck demonstration project in Quebec

**SUMMARY REPORT**

Electrifying heavy trucks in Quebec is both feasible and profitable; it simply requires identifying the right routes.

**NOVEMBER 2024**


Plug-in Fleet
Heavy Duty
Trucks

an initiative led by :

Innovative Vehicle Institute

# Message from the director

This project represents a significant step towards sustainable transportation solutions for heavy vehicles in Quebec. It demonstrates that truck electrification is a viable option, while highlighting the conditions necessary for its adoption.

Our analyses reveal that opting for this type of vehicle can substantially reduce GHG emissions. It is possible to reach the equivalence point (the point at which energy and maintenance savings offset the initial cost) within the first few years of the vehicle's life. Our study results also show that training operators and maintaining economic incentives are crucial to long-term profitability.

While electrification is not the only possible solution, it is essential to the decarbonization of our economy.

**- Pier-Luc Laurin**, General Manager, Innovative Vehicle Institute

# Message from Hydro-Québec

In the context of Québec's energy transition, it was only natural for Hydro-Québec and Circuit électrique to support IVI in its Plug-in Fleet – Heavy-Duty Trucks project. The electrification of heavy-duty vehicles will play a major role in the decarbonization of transport and the transition to a green economy. That's why we're working to develop charging systems and technological solutions tailored to this sector. The research that IVI is conducting is essential and enables us to move towards a common goal : contributing to a greener future for our province.

**- France Lampron**, Head of the Electric Circuit, Hydro-Québec

# Portrait of the Industry

## Transport of goods and environmental targets

**Operating range**
In Québec, 44 % of heavy vehicle owners and operators (HVOOs) operate within a 160 km radius of their home base. Only 5 % of HVOOs operate exclusively long haul. Between these two extremes, 44.7 % of HVOOs perform both short- and long-haul trips.

**Environmental footprint**
The transportation sector is the largest source of greenhouse gas (GHG) emissions in Québec, accounting for 42.6 % of total emissions in 2021. **Road transport is responsible for nearly three quarters of the sector's emissions.**

**Provincial Budget for GHG Reduction**
The decarbonization of heavy goods transport is part of the $4 billion five-year budget to reduce GHG emissions in the transportation sector through the Écocamionnage and Transportez-vert programs.

## Market for electric heavy-duty trucks in 2024

**Number of electric vehicles registered in Québec :**

- Electric cars and light trucks : 158,566
- Electric buses : 1,272
- Electric trucks and tractors : 493
  - **Heavy-duty trucks (GVWR[1] of 8,846 kg to 14,968 kg) : 152**

Number of heavy trucks, all types of energy combined (GVWR of 8,846 kg to 14,968 kg) : 107,658

Battery capacities currently available for electric heavy-duty trucks : 150 kWh to 650 kWh, operating range of 200 km to 450 km

[1] Gross Vehicle Weight Rating.

# Project mission and objectives

**This project aims to promote the benefits of electric trucks and facilitate their integration into Québec transport fleets to reduce the latter's environmental footprint.**

The project also aims to help decision makers assess whether today's electric heavy-duty trucks are suitable for them while also helping them understand their fuel consumption parameters.

More specifically, this project is aimed at Québec-based companies in the urban and regional goods transport sector that operate fleets of heavy-duty trucks.

**The specific characteristics of the trucks selected for the project are as follows :**

Trucks in Classes 6 to 8

Operating within a radius of 160 km or less

Daily return to home base


# Project timeline

## 18 partners, one vision !

The project is supported by the collective strength of 18 dedicated partners, thus creating a synergy of expertise and resources.

### 2021

### 2022

Spring 2021 to fall 2024

**Information and awareness (100+ companies)**
**Eight regional workshops** for heavy-duty fleet managers from **around 100 companies**. Each one-day workshop offered training on all the considerations associated with an electrification initiative.

Fall 2022 to fall 2023

**Analysis of electrification potential (60 diesel trucks)**
**20 companies participated,** allowing us to analyze the usage data of 60 diesel trucks to **determine the potential for electrification and highlight the most advantageous conditions.**

### 2023

Fall 2023 to summer 2024

**Field tests (5 electric trucks)** **5 companies** had the opportunity **to test an electric truck for a month**, thus enabling them to draw their own conclusions on the relevance of the transition in their respective contexts.

### 2024

# Five convincing trials

**Five electric trucks were tested by Québec**-based transport companies. Each company was provided with a truck and a 50 kW charging station for a month. Following a detailed trip analysis demonstrating the potential for electrification, vehicles from Freightliner, Peterbilt, Kenworth, and Lion replaced diesel trucks on routes selected by IVI.


