Deliverable D1.7

Synergies of Auto-Stack-Platform with Application Needs public summary

Grant Agreement number:	245142
Project acronym:	Autostack
Project title:	Automotive Fuel Cell Stack Cluster Initiative for Europe
Funding Scheme:	Support Action
Project start:	01/01/2010
Project duration:	18 months
Period covered:	from January 2010 to September 2011

Project co-funded by the Fuel Cells and Hydrogen Joint Undertaking within the Seventh Framework Programme		
Dissemination Level		
PU	Public	**X**
PP	Restricted to other programme participants (including the FCH JU)	
RE	Restricted to a group specified by the consortium (including the FCH JU)	
CO	Confidential, only for members of the consortium (including the FCH JU)	
EU restricted	Classified with the mention of the classification level restricted "EU Restricted"	
EU confidential	Classified with the mention of the classification level confidential " EU Confidential"	
EU secret	Classified with the mention of the classification level secret "EU Secret "	

Table of Contents

List of Figures

1 Objective of this deliverable

This deliverable will describe the results of an assessment made when comparing the technical requirements to the fuel cell stack resulting from selected early market applications.

2 Methodology

Based on the high level comparison, a more detailed assessment of the technical compliance level was carried out. In this assessment, typical specification requirements of target applications were analyzed excluding applications with > 10 000 hours durability requirement.

As result of this analysis, the following applications were identified as complementing targets for the stack platform assuming operation with hydrogen:

- APUs for several purposes such as marine, rail and truck applications
- UPS- and back-up power for telecom, IT and other markets, including peak shaving and intermittent power
- Range extenders[1] for electric cars, buses, trucks and special vehicles
- Power generators for distributed and portable power.

Operation with other fuels than hydrogen may be considered. This will however depend from the fuel quality (i.e. reformate from hydrocarbons or alcohols). In the assessment, key specification parameters were analyzed and weighted. A rating was established and a threshold introduced as to how much compliance will be required to make it a realistic technical fit. The threshold was determined with at least 80% compliance. Some of the specification parameters such as durability had to be fulfilled 100% as they were considered to represent eliminating criteria with regard to technical compliance.

3 Results

The compliance factors of individual applications with the Auto-Stack specification as determined by this assessment are displayed in
Figure 1 – below.

[1] Range extender in this context means fuel cell systems in hybridized vehicles operated with low dynamics either as a charging system to batteries or for direct propulsion in combination with batteries.

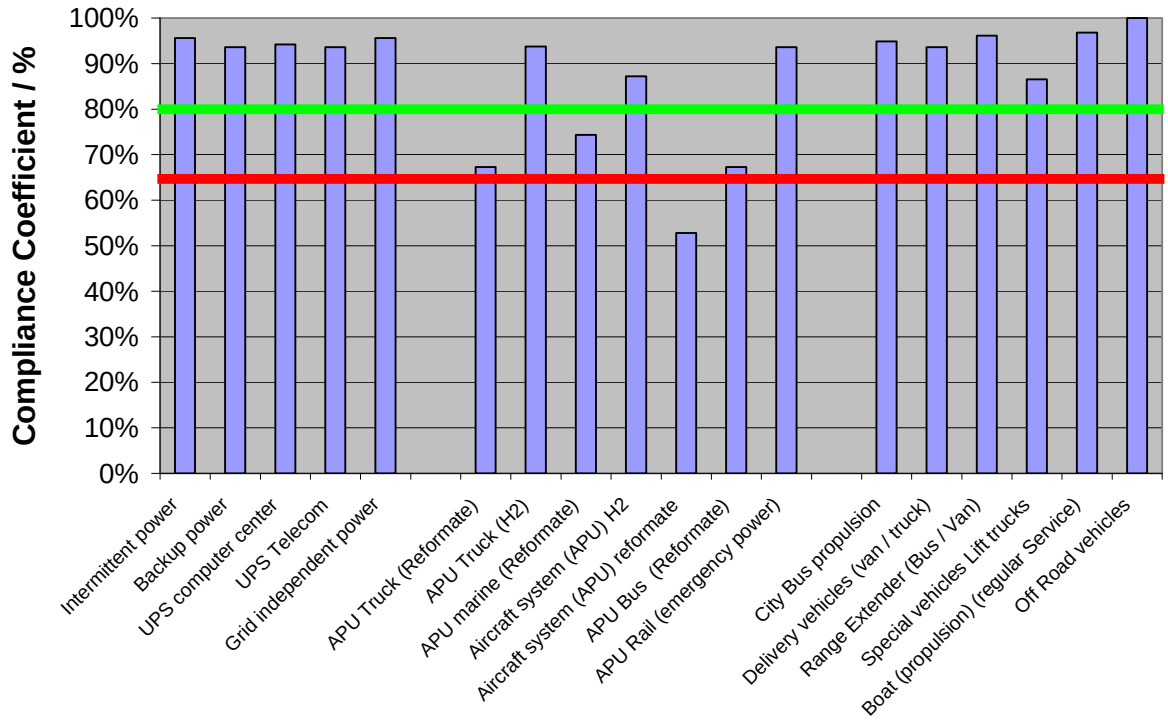

Figure 1: Compliance factors of other applications

4 Conclusions

Based on a comparison of high level stack specifications and requirements from different applications the Auto-Stack-Platform approach shows great potential to be used in hydrogen powered applications with no or only minor modifications. Applications which are powered by reformed hydrocarbons show a lower level of compliance. In the applications assessed in this study only mid-distillate (Diesel) reforming has been considered as a viable option in the case of APU for transport applications. Differences in ranking are mainly based on the reformate quality that can be achieved for the typical fuel qualities used in these applications. For stationary applications availability of pure hydrogen has been assumed.