# REVIVE

## REFUSE VEHICLE INNOVATION AND VALIDATION IN EUROPE


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| **Project ID:** | **779589** |
| **PRD 2023:** | **Panel 3 – H2 end uses – transport** |
| **Call topic:** | **FCH-01-7-2017: Validation of fuel cell trucks for the collect of urban wastes** |
| **Project total costs:** | **EUR 10 566 750.68** |
| **Clean $H_2$ JU max. contribution:** | **EUR 4 993 851.00** |
| **Project period:** | **1.1.2018–30.6.2024** |
| **Coordinator:** | **Tractebel Engineering, Belgium** |
| **Beneficiaries:** | Azienda Servizi Municipalizzati di Merano SpA, Commissariat à l'énergie atomique et aux énergies alternatives, Element Energy Limited, Engie Impact Belgium, E-Trucks Europe, Gemeente Amsterdam, Gemeente Breda, Gemeente Groningen, Gemeente Noordenveld, PowerCell Sweden AB, Prezero Nederland Holding BV, Proton Motor Fuel Cell GmbH, Renova AB, Saver NV, Servizi Energia Ambiente Bolzano SpA, Stad Antwerpen, WaterstofNet VZW |

**https://h2revive.eu/**

### PROJECT AND OBJECTIVES

REVIVE will significantly advance the state of development of fuel cell bin lorries by integrating fuel cell powertrains into 14 vehicles and deploying them at eight sites across Europe. The project will deliver substantial technical progress by integrating fuel cell systems from four major suppliers and by developing effective hardware and control strategies to meet highly demanding refuse truck duty cycles. Today, three trucks are in operation, and the remaining ones will be deployed in the coming months.

### NON-QUANTITATIVE OBJECTIVES

- The project aims to involve EU fuel cell suppliers. Currently, two such suppliers are involved in the project: Proton Motor and PowerCell Sweden. In addition, two trucks are equipped with Hydrogenics FC systems.
- The project aims to demonstrate a route to high utilisation of hydrogen refuelling stations to support the roll-out of $H_2$ mobility for light vehicles. Even with limited running hours, the three trucks deployed in the project have already consumed 1 t of $H_2$ during the project.

### PROGRESS AND MAIN ACHIEVEMENTS

- Trucks are in the building phase.
- The first Proton Motor fuel cell system has been delivered and successfully integrated.
- The first REVIVE truck has been deployed.

### FUTURE STEPS AND PLANS

- **Deployment preparation.** At the project consortium level, experience and relevant documentation are being shared to fully prepare for truck deployment.
- **Increased dissemination activities.** To catch up following the delays experienced in 2020, a plan for dissemination will be developed.
- **Decrease in teething issues.** The trucks are being tested thoroughly before delivery.

### QUANTITATIVE TARGETS AND STATUS

| Target source | Parameter | Unit | Target | Achieved to date by the project | Target achieved? | SoA result achieved to date (by others) |
|---|---|---|---|---|---|---|
| AWP 2017 | Number of FCs deployed in the project | – | 15 | 6 | ⚙ | 6 |
| | FC power | kW | > 40 | 45 | ✓ | 90 |
| | Lifetime | hours | 25 000 | N/A | ⚙ | > 25 000 |
| | Tank-to-wheel efficiency | % | 50 | 45 | ⚙ | N/A |
| | Availability | % | 90 | 81.5 | ⚙ | |
| | Driving distance between failures | km | 3 500 | 785 | ⚙ | |



Clean Hydrogen Partnership
Co-funded by the European Union