

Fuel cells and hydrogen

Joint undertaking

FCH-JU 2008-2013

Summary of the Program Review

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Stakeholder General assembly
Brussels, 13 November 2013

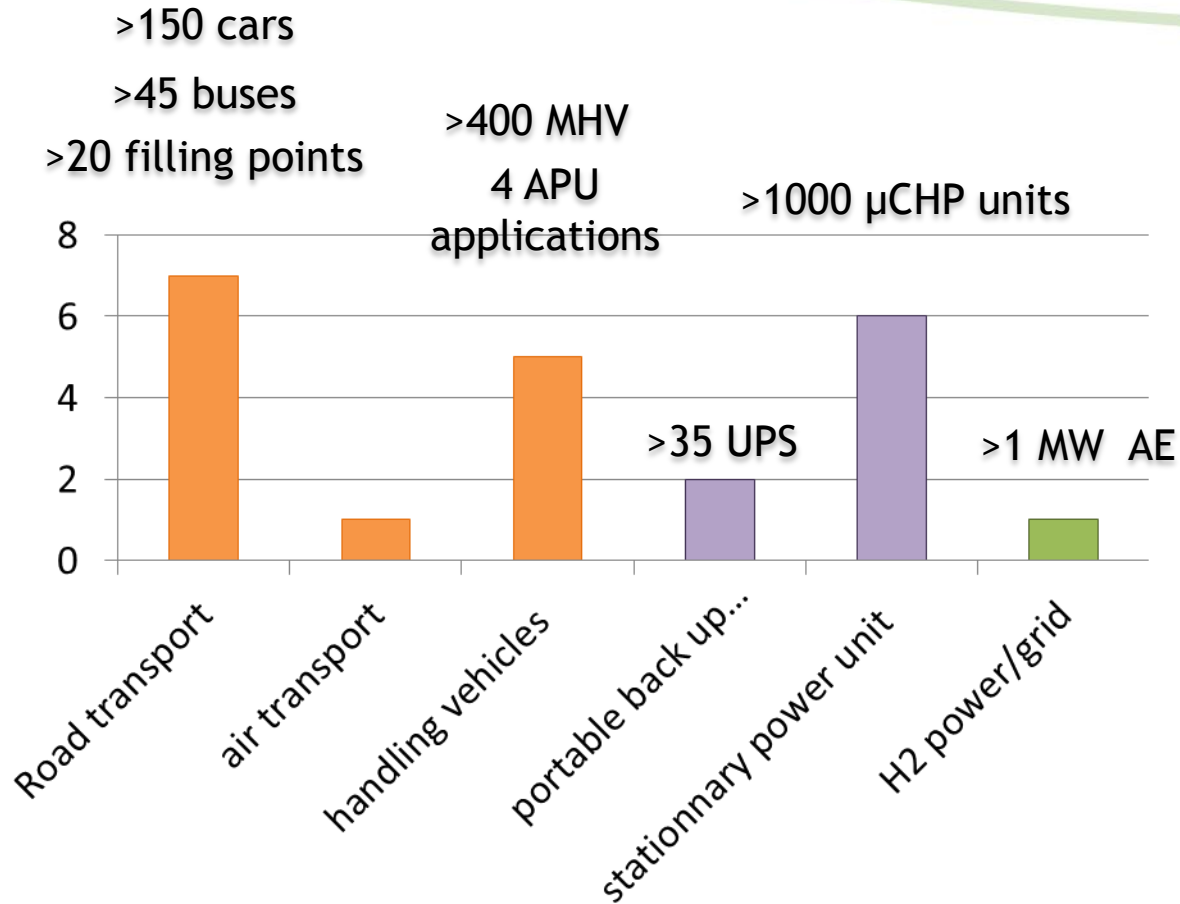


Objectives of the FCH JU Program Review

- FCH JU program implementation is based on a MAIP produced by H₂ and FC stakeholders to accelerate H₂ and FC market introduction
- MAIP has been organised into topics, with priority given and quantified targets defined
 - volume,
 - cost,
 - efficiency (electrical or total),
 - lifetime/durability,
 - reliability/availability
- ➔ Program Review aims at assessing
 - the good coverage of the MAIP
 - the good implementation of the program

