

GRPE meeting 17 January 2012

Agenda item 7

International environmental and propulsion performance requirements of
L-category vehicles



European Commission
Enterprise and Industry

Introduction

- Identified **concerns** in current EU approval legislation for L-category vehicles:
 1. the complexity of the current legal framework;
 2. the **level of emissions** and its **increasing share** in total road transport emissions, which are decreasing overall;
 3. safety aspects related to type-approval requirements for vehicles;
 4. the lack of a legal framework for vehicles fitted with new technologies;
 5. the entry of products into the EU market which do not comply with the current type-approval requirements regarding functional vehicle safety and/or environmental protection.
- Main Objective: efficiently and effectively address the above listed issues.

Introduction

- Identified environmental concern: high share of hydrocarbons, carbon monoxide and volatile particles emitted by L-category vehicles

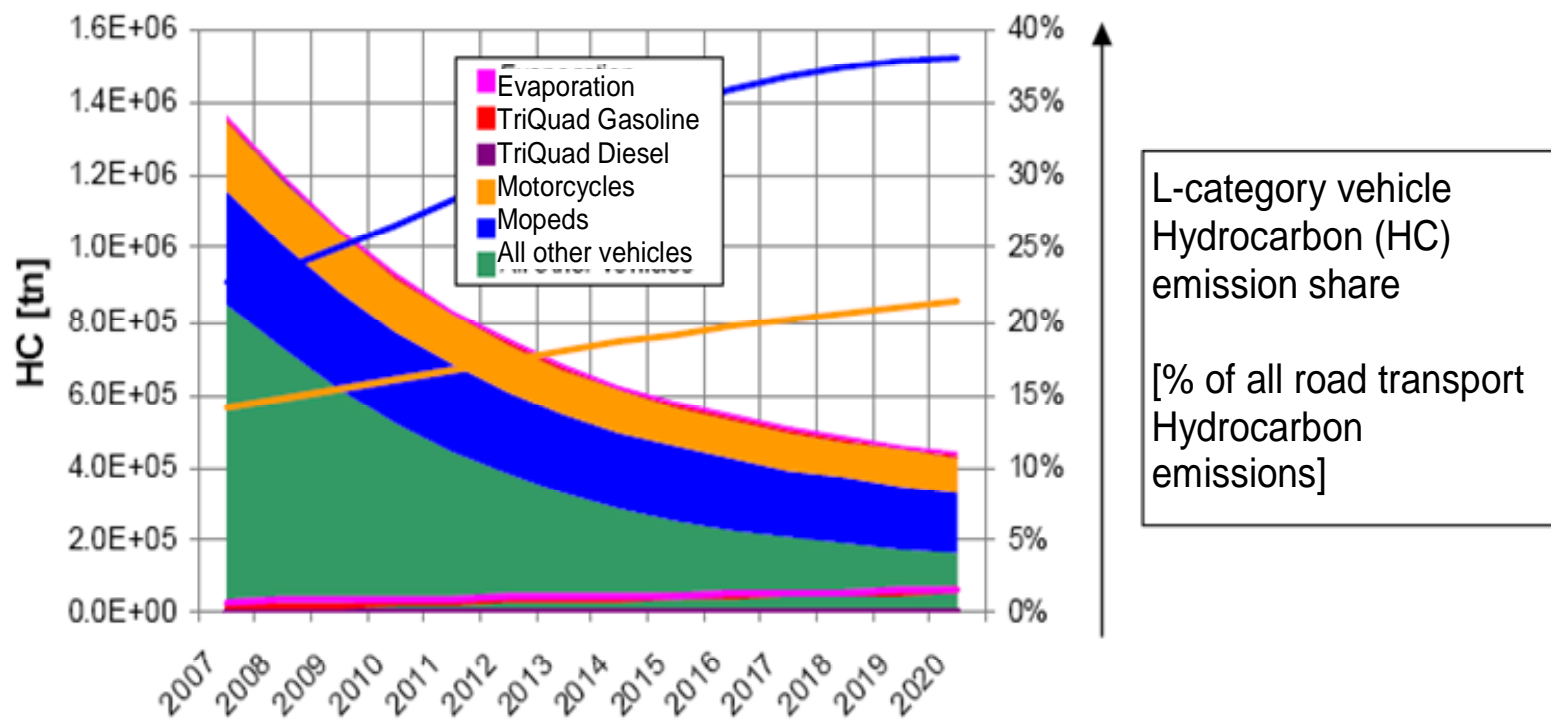


Figure 1: Trend over time of L-category vehicle, absolute and relative share of hydrocarbon emissions if no change in policy.

