

“Small Electric Vehicles” – A new Taskforce by IEA Hybrid & Electric Vehicle TCP

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1st World Light Electric Vehicle Summit
Barcelona, 20th & 21st September 2016

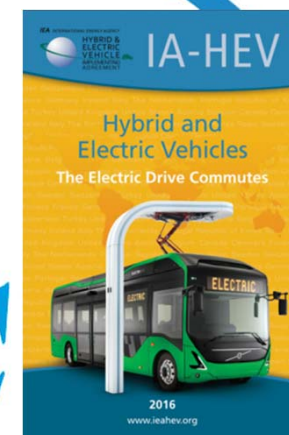
Hybrid & Electric Vehicle TCP



- IEA-HEV was formed in 1993
- Part of IEA Technology Collaboration Programme
- Membership of 18 countries

Mission

- Supply objective information to support decision making
- Facilitate international collaboration in pre-competitive research and demonstration projects
- Foster international exchange of information and experiences



www.ieahev.org

Our Motivation

for a new Taskforce on “Small Electric Vehicles” (SEVs, Task32)

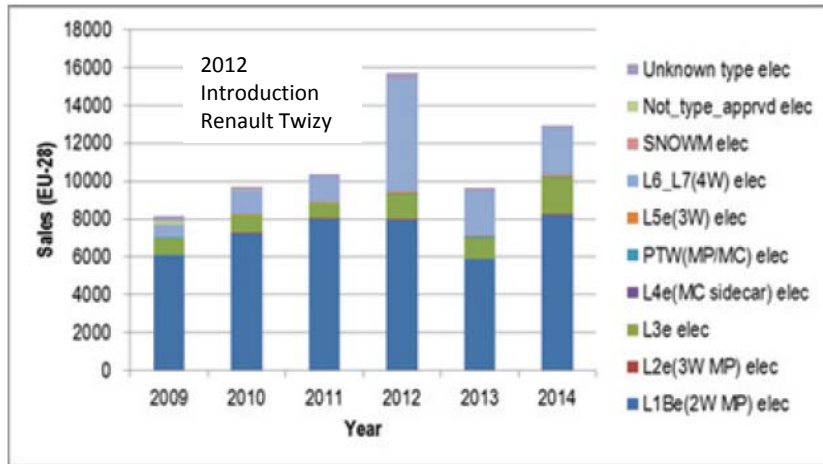


- Market diffusion of plug-ins still at the beginning
- Many models available are in upper class
- PHEV with highest growth rate, however environmental benefit unclear due to unknown or low electric drive share
- Small electric vehicles could fit to many transport tasks in today's and future urban environments
- Many concepts proposed, but only few are available on the market
- Significant difference in homologation between US and other markets



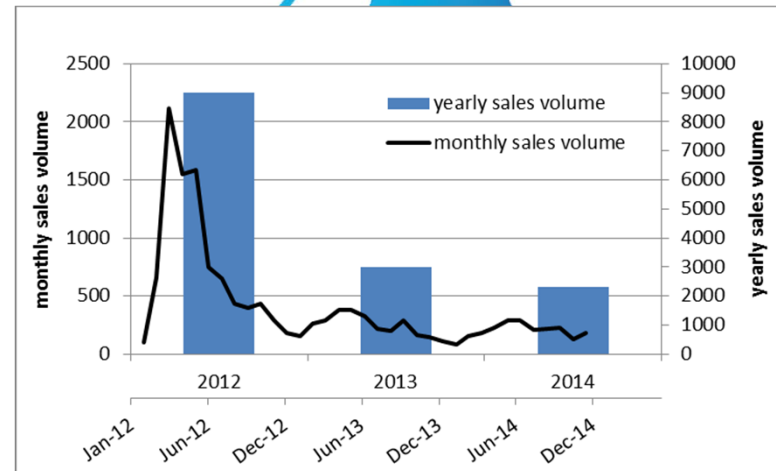
Market

Sales of electric L-vehicles on the period 2009–2014, EU-28 countries



Source: Santucci et al., 2016

Sales of Renault Twizy on the period 2012–2014, European region (> 90% in EU-28 countries)



Source: own graph, based on sales data by Renault, 2016

vs



Source: Renault

Safety

- EU regulation No 3/2014 defines device and component standards for protective structures, but:
- No crash safety tests are required by law in EU
- Stricter regulation in Korea: one frontal crash test at 40 km/h speed mandatory
- Compatibility in collisions with large cars very critical
- Euro NCAP tests with quadricycles show severe safety problems (2014, 2016, specialized tests procedures)

2014 Safety of Quadricycles' Tests

ALL OF THE QUADRICYCLES TESTED SHOWED CRITICAL SAFETY PROBLEMS, ALTHOUGH SOME FARED BETTER THAN OTHERS IN THE FRONT OR SIDE IMPACT TEST BY EURO NCAP.

