

Co-financed by the Connecting Europe
Facility of the European Union



H2NODES

Evolution of a European Hydrogen
Refuelling Station Network by
mobilising the local demand and
value chains

Project Introduction

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Introduction

Overview of Activities

Riga Trolleybus Concept

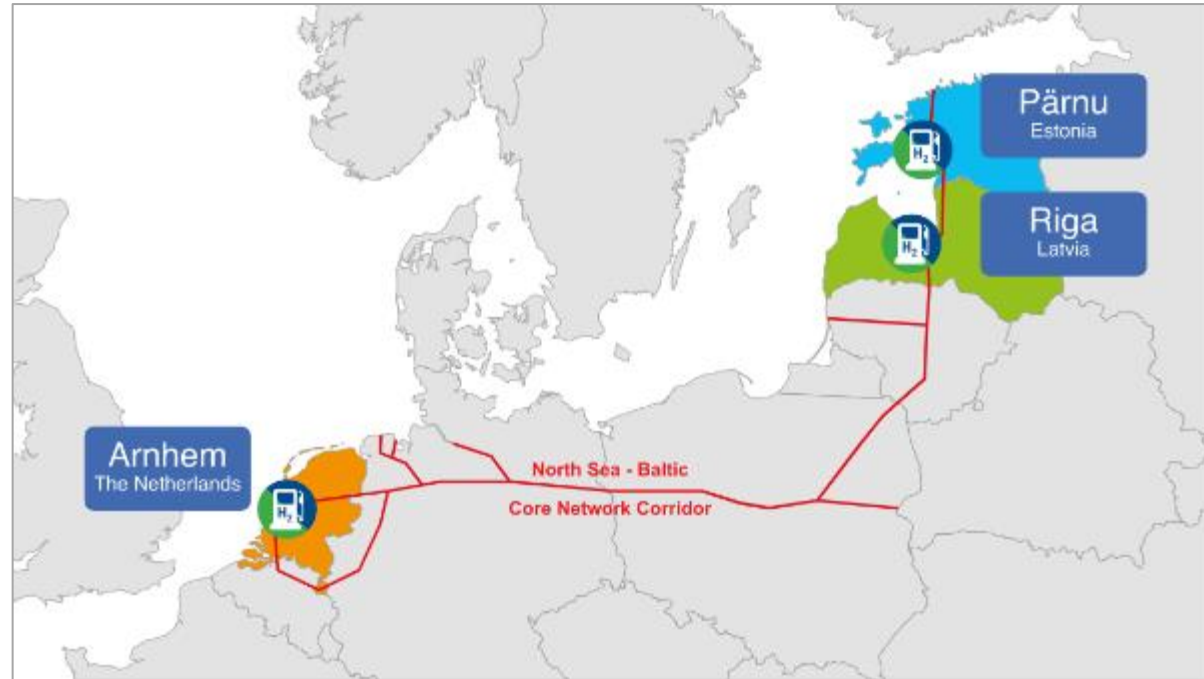
Arnhem Demand Aggregation

Making hydrogen **refueling infrastructure** and **public transport** a reality in