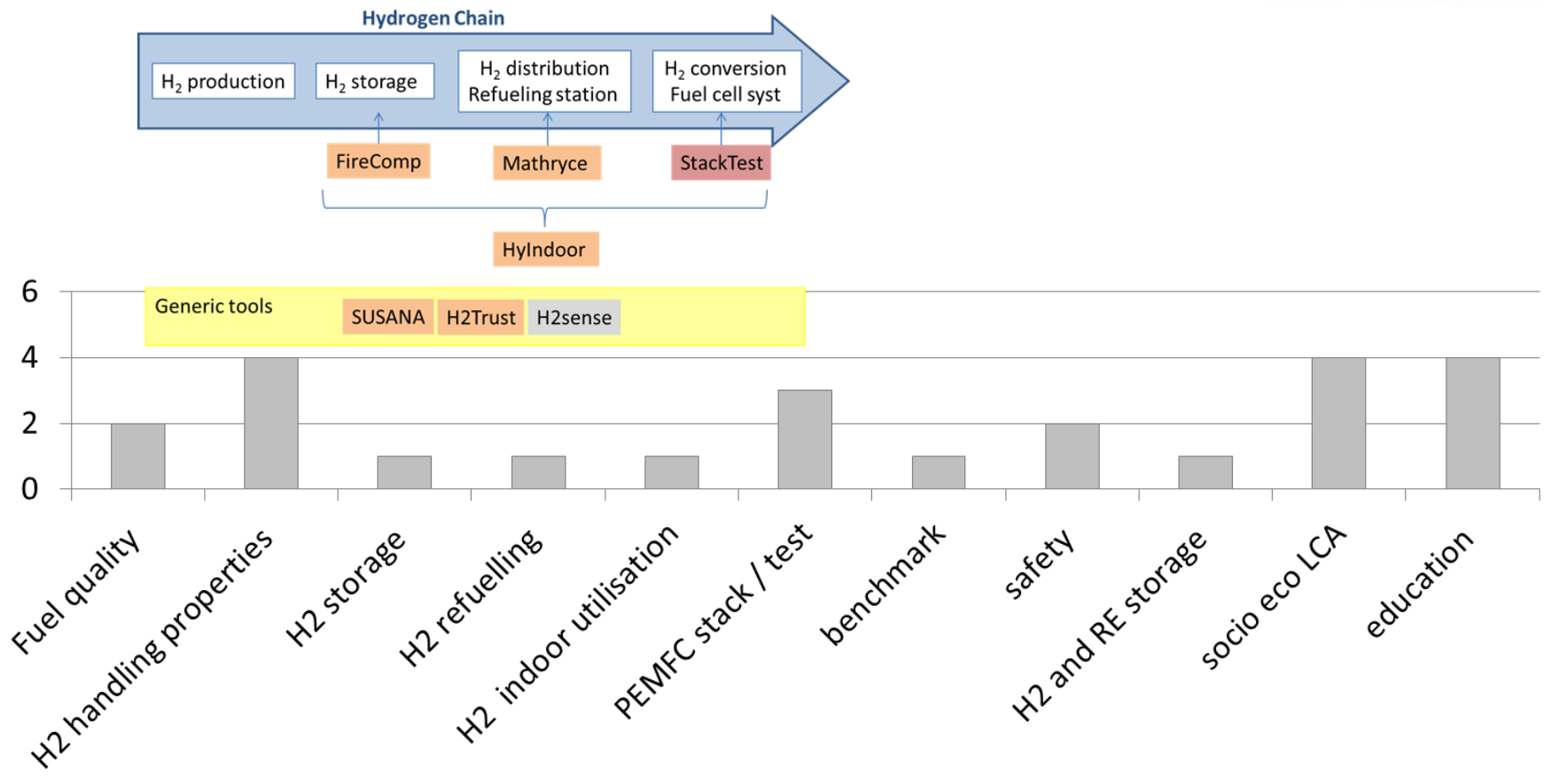
Analysis of MAIP coverage

Demonstration projects (22)



