BALLARD[™]

BALLARD[™] Motive Solutions

Mainstreaming Hydrogen & Fuel Cells

Dr Ben Todd CEO, Ballard Motive Solutions

Future Propulsion Conference March 2, 2022

Because we need to. All of us.



BALLARD A-Drive Technology Platform

System-level functions

- Energy storage, conversion and management
- Power distribution and delivery
- Thermal regulation



BALLARD[®]

Systems Engineering and Full Lifecycle Approach



Powertrain as a system – not just a series of components Integrated by A-Drive controller, unique BMS IP development over 12 years System level optimisation for vehicle performance, efficiency, subsystem lifetime, cost

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Powertrain-level testing, field data capture and analysis feedback to system design and optimisation

Continuous improvement at platform level supports all customers



BALLARD[™] Motive Solutions

- More than 12 years of experience in integrating Ballard fuel cell engines into powertrains for heavy-duty vehicles
- Team of 90 people based in the UK dedicated to advance zero-emission mobility
- Ballard fuel cell powertrain Centre of Expertise
- Hydrogen energy system integration and electromobility expertise
- In-house prototype build capabilities
- Experience in multiple fuel cell bus, truck and rail projects
- Supporting global Ballard customers

BALLARD Mainstream >= Consolidate.





BALLARD^M Motive Solutions

Full Powertrain integration capability to accelerate the adoption of fuel cell mobility



BALLARD^{**} Recent Projects

- Leading a consortium of rail businesses on train project
- Whole vehicle responsibility for RCV
- Public-private partnership deployment projects





REFUSE COLLECTION VEHICLE

Vehicle development, engineering and certification for sale

BUS

Powerpack development and integration for product development and demonstration

TRAIN

Contract engineering for market development and demonstration

Supporting the customer throughout the product lifecycle



BALLARD Flexible involvement in vehicle development cycle

Handover to OEM at any stage







Power to maintain speed on demanding routes

Fuel cell technology is the sustainable, longterm solution for decarbonization of heavy-duty transport



Proven range and route flexibility



High energy density to maximize payload



Rapid refueling ensures high truck utilization



Here for life

Thank you

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