

# ULEMCo

ultra low emission mileage company limited

## Hydrogen solutions for commercial vehicle applications

ULEMCo Limited, September 2023



# ULEMCo offers practical solutions that deliver ultra-low emission trucks, NOW, and a route to zero in less than 5 years



Available now

Existing or new vehicles (including LGV, HGV, Specialist, Off-Road, & Construction Equipment)

Up to 40% carbon emission reduction

Typical daily H<sub>2</sub> use per vehicle between 5-15kg<sup>1</sup>

Improved real-world air quality emissions



Fuel cell power module kit

For integration onto base electric specialist vehicle platforms

Zero emission (except water)

Typical H<sub>2</sub> use per vehicle of up to 15kg per day

Provides flexibility and extra on-board energy for EVs



Series & parallel hybrid H<sub>2</sub> ICE powertrain

For upcycling and repowering of specialist vehicles and equipment

Zero carbon, ultra-low emission

Typical H<sub>2</sub> use 30-40kg a day

Uses conventional chassis and vehicle systems

# ULEMCo's 'Hydrogen Dual Fuel' conversion service



- **Step 1: Assessment of fleet and use patterns**
  - **Determine onboard H2 storage** options & any bespoke design elements
  - **Estimate Hydrogen** volume use (based on average displacement 20-40%)
  - **Safety risk assessment** support
- **Step 2: Physical vehicle conversion**
  - **Addition of on-board 350 bar EC79** hydrogen storage
  - **Air inlet modified** to allow for the addition of hydrogen gas injectors
  - **Install hydrogen engine control** (ECU), and safety systems
- **Step 3: Commission, training and handover**
  - **Duty cycle optimisation**
  - **First fill and Training**
  - **Supplied with** individual vehicle approval
- **Step 4: Ongoing Support and data monitoring**

**ULEMCo** has converted over 100 vehicles. These vehicles are on the road with our **dual-fuel H2ICED<sup>®</sup>** technology and saving **tonnes of CO2** today.



# Case studies

## Dual-fuel technology, H2ICED®

- **Owner:** Aberdeen City Council
- **Type of Vehicle:**
  - Road sweepers
  - Refuse trucks
  - Tippers
  - Tractors
- **No. of vehicles converted:**
  - 10 vehicles before 2023
  - 35 vehicles in 2023
  - 10 vehicles in 2024
- **Estimated CO<sub>2</sub> savings:**
  - 3,350kg in 2021-2022 (road sweeper shown)
  - 3,143kg in 2021-2022 (RCV)
- **Hydrogen supply:**
  - 2 hydrogen refuelling stations
  - The vehicles fill to 350bar.
  - For refuelling fleets, it is expected to have a refuelling facility on site or close to your depot.
  - Using hydrogen at scale will result in more cost-effective pricing (>150kg per day).

