



# Ricardo-AEA

## Evaluation of Regulations 443/2009 and 510/2011 on the reduction of CO<sub>2</sub> emissions from light-duty vehicles

Passenger car and van CO<sub>2</sub> regulations – stakeholder meeting

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**23<sup>rd</sup> May 2014**

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## Study aims and objectives

- **Study is focused on evaluating Regulation 443/2009 (Passenger car CO<sub>2</sub> Regulation) and Regulation 510/2011 (van CO<sub>2</sub> Regulation)**
- **Evaluate all elements of the Regulations in terms of:**
  - Relevance
  - Efficiency
  - Effectiveness
  - Coherence
  - EU added-value
- **Assess positive and/or negative impacts of the Regulations in terms of ensuring:**
  - A high level of environmental protection
  - Support competitiveness, innovation and employment
  - Social equity

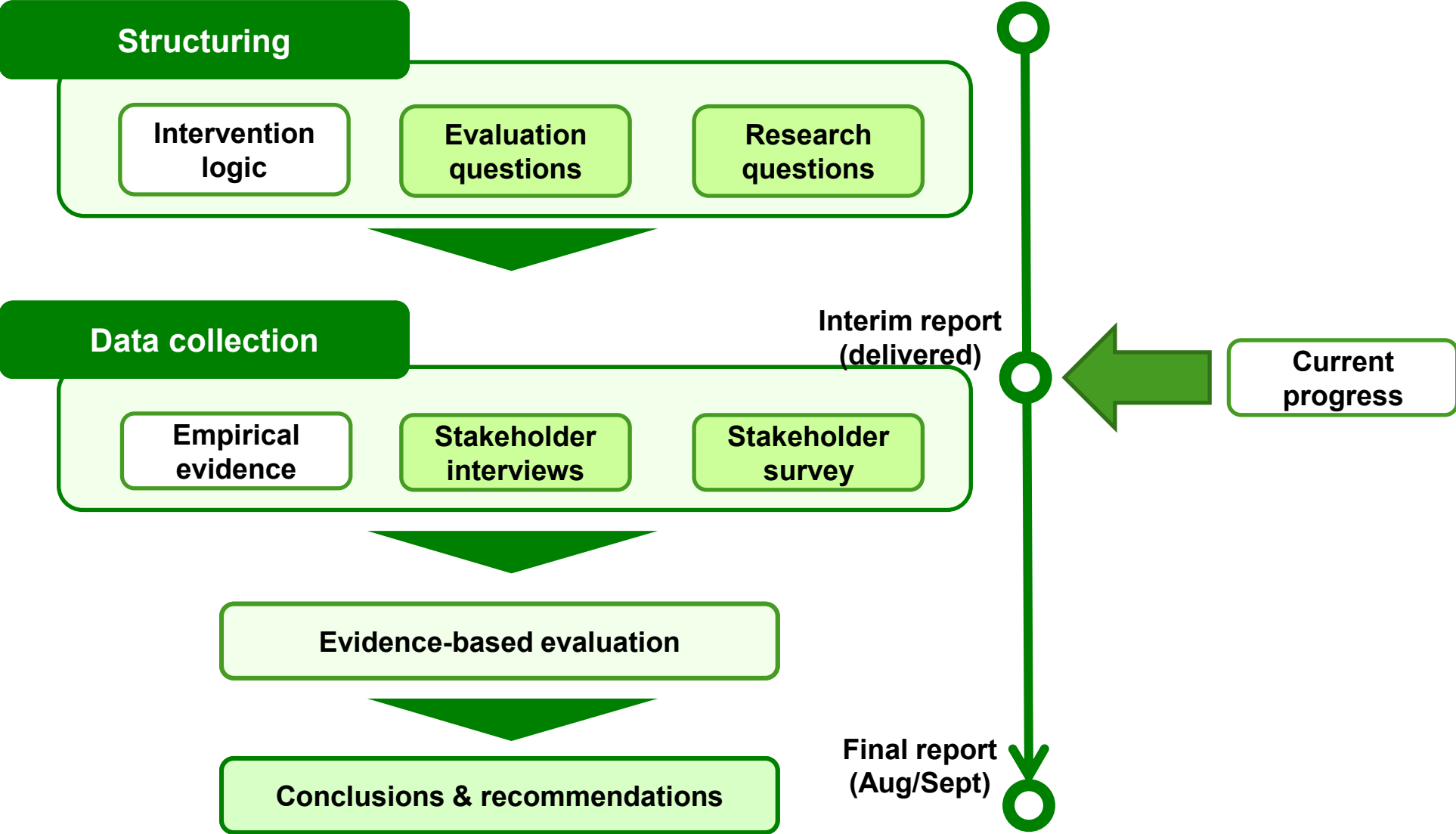
## Study aims and objectives

- **The aims are to better understand:**

- Areas that are causing inefficiencies due to issues relating to **design / implementation** and the relative importance of these different aspects;
- Areas that could be affecting **competitiveness or social equity** for different areas of the automotive market; and
- To make recommendation on whether the current legislative framework need to be adapted in light of future technological developments in the automotive sector

- **The study is NOT:**

- An impact assessment of future Regulations. The scope focuses on **looking backwards** at the results compared to what was expected at the time the Regulations were being developed.
- However, the findings will be used outside of this study to support the future development of the Regulations for the period post 2020/21



- **Key research questions:**

- Are the Regulations still **relevant** to ensure continuing reductions in GHGs from LDVs?
- How **effective** have the Regulations been in terms of reducing CO<sub>2</sub>, both in use and over the vehicle lifecycle? What aspects contribute to achieving the targets and what are the weaknesses?
- What have the **costs** of the Regulations been to industry, consumers and the public sector?