01

**Transport Inter-Nord** : Stable, predictable roads. High potential for profitability and environmental benefits.

Around 75 trucks and 200 trailers
LTL (Less Than Truckload)


02

**Cascades Transport** : Pendulum routes between two warehouses

Over 160 Class 8 tractors and 750 trailers
Dedicated transport


03

**Smart Transport** : On-demand urban operations, dynamic traffic assignment.

15 straight trucks, Classes 5 to 7
Same-day delivery


04

**Sleeman Breweries** : Urban and suburban distribution, heavy traffic congestion. Trucks shared by drivers.

Over 56 trucks
Distribution to businesses and grocery stores

**Globco - Transport Levasse** : Delivery of varied goods in urban environments. No predefined routes, steep gradients.

05

4 Class 7 straight trucks and 17 Class 8 tractors
LTL (Less Than Truckload)

# Highlights of electric truck trials

- In total, the trucks covered more than **11,000 km** over the **five trials**.
- The five trucks were active for **77 days** in total.
- The trucks returned to the depot at the end of each day with an average remaining charge of 37%.
- The 50 kW charging station proved more than sufficient to meet the needs of all the trucks during the trials.
- The longest distance covered by a truck in a single day was 302 km.

Michel Asselin

DISTRIBUTION MANAGER,
SLEEMAN BREWERIES

« A great experience. I feel that all stakeholders benefited from Phase 3 at Sleeman Breweries »

# The data at a glance



| Participant | Unit | Transport Inter-Nord | Cascades | Smart Transport | Brasseries Sleeman Breweries | Levasse Transport |
|---|---|---|---|---|---|---|
| Truck | ------ | **Freightliner eCascadia** | **Peterbilt 579EV** | **Lion 6** | **Kenworth T680E** | **Peterbilt 220EV** |
| Class | ------ | 8 | 8 | 6 | 8 | 7 |
| km covered during trial | km | 2,500 | 1,771 | 2,792 | 1,949 | 2,200 |
| Average km/day | km | 179 | 107 | 154 | 108 | 183 |
| Manufacturer's estimated operating range | km | 368 | 240 | 350 | 240 | 300 |
| Average operating range available during trial | km | 342 | 211 | 246 | 202 | 340 |
| Average total weight | kg | 20,215 | 19,673 | 9,779 | 18,704 | 11,350 |
| Season | ----- | Summer | Fall | Winter | Spring | Spring |
| Temperature during trial | °C | 10 to 30 | -5 to 20 | -15 to 15 | -5 to 22 | 2 to 27 |
| Active days during trial period | Days | 13 | 17 | 18 | 17 | 12 |
| Average power consumption | kWh / 100 km | 120 | 169 | 89 | 163 | 82 |
| Estimated annual electricity cost | $ | $10,174 | $10,313 | $3,847 | $8,077 | $5,166 |
| **Length of ownership data** | | | | | | |
| Length of ownership | Years | 10 | 6 | 8 | 6 | 8 |
| Potential $CO_2$ eq avoided over ownership period | tonnes of $CO_2$eq. | 485 | 199 | 235 | 270 | 237 |
| Investment payback period | Years | 2.9 | 8.7 | 5.6 | 4.2 | 7,.1 |
| Estimated savings* | $ | $198,936 | -$12,805 | $35,120 | $34,679 | $17,665 |
| Region | ------ | Laurentides | Montérégie | Montréal | Montréal | Chaudière-Appalaches |

* See detailed reports for each trial for further information.

# Concept of energy consumtion

**Energy consumption in kWh/100 km, comparable to L/100 km for combustion vehicles, expresses the energy required to cover 100 km. When a vehicle's consumption and the distance of a trip are known, it is possible to calculate the amount of energy required :**

$$\frac{\text{Trip distance (km)}}{\text{Consumption } \left(\frac{\text{kWh}}{\text{100 km}}\right)} \times 100 = \text{Energy required (kWh)}$$

**This value can be compared with the battery capacity of a specific truck to understand how each trip affects its total operating range.**

In the heavy-duty trucking sector, operations vary greatly from one fleet to another. As a result, electric truck consumption is also highly variable.

To illustrate the range of variation in consumption, here are a few typical scenarios :

| Profile #1 | Profile #2 | Profile #3 | Profile #4 | Profile #5 |
|---|---|---|---|---|
| City driving | Highway driving | City driving | Mixed driving | Highway driving |
| Medium load | Medium load | Light load, < 7 000 kg | Medium load, 2 axles | Heavy load, trailer 3-4 axles |
| **80 kWh /100 km** | **110 kWh /100 km** | **125 kWh /100 km** | **150 kWh /100 km** | **225 kWh /100 km** |

**Variables affecting truck energy consumption in the Québec context**

Post-trial data analysis made it possible to identify and rank the main parameters affecting the operating range of an electric vehicle in order of importance.

