

# Hydrogen Mobility Europe

## H2ME

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<http://www.h2me.eu/>

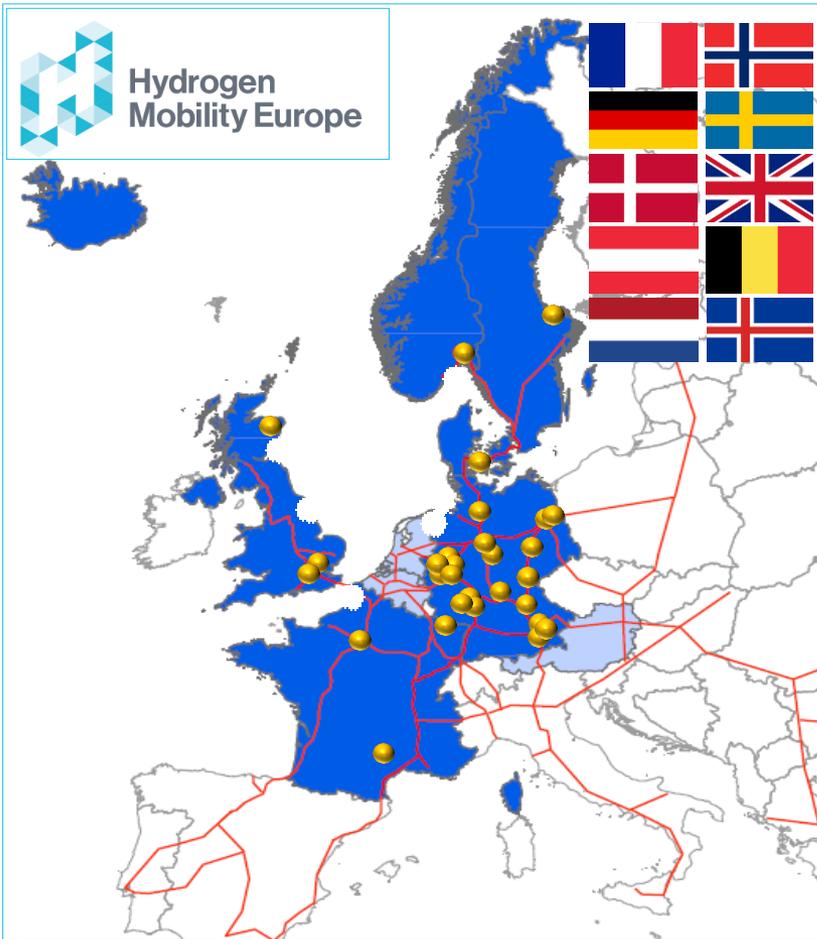


# PROJECT OVERVIEW 1

- Call topic SP1-JTI-FCH-01.7-2014 (Transportation & Refuelling Infrastructure)
- 01/06/2015 to 30/06/2020 (10% project duration passed)
- Total budget of 68 M €, with a FCH JU contribution of 32 M €
- For a consortium of 26+ partners



# PROJECT OVERVIEW 2



## Concept description:

- Joint initiative from the most ambitious European hydrogen mobility initiatives
- The project will see the deployment of **29 new HRS** and **325 FCEVs** (200 FCEVs and 125 FC RE-EVs)
- One ‘working framework’ linking the hydrogen mobility initiatives of 10 countries, which will provide the opportunity to:
  - 1) **identify optimal commercialisation strategies and synergies between countries**
  - 2) **develop a pan-European strategy for commercialisation**
  - 3) **Refine sales and support strategies for the early FCEV customer across Europe**

## Endorsers:



# PROJECT OVERVIEW 3

## National Strategy



Risk sharing JV - Widespread deployment of up to 100 HRS by 2017/2018 and up to 400 HRS by 2023 to provide a national network and so allow OEM vehicle introduction



Deployment based on expected sales of OEM vehicles (facilitated by tax regime). Aiming at a network of stations by 2020 across the SHHP countries to allow transnational driving within the region



Deployment in 3 stages: clustered phase (2015-2020), accelerated ramp-up (2020-2025) and established market (2025-2030) characterised by a progressive introduction



Initial strategy based on 350bar RE-EVs in captive fleets linking H2 supply and vehicles, which de-risk early H2 infrastructure investments before OEM vehicles arrive

