

European
Automobile
Manufacturers
Association

EUROPIA

**Annual General Information
Meeting**

2nd June 2010



A

E

C

A



01 **Legislation and development of fuel standards**



Drivers for CEN fuel standards

Engine, emission control system and fuel are an integrated system.

1. European legislation:

- Air quality improvements (Euro 4, 5, 6...);
- Reduce energy dependence on fossil fuels;
- Reduced CO₂ emissions;

2. Vehicle operability issues in the market due to poor fuel quality.

3. Development of test methods.

Evolution of OEM technology:

- Vehicle systems;
- Powertrain - fuel injection equipment;
- Exhaust after-treatment systems;



Evolution of fuel quality:

- Composition / Refinery changes;
- Fuel Quality Directive
- Biofuels;
- Renewable Energy Directive;



Past, Present & Future

IN THE PAST

R&D vehicle petrol & diesel fuel program: EPEFE 1993-96 (Auto Oil I):

Joint adoption in 1998 of:

- Emission Directive 98/69/EC;
- Fuel Quality Directive 98/70/EC.

Gasoline and diesel fuel specifications in 2000 and 2005:

Petrol: EN228 (1999) **E5**
Diesel: EN590 (1999) **B0**.

TODAY

Adoption in 2009 of:

- Fuel Quality Directive 2009/30/EC;
- Renewable Energy Directive 2009/28/EC.

E10 gasoline: No vehicle/fuel test program;

B7/B10 diesel fuel: 2009/10 Oxidation Stability Program

Gasoline and diesel fuel specifications to be implemented 31/12/2010

Petrol: EN228 **E10** remains under revision;
Diesel: EN590 2009 **B7**.

IN THE FUTURE

Vehicle / gasoline & diesel fuel + biofuels blends test program: to be defined, revisions to:

2013 Fuel Quality Directive;

Renewable Energy Directive 2009/28/EC;

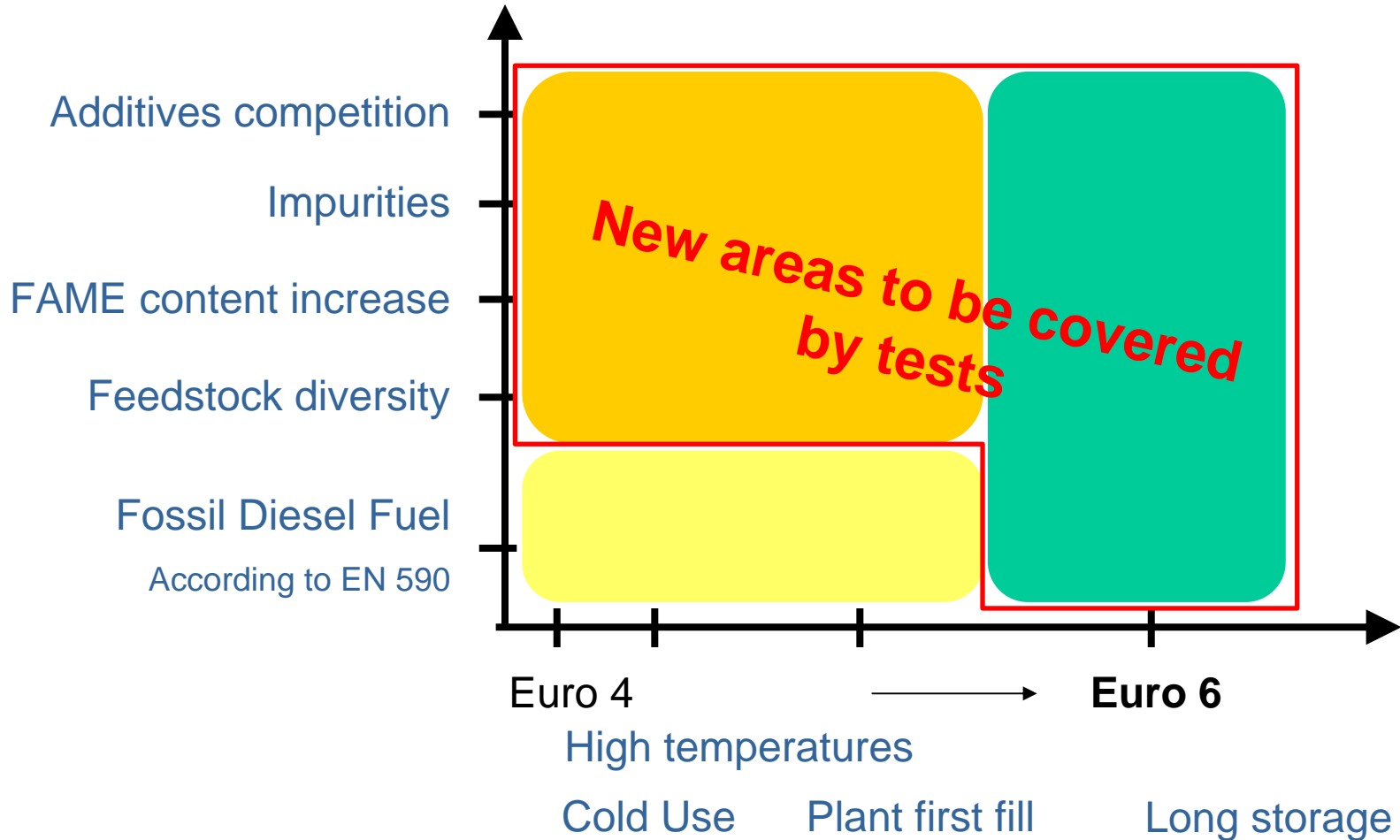
2020: 10% renewable energy in transportation fuels;

