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Croatia piloting hydrogen-powered bus in public city transport Webinar 'Regional Policies for Early Uptake of Hydrogen Mobility'

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JIVE2 organised a side activity in a form of a bus road show accross selected CEE

1st roadshow: organised from Nov 2022 to Jan 2023 across 5 countries (Slovenia, Croatia, Czech Republic, Slovakia and Hungary) with the hydrogen bus traveling a total distance of 1,641 km

2nd roadshow: organised from Sept to mid-Oct 2023 across 4 countries (Poland, Lithuania, Latvia and Estonia) with the hydrogen bus traveling a total distance of 1,450 km

3rd roadshow: organised from May to June 2024 across 4 countries (Romania, Greece, Bulgaria and Bosnia and Herzegovina) with the hydrogen bus traveling a total distance of 2,813 km



FIRST ROADSHOW

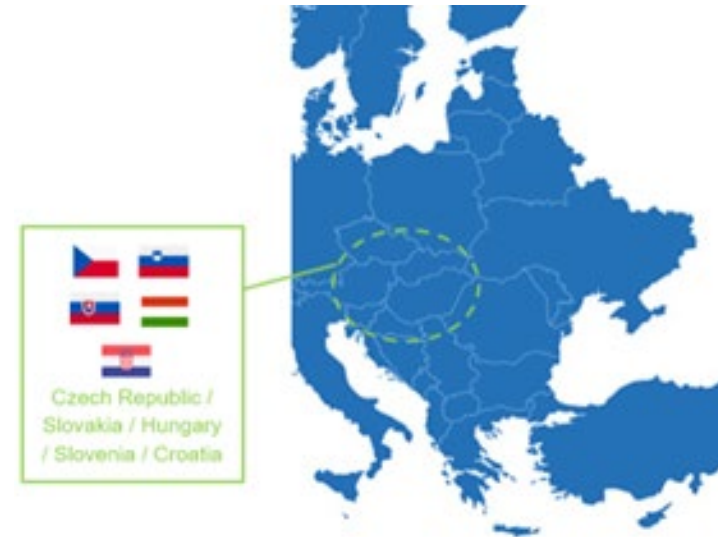
Purpose:

to showcase the hydrogen technologies and allow cities to experience and test it

In numbers:

- **9 cities** tested the fuel cell bus across **5 countries**
- Total distance travelled: **1.641 km**
- **Hydrogen consumed:** approximately **125 kg**, resulting in an average consumption of **7,6 kg/100km**
- The bus range: at least **400 km**
- **13 events** (national workshops, student events, professional events and media events) attended by over **900 participants**
- **Over 220 media articles, TV and radio programs** discussed the roadshow and the bus's performance resulting in a reach of over **2.5 million people**

Budget: side activity under the JIVE2 project



FIRST ROADSHOW

Structure:

- Overall coordination by Hydrogen Europe and H2LV, nationally by national coordinators
- FCB (Fuel Cell Bus) provided by Caetano (H2 City.Gold)
- Mobile refueling station by Messer
- Fuel cell vehicle - Toyota Mirai
- Each city stop lasted approximately **one week**, including transportation and installation/deinstallation of the station
- A **national workshop** held in each country during the roadshow to present the results of the test trials, discuss key issues and share experience
- **Wide range of stakeholders**, including government representatives, operators and local authorities, industry, students and members of the academia, media

Organisers



Infrastructure providers



National Coordinators



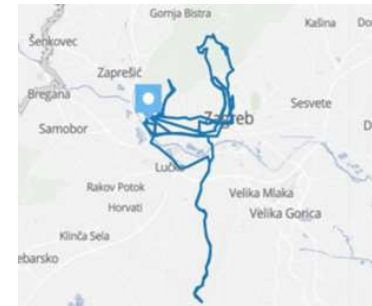
Partners



Croatia

The 2nd stop of the roadshow:

- National coordinator - **Croatian Hydrogen Association**
- Project partner – **Croatian Hydrocarbon Agency**
- **City of Zagreb** and its public transport operator (**Zagreb Electric Tram Ltd. – ZET**) preparing for zero-emission bus fleet renewal activities
- **The hydrogen bus tested in Zagreb** for the first time, in urban and suburban Zagreb area, in extreme operating conditions (below 0°C, hilly terrain) showing excellent results in terms of efficiency (28 – 30/11/22)
- However, ZET was not able to test the bus with passengers, in “real life” conditions due to administrative restrictions
- **The Croatian national workshop** held in the Technical museum Nikola Tesla in Zagreb (01/12/22)



BUS KPIs



During the FCBs trial	SLOVENIA	CROATIA	CZECH REPUBLIC	SLOVAKIA	HUNGARY	TOTAL
Bus KPI						
Total Distance Travelled	245 km	262 km	161 km	410 km	724 km	1641 km
Average Hydrogen Consumption data	7,34 kg/100km	8,654 kg/100km*	>10 kg/100km**	9,59 kg/100km*** (i.e 1.76 kWh/km)	6,36 kg/100km****	7,6kg/100km
Average outside temperature	NA	NA	3 °C	5°C	7,5°C	NA
Average speed	NA	NA	25 km/h	25,4 km/h	32 km/h	NA
Station KPI						
Number of hydrogen refuelling events	2	1	4	8	6	21
Total Kg of H2 delivered	22 kg	22,7 kg	73 kg	66 kg	44 kg	227,7 kg

**Hydrogen bus was tested in Zagreb in some cases in extreme operating conditions (below 0°C, hilly terrain), showing excellent results especially in terms of efficiency*

MEDIA KPIS



	SLOVENIA	CROATIA	CZECH REPUBLIC	SLOVAKIA	HUNGARY	TOTAL
Number of events organised.	5	1	2	2	3	13
Number of participants in the stakeholder events	400	80	142	50	228	900
Number of participants in the media events	200	80	55	28	9	372
Number of media articles, TV and radio programmes	23	40	25	38	95	221
Reach of the media articles, TV and radio programmes	205 000 (of which 5 000 in Italy)	289 000	50 000	1 386 800	2 141 986	4 022 786
Number of social media posts	10 (+)	22	7	22	18	79
Reach of the social media posts	7 000 (+)	72 000	38 000	17 316	75 559	209 875

CONCLUSIONS

- Excellent opportunity to promote hydrogen mobility, educate citizens and road transport operators about the technology, and bring together a wide range of stakeholders including national/regional/local authorities, decision-makers, academia and representatives from industry
- Initiated local value chain discussions
- To be planned well in advance to avoid any possible restrictions on practical implementation
- More pilot projects (to be repeated or last longer)
- An adequate regulatory framework and financial support should be planned accordingly
- Building a full hydrogen ecosystem to be able to deploy FCBs



Croatia piloting hydrogen-powered bus in public city transport

JIVE 2 CEE roadshow stop in Zagreb provided a real-life insight into hydrogen fuel cell technology used and tested in public city transport.

01 Aug 2024 | By project Green Hydra

 Expert approved



Time for
Questions



Thank you!

www.interregeurope.eu/green-hydra