

## SafeEV



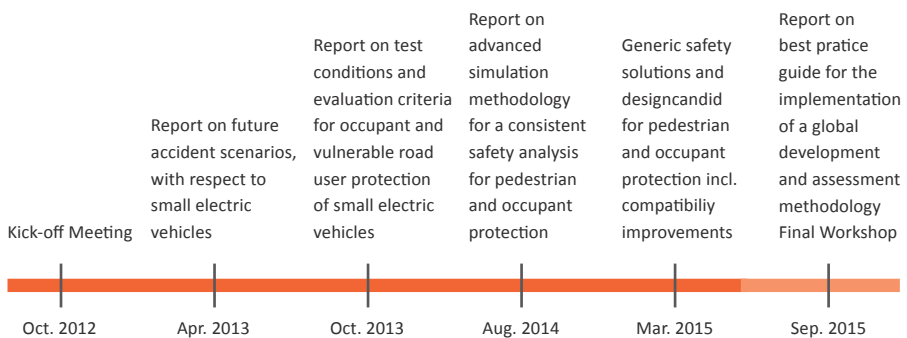
### Safe small Electric Vehicles through advanced simulation methodologies

#### MOTIVATION AND OBJECTIVES

Small Electric Vehicles (SEVs) show distinctive design differences compared to the traditional car (e.g., no bonnets, vertical windscreens, outstanding wheels). Thus the consequences of impacts of SEVs with vulnerable road users (VRU) and other (heavier) vehicles will be different from traditional collisions. These fundamental changes are not adequately addressed by current vehicle safety evaluation methods and regulations. VRU protection, compatibility with heavier opponents and the introduction of active safety systems have to be appropriately taken into account in order to avoid any SEV over-engineering by applying current regulations and substantially impair the SEVs (environmental) efficiency. Therefore, the project SafeEV aims, based on future accident scenarios, to define advanced test scenarios and evaluation criteria for VRU, occupant safety and compatibility of SEVs. Moreover, industrial applicable methods for virtual testing of these scenarios and criteria will be developed.

#### PROJECT PLAN, MILESTONES AND DELIVERABLES

The figure below shows the main deliverables of the project.



#### TECHNICAL APPROACH

New SEV designs are not taking into account current safety standards and regulations (e.g., pedestrian protection). Furthermore active safety systems like emergency brake assistant systems, which significantly will contribute to vehicle safety in the future, especially for compatibility and pedestrian protection issues, are also not considered. SafeEV will substantially support and accelerate the introduction of safer small electric vehicles for urban areas in the next decades by considering of above mentioned gaps. Taking the opportunity of defining advanced evaluation methods in an early stage – compared to the traditional vehicles, where in the past experimental testing and homologation was the main concept – the introduction of virtual testing methods towards virtual certification for small electric vehicles will be promoted.

#### ACHIEVEMENTS

- Identification of the most relevant future pedestrian and occupant accident scenarios involving SEVs
- Specification of test configurations for vulnerable road users and occupant protection assessment (incl. compatibility) in accidents involving SEVs in urban areas
- Seamless tool chain for the investigation of pedestrian safety and occupant protection solutions towards virtual assessment and finally virtual certification testing
- Definition of advanced principles for optimised pedestrian and occupant protection systems to be applied in SEVs
- Physical prototyping and pre-testing of a dedicated safety solution on component level of a SEV
- Cost-efficient development of SEVs will be made possible by the new virtual testing methodologies developed
- Best practice guideline and implementation of the advanced simulation methodologies concerning pedestrian and occupant safety in SEVs

<b>Budget</b>	3.2 M€	<b>Funding</b>	2.1 M€
<b>Duration</b>	36 months	<b>Start</b>	October 2012
<b>DG</b>	Research & Innovation	<b>Contract n°</b>	314265
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<b>Website</b>	www.project-safeev.eu / www.seam-cluster.eu		

