# EGEA
# Report on WG 2 Activities

**EGEA General Assembly, 14th March 2012, Expomovil**

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- **TEDDIE Study:**
  Short Report
- **Vehicle Telematics**
  Technical findings and common way forward
- **Access to OBD, Repair and Maintenance Information for Electric Vehicles and Hybrid Electric Vehicles**
  Report from EGEA Workshop on EVs – 31st January 2012

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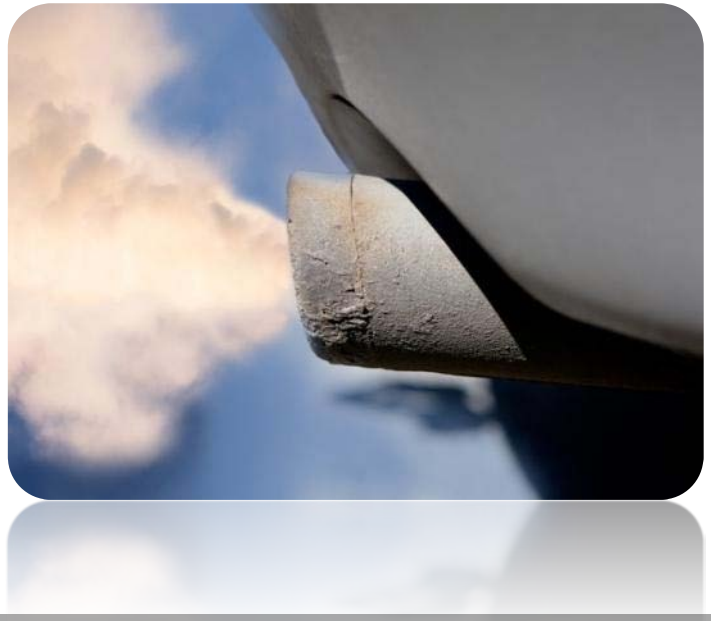
# TEDDIE STUDY

**Study on a new emission test for diesel at roadworthiness test using NO/NO2 and particle measurement**



## Preamble: Recital 11 of PTI Directive EU/2010/48

(11) Further work needs to be done in the field of developing alternative test procedures to check the maintenance condition of diesel driven vehicles, particularly concerning NO x and particulates taking into account new emission after-treatment systems.

# TEDDIE study – new emission test …

- Tender in 2010 from the Commission
- CITA won this bid - Project Contractor was CITA
- Study started in January 2011
- Stakeholders :

  CITA, TÜV Nord, DEKRA, IERC (Germany), GOCA (Belgium), SGS (Switzerland), TRL Limited (UK), Stricker (Austria), R Oliver
- EGEA was involved in this study (Partner)
- Final report was distributed to the Commission in December 2011
- Results will be published in the next months (Report not yet official)

# TEDDIE study – Aims of the study

## Aims of the study

- Examination of **particulate measurement with new high sensitive instruments** (particle instruments and $NO/NO_2$ instruments)
- Examination of the **ratio of $NO/NO_2$ emission** on Diesel vehicles
- Examination of **different test procedures** (Free acceleration, Idle, High Idle, Test bench…)

# TEDDIE study – Conclusion

## NO/NO2

- NDUV Instrument was in an advanced state – dynamic response should be optimised
- Instruments with electrochemical cells – prototypes – improvements necessary

## PM

- Prototypes, but level of development is higher
- Instruments are sufficiently accurate and stable
- Low and high emission can be detected

## PTI test procedures

- Correlation between PTI and NEDC ist poor for NOx
- Free acceleration and PM can identify defective exhaust after treatment systems
- Ratio NO/NO2 were too variable and inconsistend – depend very strong of the used aftertreatment system

⇨ OBD was not able to detect the simulated faults

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# TEDDIE study – Recommendations (1)

- The **combination of free acceleration test and new PM instruments measuri**ng in mg/m3 should be considered to represent a **viable option** for future PTI emission testing.

- **Field trials should be conducted to determine:**
  - Whether the combination of the free acceleration test and new PM instruments can accurately detect real-world faults in PM-control systems.
  - Whether general PTI limit values for PM can be used (e.g. 40mg/m3) or vehicle-specific limit values are more appropriate.

- The **measurement of NOx emissions** (or the NO2/NOx ratio) **during PTI emission tests** and the identification of EGR and SCR faults requires further investigation. = No specific recommendations are possible at this stage.

- The **use of OBD to identify NOx-related faults** requires further investigation in field tests. It would also be of interest to study how drivers react to OBD warnings.

