

The Ballard logo is displayed in white, bold, sans-serif capital letters within a blue rectangular box in the top-left corner of the slide. The background of the slide is a scenic landscape featuring a multi-lane highway on the left, a large body of water in the center, and mountains in the distance under a clear sky.

**BALLARD™**

We deliver fuel  
cell power for  
sustainable mining operation

September 2021

**BALLARD™**

We deliver fuel cell power for a sustainable planet



**Fuel Cell  
Innovator for  
Over 40 Years**

**Heavy-Duty Motive**

Focusing where fuel cells deliver the strongest value proposition

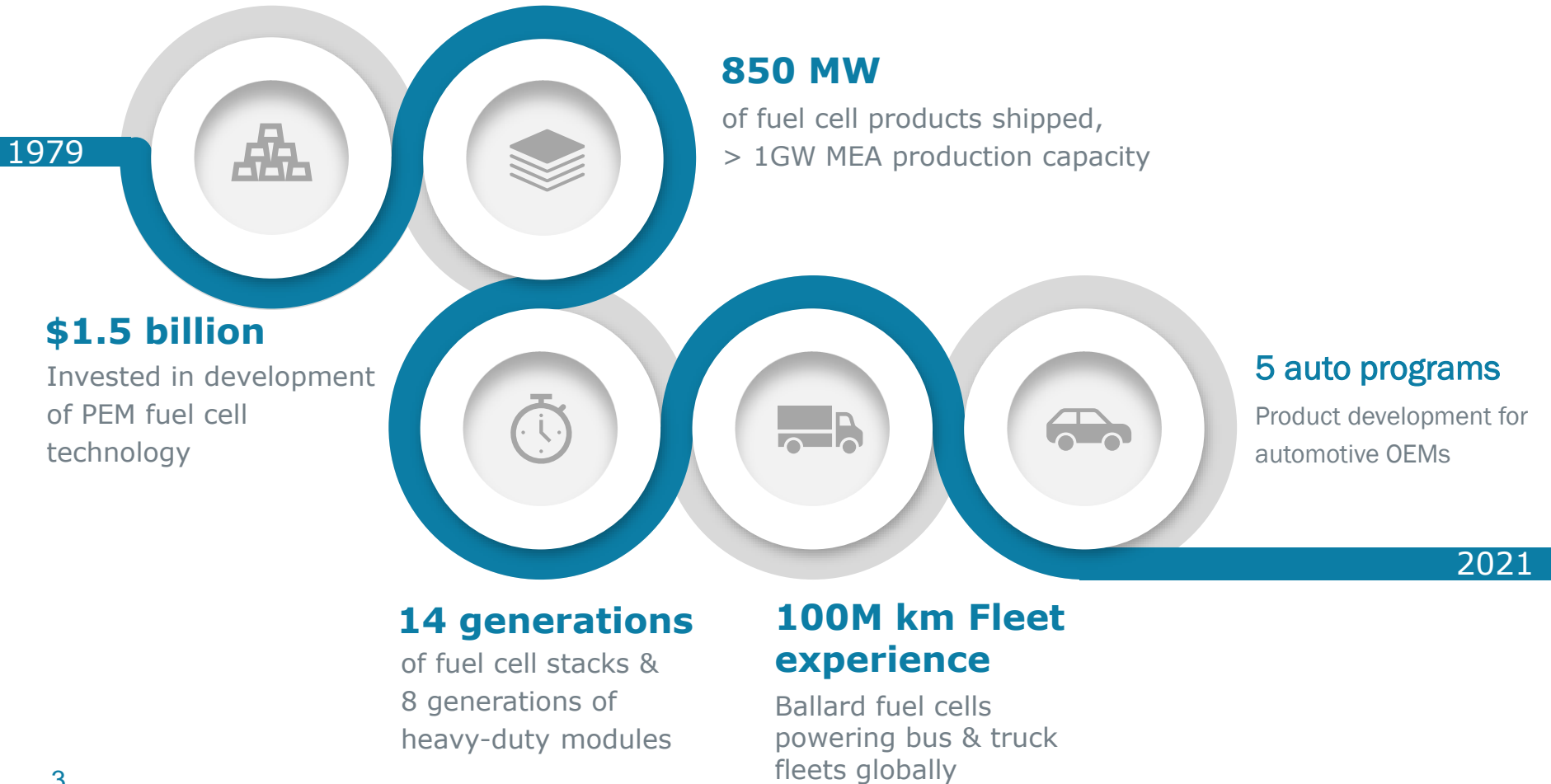
**Leadership**

in technology and cost reduction



# About Ballard

We have fuel cell expertise and experience with leading technology



## Ballard Today

- 3,500+ buses & trucks on the road
- 97% availability of fuel cell modules in vehicles
- >30,000 hour product lifetime
- >4.5 L/kW power density
- 1,300 patents & applications
- Rigorous technology & product development processes





