

LOOP

Heavy Duty.
Zero Emissions.





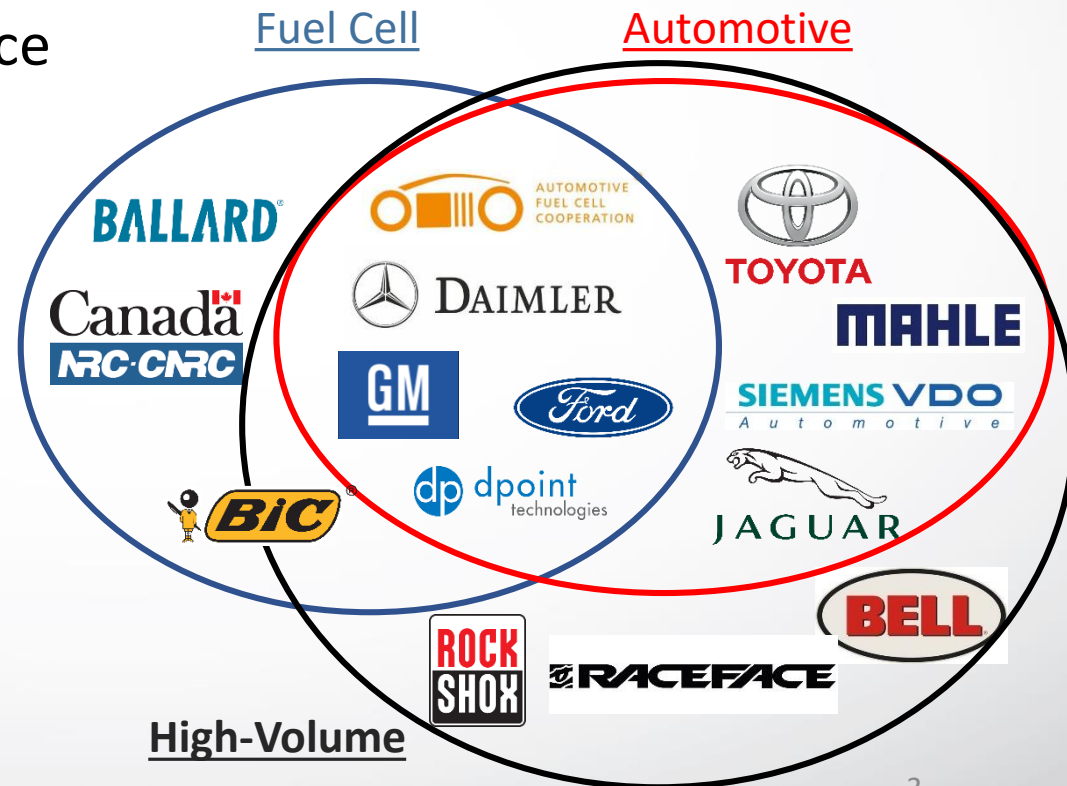
Company Overview

- Founded in 2001
- Technology advantage - eFlow®
- Product focus: Zero-Emission Heavy-Duty Powertrains
- Partnerships
 - Heavy-duty truck OEMs
 - Suppliers
- Government Partners
 - Sustainable Development Technology Canada (SDTC)
 - California



Product Development Team

- High-volume manufacturing methods
- Automotive design experience
- Leading fuel cell expertise





Product Overview



- Scalable architecture for various product categories
 - 30kw
 - 50kw
- Built to automotive standards
- Smallest and lightest fuel cell on the market
- Unique design delivers reduced materials costs

LOOP

Los Angeles Vehicles



LOOP



- HOVA 4x2 EV + 50kW Loop Range Extender (REX)
- Yard truck for port operations
- REX module is located in traditional diesel engine location
- 2 vehicles have been integrated to date
- One vehicle is currently undergoing shakedown testing in Shandong Province, China





Vehicle Specifications

Battery Size	50 kWh
Voltage Range	450-700V
Hydrogen Capacity	5.5kg @ 35 MPa
E-motor Power	100kW (150kW peak)
Design Mileage	85 miles/day
Design Range	70 miles
Design Lifetime	10 years





Business Case



- Capex
 - Reduction of “capital at risk” during subsidies phase
 - Directly competitive with ICE in commercial phase
- Opex
 - Better than diesel, competitive with battery
 - No change in operational behaviour from ICE trucks
- Ecosystem
 - Tethered fleet
 - Accessible hydrogen
 - Regulatory support



Capex



- Launch/Subsidy – 100 units per year
 - Off Road Voucher – \$110K
 - Prop 1B – 80% up to \$200K
- Commercial - 1000+ units per year
 - High volume design
 - Partners with scaling (and cost out) capacity
- Loop advantage
 - 30-40% lower capex for fuel cell stack



10 Yr TCO (59 mi/day)

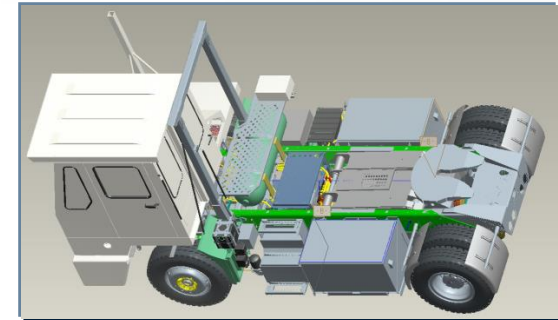
	Diesel	Launch	Prop 1B	Commercial
CapEx		(100/year)	(100/year)	(1000+/year)
Truck Price	\$95,000	\$195,000	\$195,000	\$127,500
Off Rd Voucher (\$110K)				
Prop 1B (80% to \$200K)			(\$156,000)	
CapEx after subsidy			\$39,000	
OpEx (Annual)				
Fuel Price	\$4/gal	\$10/kg		\$7/kg
Fuel Cost	\$25,875	\$20,837	\$20,837	\$15,660
Maintenance	\$3,500	\$1,000	\$1,100	\$1,100
OpEx Savings (vs. Diesel)		\$7,400	\$7,400	\$17,600
10 yr TCO	\$388,100	\$411,600	\$255,600	\$284,100

Note: Additional carbon credits (approx. \$4000/yr) and fuel credit (\$1/kg) not included in OpEx or TCO calculations.