# TEDDIE study – Recommendations (2)

- There will be a **need to address the use of engine speed limiters** (rpm and rpm gradient). A solution to this should be identified with ACEA, otherwise dynamometer-based testing may be required for PTI.

  = Engine protection limits will need to be discussed with OEMs.

- The **TEDDIE study** did not cover engine faults for **heavy-duty vehicles**.

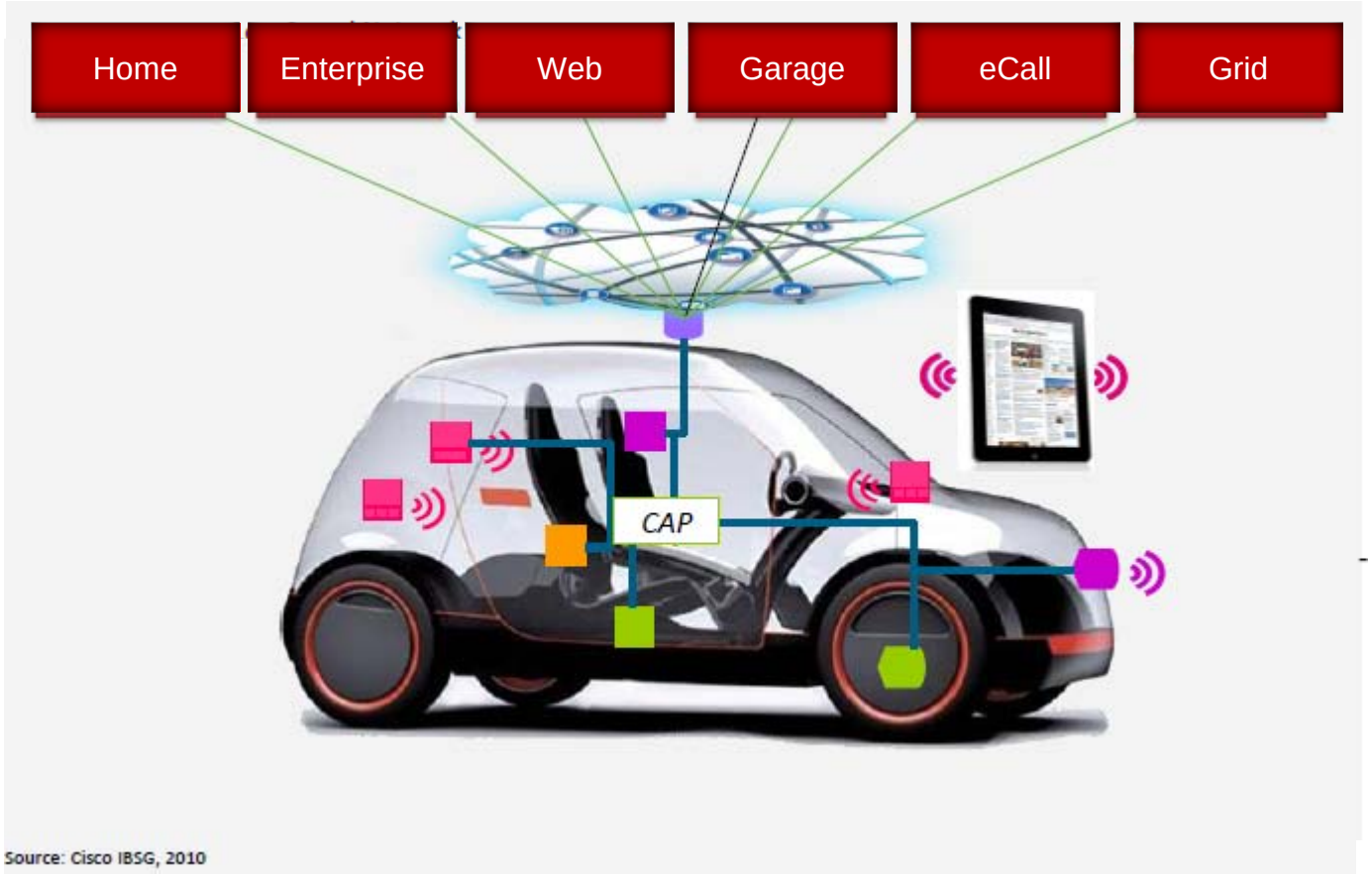
  = It would be of interest in subsequent work to investigate engine-related problems, such as faulty injectors or EGR valves, as well as after-treatment faults, which have an impact on PM emissions

# VEHICLE TELEMATICS TECHNOLOGY

## Technical findings and the way forward

# Vehicle Telematics

**The vehicle has not just become a “computer on wheels”, but is now “the internet on wheels”.**




Source: Cisco IBSG, 2010

# Vehicle Telematics – Key Questions

## What is Vehicle Telematics?

The ability to **remotely communicate** with a vehicle using wireless technology **to access the vehicle systems' data**.