# Our global presence

## We are present in:

Europe - China - North America

We have global industrial partners to deliver world-leading fuel cell solutions

 Office

-  Sales or service presence
-  Fuel cell stack & module assembly
-  Bipolar plate production
-  Membrane electrode assembly production







Marine



Stationary



Bus



Rail



Truck



Off-road



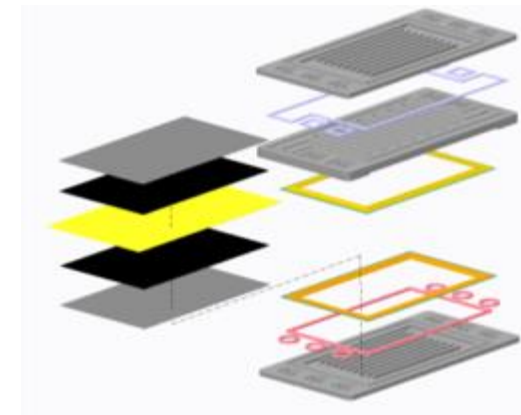
Our markets



# We are a vertically integrated manufacturer throughout the fuel cell value chain

Ballard designs, builds and tests proprietary core technology components to produce optimized fuel cell products for each application

- Unit cell components (MEAs, plates...)
- Fuel cell stacks
- Balance of plant component integration
- Fuel cell module & system



# Product roadmap to address all commercial vehicle applications



# BALLARD™

## FCmove™-HD/HD+ Key Features



Compact innovative design



Low life cycle cost



Engine bay and roof top configurations for easy truck and bus integration



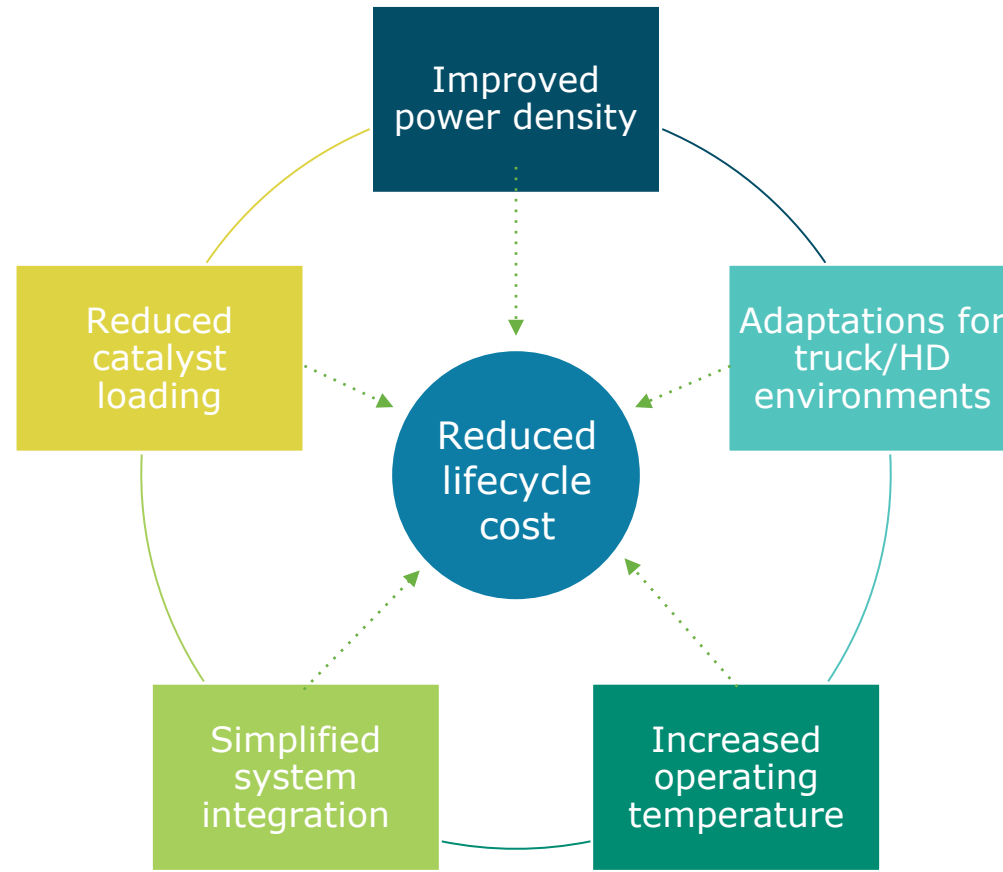
High performance, robust product with wide operating range



