PRESS RELEASE FOR IMMEDIATE RELEASE

CANADIAN ENERGY OUTLOOK

The Decarbonization of Off-road Transport in Net-Zero Pathways

Montreal, May 26, 2025 - The Institut de l'énergie Trottier (IET) at Polytechnique Montréal is releasing this Wednesday a new Canadian Energy Outlook report. This project describes and analyses the transformations needed to achieve net-zero goals in Canada. Following on from the two main reports, *The State of the Energy and GHG Emissions in Canada* and *Pathways for a Net-Zero Canada*, this publication is the first thematic report in the 3rd edition of the Outlook. It presents issues related to off-road transportation.

Off-road transport : a heterogeneous, therefore neglected sector

The decarbonization of the Canadian economy to achieve the net-zero objective by 2050 requires rapid and profound transformations in all emissions sources. In efforts to accelerate decarbonization and the implementation of net-zero pathways for Canada as a whole, off-road transport has so far largely fallen between the cracks, despite being projected to become transport's main source of emissions in 2050. This category of activities refers to mobile or portable equipment, including not only machinery but also vehicles that are not licensed for use on public roads. Part of this omission is due to the fact that the exact services provided in the off-road category vary substantially, from very large machinery in quarries to handheld leaf blowers. This report intends to serve as a background paper for discussions on strategies to decarbonize off-road transport in Canada in order to make this sector a key contributor to a net-zero pathway.

A non-negligible weight

Emissions from the off-road transport category in Canada's National Inventory Report (NIR) represented 28.8% (56.4 $MtCO_2e$) of total emissions from the transport sector nationwide in 2022. Moreover, projections to 2050 show that its relative share of transport emissions is set to increase, particularly in scenarios modeling net-zero emissions by 2050. Off-road transport would then become the main source of emissions for the transport sector by mid-century, far ahead of road transport.

A roadmap to tackle specific challenges

This growth reflects a combination of the high cost for many low-carbon solutions in the sector, a limitation in technological solutions available to proceed, as well as a lack of policy and regulatory measures to orient the needed transformations. This report presents a detailed profile of off-road transport emission sources, and then provides an overview of some of the key challenges and opportunities inherent in developing a decarbonization roadmap in each sector for off-road transport needs.

Four principles to guide decarbonization

The strategy for decarbonizing off-road transport should go stepwise, based on the following four principles :

1) **Maximize electrification** where possible.
2) Explore **other low-carbon energy sources** based on potential co-benefits and nearby infrastructure availability.
3) Anticipate **information gathering** needs for technology options and **share this information** with relevant actors and stakeholders.
4) Test options by launching **pilots** chosen and designed to maximize the **potential for learning** and to spill over into other sectors where decarbonization options face similar challenges.

To attend the webinar : registration
Wednesday May 28, 1pm-2pm (ET), Zoom

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About the Institut de l'énergie Trottier (IET) de Polytechnique Montréal

The Institut de l'énergie Trottier (IET) was created in 2013 thanks to an exceptional donation from the Trottier Family Foundation to Polytechnique Montréal. Since then, it has been involved in every energy debate in the country. At the source of major collective reflections, the team mobilizes knowledge, analyzes data, popularizes issues and recommends fair and effective plans, simultaneously contributing to academic research and training. Its independence gives it the neutrality essential to the collaborative approach it advocates, facilitating work with the players most likely to advance the energy transition, while allowing it to be freely critical when relevant.

As the initial 10-year mandate came to an end, the Trottier Family Foundation decided to renew its confidence in the IET and made a new donation. Given the scope of the IET's activities and its status as a key player, its mandate was extended. The team will thus be able to continue offering science-based advice and enriching societal dialogue in order to advance the way we produce, convert, distribute and use energy.

Media information :
Laure-Anne Douxchamps, Coordinator
Institut de l'énergie Trottier – Polytechnique Montréal
laure-anne.douxchamps@polymtl.ca – 514 998-7193