STATUS OF CLEAN TECHNOLOGY PROJECTS

Aravind Kailas, Ph.D.
Trucks, buses, construction eqpt. and marine and industrial engines

Complete solutions for financing and service

- Financial Services
- Engines
- Buses
- Construction Eqpt.
- Trucks

- 100 Countries
- 18 Markets
- 190+ Build in

Brands

Products
Electrification of commercial vehicles taking off globally

We’ve spent years developing complete solutions for electromobility
Proof of our commitment to reduce pollution (1/4)

North America’s first commercially available Class 8 vehicle
Proof of our commitment to reduce pollution (2/4)

Driveline and batteries designed to support vehicle operations by providing proven reliability for the demands of customer operations

**Volvo Electric Driveline**

- Dual Electric Motors (455 hp and 4,051 lb.-ft of torque)
- 2-speed I-Shift transmission
- Regenerative Braking

**Li-ion Batteries**

- 4 battery pack (= 264 kWh)
- Factory set state of charge
- Side impact protection barrier integrated into the mounting system
Proof of our commitment to reduce pollution (3/4)

A convenient location to the Charging area of the truck just underneath the driver’s side door
Proof of our commitment to reduce pollution (4/4)

The VNR Electric is centered around pickup and delivery, local food and beverage, and also urban and regional distribution.
Volvo LIGHTS provided a template for modernizing freight facilities
Deployed battery-electric Class 8 trucks, yard and warehouse equipment, charging infrastructure, solar panels, and more
Volvo LIGHTS provided a pathway to commercialize the VNR Electric
25+ Class 8 battery-electric trucks deployed today
Deployment of charging infrastructure is expensive and will take time

14 charge ports for Class 8 battery-electric trucks have been installed, 6 of them are semi-public
This paradigm shift in commercial trucking is happening now
But will take time and requires sustained incentives for vehicles and infrastructure

• Divergence in routes and operating factors can drastically alter the use case for battery-electric Class 8 trucks
• TCO parity with diesel truck-based operations will need more time (> 5 yrs.)
  – Interdependent charging factors - charging rates, impact on batteries, energy costs, etc.
  – Residual value are unknown today - marketplace and speed of technology development will determine this
  – Maintenance costs (for trucks and chargers) are unknown
• Small operators cannot assume cost and risk of battery-electric Class 8 trucks without a significant discount on the trucks and access to charging ports
  – 0 publicly accessible chargers today
• Policies needed to accelerate/prioritize the infrastructure installation timeline are critical to the timely adoption of battery-electric Class 8 trucks
THANK YOU

aravind.kailas@volvo.com