Petrol: EN228 **E_{xx}**
Diesel: EN590 **B_{xx}**



Diversity of fuel-related issues

Example of Diesel-Biodiesel blends :



Large spectrum of vehicle usage / biofuel blend diversity



02 Need for appropriate fuel quality standards for in-field vehicles



Consequences of poor fuel specs

Fossil diesel fuel:

■ **Early 90's Sweden:**

- Pump wear and blocked vehicles because insufficient lubricity of the 10 ppm Swedish CI1 Diesel fuel

Biodiesel blends:

• **2008/9 France (B7):**

- Plugged filters
- > impossible to start vehicles in the market but diesel fuel and biodiesel met required specifications!!



Biodiesel blends:

■ **2008/9 EU (B5 & B7):**

- Internal diesel injector and pump deposits;
- > vehicles stalling in the field



(cf SAE Paper 2008-01-0926).

Introduction of lubricity specification in EN590 1998

Biodiesel fuel cold flow properties reinforced (under discussion),
Waiting a test method for saturated monoglyceride

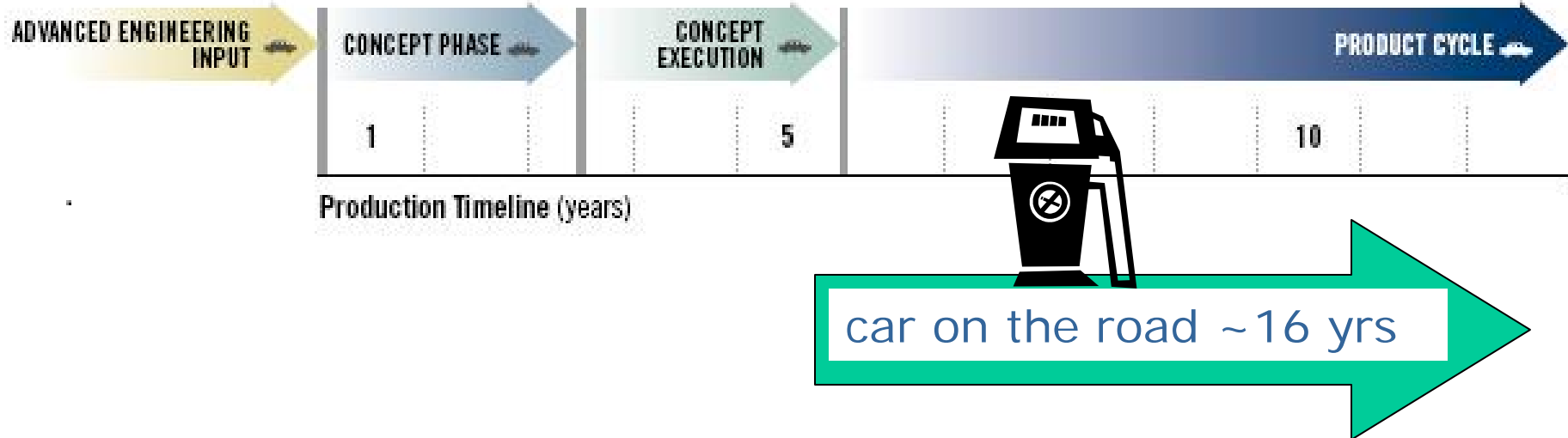
Origin not completely Identified;
To be taken into account for future EN B10 standard.



03 Leadtime & OEM concerns






Leadtimes needed



Lead-time required for future vehicle developments;
'Rolling' protection grade required for existing fleet.