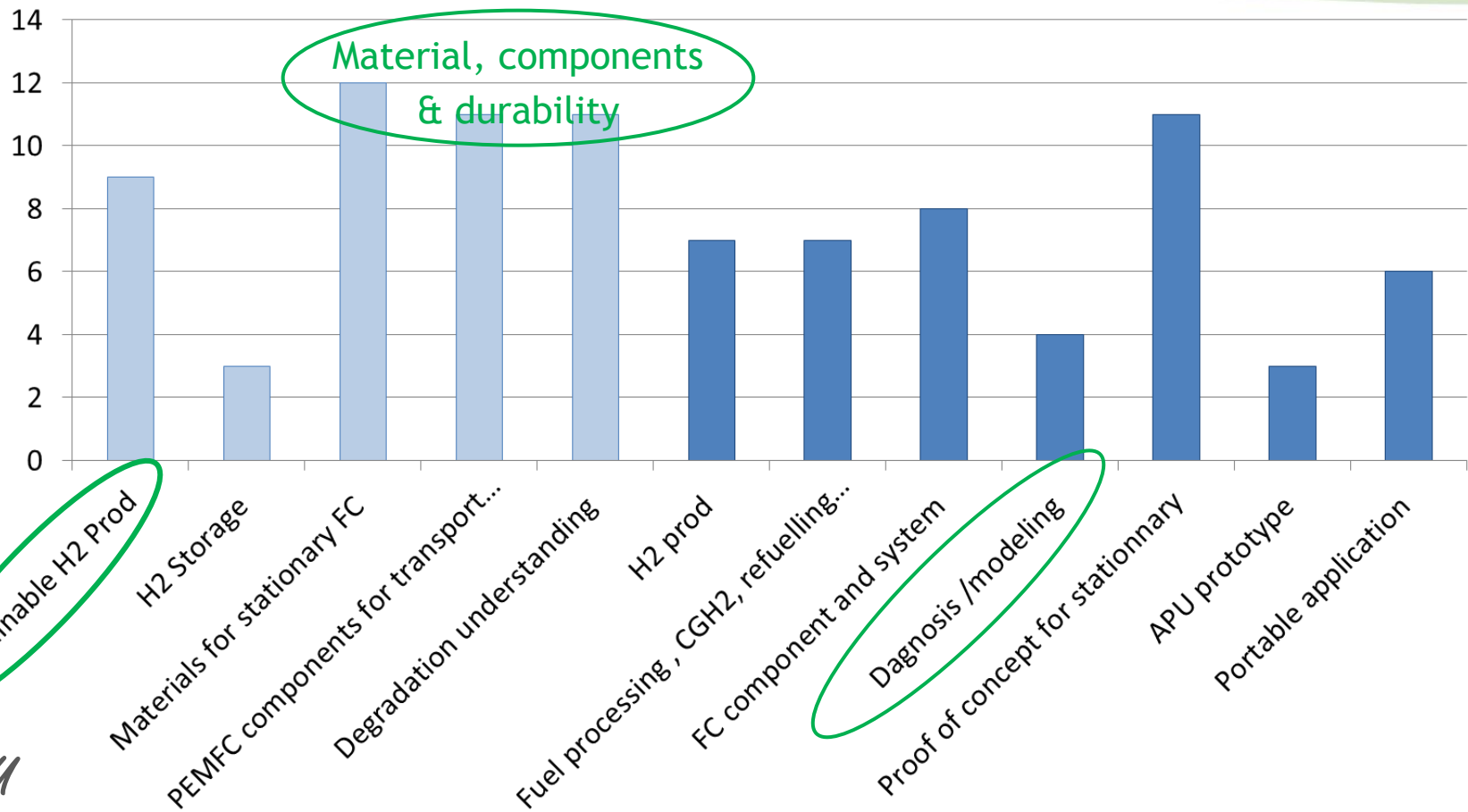
Analysis of MAIP coverage

Cross cutting issues – Pre-normative Researches (24)



Analysis of MAIP coverage

R&D projects (92)



