Hydrogen buses in Gdynia

Operational test results

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Interreg Europe

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HYPERION

ARTHUR BUS AB2

Hydrogen fuel cell bus

Test period: 17–22 September 2025

Operation on lines: S, 105/125, 159 and 180

ARTHUR BUS AB2

- two asynchronous drive — asynchronous 2x125 kW located in hubs of
- a 70 kW Ballard hydrogen fuel cell mounted on the roof
- composite hydrogen tanks with a capacity of 37.5 kg
- batteries LTO — LTO (lithium-titanium) with capacity 30 kWh installed in the rear of the vehicle under the floor
- braking energy recovery system minimises hydrogen fuel consumption
- bus range: up to 500 km
- hydrogen refuelling time: approx. 10-15 minutes

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ARTHUR BUS AB2

The bus is air-conditioned, fully low-floor, and can carry up to 79 passengers, including 33 seated.

ARTHUR BUS AB2

Date	Mileage (in kilometres)	Hydrogen consumption (in kg)	Average hydrogen consumption of hydrogen
17.09.2025 (Wed)	192.0	8.5	4.43
18 September 2025 (Thursday)	316.0	23.1	7.31
19 September 2025 (Fri)	304.0	16.9	5.56
20 September 2025 (Sat)	309.8	26.4	8.52
21 September 2025 (Sunday)	296.0	22.6	7.64
22 September 2025 (Mon)	308.6	23.3	7.55
Total:	**1,726.4**	**120.8**	**7.00**

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Mercedes eCitaro Fuel Cell

Electric bus with hydrogen range extender

Test period: 23 September – 1 October 2025

Operation on lines: S, 105/125, 140/160, 141, 159 and 180

Mercedes eCitaro Fuel Cell

- two 2x 125 kW asynchronous motors located in the wheel hubs
- NMC3 traction batteries with a capacity of 294 kWh mounted on the roof and in the rear of the vehicle under the floor
- 60 kW hydrogen fuel cell mounted on the roof, serving as a range extender
- hydrogen tanks with a capacity of 25 kg
- a braking energy recovery system minimises hydrogen fuel consumption
- bus range: up to 400 km
- hydrogen refuelling + battery charging via plug-in connector

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Mercedes eCitaro Fuel Cell

The interior layout allows for a total of 69 passengers, including 30 seated passengers.

Mercedes eCitaro Fuel Cell

Date	Mileage (in kilometres)	Hydrogen consumption of hydrogen (in kg)	Average consumption of hydrogen	Energy (in kWh) (in kWh)	Average energy energy
23 September 2025 (Tue)	318.8	14.20	4.45	72.80	22.84
24 September 2025 (Wed)	256.0	14.57	5.69	64.40	25.16
25 September 2025 (Thursday)	275.6	12.94	4.70	94.10	34.14
26 September 2025 (Fri)	275.6	11.30	4.10	81.30	29.5
27 September 2025 (Saturday)	303.6	12.20	4.02	75.8	24.97
28 September 2025 (Sunday)	269.0	10.90	4.05	72.0	26.77
29 September 2025 (Mon)	304.0	12.40	4.08	67.3	22.14
30 September 2025 (Tuesday)	134.2	7.10	5.29	34.2	25.48
1 October 2025 (Wed)	272.6	11.30	4.14	91.40	33.53
Total:	**2,409.4**	**106.91**	**4.44**	**653.30**	**27.11**

Comparison of operating costs of operation

DIESEL ENGINE BUS		
Average consumption	Price per litre	Cost per 100 km
41.8 l/100 km	4.94 PLN net	**206.49 PLN net**

HYDROGEN BUS		
Average consumption	Price per kg	Cost per journey 100 km
7 kg/100 km	56.1 PLN net	**392.70 net**

CNG GAS BUS		
Average consumption	Price per m^3	Cost of travelling 100 km
60.9 m^3/100 km	5.73 PLN net	**348.96 net**

ELECTRIC-HYDROGEN BUS		
Average consumption	Price per kg / kWh	Cost of travelling 100 km
4.44 kg/100 km 27.1 kWh/100 km	PLN 56.1 net PLN 0.90 net	**PLN 273.47 net**

Thank you for your attention

Paweł Misiak

President of the Management Board of PKM sp. z o.o.

Gdynia, 6 November 2025