Demands on the OEMs

1. Develop future vehicles for future fuels:
 1. Future evolution of fuel specifications are taken into account in the “natural” developing process of a vehicle 
 2. To check and agree the compatibility of vehicles in the fleet with:
 - Higher biofuels blends (e.g. B5- > B7);
 - Higher limits for existing specifications (e.g. “E70” and “E100” distillation for E10 petrol).
1. Future evolution of fuel specifications are taken into account in the “natural” developing process of a vehicle 
2. Backward compatibility of vehicles is a very difficult issue. 
 - Not in line with the “natural” development process (no priority);
 - Cannot cover all the model vehicles:
 - Reliability risks for customers;
 - Risk for OEMs in meeting commitments (CO₂, emissions, etc);
 - Very costly.

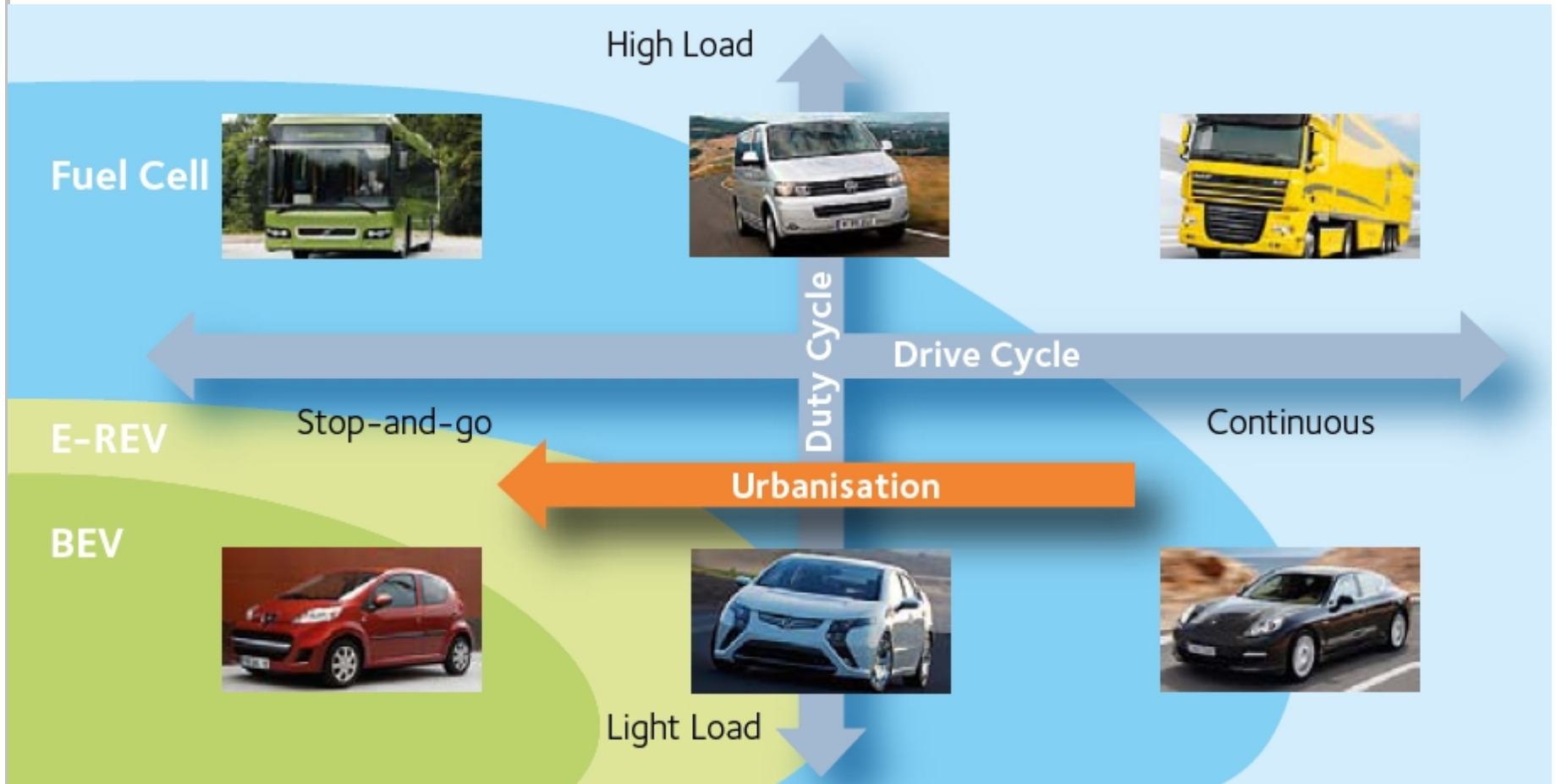
**OEMs do not want to face again such situation in the future.
OEMs need sufficient lead-time & clear plans for future fuel specifications.**



04 Future mobility



Low emission vehicles - diversity





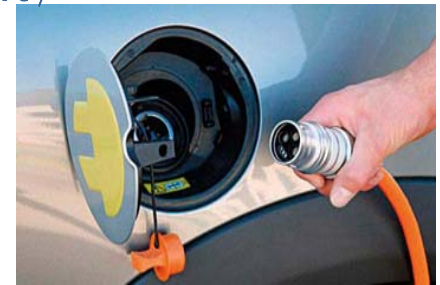
Electrification – part of the solution

No 'silver bullet' towards sustainable mobility:

- Diverse transportation needs;

Electrically Chargeable Vehicles:

- Range of electrical technologies in development;
- Applications include plug-in hybrid electric vehicles, extended-range electric vehicles, battery electric vehicles;
- Low or zero emissions at the tailpipe.