Material, components & durability

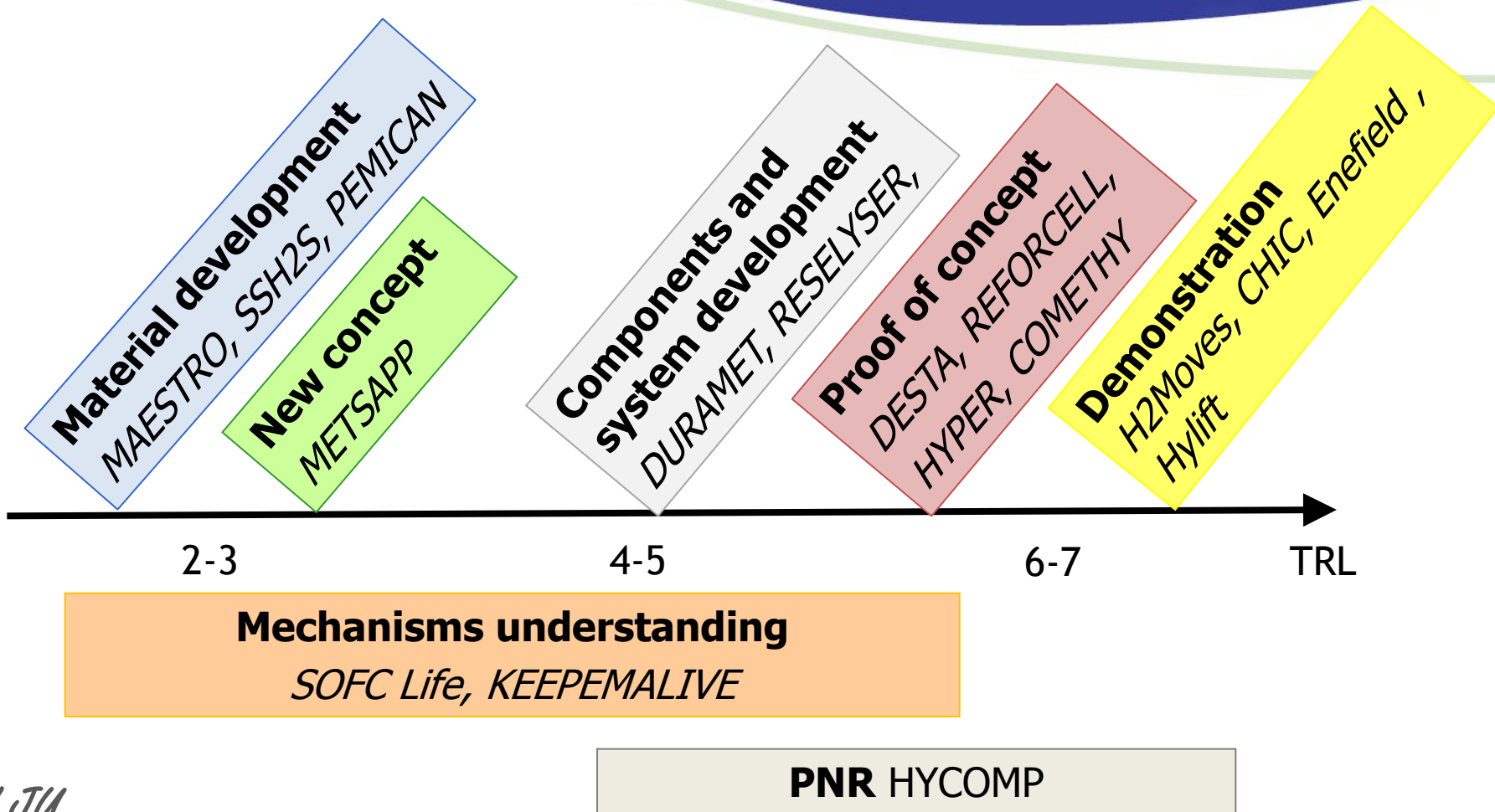
Sustainable H2 Prod

Diagnosis /modeling

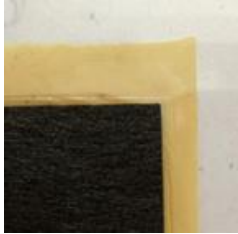
Analysis of MAIP coverage

- Rather good coverage of the MAIP
- When relevant some topics have been cancelled and some have been added :
 - H₂ internal combustion not opened
 - Measurement of the quantity of H₂ delivered to a vehicle created and opened
 - Demo on H₂ production to balance the grid created and opened
 - Priorities have been modified (sustainable H₂, diagnostics, ...)
- Projects all along the innovation chain from TRL 2 to 7
- Some PNR are missing