# Weight

## — Variable 1

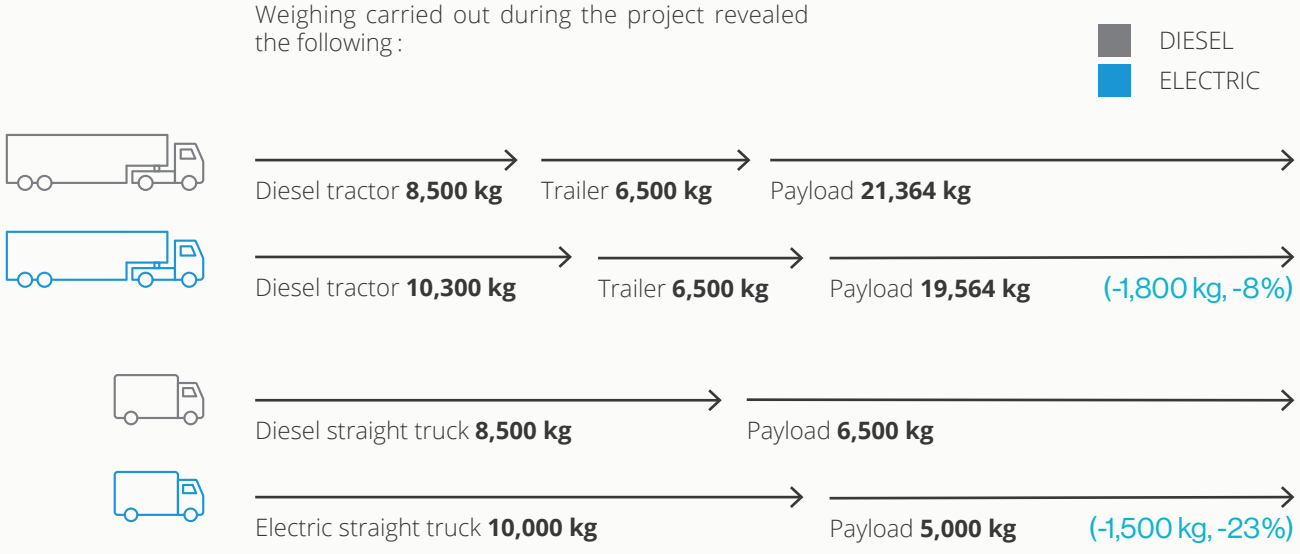
The loads compiled for all trips during the trials made it possible to measure the impact of weight on fuel consumption. For straight trucks, little variation was observed, as the variation in load weight was small compared with the weight of the truck itself.

The variation for tractors was considerable. During trips with the maximum authorized weight, consumption was much higher than during trips with a typical load. Based on all the trips observed, the following rule of thumb can be applied to tractor truck routes :

**+1,000 kg**
**add**
**4-5 kWh/100 km**

For straight trucks, the impact of loading on fuel consumption is relatively low. This is because the variation in weight due to loading is relatively small compared to the truck's unladen weight.

Because of their heavy batteries, electric trucks cannot transport as much cargo as diesel trucks. Weighing carried out during the project revealed the following :



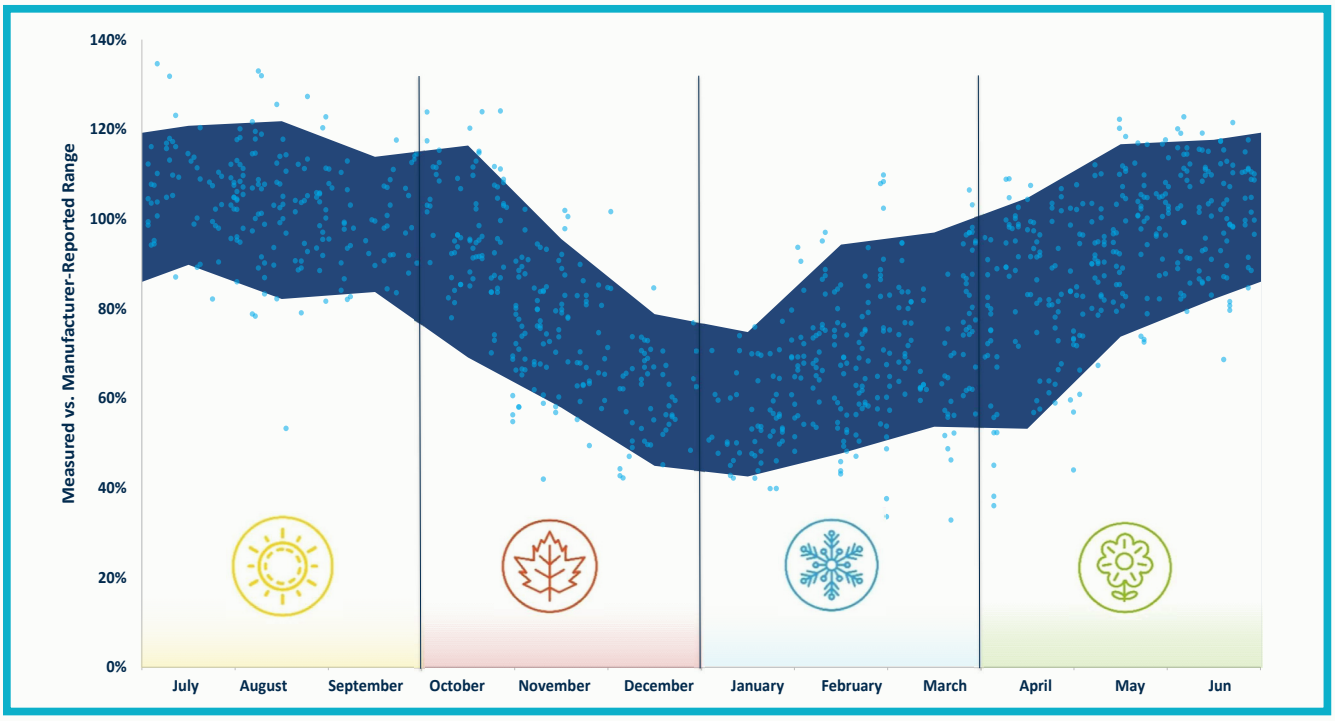

That said, four study participants did not need to reduce their loads despite the capacity restrictions. The fifth company, which used a Class 6 electric truck instead of its usual Class 7 diesel truck, had to change its routes to respect the authorized weight. Despite this constraint, it managed to optimize its operations to maximize its delivery days.