- What steps could be taken to improve the **efficiency** of the Regulations?
- How **coherent** are the different aspects (modalities) of the Regulations with their objectives?
- What is the **EU added value** of the Regulations – to what extent could the changes have been brought about by national measures?
- How relevant are the Regulations (and their design elements) looking forward to 2030?

## Study is ongoing....

- **Stakeholder engagement:**
  - 22 completed interviews (more to be conducted over coming weeks)
  - 42 fully completed surveys from a range of organisations, including policy makers, industry, NGOs etc
- **Survey is open for participation @**  
[https://www.surveymonkey.com/s/DGCLIMA\\_Evaluation\\_LDV\\_CO2\\_Regulations](https://www.surveymonkey.com/s/DGCLIMA_Evaluation_LDV_CO2_Regulations)
- **Deadline for participation is Friday 6<sup>th</sup> June**

- **PLEASE NOTE:**

- **All answers are subject to change based on detailed analysis that will be undertaken once the interview programme is complete and remaining surveys responses collated**

- The full analysis will attempt to match responses to respondent/stakeholder type – this has not fully been taken into consideration within this summary



## Relevance – To what extent do the objectives of the Regulations still respond to the needs?

- General feedback to date is that the Regulations are still relevant
- Respondents acknowledged that emissions reductions have occurred faster than they would have in the absence of the Regulations
  - Impacts on speed of emissions reduction demonstrated through comparing achievements of the voluntary agreement versus the Regulations (cars)
- Respondents indicated that the Regulations are likely to become more relevant in future, due to the need to reduce GHG emissions, improve energy security and demand from consumers for high-efficiency vehicles
- Regulations would be even more relevant once issues with the NEDC test cycle have been addressed
- Respondents indicated that in the short/medium term, unlikely to be any technical developments which will remove or reduce the need for the Regulations