Low carbon footprint



# Product development focuses on meeting performance and lifecycle cost targets

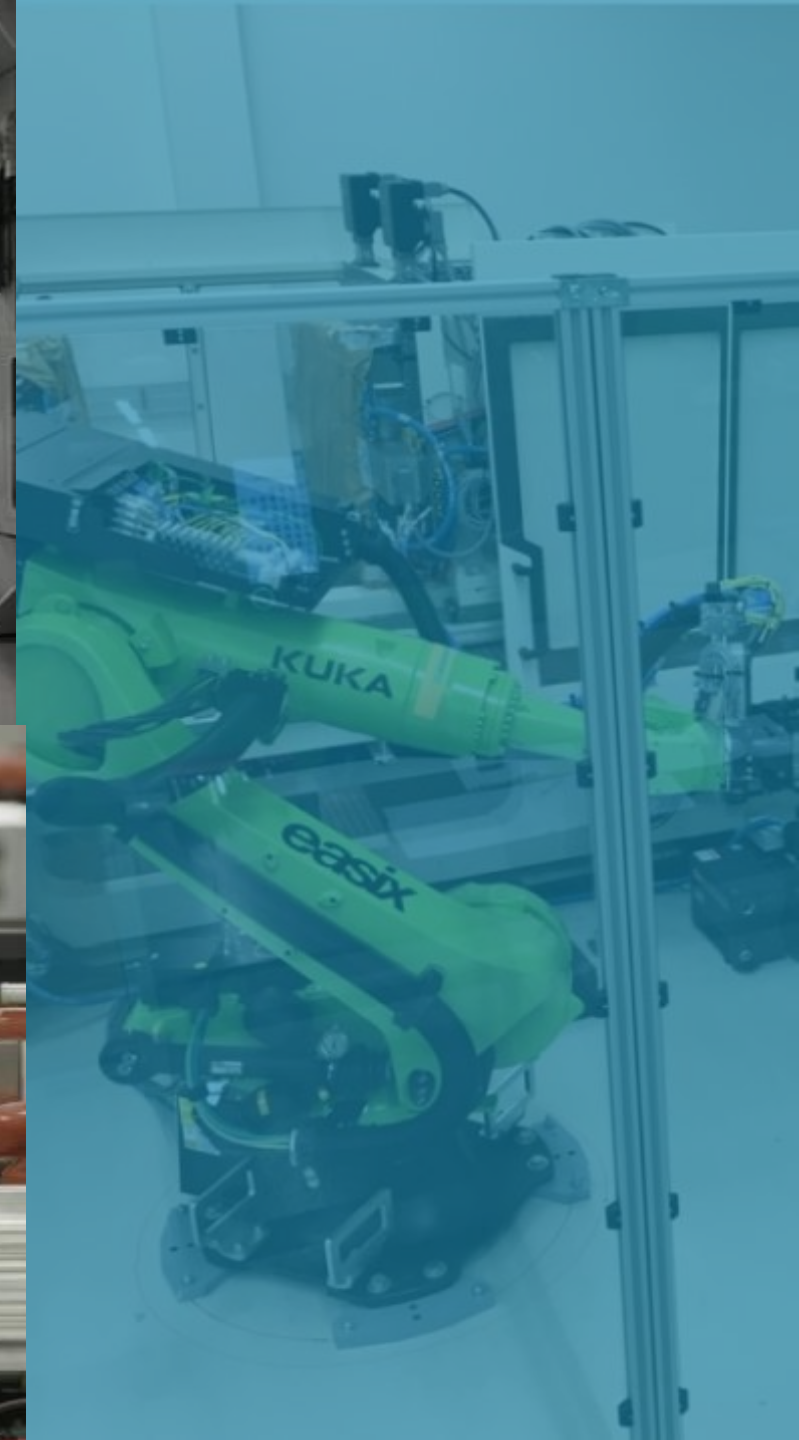
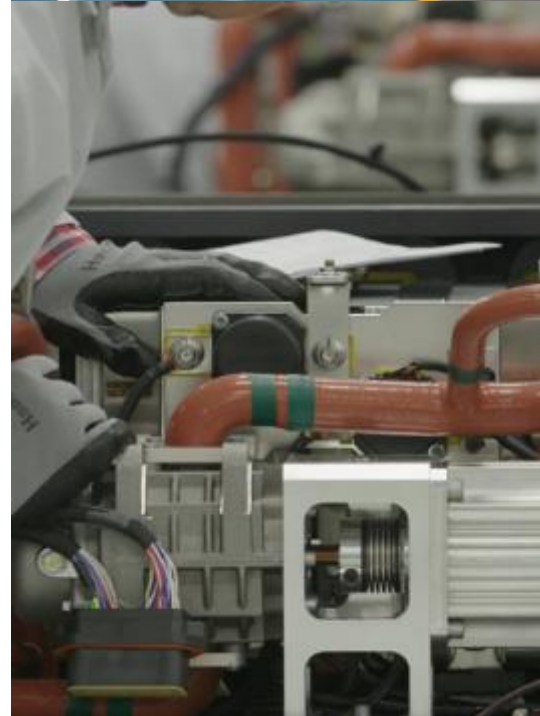