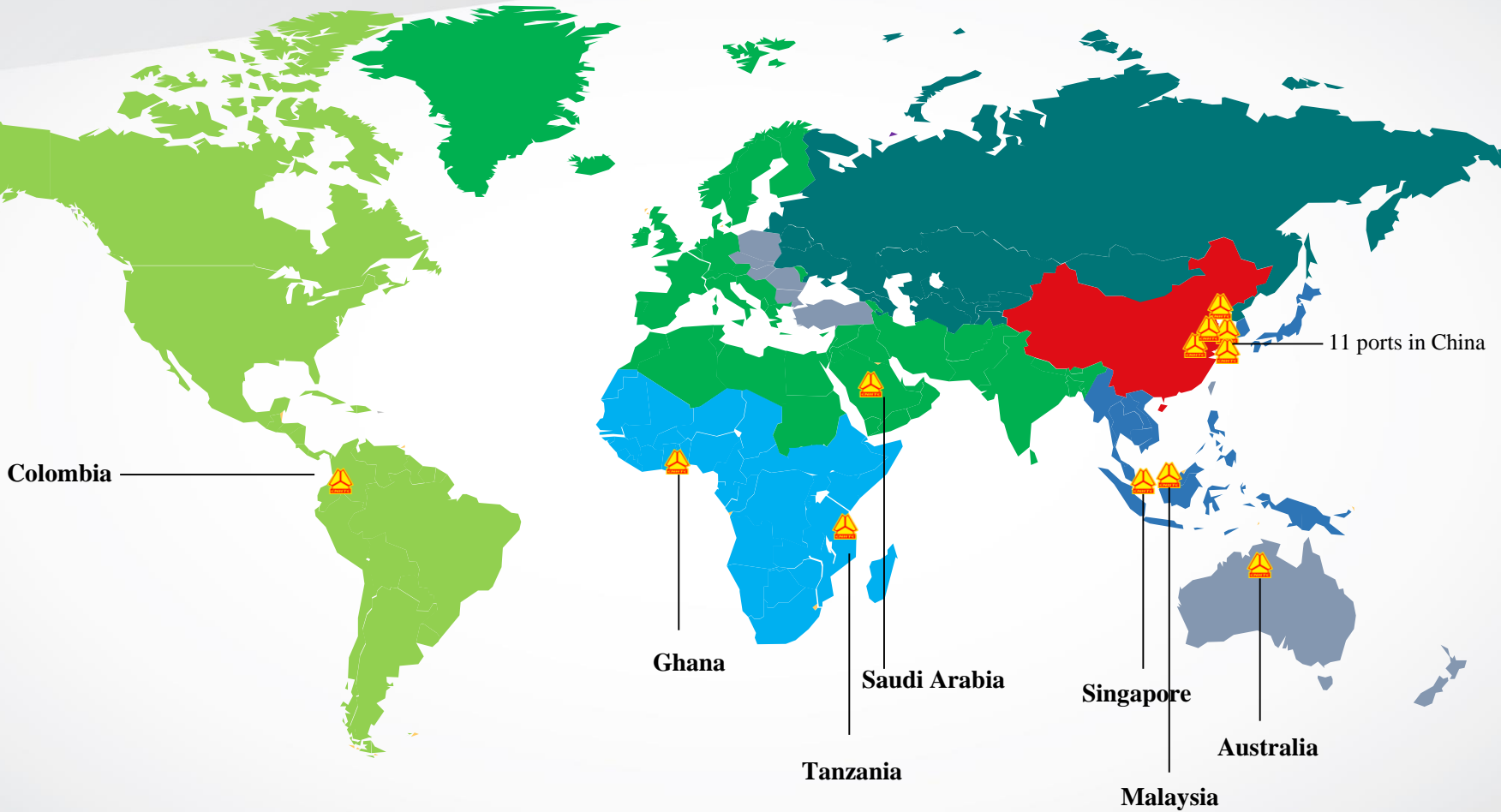


Heavy-Duty Truck Partner - CNHTC

- Founded in 1956; largest truck manufacturer in China
- 1600 engineers in R&D
- Annual sales 200,000 trucks
- 30,000 exported to >100 countries/regions
- Introduced Steyr HD truck tech from Austria in 1983
- Cooperated with VOLVO in 2003 for heavy trucks
- Long term strategic cooperation with MAN in 2009



CNHTC Market Distribution



- CNHTC Sinotruk's traditional yard trucks have 65% market share in China, including 11 ports
- Also export to Saudi Arabia, UAE, Singapore, Australia, Malaysia, Tanzania, Ghana, Colombia



Clean Freight Ecosystem



Port of LA & Long Beach

Launch/Subsidy

- 1500 Yard Trucks
- 13,000 Class 8
- Hydrogen supply in port

North American Ports Market

Commercial

- 17,000 Annual Class 8 turnover

All Freight (Worldwide)

Expansion

- 12,500,000 Trucks Annually



Thank you!

We need
ZE solutions for
HD freight

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Energy
movement