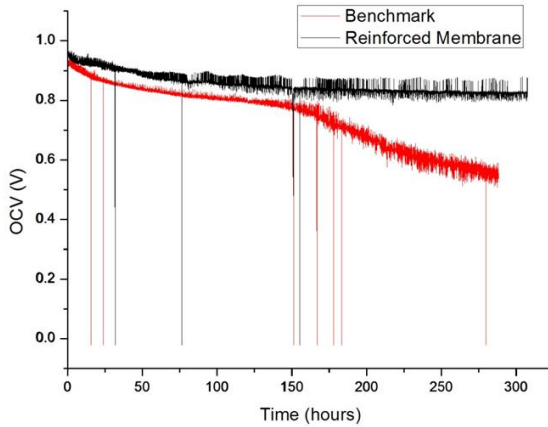
Analysis of MAIP coverage



Analysis of MAIP coverage

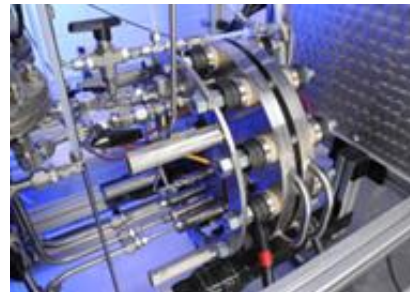


MAESTRO:
Increased
robustness and
durability



REselyser:

New concept AE to
allow intermittent
operation

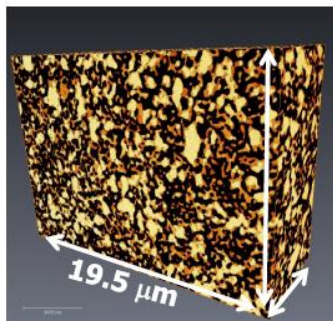


ENE Field :
 μ CHP deployment



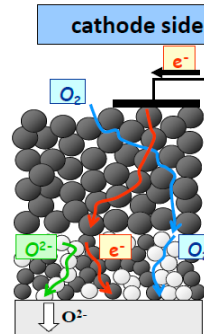
2-3

KEEPEMALIVE:
3 500 \rightarrow 17 000h



Fresh LSM-8YSZ volume of
19.5 x 14.8 x 7.6 μ m³

4-5



6-7

TRL

SOFCLife:
Fundamental
understanding from
material to stack

Analysis of program implementation

- Good alignment with MAIP /AIP (not surprising, otherwise project proposals would not have been accepted).
- Good integration of MAIP targets:
 - **Efficiencies** (demo and proof of concept),
 - **Durability and reliability** (material & component development),
 - Cost analysis also considered, but only limited information available
 - Volumes initially foreseen generally far from being achieved but reason not linked to the quality of the projects implementation.

Analysis of program implementation

- Some very good practices noted:
 - Some consortiums show clear awareness of current SoA and of competing technologies → position more convincingly their project and their achievements,
 - Organization of joint seminars/workshops together with other related projects on specific “critical” topics such as testing protocols, modeling approach, exploitation strategies,
- Some points to improve:
 - Many projects finalised or close to finalisation give very few comments on the next steps of results valorisation or on deployment
- One major question coming from all reviewers:
 - What access can the FCH JU have to the enormous amount of operative parameters (reliability, lifetime, operative costs, TCO, failure modes and statistics, etc.), also linked to safety (incidents and accidents, lessons learned, etc.) produced by demonstration projects ?

Any room for improvements?

- FCHJU is a unique place where all partners from BR to DEMO can exchange and learn from each others
- It is the only place where a virtuous loop between demonstration learning and research reorientation can strengthen the innovation process
→ Pr Alan Atkinson
- FCH-JU has given some place to R&D activities to support technological development (advanced characterisation, modelling, accelerated tests, diagnostics, etc.) but what about breakthrough oriented research ?
→ Pr Daria Vladikova
- In Europe we are good in research but we have difficulties to go for deployment; FCH JU is successful in increasing drastically demonstration activities in Europe : should it support further the valuation of the project outcomes ? Could it act as a catalyst for bridging the gap between demonstration and market introduction?
→ Dr Andreas Dorda