

PRESS RELEASE  
FOR IMMEDIATE RELEASE

**A FIRST FOR CANADA'S OPEN PIT MINING INDUSTRY:  
AN ELECTRIC HEAVY VEHICLE**

**Montreal, November 2, 2020** – The Innovative Vehicle Institute (IVI), Propulsion Québec and the National Research Council of Canada (NRC), in collaboration with Adria Power Systems, Dana TM4, Fournier et fils, and Nouveau Monde Graphite, have announced the development of a new electric propulsion system with a rapid recharging infrastructure adapted to heavy vehicles in the open-pit mining industry. This project was made possible in part through the financial participation of Natural Resources Canada's Clean Growth in Natural Resource Sectors Innovation program, the Ministry of Economy and Innovation's Innov-R program (administered by InnovÉÉ), and a financial contribution from the Société du Plan Nord. It marks a major turning point in the electrification of heavy vehicles in North America.

The mining industry is in a full swing transition towards a low environmental impact mode of operation, and its key players are working to phase out diesel vehicles, which are responsible for significant greenhouse gas emissions and generate high operating costs. Currently, there are no electric-powered heavy-duty trucks on the market that meet the difficult operational and climate needs of open-pit mines. Faced with the industry's new needs, IVI, Propulsion and the NRC brought together select partners to make the first-ever electric heavy-duty vehicle for the mining sector.

To ensure the success of this major project, Fournier et Fils, a recognized operator in the mining sector, will provide the project with a Western Star 6900XD truck with a 40-ton loading capacity, as well as its technical experts, who will assist the electrification experts in converting the truck to accommodate the new components. The motorization aspects will be developed by Dana TM4, a world leader in electric motors.

IVI will design the battery based on the new recommendations of the Global Mining Guidelines (GMG), and the NRC will evaluate and test it to ensure it meets the specific criteria of being inexpensive and adapted to the harsh conditions of open-pit mines. The objective is to minimize operating costs, and this electric mining vehicle will be able to operate year-round, even in winter. To efficiently meet the truck's power requirements and charging times, a high-power charging infrastructure will be developed by Adria Power Systems, which will also be in charge of battery assembly.

It is interesting to note that the selected technological solution will stand out for its highly innovative nature and will be designed to be adaptable for other types of heavy mining vehicles.

WITH FINANCIAL SUPPORT FROM:

In addition to being cost-effective and viable, the electric mining truck will generate highly positive environmental impacts for the mining industry and for Canada. For example, Nouveau Monde Graphite, one of the project's mining partners, plans to use 12 electric trucks to save more than **80,000 liters of diesel per year**, thus reducing its GHG emissions by more than **220 tons** (according to preliminary estimates). The company, located in Saint-Michel-des-Saints, aspires to become the world's first 100% electric open-pit mine.

The prototype is expected to make its first real-world test runs as early as spring 2022 at a Fournier et Fils quarry and at the Nouveau Monde Graphite site.

"We're helping mining companies lower their emissions by investing in onsite emissions reduction technologies, and they're helping us by powering the clean technologies we'll need to reach net zero by 2050."

*The Honourable Seamus O'Regan, Canada's Minister of Natural Resources.*

"This project demonstrates Propulsion Québec's strength in stimulating intercompany knowledge sharing to foster the emergence of clean technologies. Quebec is firmly committed to going electric, and the project announced today is perfectly in line with our desire to produce electric commercial vehicles. The fact that the prototype will be used in a graphite mine, a key element in the development of the battery sector, makes me all the more enthusiastic."

*Pierre Fitzgibbon, Minister of Economy and Innovation and Minister Responsible for the Lanaudière Region*

"We are proud to support the development of this heavy electric vehicle which is highly promising for the sustainable development of the mining industry and fits perfectly with our plan to develop critical and strategic minerals. Our strategic vision for mining development aims, among other things, to prevent and mitigate its environmental impacts. There is no doubt that this collaborative project, supported by the Société du Plan Nord, will contribute to us reaching this objective. The active participation of the Quebec government in the development of green technologies for the mining industry already allows me to envision electric trucks operating in Quebec's mines, which could completely revolutionize the industry."

*Jonatan Julien, Minister of Energy and Natural Resources and Minister Responsible for the Côte-Nord Region*

"To tackle climate challenges, we have to replace fossil fuels with our hydropower as much as we possibly can. I commend the partners in this project for their commitment to creating the first 100% electric heavy-duty vehicle designed for open-pit mining. We are proud to support this project, which is perfectly in line with our government's vision of electrifying Quebec's economy, particularly the transportation sector, with the twofold objective of reducing our greenhouse gas emissions and stimulating our economy. We will follow the evolution of this project with great interest in order to promote sustainable mining development in Quebec!