## H2ME network

20 x 700 bar HRS in Germany

3 x 700 bar HRS in SE, NO and DK

3 x 350 /700 bar HRS in Aberdeen and London

3 x 350 bar HRS in France

## H2ME vehicles

200 FCEVs across Scandinavia, Germany and the UK

125 RE-EV vans in France and the UK

# PROJECT TARGETS AND ACHIEVEMENTS 1

- Key targets against the 2014 AWP requirements

Programme objective/target	Project objective/target
HRS operated for min. 2 years	HRS operated <b>for 2 years or more</b>
TRL 6 min. for HRS and onsite H2 production	<b>TRL 6</b>
HRS <b>availability</b> min. 97% (measured in usable operation)	<b>min. 97%</b> availability by end of project
H2 <b>purity</b> min. 99.999 %; refuelling: SAE J2601; IR com.: SAE J2799	700bar HRS compliant with the SAE J2601 / SAE J2799. hydrogen purity <b>min. 99.999%</b>
Station <b>hydrogen production efficiency</b> target at 50 – 70%, dep. on method of production	production-to-nozzle hydrogen production efficiency <b>between 60% and 70%</b>
Use of <b>electrolysers</b> to optimise electricity price for H <sub>2</sub> production	<b>5 HRS to provide grid balancing services</b> and other optimisation strategies
<b>Vehicle TRL</b> ≥ 7	<b>7 to 8</b>
<b>Vehicle lifetime</b> : >5,000h initially; min 6,000h	<b>min. 6,000 h</b>
Minimum vehicle <b>operation during project</b> : 12 months or 10,000 km	<b>&gt;1,000 km</b>
<b>MTBF</b> : >1,000 km	<b>&gt;1,000 km</b>
<b>Availability</b> : >95%	<b>&gt;95% to &gt;98%</b>
<b>TTW efficiency</b> : >40%	<b>42% to &gt;53%</b>

# PROJECT TARGETS AND ACHIEVEMENTS 2

- First vehicles were delivered to customers in France and Germany in August 2015 (Daimler, SymbioFCell)
- There are currently close to 50 vehicles in operation



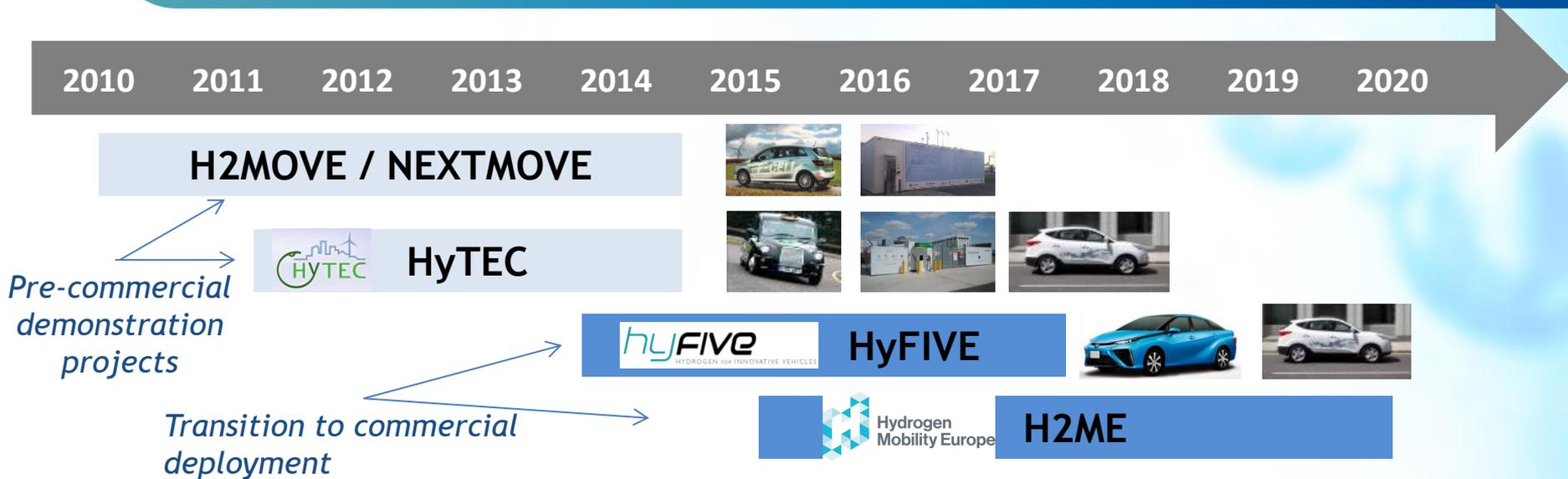
- Key expected progress for coming year :
  - ~50% of the HRS infrastructure is expected to be operational with HRS deployed in 6 countries
  - All Daimler B-Class deployed and majority of the Hyundai and Symbio FCell vehicles deployed
  - Analysis of first dataset completed
  - First emerging conclusions report published - summarising the key lessons and messages from the project so far and the project's achievements