## Innovative advanced manufacturing processes

We are investing in new production processes and operational technology solutions to cost-effectively scale up production capacity:

- expanding MEA production capacity by multiple times
- commissioning a new fully automated sealing manufacturing cell
- implementing pilot production line with capacity for thousands of modules per year

→ Expanding Production Capacity to 1.66GW



# BALLARD™

We are powering thousands of heavy-duty vehicles globally with over **100 million km** of road experience



**1,300 +**  
transit buses



**2,200 +**  
trucks



**6 Train**  
projects on track



**8 Ships**  
in deployment





BALLARD POWERS

# AZETEC PROJECT

Ballard modules power 2 tractor-trailer trucks as part of the Alberta Zero-Emissions Truck Electrification Collaboration project

Trucks will move freight year-round between Edmonton and Calgary





# Freight locomotive

Through its Hydrogen Locomotive Program, CP will develop North America's first hydrogen-powered line-haul freight locomotive by retrofitting a formerly diesel-powered locomotive with Ballard hydrogen fuel cells.





BALLARD PROJECT WITH

# AngloAmerican

300t mining truck powered by Ballard  
hydrogen fuel cell





**BALLARD™**

# Hydrogen Fuel Cells for Power Generation & Backup Power

**H<sub>2</sub>**  
HYDROGEN  
ENERGY  
STORAGE

H<sub>2</sub>

O<sub>2</sub>



# Ballard's current fuel cell system offering for stationary



200 kW

Modular Stationary  
Power System

- >25,000hrs
- Modular cabinet configuration
- Stand alone or containerized
- From 200kW to 1MW



1.5 MW

Large Scale Stationary

- Containerized system
- High durability & efficiency
- Compact system footprint
- MW's power plant







BALLARD PROJECT WITH  
**HDF**

Stationary power system powered by  
Ballard 1MW hydrogen fuel cell in  
Caribbean island

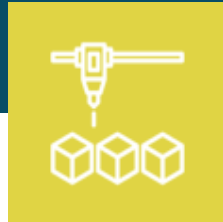


# We support our customers through their journey



## Applications engineering

- FAT & SAT
- Vehicle integration support
- Simulations
- System integration



## Engineering services

- Testing and certifications
- Product design
- Technology transfer



## After-sales services

- On site support
- Spare parts
- Call center
- Service contracts



## Training

- Fuel cell technology knowledge
- Product operation and maintenance
- Remote or onsite classes



## Marketing support

- Sales resources
- Educational tools
- Subject matter experts
- Market analysis

**BALLARD**<sup>TM</sup>

*Here for life*<sup>TM</sup>

**Thank you**

**[www.ballard.com](http://www.ballard.com)**