*Benoit Charette, Minister of the Environment and the Fight Against Climate Change and Minister Responsible for the Laval Region*

WITH FINANCIAL SUPPORT FROM:



**Innovative Vehicle Institute (IVI) - [www.ivisolutions.ca/eng](http://www.ivisolutions.ca/eng)**

IVI has established itself as a reference for the advancement of applied research and development of vehicle technologies that reduce the ecological footprint of transportation. With 20 years of experience in the development of electric vehicle prototypes of all kinds, IVI is an innovation accelerator that helps Quebec industries position itself rapidly in a fast-growing market. IVI also works on research and development of navigation and driving assistance systems for autonomous vehicles intended for the automotive, agricultural and industrial industries. Incorporated as an NPO, IVI as a College Centre for the Transfer of Technology (CCTT) status, affiliated with the Cegep of Saint-Jerome and is financially supported by the Ministère de l'Enseignement Supérieur (MES), the Ministère de l'Économie et de l'Innovation (MEI), the NSERC and the City of Saint-Jérôme.

**Propulsion Québec - [www.propulsionquebec.com/en/](http://www.propulsionquebec.com/en/)**

Quebec's smart and electric transportation cluster rallies the entire sector around joint projects aimed at positioning Quebec as a leader in developing and implementing land transportation systems that promote smart and electric transportation. Created in 2017, Propulsion Québec has over 180 members from a variety of sectors and deploys its resources across seven distinct working groups to develop and support innovative projects. The cluster receives financial support from the Government of Québec, the Government of Canada, Communauté métropolitaine de Montréal (CMM), the FTQ Fonds de solidarité, Québec City, Québecor and ATTRIX.

**The National Research Council of Canada - [www.nrc.canada.ca](http://www.nrc.canada.ca)**

Founded in 1916, the National Research Council of Canada (NRC) is Canada's largest federal research and development organization. The NRC partners with Canadian industry to take research impacts from the lab to the marketplace. This market-driven focus is designed to shorten the time between early-stage research and development and commercialization, enhance people's lives and address some of the world's most pressing challenges.

**Adria Power Systems - [www.adria-mfg.ca/en](http://www.adria-mfg.ca/en)**

With more than 25 years of experience in the design and manufacture of distribution and electrical power products in the industrial, commercial and mining sectors, Adria Power Systems® is a leader for whom its loyal customers place their trust in the implementation of the best possible solutions adapted to their own situation. Adria is made up of a professional and dynamic team supervised by people with experience and vision. The experience thus acquired allows Adria to offer a multitude of robust and innovative products. Products that are easily adapted according to the needs of customers from different sectors of activity, such as mines, tunnel boring machines, processing plants, various industries, etc.

**Dana TM4 - [www.danatm4.com](http://www.danatm4.com)**

Dana TM4 is a joint venture between Dana Incorporated (NYSE: DAN) and Hydro-Québec. With headquarters in Quebec, Canada, and operations in China, Germany, Italy, the United Kingdom and soon India, the company develops low- and high-voltage electric motors, generators, power electronics, and control systems suitable for the automotive, commercial, off-highway, marine, rail, motorsports, and recreational vehicle markets.

WITH FINANCIAL SUPPORT FROM:



**Fournier et fils - [www.fournier-fils.com/en/](http://www.fournier-fils.com/en/)**

business operated by the 3rd generation that has kept a constant growth rate for over 80 years. The impressive achievements that distinguishes Fournier is the unique availability of all its resources in mining, civil, concrete, crushing, transportation, environment and shotcrete, coupled with a multi-disciplinary approach.

In the mining sector, as a general contractor specialized in surface and underground turnkey projects, Fournier has managed several challenges in small as well as large-scale projects. Equipped with a wide range of machinery and equipment, Fournier has become a leader and an expert in working methods in the field.

**InnovÉE - [www.innov-ee.ca/en/](http://www.innov-ee.ca/en/)**

InnovÉE's mission is to support the development and funding of collaborative projects relating to the electricity industry, smart grids, transportation electrification and intelligent vehicles by pooling the expertise and resources of industrial partners and research institutions.

**Nouveau Monde Graphite - [www.nouveaumonde.ca/en/](http://www.nouveaumonde.ca/en/)**

Nouveau Monde Graphite is set to become a key operator in the sustainable energy revolution. The Company is developing the only fully integrated source of green battery anode material in the Western World. Targeting full-scale commercial operations by 2023, the Company will provide advanced carbon-neutral graphite-based material solutions to the growing Lithium-ion and fuel cell markets. With low-cost operations and the highest of ESG standards, Nouveau Monde Graphite will become a strategic supplier to the world's leading battery- and automakers, ensuring robust and reliable advanced material while guaranteeing supply chain traceability.

**For more information :**

Véronique Lamy  
Business Development Manager  
450-431-5744 ext.234  
[vlamy@ivisolutions.ca](mailto:vlamy@ivisolutions.ca)

Lisa Théberge  
Director, Marketing & Communications  
Propulsion Québec  
514-549-7575  
[lisa.theberge@propulsionquebec.com](mailto:lisa.theberge@propulsionquebec.com)

WITH FINANCIAL SUPPORT FROM:

