

Auto-Stack

Development of a platform concept and business model for a European automotive stack



Motivation and Objectives

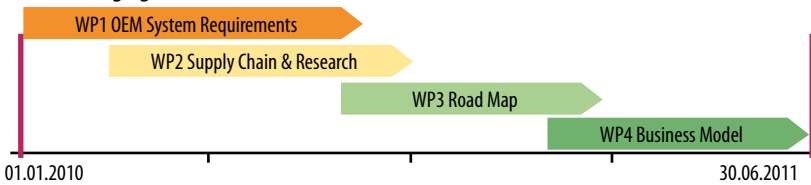
While the supply base for materials and components in Europe is well advanced and competitive, stack integration is lagging behind due to massive investment requirements and risks associated with commercialization. The project aims to develop approaches to address the critical barriers for substantial improvement of collaboration between major stakeholders and establishing a solid business model for an independent European stack integrator for automotive applications.

Key European players including automotive OEMs, component suppliers, and research organizations are providing a structured approach to establish fuel cells as a mass product ready for the automotive market, however, not neglecting synergies with other vehicle categories as well as vehicular and stationary applications.

The key objective of the work proposed is to “Make a proposal for a market start of an European automotive fuel cell stack industry”.

Project Plan, Milestones and Deliverables

The following figure describes the work flow towards the final deliverables.



Technical Approach

- Identification of target vehicle types and system requirements as well as a generic stack platform concept.
- Establishment of technical target specifications including target cost.
- Assessment of materials and component supply base including the definition of research needs.
- Development of a stack cost analysis tool.
- Setting up of a structured and consistent stack development roadmap.
- Compilation of the technical expertise and financial resources needed to establish a European automotive fuel cell stack manufacturer.
- Compilation of a business plan.

Achievements

A common PEM fuel cell stack platform among the automotive OEMs participating in the project is technically feasible.

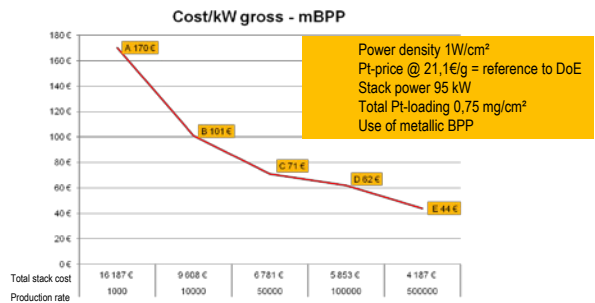
High stack power density is the key enable to achieve a common fuel cell stack platform:

- 1W-cm⁻² @ 675mV / single cell,
- Cell pitch < 1.5 mm.

An analysis of the European component supply industry showed:

- High power density rather than ultra-low Pt-loading (0.15 mg-cm⁻²) will allow minimum cost in the foreseeable future;
- Metallic BPP show advantages with respect to cost and power density.

Stack platform allows better economies of scale benefitting from several OEMs and additional applications in early markets.



Budget 2.9 M€

Duration 21 months

DG FCH-JU

Coordinator Ludwig Jörissen, ZSW

Partners 14 partners, among them CRF, Daimler, VW, Powercell

Website <http://autostack.zsw-bw.de>

Funding 1.2 M€

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Contact ludwig.joerissen@zsw-bw.de