NB. The “all other vehicles” category includes passenger and delivery cars, trucks and busses. Source: the LAT report
 Primary Y-axis (left): HC = HydroCarbon emissions; 2.0E+05 = 200,000, 1.0E+06 = 1,000,000, 1tn=1000 kg.
 Secondary Y-axis (right): L-category vehicle Hydrocarbon (HC) emission share as % of all road transport Hydrocarbon emissions

Codecision act proposal - status

- **Commission adoption** of the proposal for a European Parliament and Council Regulation on the approval and market surveillance of **L-category vehicles** (two- or three-wheel vehicles and quadricycles) on 04 October 2010.
- Codecision act contains **essential elements** such as the emission limits, obligation to fit advanced brake systems, reference to applicable test procedures, application time table, structure delegated acts etc.
- Proposed short-term: “L-cat codecision Reg” in order to discriminate from 4 future proposals for delegated and implementing Regulations regarding technical details and administrative procedures.
- L-cat codecision Reg proposal was well received by Council and Parliament and both are very active in reviewing the proposal.

Proposed structure regulation on approval of L-category vehicles








- **One Co-decision** act (anticipated adoption Council and Parliament: 2012) replacing Framework Directive 2002/24/EC
http://ec.europa.eu/enterprise/sectors/automotive/documents/proposals/index_en.htm
(also contains EC impact assessment)
- **Three delegated** acts (anticipated adoption in 2012, pending adoption of codecision act by Council and Parliament) replacing 14 technical Directives containing technical details:
 1. **Regulation on environmental and propulsion performance requirements (REPPR);**
 - First concept and discussion paper REPPR published:
http://circa.europa.eu/Public/irc/enterprise/automotive/library?l=/mcwg_motor_cycle/2011_meeting_september_2/reppr_mcwg_v05pdf/EN_1.0_&a=d

Proposed structure regulation on approval of L-category vehicles

2. Regulation on vehicle functional safety requirements (RVFSR);
 - First concept and discussion paper RVFSR published:
http://circa.europa.eu/Public/irc/enterprise/automotive/library?l=/mcwg_motorcycle/2011_meeting_december_20/rvfsr_mcwg_2011/EN_1.0&a=d
 3. Regulation on vehicle construction requirements (RVCR).
 - Under construction;
- **One Implementing** act (anticipated adoption 2012)
 - Regulation on administrative requirements (RAR)
 - Under construction
 - The whole package of 5 Regulations is proposed to become first applicable as of **01 January 2014**.



L-category vehicles in the scope of the proposal (1)

- 2-wheel vehicles (powered two wheel vehicles)

Category & Category Name	Sub category & Sub category name	Example
L1e, light two-wheel vehicle	L1A e powered cycle	
	L1Be Moped	 
L2e Three-wheel moped		
L3e, motorcycle	A1, A2, A3	 
L4e, motorcycle with side car	-	





L-category vehicles in the scope of the proposal (2)

- 3-wheel vehicles (tricycles)

Category & Category Name	Sub category & Sub category name	Example
L5e, tricycles	L5Ae Tricycles	
	L5Be Commercial tricycles	

L-category vehicles in the scope of the proposal (3)

- 4-wheel vehicles (quadricycles)

Category & Category Name	Sub category & Sub category name	Example
L6e, Light quadricycle	L6Ae Light on-road quad	
	L6Be Light Quadri-mobile	
L7e, Heavy quadricycle	L7Ae Heavy on-road quad	
	L7Be Heavy Quadri-mobile	

Highlights proposed environmental measures in L-cat codecision Reg

- Vehicle type approval environmental measures for type-approval of new vehicles types:
 - Proposed environmental steps:
 - Euro 3 (Euro 4 for L3e motorcycles): 2014;
 - Euro 4 (Euro 5 for L3e motorcycles): 2017;
 - Euro 5 (Euro 6 for L3e motorcycles): 2020.
 - Environmental effect study to be conducted in 2015 – 2016 timeframe before taking final decision to mandate Euro 5 step.
 - Durability test requirements.