Source: www.euroncap.com

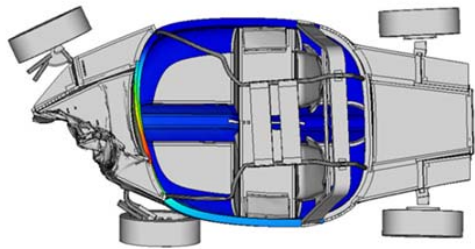


Source: EURO NCAP

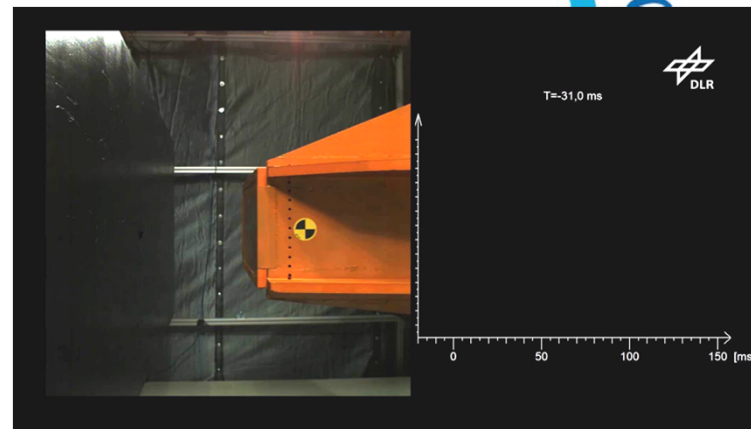
Concepts and Technologies

e.g. DLR 'Next Generation Car' L7 concept SLRV

- crash safety specifications according to requirements for conventional passenger cars (EU class M1)
- innovative metal sandwich structure with foam core
- lightweight design with a body-in-white weight of < 90 kg
- class L7e vehicle with electric drive and fuel cell system



Intrusion simulations



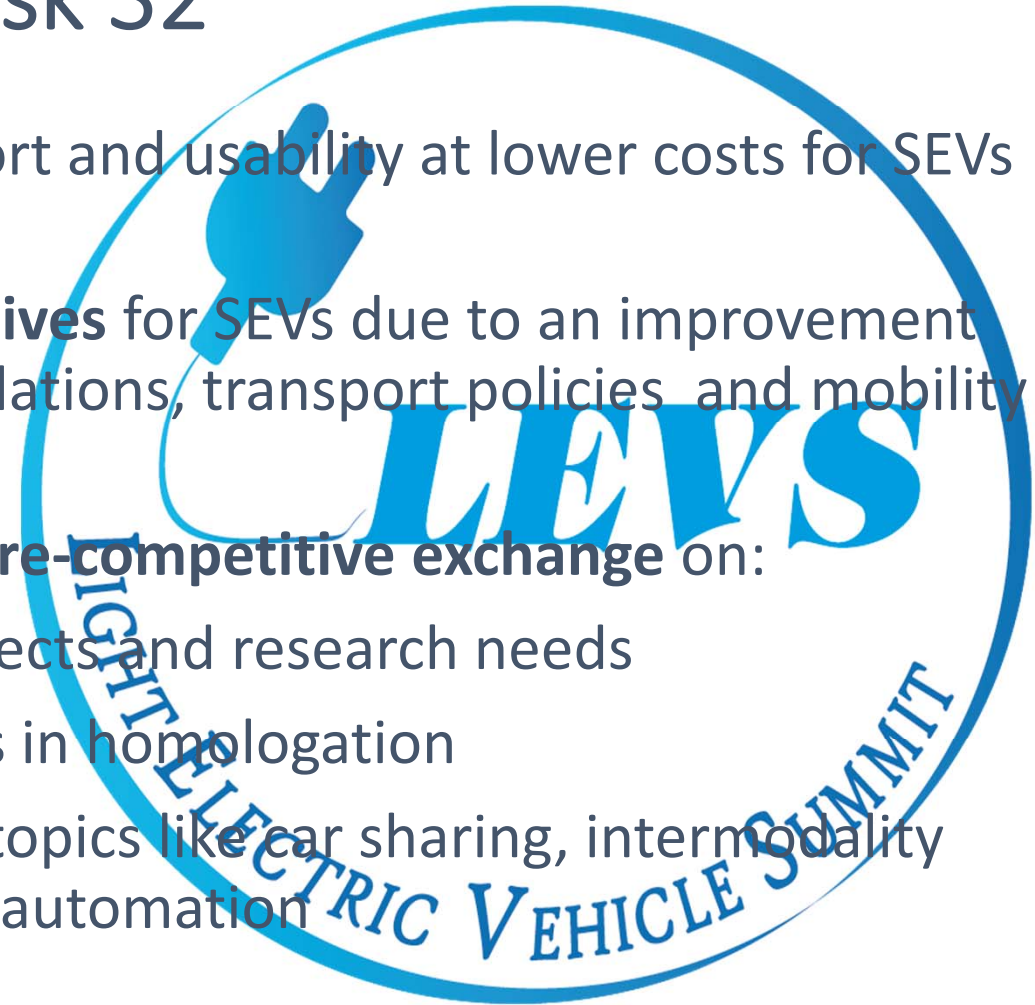
Safe Light Regional Vehicle
Component
crashtests