Low-carbon energy key to realise CO2 savings potential:

- More renewable electricity production from sustainable sources increases the CO2 benefits;
- No influence on energy production by vehicle manufacturers.

Electric mobility poses many questions.



Key pillars for success

Policy environment:

- Market incentives (EU, national governments);
- Collaboration and coordination.



Market readiness:

- Recharging infrastructure;
- Customer awareness & acceptance, market demand.



Standardisation:

- Common interfaces (e.g. vehicle-infrastructure);
- Global standards.





Key pillars for success

Technology ability:

- Vehicles for variety of customer needs;
- Costs:
 - Battery costs can add €6,000 – €16,000 per car*
 - Additional costs for power electrics, wiring, etc.
- Need for further R&D (particularly battery development)



Well-to-Wheel consideration:

- Low carbon sustainable energy production.

* Typical driving range for ECV will be up to 150km, up to 20kWh electric energy consumption (small/compact car).



Market potential - EVs

Customer expectation:	e-vehicles today:
Same driving range	150 km
Same refuelling time	3 hours
Same cost	EUR 10,000+

A new vehicle market share in the range of 3 - 10% in 2020-25 is possible;

Market penetration depends on the coordinated collaboration of all key players.

* including battery electric vehicles, extended-range electric vehicles and plug-in hybrid electric vehicles



Commission communication

EU strategy on clean & efficient vehicles:

- **Technology-neutral approach, 2 areas of action:**
 - Improving ICE;
 - Promoting 'breakthrough technologies':
 - Electrically chargeable vehicles (including fuel cell) & hydrogen.
- **R&D:**
 - Focus on low carbon fuels, improvement of conventional engines and electric drive trains;
 - Continued support by European Investment Bank (EIB).
- **Global standardisation and harmonisation:**
 - Commission to take action;
- **Market measures to stimulate uptake of low emission technologies.**



Commission communication

- **Electrically chargeable vehicles:**
 - **Type-approval and safety** requirements to be addressed 2010-12;
 - EU-standard for **recharging interface** by 2011;
 - EU to coordinate **national measures** on building recharging infrastructure; EIB to provide financial support;
 - EU **standards** to be adapted to **global** developments where necessary;
 - Analyse **carbon footprint** of different technologies over life-cycle;
 - Support use of **low carbon electricity** by electric vehicles;
 - Revision of regulation on battery transportation.



Competitiveness Council 25th May

- Council welcomed the **scope** of the Commission's Communication (including **HDV**);
- Need for further progress on **ICE**, including with **2nd generation biofuels** and gaseous fuels;
- **EVs** are ready for mass-production by some OEMs and meet increasing customer acceptance, hydrogen needs further technological development;
- ICE will remain dominant in short- and medium term, EVs/H2 are promising technologies;
- **Superior WtW energy efficiency of EVs**, "in particular if combined with electricity generated from safe and sustainable sources".



05 Summary



Summary

- The **ICE will be around for many years** yet:
 - ACEA expects a balanced policy framework for conventional & electric powertrains;
 - Sustainable mobility as an enabler of economic growth and social development;
- **Blending biofuels:**
 - in general market fuels has significant effects for all the industries involved;
 - at higher rates may de-optimize operations of the oil industry.
- Any **change of fuel specifications** for vehicles in the field requires thorough testing if vehicles were not designed, checked and validated with such fuels;
- **Backward compatibility** validation is a long and costly process and is not in line with “natural” validation process of the OEMs - **protection grade** required.



Summary

- For the future, OEMs must have **sufficient lead-time** to develop new vehicles to operate properly on new fuels:
 - Existing and likely emission regulations;
 - CO2 regulations.
- OEMs need **clear messages** on fuel specifications evolution and introduction plans for new fuel grades/blends;
- We expect investments in advanced biofuels now to make a difference in the 2020 timeframe;
- A **Joint R&D program** supported by all the stakeholders should be considered for blends beyond the FQD.



The Automobile Industry in Europe

Key figures

- ⇒ 15 major international companies
- ⇒ 12 million direct and indirect jobs
- ⇒ €26 billion in R&D spending, largest private investor
- ⇒ €28.6 billion of net trade contribution
- ⇒ €377 billion of tax revenues (EU15)