# Temperature

## — Variable 2

The worst months for electric truck operating range are December, January, and February. The following graph illustrates the ratios between the actual operating ranges observed and those advertised by the manufacturers for all the trucks used in the project and those of the collaborating transport companies on days exceeding 75 km in driving distance. Each point represents one measured day.

### Seasonal fluctuations in operating range:




**Interesting fact : between May and October, it is relatively easy to exceed the operating range indicated by the manufacturer.**

**The average operating range during winter is 34 % lower than that indicated by the manufacturer.**

**Electric truck fleet managers should be mindful of snowstorms :** The significant impact of a winter storm was measured on 0°C day, with strong winds and heavy snow. Although the temperature was relatively warm, the trucks monitored consumed more energy than during the coldest winter weather. This was due to vehicle slippage, getting stuck in the snow on several occasions, continuous heating, etc.

# Speed — Variable 3

Driving at a high speed considerably increases the power required to overcome wind resistance. This is particularly true of heavy trucks, which are larger and less aerodynamic than cars.

It is interesting to note that the trips with the highest consumption were those with an average speed of less than **15 km/h**. Several factors may explain this phenomenon, including a reduction in engine efficiency and the fact that such trips included numerous stops and more frequent idling.

**When selecting routes for electrification, it is essential to take speed into account. A truck travelling at an average city speed (25–30 km/h) can easily complete a full shift (8 hours). However, on an all-highway route, the same battery could run out of energy in half a day. Thus, in an urban environment, a driver could use a truck all day, while on the highway, a midday recharge might be necessary.**

# Elevation — Variable 4

Although elevation affects energy consumption, its impact is relatively small compared with other parameters. The table below illustrates the reduction in operating range of a truck operating in Québec City, where the average elevation is 5.5 metres per kilometre, compared with a truck in Montréal, which has an average elevation of 2.8 metres per kilometre. This difference is more marked when the truck is more heavily loaded.

Although elevation has an impact on daily operating range, it remains **below 5 % for most of the roads measured**. Elevation is therefore the variable with the least impact on operating range.

## Impact of Elevetaion Change, between Montréal (2,8 m/km) and Québec (5,5 m/km)

| |  | |  | |
|---|---|---|---|---|
| | If the truck is empty | If the truck is full | If the truck is empty | If the truck is full |
| Variation on Range | - 4 % | - 5 % | - 3 % | - 8 % |
| Impact on Typical Range | -10 km | -14 km | -9 km | -27 km |

# Charging

## Overview of participants charging management

**4 h**
Average charging duration

**7 h**
Longest charging session

**9 h**
In operation

**13 h**
Charging time available per night

## The tortoise or the hare ?

Installing a high-powered charging station may seem advantageous for fast charging, but it can negate the savings of transiting to electric because of the additional charges associated with a high demand on the power grid. It is strongly suggested that you evaluate various scenarios before concluding that you need to charge your trucks as fast as possible.

## Slow charging is recommened

Innovative Vehicle Institute experts recommend installing the least powerful charging system that can restore the energy used in a day, thus maximizing available downtime.

## Is 50 kW enough power ?

Although the trucks could handle more power, a 50 kW charging station was used for the trials, enabling Class 8 tractors to be fully charged in around nine hours. In the cases studied, that is, operations with a return to the depot at night, charging was often completed in four hours. The trucks, which had 13 hours of downtime, were fully charged by 9 p.m. after returning to the depot at 5 p.m. A 24 kW station may even be sufficient for straight trucks.

**Be mindful of demand charges !**

**Cost simulations conducted during electric truck trials revealed that opting for a 150 kW instead of a 50 kW charging system could more than double the cost of electricity for an electric truck.**

« Participating in the project made us realize that we have to choose the right charging station. Given the time we had to charge the truck overnight, we lowered the charging station's power from 50 kW to 30 kW during the trial to reduce the cost of our electricity bill. »

Ion Triboi
CONTROLLER,
SMART TRANSPORT

# Modelling based on 60 diesel trucks

In the fall of 2022, the project's training workshops introduced 86 participating companies to electric heavy-duty trucks. Of these, 20 were selected to analyze their diesel truck trips over a three-month period.