- 🚌 Arnhem, Netherlands
- 🚌 Rīga, Latvia
- 🚌 Pärnu, Estonia

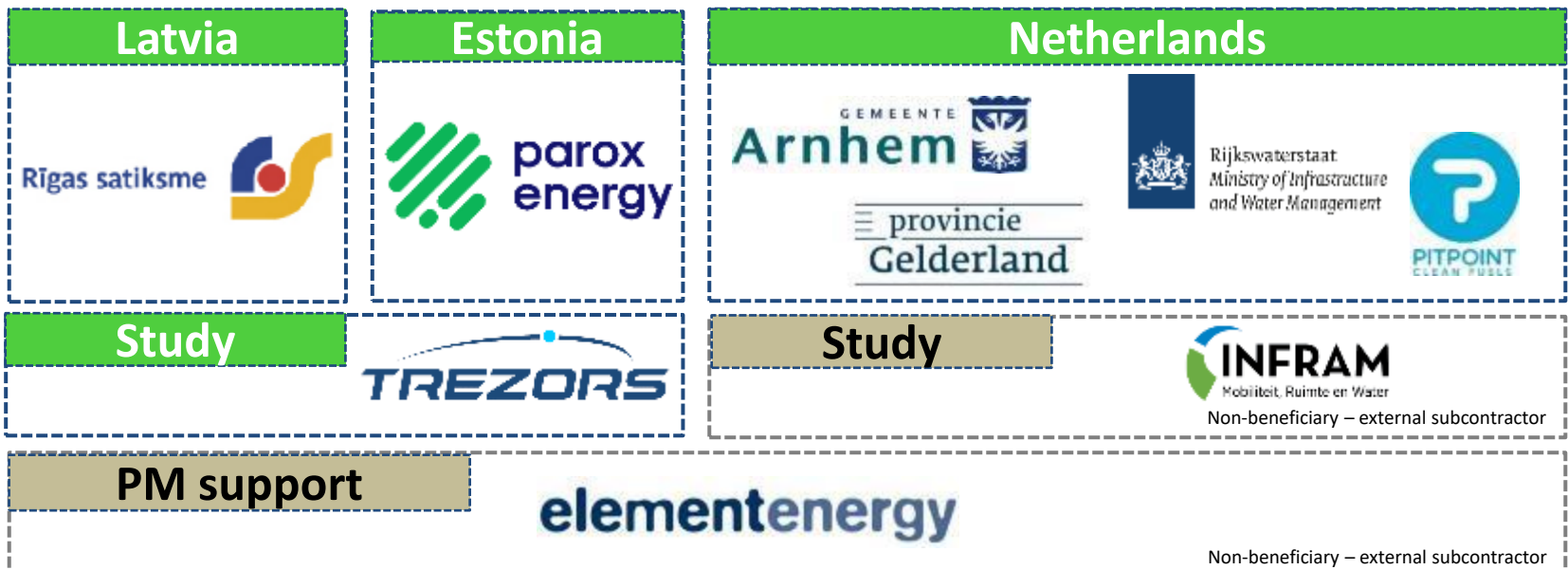
H2Nodes is a study and real-life pilot deployments at three locations along the North Sea - Baltic Core Network Corridor

The Action's overall objective is to foster FCEV use across Europe, significantly contributing to the European alternative fuels implementation strategy



H₂NODES

Connecting Transport Infrastructures



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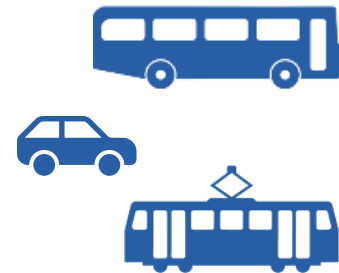
Studies to map the **locally available pathways for hydrogen production from renewable energy sources** and establish the provision of hydrogen for real life tests



Build and **real-life testing of HRS in Riga, Pärnu and Arnhem** and plan for additional HRS capacity of these cities. **Planning for continued expansion** with more HRS will be taken up with other regions along the corridor.



Hydrogen buses and cars will be tested at the HRS. Further growth of the hydrogen vehicle fleet will be pursued by **mobilisation of local and regional actors** to engage in building the business case throughout the value chain



Each site will deploy hydrogen refuelling infrastructure and test a fleet of hydrogen vehicles

Rīga



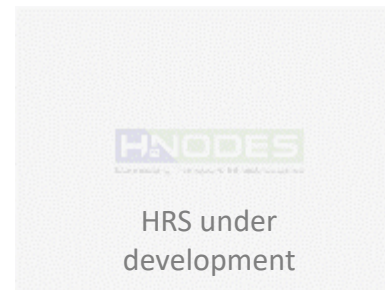
Pärnu



Arnhem



Hydrogen Refueling Station	300 kg/day 350 / 700 bar	up to 180 kg/day expected 350 / 700 bar	260 kg/day 350 / 700 bar
Hydrogen Production	Steam Methane Reformation	Steam Methane Reformation expected	Steam Methane Reformation
Hydrogen Vehicles	10 'HyTrolley' trolleybuses	Hydrogen buses expected Heavy duty trucks expected	2 hydrogen buses Up to 70 passenger FCEVs



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Public transport operator 'Rīgas satiksme' introduced fuel cell range extenders into its electric trolleybus system