## What is the threat to the aftermarket?

VMs could use telematics to **circumvent** existing legislation and thus **foreclose the market** in vehicle repair and servicing.

# Car information can now be sent wirelessly



**Traditional transfer of information via a cable will be used less and less as wireless communication becomes more prevalent.**

**Therefore Independent Operators must be able to receive information wirelessly in a similar way to the vehicle manufacturers.**

Norauto MIDAS Auto 5

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# Current use of telematics technologies

| VM | System |
|---|---|
| BMW | Connected drive |
| GM | OnStar |
| VOLVO | OnCall |
| FIAT | Connect |
| Ford | SYNC |
| TOYOTA | G-Book |
| Mercedes-Benz | Command |
| Audi | Audi Connect |

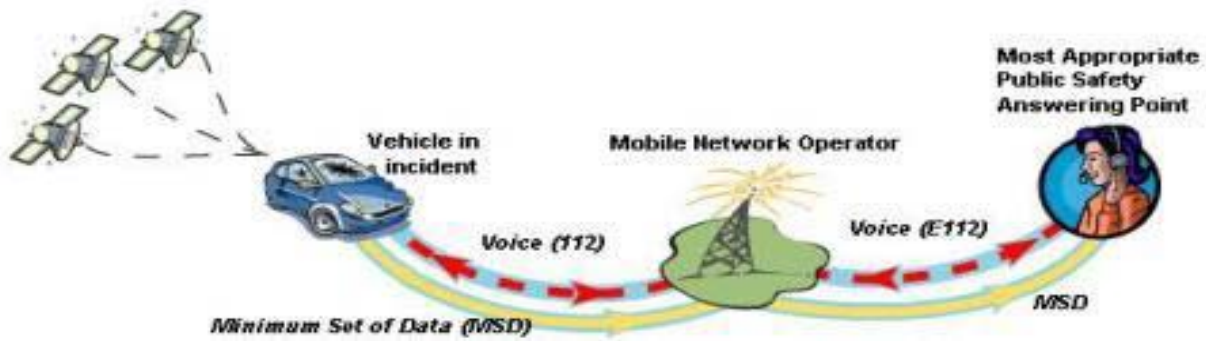
| VM | System |
|---|---|
| RENAULT | R-Link |
| NISSAN | Carwings |
| VW | OnStar/Hayes |
| PEUGEOT | Connect |
| CITROËN | eTouch |

**Telematics are already in widespread use and are increasingly available in volume models (even prior to the introduction of eCall)**

# The role of eCall

**The proposed mandatory Europe-wide introduction of eCall will exponentially expand the implementation of telematics systems in vehicles.**

**However, eCall <u>is not directly the threat nor does it offer the solution.</u>**



# Vehicle Telematics

## Recommendations

- **For independent operators:**
  Independent Operators must be able to access OBD, RMI and vehicle data through the telematics system.

- **For consumers:**
  Motoring consumers must have a freedom to choose competitive services from Independent Operators and service providers.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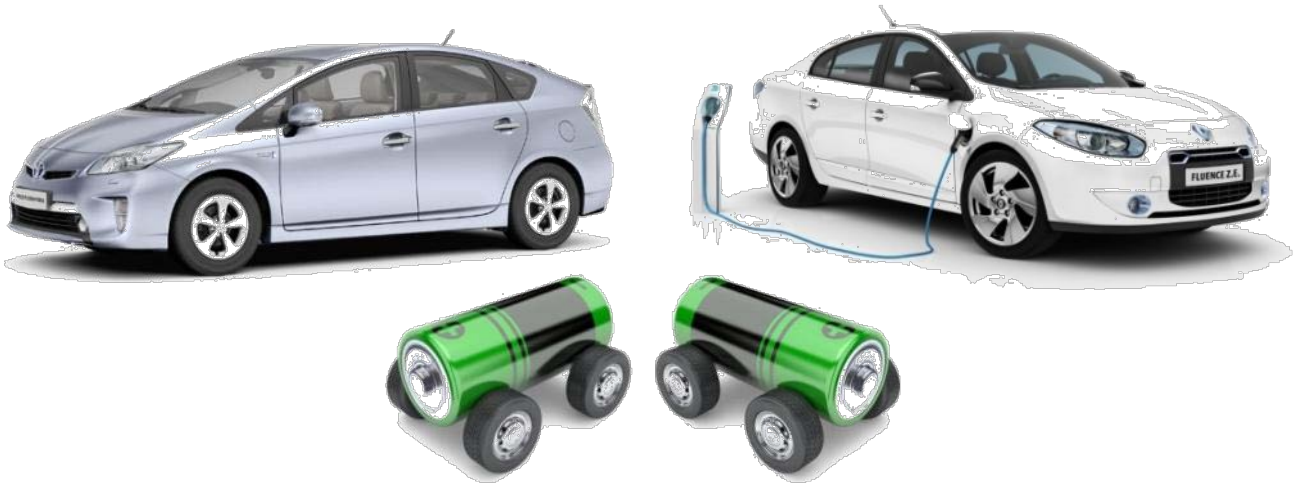
## What do we want?

