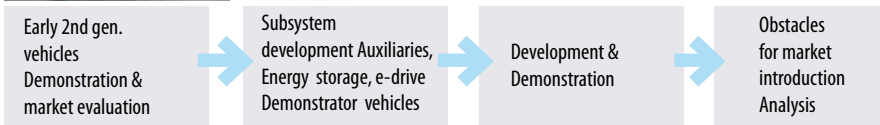


■ Motivation and Objectives

Evolving emission legislation and increasing fuel prices accompanied by a global CO₂ emission reduction discussion represent extremely challenging demands for research and development. Known improvement measures of pollutant emissions usually come along with deterioration of engine efficiency and vice versa, e.g. the NO_x/fuel economy trade-off is well known for diesel engines.

With this background, the hybrid electric vehicle is an excellent option for simultaneous reduction of fuel consumption and exhaust emissions. Research efforts are needed to develop highly efficient hybrid systems including hybrid components such as the energy storage system, the electric machine, power electronics and electric auxiliaries. Cost is today considered as a major obstacle for market introduction of hybrid technologies in commercial vehicles.

■ Project Plan, Milestones and Deliverables



■ Technical Approach

The project consists of four main clusters of activities:

- Early second generation hybrid vehicles will be used by OEMs and one fleet operator in real city environments in Europe and on test rigs (chassis dynamometer) together with non-hybrid reference vehicles. The presence of the hybrid vehicles will be utilised for communicating with customers such as fleet owners and create public awareness of hybrid technology in commercial transports. Market obstacles for hybrid vehicles will be assembled and categorised through customer questionnaires and interviews.
- Common components, functionalities and communication standards will be developed for the energy storage system and auxiliaries used in the two second generation hybrid demonstrators. Auxiliaries and energy supply will be optimised from an energy flow point of view. These activities will be carried out by suppliers and research institutes in collaboration with the OEMs that should utilise the technology.
- Two advanced second generation hybrid demonstrators – one 18-ton city bus and one 6-ton distributor truck - will be developed and validated. The demonstrator vehicles will be tested on rigs (chassis dynamometer) and in real traffic. The 18-ton bus demonstrator will be assessed by a large European bus traffic operator. Relative product cost data, performance data (fuel consumption, noise, toxic emissions) and drivability data will be quantified.
- The results from the demonstrators will be used to assess how well market obstacles have been addressed by the second generation hybrid vehicles. This work will be done in close collaboration between the bus traffic operator and the four OEMs.

■ Achievements

- Project implemented and started.
- Tests and demonstrations of hybrid vehicles are ongoing.
- Energy storage testing procedures collected and being evaluated, testing have commenced.
- Simulation activities performed showing big potentials in terms of fuel consumption.
- Hybrid User Forum started.

Budget	17.7 M€	Funding	9.9 M€
Duration	48 months	Start	January 2010
DG	Research / H4 – SST	Contract n°	SCP8-2010-234019
Coordinator	Pontus Enhager, Volvo	Contact	pontus.enhager@volvo.com
Partners	Volvo, CRF, DAF, Iveco, Altra, AIT, AVL, Bosch, CERH, DANAHER, DIMAC, ENEA, Magna, Univ. Pisa, IDMEC, Solaris, TNO, Veolia		
Website	www.hcv-project.eu, www.hybriduserforum.eu		