Hydrogen provides an opportunity to expand the trolleybus network, replacing diesel bus routes

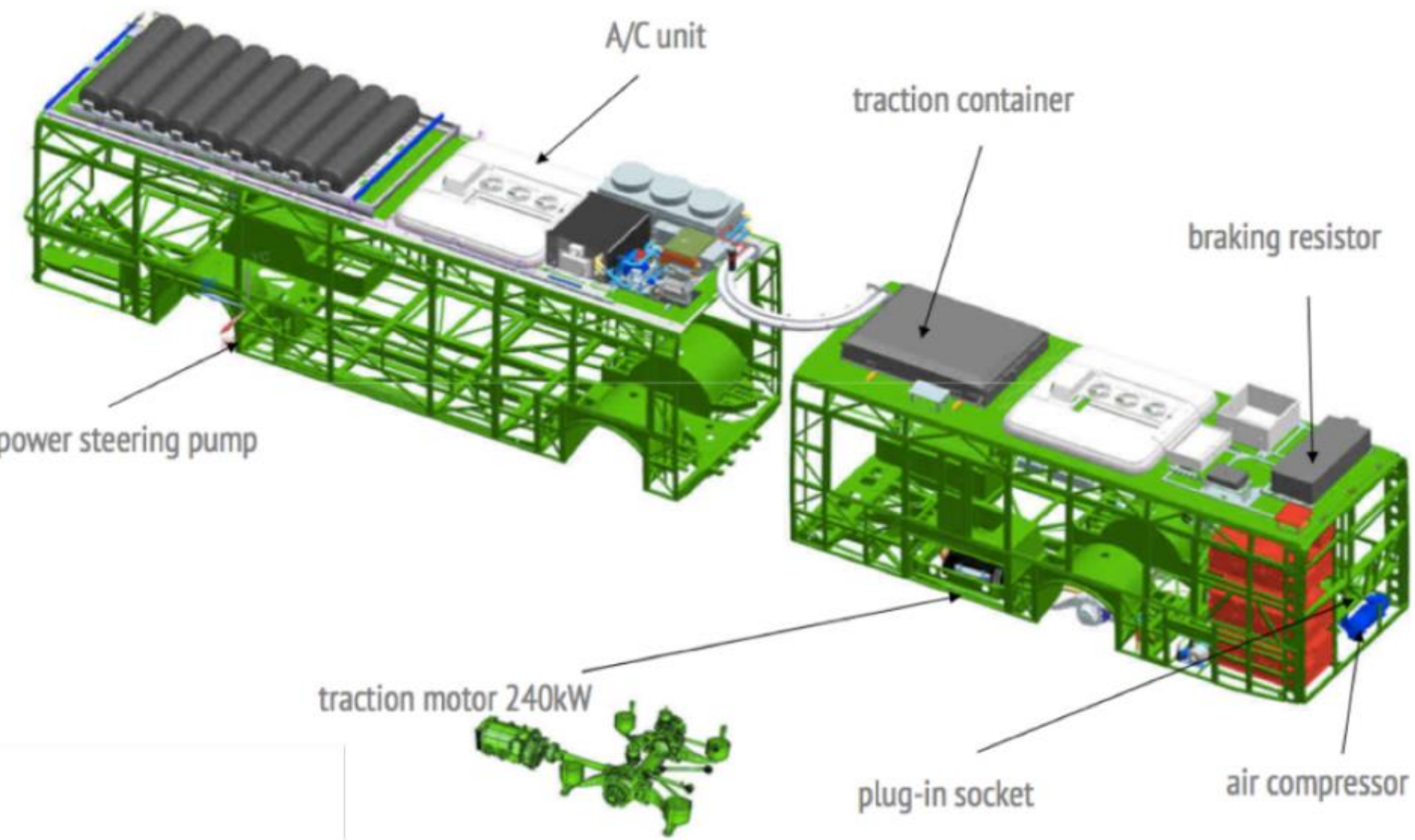
Bus route network



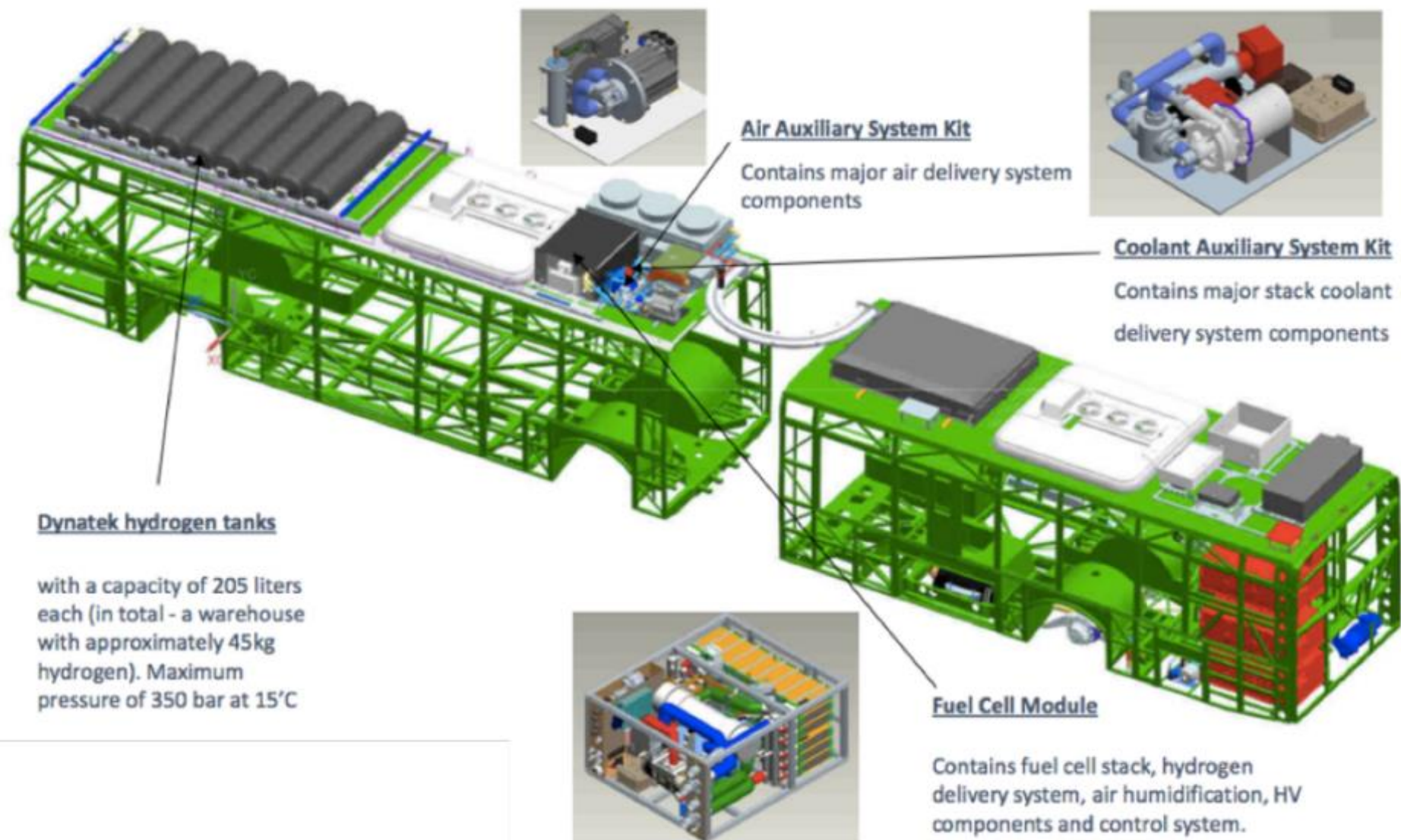
Trolleybus route network



The innovative “HyTrolley” concept was developed by Solaris (1/2)



The innovative “HyTrolley” concept was developed by Solaris (2/2)



Key findings from the Rīga deployment

- **Traction power** for public transport most efficiently can be provided with **electric motor**
- **Security of energy supply** and **energy efficiency** of public transport and urban infrastructure can be provided through introduction of **alternative fuels** and **energy resources diversity** by universal energy carriers - **electricity and hydrogen**
- The greatest benefits for **air quality** and **environment** by implementing **alternative fuels** and **zero emission vehicles** can be achieved in **urban areas**

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