The purpose of the study was to gather data on the use of diesel trucks **in order to create an energy simulator, which identified the optimum conditions for the adoption of the electric technology**. Some of the parameters studied are listed below :

- **Distances and GPS routes**
- **Speed and acceleration**
- **Uphill and downhill elevation**
- **Stop times and locations**
- **Loads for each trip**
- **Fuel consumption in litres (L)**
- **Idling time and fuel consumption**
- **Temperature**

This data was used **to estimate the battery size required for an electric truck to be able to cover the same trip as a diesel truck for an entire year.**

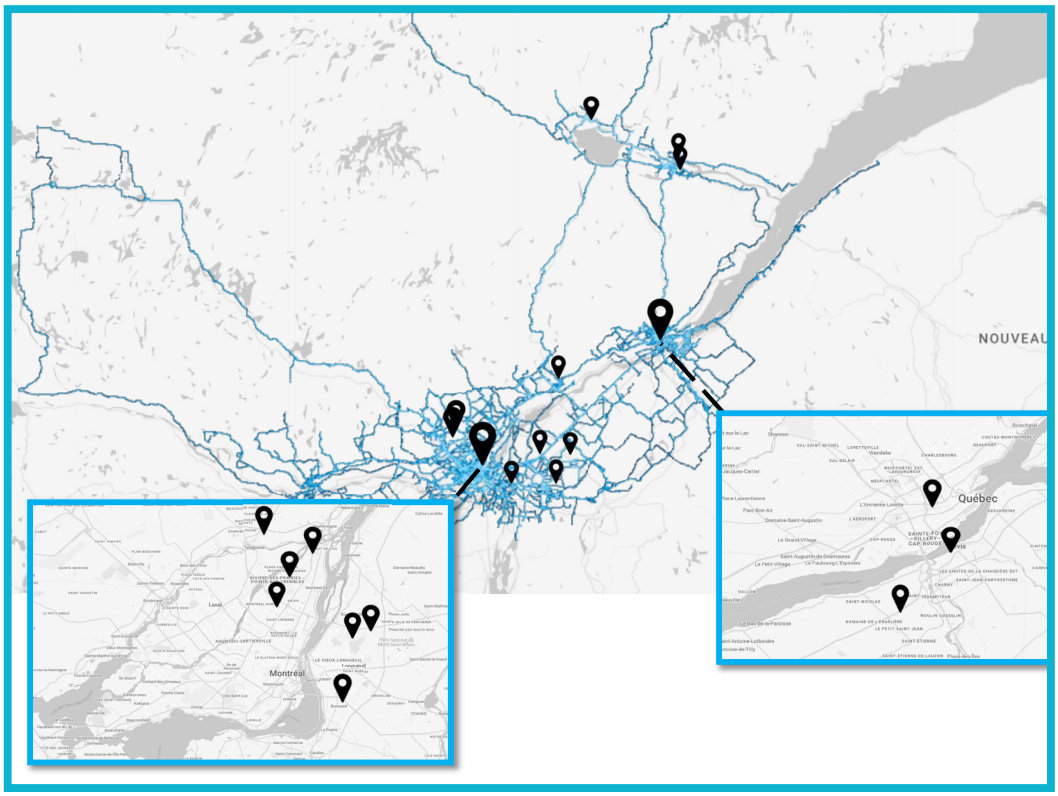
It is also crucial to take into account other factors such as :

- **Operational cost effectiveness over the life of the truck, including the purchase of the truck and the charging station**
- **Positive environmental impact**
- **The ability to charge the truck without disrupting operations**

# Measurements in 16 regions of Québec

- **The 60 telematics-equipped diesel trucks covered more than 818,000 km**
- **Participating company depots were located in more than nine administrative regions**
- **Nearly 28,000 trips were logged**

