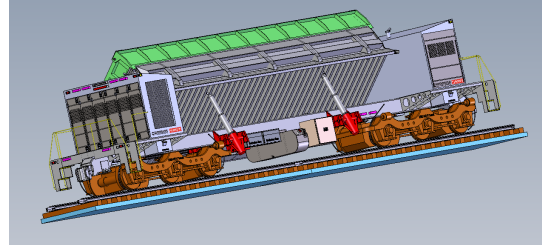
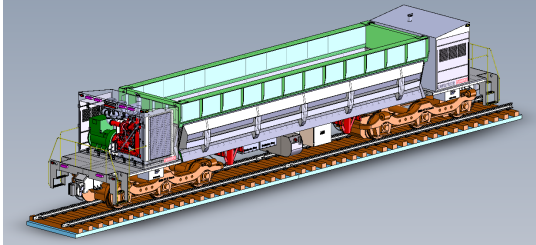


# RAILHAUL

## RHT RailHaul Technologies Inc.

### Summary

RailHaul is a Canadian company focused on the development and commercialization of self-powered, semi-autonomous, heavy haul freight car systems. <https://railhaul.ca>



We have invested a decade in R&D, secured all the necessary IP, and in 2020 are commencing the commercialization of the company. Our initial priority use cases are for open-pit mining, ports, and remote communities, where the operating duty cycles coupled with our innovative technology approach provides very strong customer benefits and productivity. We are not in competition with unit trains and mainline railways, and do not want to be. We expect to become a preferred feeder to them.

Our business model is to provide the detailed engineering and overall system design, and fabricate, assemble, deliver, and service our vehicles and systems through strong, experienced, and capable local partners, all the while maintaining direct control of all R&D, all IP, all contracting and commercial agreements, and all customer relationships.

### Value Proposition

The RailHaul system has many potential use cases:

- Open-pit mining, underground mines, surface mines
- Remote community or stranded resource assets
- Coastal and inland ports

RailHaul provides a competitive alternative to heavy haul mine trucks and conveyor systems at mines along with a more economic mode of access for ports and remote communities.

Our value proposition for most use cases is straight-forward:

- 25 - 50% less capital cost
- 15 - 25% less operating costs
- 10%+ less emissions and green house gases

# RAILHAUL

For ports and remote communities, the value proposition will vary based on:

- Economics for other modes of access (road, air strip, tidal or other water, ice roads)
- Location, distances, and type of topography encountered (mountains, muskeg, waterways)
- The duty cycle and priority freight needs of the community or port:
  - Household goods (e.g. food, water, consumables, hardware etc.)
  - Fuel (e.g. diesel, gasoline, jet fuel, CNG, LNG)
  - Resource extraction (e.g. forestry products, mined products, agriculture)

## **RailHaul Technology: Self-Powered, Heavy Haul, Freight Car System**

The RailHaul system is based on a self-propelled transporter that can climb much steeper grades at higher speeds for added productivity than traditional rail or truck systems. Industry standard proven components are used (engines, controls, propulsion, braking, bogies, track) to provide for a low risk solution.

The RailHaul system utilizes modern standard gauge rail technology designed to be laid on basic road beds (e.g. secondary municipal road standard). Our system takes up significantly less space for what is normally required for heavy haul mine trucks, and the required rail bed is less intensive.

## **RailHaul Product Line**

The RailHaul product line is highly configurable to accommodate various customer requirements and applications, with all transporter models sharing the same base design and capabilities of:

- 120 tonne load capacity
- Two, 3 axle locomotive truck sets with 4 motor traction system
- Semi-autonomous operation initially, fully autonomous in 2<sup>nd</sup> generation design
- Safety focused control and communication system with multi-sensor redundancy
- 10 - 12% grade capability, up to 15%+ based on rail / ambient conditions
- 60km/hour maximum speed capability
- 190 tonne maximum loaded vehicle weight

### **Base Model for Mining Applications: Diesel-Electric Propulsion System**

- One or two, 300+ horsepower gen-sets, diesel or natural gas fuelled
- Hydraulic, dual side-dump ore box

### **Base Model for Container Transport: Diesel-Electric Propulsion System**

- Ore box replaced with open space for container(s)
- One, two axle locomotive truck and one, two axle freight car truck
- One 300+ horsepower gen-set, diesel or natural gas fuelled
- Two traction motor propulsion system

## Option #1: All Electric Propulsion System

- Diesel-Electric gen sets replaced with electric propulsion system
- Pantograph added for overhead catenary
- Traction system with regenerative power harvesting braking capability

## Option #2: Battery Dominant Hybrid Propulsion System

- Diesel-Electric, micro turbine engine, all electric, or all battery power
- High capacity lithium ion battery pack for hybrid capability
- Traction system with regenerative power harvesting braking capability

## **Strategic Partners**

We are partnering with innovative, agile companies with solid reputations and track records for delivering quality products and service in rail vehicle design and manufacture, steel fabrication, remote and semi-autonomous vehicle control systems, communication systems, engine and battery technology, and rail line design and track construction.

## **RailHaul: An Experienced Team Focused on Customer Success and Meeting Commitments**

Each of our founders has decades of rail and/or industrial experience.

Michael Price	Chief Executive Officer
Frank Donnelly	Chief Technology Officer
Peter Ballachey	Chief Financial Officer
Tony Maciulewicz	Chief Marketing & Sales Officer
John Watson	Intellectual Property Lead

We are targeting to complete the design and build of a first prototype test and evaluation battery dominant diesel-electric hybrid transporter for mining applications in 2021.

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