Vision of hydrogen demonstration project

The aim of project

Formation of hydrogen regions – realization of new hydrogen refuelling station and 3 – 5 hydrogen buses and/or 10 – 20 cars (taxi). The aim is in conformity with current politics in EU and Czech Republic in field of mobility

The merits of project

- realization in CZ – visible for tourists (increasing the prestige of the region)
- fuel cells and hydrogen are amongst the most promising low carbon solutions - reduction air pollution in traffic
- reduction of noise, vibration, higher user´s comfort
- the hydrogen vehicles (in comparison with car using batteries) reaches 400 - 600 km (cars), 200 km (buses)per refuel, time of refuelling shorter than 10 minutes
- low operating cost
- possibility of hydrogen production from renewable sources

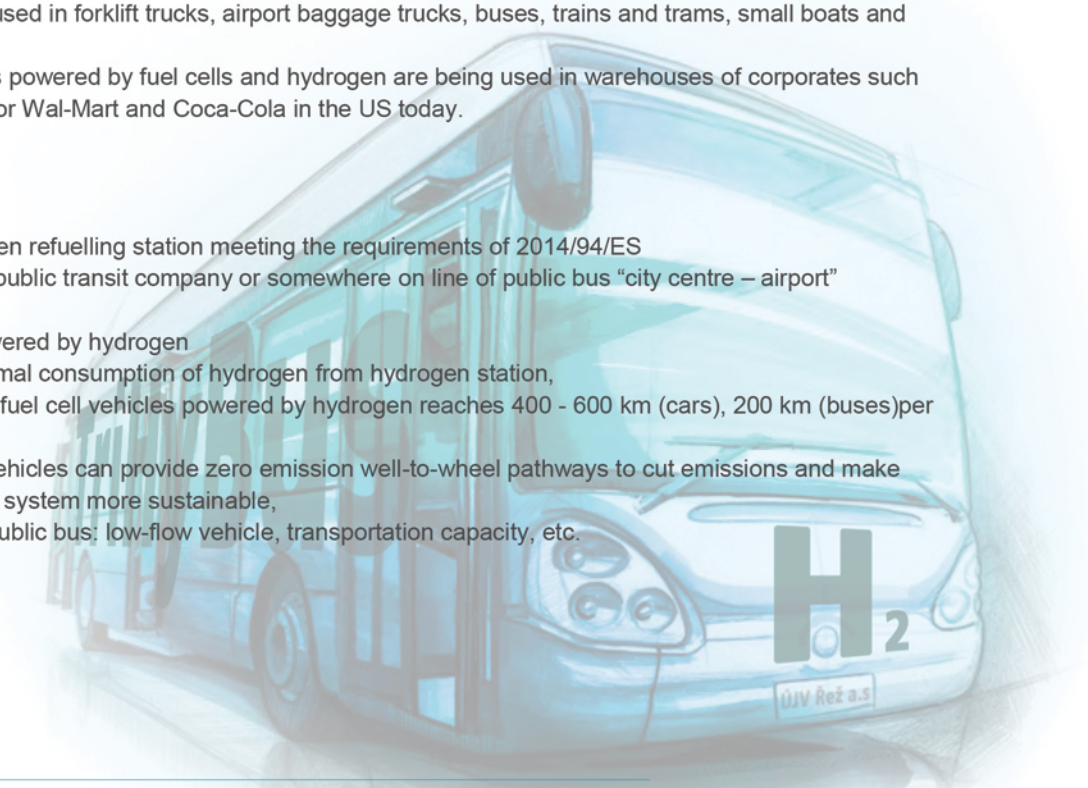
The current situation in Europe

- more than 500 hydrogen vehicles are already operating in Europe, mainly in Germany, Scandinavia, the UK, the Netherlands and France,
- the operation of fuel cell buses for public transport has already started in London, Hamburg, Cologne, Milan, Oslo and other cities,
- 50 refuelling stations are in operation in Germany and by 2023, Germany will have around 400 hydrogen refuelling stations, becoming the first country with basic hydrogen refuelling station network,
- also hydrogen can be used in forklift trucks, airport baggage trucks, buses, trains and trams, small boats and even ferries,
- over 5 000 forklift fleets powered by fuel cells and hydrogen are being used in warehouses of corporates such as La Poste in France or Wal-Mart and Coca-Cola in the US today.

Details of project

- Construction of hydrogen refuelling station meeting the requirements of 2014/94/ES
  - location: areal of public transit company or somewhere on line of public bus “city centre – airport”

- 4 buses or 20 cars powered by hydrogen
  - ensuring the minimal consumption of hydrogen from hydrogen station,
  - a typical range of fuel cell vehicles powered by hydrogen reaches 400 - 600 km (cars), 200 km (buses)per refuel,
  - fuel cell electric vehicles can provide zero emission well-to-wheel pathways to cut emissions and make the transportation system more sustainable,
  - requirements of public bus: low-flow vehicle, transportation capacity, etc.



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Phase 1 – Hydrogen region Prague

Location: Prague

- big city with large public transport,
- international airport (public transport from/to airport, taxi service, etc.),
- the opportunity of future use the filling station for other vehicles (e.g. taxi service, post office, but also the boats)
- H2 corridor: the project in the Czech Republic can be linked up with H2 corridor in Europe (sustainability of both projects)
- a great social impact (demonstration project)
- presentation on special events/conferences (WHTC2017, Prague)

Phase 2 – Other hydrogen regions

Feasible location:

- regional/district city with public transport
- connection with international hydrogen infrastructure – Trans-European Transport Network TEN-T (connection to Germany, Austria, Poland)
- city with the previous experiences with alternative fuels
- city with emphasis on low emission transport (spa town) or city with high emission load (the Usti region, the Moravian-Silesian region)
- suitable location, for example: Pilsen, České Budějovice (Budweiss), Usti nad Labem, Karlovy Vary, Ostrava

Coordinator of project

- public transit company or other transit company (Student Agency, Arriva etc.)
- municipality/city
- operator of petrol stations (e.g. Benzina)

Costs of project

- indicative price for one region are 5 - 6 M€
  - hydrogen refuelling station - 1 M€,
  - bus powered by hydrogen - 0,7 M€,
  - car powered by hydrogen - 70 k€.

Project realization:

Phase 1 – Hydrogen region Prague: 2016 – 2017
Phase 2 – Other hydrogen region: 2017 +

Estimated time of realization of the hydrogen region is 18 months (after securing funding)

Potential public funding

- National, Cohesion and Structural funds
- CEF Transport

Something more

- Cruise shipping represents a major burden for air quality in Prague, ships powered by hydrogen is attractive project with considerable marketing potential
- At a suitable location, there is a possibility of using one hydrogen filling station for vehicles and ships as well

Related reference

www.trihybus.cz www.hytep.cz www.hydrogenbusalliance.org www.fch.europa.eu

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