Objectives and scope of Task 32

- **to promote** increased safety, comfort and usability at lower costs for SEVs due to **technological progress**
- **to advance better market perspectives** for SEVs due to an improvement surrounding conditions like e.g. regulations, transport policies and mobility concepts

by being a **platform for international, pre-competitive exchange** on:

- SEV concepts: Technologies, prospects and research needs
- Market conditions: e.g. differences in homologation
- Mobility concepts with SEVs: incl. topics like car sharing, intermodality and public transport, urbanism and automation



Planned actions

- International expert-workshops


1st Workshop beginning of December 2016

“Market conditions and homologation of Small Electric Vehicles”

Rüsselsheim, Germany

- Survey on major markets about

“International status of SEVs and hurdles for progress” (working title)



LEVS
LIGHT ELECTRIC VEHICLE SUMMIT

Participation

Taskforce participation

- home countries of participating organizations must presently be members of the HEV TCP
- experts to be appointed by the national delegate
- work-share principle

Advisory board

- ExCo-members of participating countries
- Participation as a sponsor possible

Workshop participation

- on invitation



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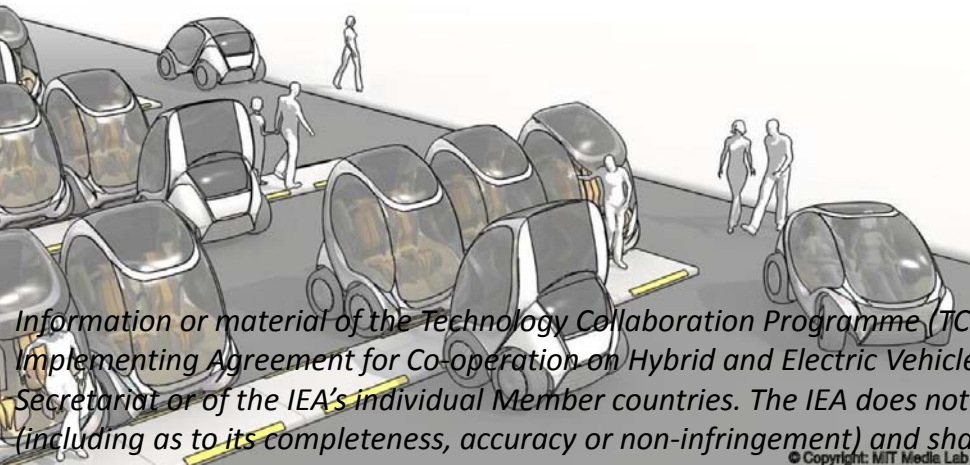
LIGHT



Outlook

Challenges like safety, customer acceptance, market conditions, costs and optimized infrastructure need to be addressed.

Huge opportunities may be opened by the use of LEV: improved air quality, climate protection, noise reduction, affordable mobility, efficient use of space and liveable urban structures.



Picture taken from www.itu.int

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