# RISKS AND MITIGATION

- Project's strengths:
  - Strong consortium with experience and 'appetite'
  - Activities managed at national level allowing rapid response to issues and flexibility to implement any changes which may be required
- Project's risks:

Potential Risks	Mitigation
<b>Poor reliability of infrastructure</b> impacting customer experience	<ul style="list-style-type: none"><li>• Extended network with build-in reliability</li><li>• Stations are designed to achieve 97% availability through the use of redundancy in the equipment selection</li></ul>
<b>Poor reliability of vehicles</b> impacting customer experience	<ul style="list-style-type: none"><li>• Experienced vehicles OEMs with previous test trials</li><li>• Customers support network in place in countries of deployment</li></ul>
<b>Failure to place vehicles</b> with end users	<ul style="list-style-type: none"><li>• The project includes specific go/no-go milestones. Should the OEMs identify a risk to miss these, they will adopt a flexible customer-oriented deployment strategy according to the actual number of end users identified in each region</li></ul>
<b>Critical changes to partner investment plan</b> impacting ability to deploy	<ul style="list-style-type: none"><li>• The project includes specific go/no-go milestones. Should a coalition identify a risk to reduced engagement from a partner, the project will adopt a flexible strategy on deployment activities</li></ul>

# SYNERGIES WITH OTHER PROJECTS AND INITIATIVES



- H2ME is a natural successor to other FCEV projects in the FCH JU portfolio
- A common dissemination approach across projects will be adopted when possible:
  - Proposal for an alliance of existing and future projects (referencing / representing each other)
  - Definition of a common set of core messages on hydrogen mobility
  - A shared calendar of planned events & contacts (when possible/relevant)
  - Collaboration on which publications to target, press releases (when possible/relevant)

# HORIZONTAL ACTIVITIES

- Data collection & analysis
  - Data collection - on performances of HRS and vehicles to allow the validation of the readiness of the technology for full commercial roll-out
  - Business case analyse - to support countries in developing their national rollout plans and for industry stakeholders their own business plans; with a focus on customers engagement and self-sustaining market creation
- Safety and regulations, codes & standards:
  - Safety records, best practice and lessons learnt will be collected to support the standardisation of the international RCS
  - 700bar HRS will be compliant with the SAE J2601 / SAE J2799 standards
- General public awareness:
  - Dissemination will be based on the combined communication expertise of the organisations involved in the project
  - Exploitation of the extensive communication channels (and contact networks) created by the regional H2 mobility initiatives

# DISSEMINATION ACTIVITIES

- Conferences, workshops
  - H2ME project partners will present at least 20 pan-European conferences
  - 1 public hand-over (vehicles) & 1 HRS opening event per deployment country
  - 2 one-day workshops
  - at least 1 national-specific workshop / networking event
  - at least 7 national workshops/networking events in Belgium (2), Netherlands (2), Luxemburg (1) & Austria (2)
  - A series of 3 round-tables targeting members of the European Parliament, relevant DG's and other influencers in Brussels
- Publications, reports
  - Project website ( [www.h2me.eu](http://www.h2me.eu) )
  - Periodic press releases
  - Brochure / Q&A
  - Emerging conclusions report



Hydrogen Mobility Europe (H2ME) is a flagship European project for hydrogen mobility.