## The routes are indicated in blue on the map below.




**Capitale-Nationale**
Transkid
Prolait

**Chaudière-Appalaches**
Globco - Transport Levasse

**Estrie**
LogiQ Transport

**Lanaudière**
S.E.T. Transport

**Laurentides**
Papineau International
Inter-Nord

**Mauricie**
Groupe Bellemare

**Montérégie**
Cascades
VA Transport
Bel-O Transport
Acam Transport
Entreposage JSMG
Andy Transport

**Montréal**
Smart Transport
Transport Beaudry
Sleeman Breweries

**Saguenay-Lac-Saint-Jean**
Groupe Gilbert
Groupe Morin
Transport Frédéric Bouchard

# Summary of data collected

**The data in the following graphic was collected from the 60 diesel trucks monitored :**

15,300 kg
Min

27,800 kg
Avg

42,100 kg
Max


90th percentile daily distance

Min **92 km** — Max **905 km**

% Highway

0 — 100 %

Min **2** Avg **39** Max **72**

Annual mileage

Min **16,136 km** — Avg **74,339 km** — Max **165,826 km**

8,800 kg
Min

10,400 kg
Avg

12,600 kg
Max


90th percentile daily distance

Min **138 km** — Max **476 km**

% Highway

0 — 100 %

Min **11** **20** Avg **42** Max

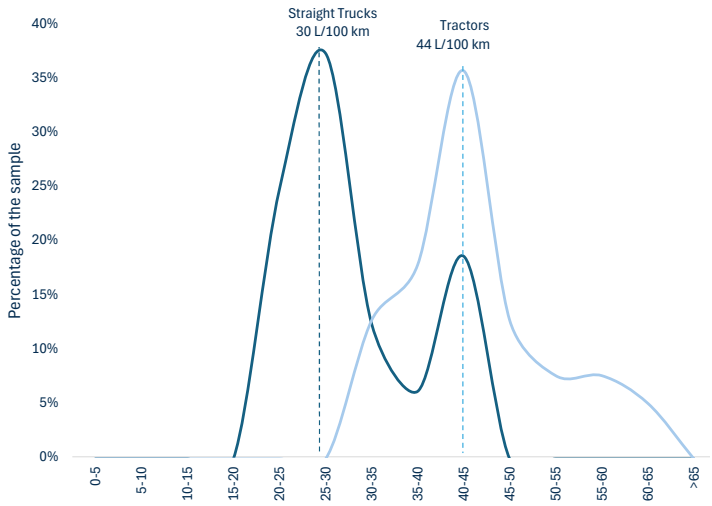
Annual mileage

Min **17,553 km** — Avg **37,678 km** — Max **53,932 km**

**Consuming a litre of diesel emits ≈ 2,7 kg $CO_2$**

The following graph shows the distribution and averages of diesel consumption in L/100 km for the sample, according to the type of heavy truck.

## Diesel consumption in L/100 km



# Results of sample analysis

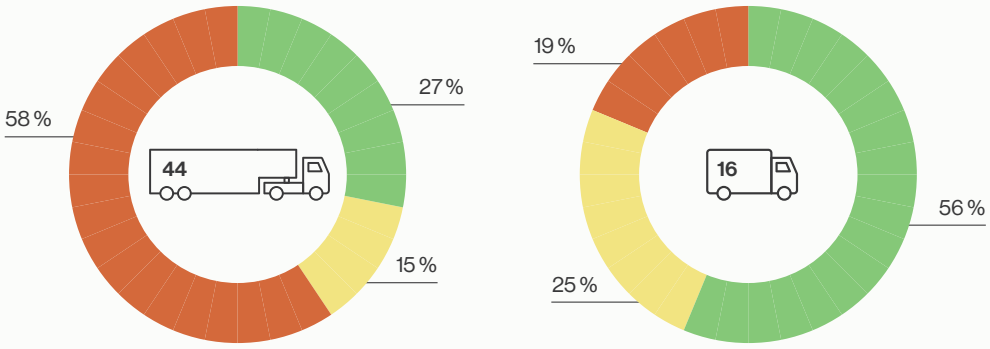
**Green light** Possibility of completing the route for ≥ 90 % days of the year with an electric truck, without any modifications. A cost-effective and environmentally beneficial scenario.

**Yellow light** Minor modifications required to switch to electric :

- Combining small multi-truck routes into a single route
- Creating a route with stops closer to the depot
- Stopping at the depot during the day (at noon) to charge the battery
- Assigning the second shift to a diesel truck
- Installing charging stations at recurring customer sites

**Red light** Difficult or impossible to switch to electric in a 0–2 year time frame ; current battery capacity is far from sufficient.

56 % of the straight trucks (Classes 6 and 7) and 27 % of the tractors (Class 8) could switch to electric right now.




These statistics differ from those stated in previously published detailed analysis reports, as the algorithm was adjusted after real data was obtained from the electric truck trials. In particular, it was observed that the straight trucks consumed less energy than initially expected.

# Favourable and unfavourable environments for electrification :

The participants came from a variety of sectors, some of which are more suited to electrification than others..

## Light as a feather

The findings show that LTL transport is a good candidate for electrification, as it often involves light loads and reduced speeds, as well as nightly returns to the depot.

## Ideal for pendulum trips

Pendulum trip, which involves making regular trips between two fixed points, was observed among some of the project's participants. As this type of trucking usually involves short distances and numerous charging opportunities during the day, it is particularly well suited to electrification.

## Bulk and forestry transport will have to be patient

Often associated with long distances and heavy loads, FTL transport, dry and liquid bulk, and forestry transport require more energy than today's batteries can supply.

### Quick tips for identifying routes with high potential for electrification

**The analyses revealed six ideal conditions under which a diesel truck could be immediately replaced by an electric truck without requiring any operational modifications :**

- **Travelling around 200 km per day, all year round, a distance that is well within current operating ranges, while maximizing profitability**
- **Returning to the depot at the end of each day**
- **Operating during a single shift**
- **Using a vehicle with a dry box and no additional accessories (a tailgate or a truck-mounted forklift with its own power source is acceptable)**
- **Driving mainly at moderate speeds (limited highway travel)**
- **Carrying light loads (tractors : < 9,000 kg load)**

**Important note :** Even if the route studied does not meet all these criteria, it may still potentially be electrified with a few modifications. In this case, IVI recommends conducting an in-depth analysis.

# Profitability analysis

The project's team set up a detailed calculator to estimate the total cost of ownership and profitability associated with heavy-duty truck electrification, this was done for each of the trucks studied.