**An adaptation of the EU Vehicle Type Approval requirements to ensure that new vehicles are equipped with a standardised and open in-vehicle telematics platform.**

# Electric Vehicles and Hybrid Electric Vehicles

## Access to Repair and Maintenance Information

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# EVs & HEVs: EU & International Regulations

## Type-approval framework for EVs:

- UN Regulation No 100 (functional safety at vehicle level)
- Adaptation of UN Regulations No 94 and 95 (crash safety).
- Specific battery requirements under development (RESS)

## Access to RMI for EVs:

- The EU Commission confirmed that EVs and HEVs are in principle covered under the scope of Euro 5 Regulations.

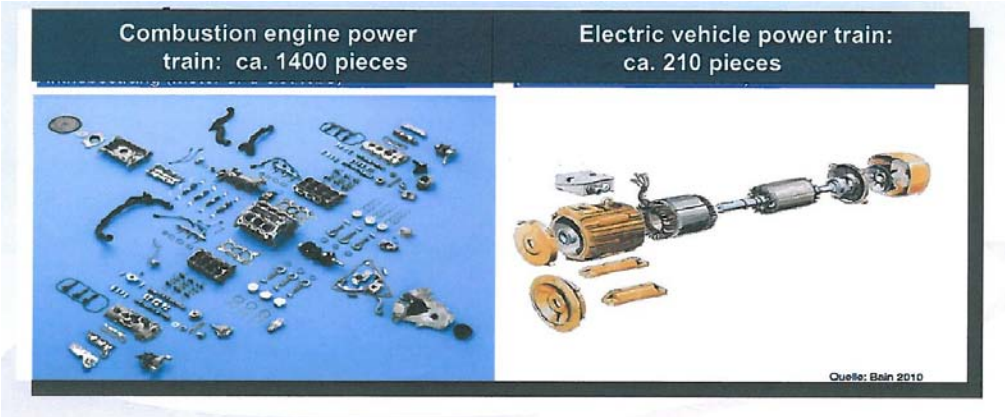
# EVs & HEVs: State of affairs (1)

## At EU level?

- **CARS21 WG1 meeting on Electromobility** held on 14th February 2012 to discuss the policy priorities for rollout of electromobility until 2020 (mainly focused on type-approval)

  → but it was highlighted that the Aftermarket for EVs exists and it is quite big.

  → And that these vehicles are less complex with less parts!