Highlights proposed environmental measures in L-cat codecision Reg

- Vehicle type approval environmental measures for type-approval of new vehicles types:
 - Type approval requirements for CO₂ (green house gas emission) and fuel consumption: Type Approval for CO₂ and fuel consumption, measurement and reporting, vehicle labelling at a later stage;
 - Emission laboratory test cycle
- Use of the World Motorcycle Testing Cycle (WMTC) as single emission laboratory test for all L-category vehicle categories proposed as of 2020.

Proposed structure Regulation on Environmental and Propulsion Performance Requirements (REPPR)

- Annexes II and V of the L-cat codecision Reg propose structure and provide the general framework
 1. Environmental test procedures related to e.g. measurement of exhaust emissions, evaporative emissions, greenhouse gas emissions, fuel or energy consumption, electric range etc;
 2. Maximum design engine speed, maximum torque, maximum continuous rated and net power;
 3. Test procedures related to sound. Goal: accede to UN R41 and to upgrade UN Regulations 9 and 63 before acceding.

Proposal - Regulation on Environmental and Propulsion Performance Requirements (REPPR) - Chapter II - environmental test requirements

- **Test type** **Test description**
 - I Tailpipe emissions test after cold start;
 - II Tailpipe emissions test at (increased) idle / free acceleration test;
 - III Emission test of crankcase gases;
 - IV Evaporative emissions test;
 - V Durability testing of pollution control devices;
 - VI Test type not attributed;
 - VII Measurement of CO₂ emissions, fuel consumption, electric energy consumption and electric range determination;
 - VIII On-board diagnostics test (only environmental part of OBD, functional part in RVCR);
 - IX Sound level tests.

Proposal - Regulation on Environmental and Propulsion Performance Requirements (REPPR) - Chapter II - propulsion performance test requirements:

- Annex IX: Testing procedures and technical requirements regarding maximum design engine speed, torque, maximum continuous rated and maximum net propulsion power.
- Base: EU Directive 95/1/EC on the maximum design speed, maximum torque and maximum net engine power of L-category vehicles with conventional (combustion engine) propulsion.
- UN R85 under consideration for determination of maximum continuous rated power of pure electric propulsion.
- Issue: propulsion performance of hybrid-electric propelled vehicles and alternative propulsions.

Availability of UN Regulations or GTRs regarding environmental and propulsion performance requirements

- **Simplification:** explicit EU goal to refer as much as possible directly to UN Regulations and to replace REPPR text in the future with direct references to UN Regulations;
- Availability of UN Regulations is not a given today. Existing Regulations R40, R47, R101 and GTR No 2 require update;
- Measurement technology requirement principles for vehicles equipped with combustion engines, pure electric or hybrid-electric propulsion should be coherent and made common to the largest extent possible, independent if fitted on a L-, M- or N-category vehicle.
- Many developments in M- and N- category measurement technology requirements (WLTP ?) may also be applicable for L-category vehicles.

Availability of UN Regulations or GTRs regarding environmental and propulsion performance requirements

- UNECE Regulations will need to be upgraded before EU can accede and make direct reference to UNECE Regulations.
- Developed draft road map containing flow chart with possible future scenarios for consideration of GRPE;
- Started two-year study to investigate how to accomplish the goal can be achieved of direct reference to UNECE Regulations and replacing REPPR text by direct references to UNECE Regulations;

Proposed next steps

- Stakeholder consultation, the EC would welcome input from contracting parties and international stakeholders how to improve international L-category vehicle environmental and propulsion performance requirements;
- Invitation to provide contributions proactively or by replying to questionnaire to be send by consultants (Ecorys and TRL).
- GRPE to decide if mandate can be given to informal group to start working on international L-category vehicle environmental and propulsion performance requirements.

More information on the study ?

Proactive stakeholder input ?

Matthew.Smith@Ecorys.com

+31 10 453 8629

**More information on L-category vehicle EU
type-approval legislation ?**

Entr-automotive-industry@ec.europa.eu

+32 229 92440 or +32 229 58173

THANK YOU FOR YOUR ATTENTION !