Note that the benefits of using a certain truck **depend on a number of variables** over the course of its lifetime :

- **Annual distance covered**
- **The price of electricity and diesel**
- **Vehicle acquisition cost (including incentives)**
- **The power of the charging station**
- **The length of time the vehicle will be in service**
- **Charging station cost (including incentives)**
- **The vehicle's energy consumption**
- **Annual maintenance cost**

Although the initial cost of an electric truck is high (around $550,000 for a Class 8 model), applying the incentives reduces the additional cost to around $75,000, including the purchase of an adequate charging station.

This additional cost can be recouped through savings on maintenance and fuel. **In real-life conditions, electricity costs between 38 % and 75 % less than diesel**. Optimized management of charging power (kW) maximizes savings.

Furthermore, maintenance plans proposed by manufacturers can reduce maintenance costs by around 50 % compared with those of an equivalent diesel truck. However, it is important to take into account the cost of maintaining the charging station, which could bring total maintenance costs down to a level comparable to that of a diesel vehicle.

The following scenario is typical : tractor truck used for 8 years at 40,000 km per year with typical figures for all other parameters.

| | | Total cost of ownership | Investment payback period |
|---|---|---|---|
|  | Diesel truck | $475,811, i.e., $1.49/km | 89,296 km or 2.23 years |
|  | Electric truck | $355,994, i.e., $1.11/km<br>-25% | |

# Financial assistance

In 2024, provincial and federal subsidies cover :

- Trucks
- Charging stations (installation, planning)
- External consultations for studies or pilot projects
- In-house implementation time
- Telematics

**At present,**
subsidies are necessary to make electric trucks cost-effective.

**Without subsidies, the typical break-even point is never reached during a truck's service lifetime.**

**Without subsidies, in total, over eight years, acquiring and operating an electric truck and its charging station would cost $265,716 more (that is, 56 % more) than a diesel truck.**

To find out about subsidy programs :

# Environmental impact

Although manufacturing an electric truck generates more pollution than manufacturing a diesel truck, its use results in far fewer greenhouse gas emissions(GHG). This means there is a point in the life cycle of an electric truck when it becomes more environmentally friendly than an equivalent diesel truck. The avoided emissions then continue to accumulate until the end of the truck's service lifetime.

**A lifecycle analysis calculator has been developed by IVI to compare the total $CO_2$ eq emissions of a diesel truck with those of an electric truck.** The calculator takes into account truck manufacturing, fuel (or electricity) use, annual distance covered, length of ownership, size of battery used (in the case of an electric vehicle), disposal, and several other parameters.

The environmental footprint of each truck in the study was calculated. Generally speaking, we can estimate the following :

**100 % of the trucks** studied in the project would reduce GHG emissions and reach their environmental equivalence point in less than a year, manufacturing included !

- A Class 8 electric tractor emits **7 times** less $CO_2$ eq than an equivalent diesel vehicle over its service lifetime.
- A Class 6 electric straight truck emits **5 times** less $CO_2$ eq than an equivalent diesel truck over its service lifetime.
- The project participant with the highest GHG reduction over a 10-year service lifetime: **603 tonnes of $CO_2$ eq saved**
- The project participant with the lowest GHG reduction over a 5-year service lifetime: **81 tonnes $CO_2$ eq saved**

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For reference, a typical light-duty vehicle emits 4.6 tonnes of $CO_2$ eq per year

# Qualitative analysis of the five trials

The electric vehicle trials enabled the team to assess what study participants thought of the technology. The following is a summary of the feedback received :

**Managers :**

- Observed an improvement in drivers' working conditions.
- Stated that although the trial encouraged them to reflect on the subject, it did not necessarily lead to immediate purchases.

**Drivers :**

- Had a good experience during the trial.
- Reported a reduction in fatigue and less noise in the cab.

**Training and educating drivers about new technologies and eco-driving is essential, as they play a key role in the transition to electrification.**

## In the drivers' own words :

*« Having the chance to drive this truck is like winning the lottery ! »*
**CASCADES TRANSPORT**

*« Drivers from other companies came to see the truck and take pictures. »*
**TRANSPORT INTER-NORD AND CASCADES TRANSPORT**

*« It was a great experience ; there was no noise or odours. »*
**GLOBCO - TRANSPORT LEVASSE**