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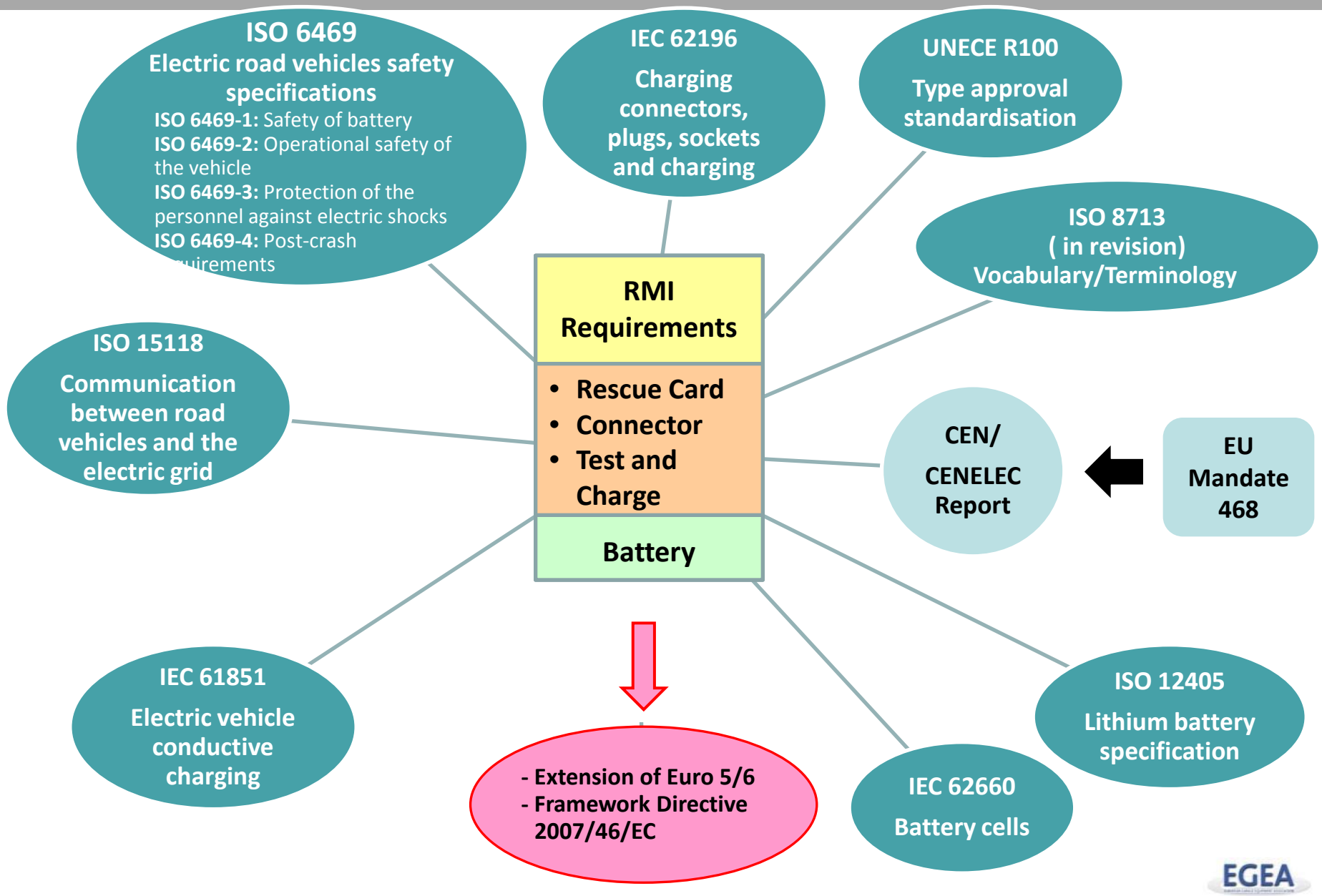
# EVs & HEVs: State of Affairs (2)

## At AFCAR/EGEA level?

- **Our aim**:
  Adapt the existing Euro 5 aftermarket provisions to Electric Vehicles

- **Several Experts meetings:**
  - 'AFCAR Technical Experts Workshop' (3rd August 2011) to adapt, where technically necessary, Euro 5/6 RMI provisions
  - **'EGEA Electric Vehicle Workshop'** (31st January 2012) to discuss with our members how these new types of vehicle technologies could generate changes in the design of our tools and test equipment, as well for PTI.
  - **Several internal meetings with experts on the standardisation of EVs to cross-check whether any technical features might already sufficiently be covered (or not) by existing ISO/SAE/UN-ECE standards and legislation.**

# EVs: Existing EU & International standards



# Access to RMI for EVs & HEVs: Our findings

## Technical adaptation of EU legislation to EVs <u>where current international standards are not sufficient</u>:

- **Vehicle design requirements:**
  - **Cable colour coding** and protection against electrical shock
  - **Rescue Card**

- **RMI:**
  - **Service Disconnect Switch** (High voltage battery isolation switch)
  - Abbreviations (terminology)
  - **Info for EGEA (Diagnostic connector & communication protocols/ Power train DTCs/ Charging connector design & communication protocol)**
  - **Battery Management System + Test Criteria**
  - Battery transportation information
  - Vehicle Communication Controller + Charging grid
  - **Remote vehicle communication (cf. Telematics)**
  - Strong magnetic characteristics
  - **PTI testing**

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EUROPEAN GARAGE EQUIPMENT ASSOCIATION

# Thank you!