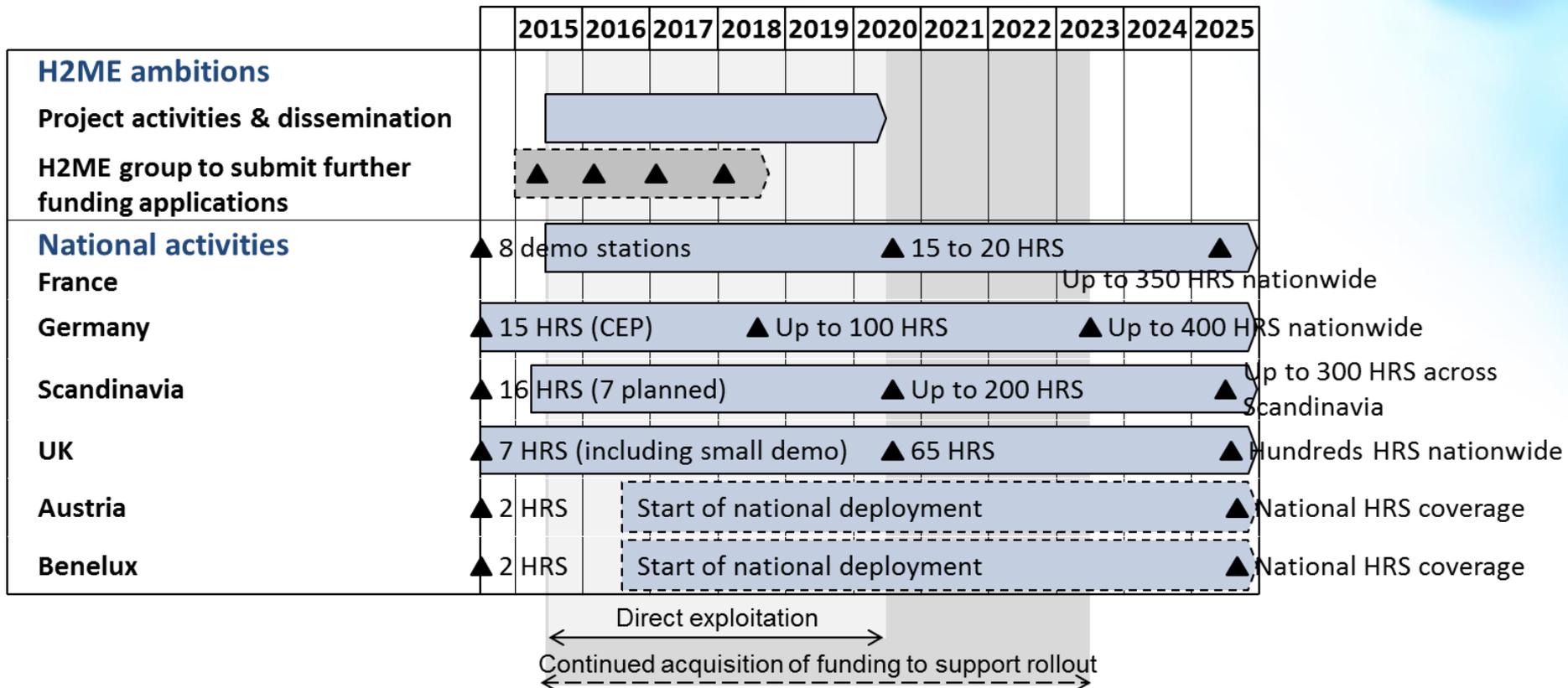
It will create the world's largest network of hydrogen refuelling stations which gives Fuel Cell Electric Vehicle drivers access to the first truly pan-European network of hydrogen stations.

The project brings together Europe's four most ambitious national initiatives on hydrogen mobility (in Germany, France, Scandinavia and the UK) and will:

- Place 200 fuel cell cars (from Daimler and Hyundai) and 125 fuel cell range-extended vans (Symbio FCell collaborating with Renault) in customer hands
- Deploy 29 state-of-the-art-hydrogen stations

# EXPLOITATION PLAN/EXPECTED IMPACT

- The main elements of the exploitation of H2ME will include:
  - Developing a case for continued investment in H2 network and FCEV fleet expansion
  - Creating confidence in the sector
  - Creating a forum to resolve the practical issues facing the H2 roll-out



Thank you for your attention