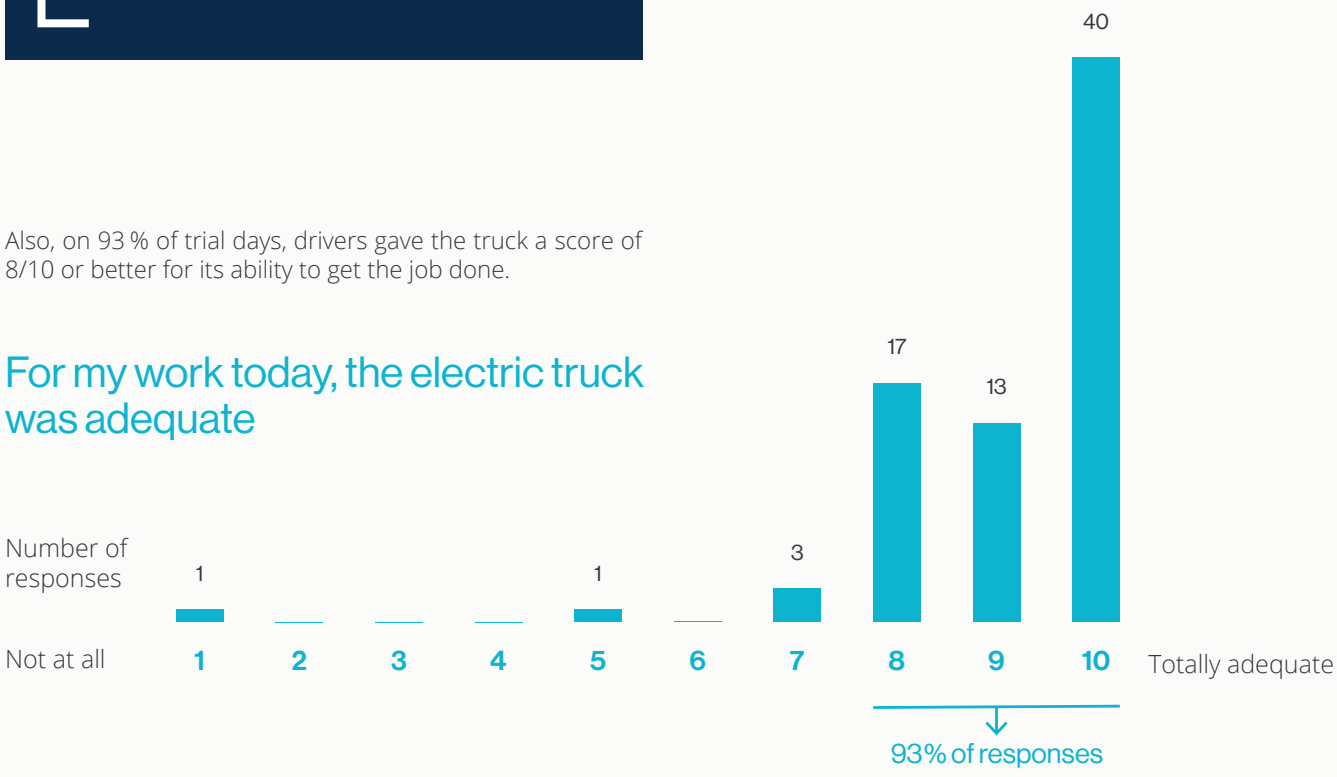
*« Thanks for this experience. I'd gladly do it again. »*
**SLEEMAN BREWERIES**

*« The truck is quiet and comfortable. Driving in traffic is not exhausting. »*
**TRANSPORT INTER-NORD**

*« The truck handles well and the operating range is sufficient in winter. »*
**SMART TRANSPORT**

Also, on 93 % of trial days, drivers gave the truck a score of 8/10 or better for its ability to get the job done.

## For my work today, the electric truck was adequate



# Information to keep in mind

01 Electric trucks are already viable for many applications.

02 Launching a pilot project now is the best way to familiarize yourself with this new technology and assess its benefits in concrete terms.

03 Using a 50 kW charging station works in many scenarios. It doesn't delay operations, and it reduces operating costs. What's more, several companies are considering using 25 kW charging stations !

04 Tests have revealed potential energy cost savings of 38 % to 75 % when compared with a diesel equivalent.

05 Covering 140 kilometres a day on average, the five trucks ended the day with 37 % battery energy left on average, taking into account varied operating ranges and use in all seasonal conditions.

06 Expect a reduction in operating range of around 34 % in cold weather, and a further reduction in the event of a snowstorm.

**In conclusion,** it's time to take action ! For urban and commuter operations, electric technology is not only accessible, but also efficient and environmentally friendly. With attractive subsidies and optimized charging management, it offers considerable savings while reducing your carbon footprint.

# Activities and impact of the project

- Nearly 200 participants
- More than 100 participating companies
- 25 technical reports
- 1 summary report
- 8 events for fleet managers
- 5 web capsules
- 2 awards (15th edition of AQTr's Grands prix d'excellence en transport)
- More than 30 conferences and panel discussions
- Nearly 45 media articles
- 3 articles in specialized magazines
- Following the trial, Smart Transport integrated an electric truck into their fleet

# Acknowledgements

This project is being carried out through a financial contribution from the Government of Québec as part of the Action-Climat Québec program and meets the objectives of the 2030 Plan for a Green Economy and is supported by key partners in the transportation ecosystem.

The three-year project has a total budget of $1.5 million, of which $1.2 million comes from provincial subsidies.

FINANCIAL PARTNER

Québec

MAJOR PARTNER

Hydro Québec

OFFICIAL PARTNERS

Peterbilt, LION, GLOBOCAM, SIAPARTNERS, MALCO ÉLECTRIQUE INC., GEOTAB, AMQ ROUTE, Quebec Trucking Association, cftr, Centre de formation en transport de Charlesbourg, KW, VOLVO, TransDiff, JDH, Peterbilt, Excellence Peterbilt, Groupe Kenworth Montréal

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If you have any questions after reading this report, please contact the Innovative Vehicle Institute (IVI) :

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In addition, a number of publications to which IVI has contributed can support fleet managers in their electrification process. They are available at the following addresses :

Innovative Vehicle Institute