- **Impacts on tailpipe CO<sub>2</sub> emissions**

- Respondents believe that the Regulations are effective in reducing vehicle CO<sub>2</sub> emissions per km travelled
- Also viewed as effective in reducing total CO<sub>2</sub> emissions from the car fleet.
- Less certainty about effectiveness re van CO<sub>2</sub> emissions, but this is likely to be due to a timing issue (i.e. the Van Regulation has not been in force for long enough to know yet and it requires a smaller percentage reduction)

- **Impacts on other environmental impacts and energy security**

- Respondents have indicated that they don't believe the Regulations have had any effect on emissions associated with vehicle manufacture or disposal
- In terms of reducing other emissions (i.e. air pollutants), respondents either indicated that they thought there Regulations had no effect in this area, or were somewhat effective
- With respect to security of energy supply, the consensus view to date is that the Regulations are somewhat effective

- **Impacts on competitiveness**

- OEMs believe that the Regulations are detrimental with respect to short-term competitiveness – this is in contrast to other stakeholder groups
- Impacts of the Regulations on long-term competitiveness was viewed more positively by OEMs, with other stakeholders indicating that the Regulations are somewhat effective in this area
- The Regulations have also been effective in stimulating R&D expenditure on CO<sub>2</sub> abatement technologies

- **Impacts on consumer purchasing and operational costs**

- Impacts on the costs of purchasing vehicles not viewed so positively – stakeholders believe that the effects are either neutral or somewhat detrimental
- By contrast, the impacts of the Regulations on reducing lifetime running costs were viewed as somewhat effective or highly effective

- **Relative importance of the Regulations compared to other factors that affect vehicle CO<sub>2</sub> emissions**
  - Most respondents indicated that other factors were less important, but still relevant
  - However, vehicle manufacturers believe that a number of other factors are more important than the Regulations, including:
    - autonomous improvements
    - economic crisis
    - planning restrictions on traffic
    - price of oil
    - fuel taxes
    - CO<sub>2</sub> based taxation and subsidies
  - A higher proportion of respondents ranked the ‘Economic crisis’ as having ‘about the same’ impact on vehicle CO<sub>2</sub> emissions as the Regulations
  - None of the factors stand out as being considered more important than the Regulations.

- **Effectiveness of the individual elements of Regulation 443/2009 in reducing CO<sub>2</sub> from cars**
  - Responses of note received to date:
    - **Elements generally viewed as effective:**
      - use of a utility parameter
      - level of stringency of the targets
      - excess emissions premium
      - basing targets on tailpipe CO<sub>2</sub>
    - **Elements generally viewed as detrimental:**
      - Use of mass as utility parameter
      - Supercredits
      - Specific vehicle emissions test procedure used (viewed as highly detrimental)
  - OEMs regard Regulations as a package and individual elements shouldn't be unpicked – they are all inter-related and it will be difficult to attribute impacts to the various elements.

- **Effectiveness of the individual elements of Regulation 510/2011 in reducing CO<sub>2</sub> from vans**
  - High level of uncertainty for all elements, with majority of respondents citing “no opinion” or “don’t know”
  - This is not surprising and is primarily due to the short length of time Regulation been in force

- **Elements that could be changed to improve the effectiveness of the car CO<sub>2</sub> Regulations (*top recurring answers*)**
  - Improvements to existing NEDC test / introduction of WLTP to replace the NEDC
  - Use footprint as utility parameter rather than mass
  - Replace approach based on tailpipe emissions with total life cycle assessment approach
  - Phase out super-credits
  - Longer term targets to 2025 – providing manufacturers with greater flexibility
  - Fairer burden sharing amongst sectors
  - More respect to market realities
  - More coherence with other policies / expanding complementary measures (e.g. standardisation of EV charging points/legislation for alternative fuel infrastructure)
  - Improvement of monitoring, using VIN data

- **Elements that could be changed to improve the effectiveness of the van CO<sub>2</sub> Regulations (*top recurring answers*)**
  - Improvements to existing NEDC test / introduction of WLTP to replace the NEDC
  - Use footprint as utility parameter rather than mass
  - Replace approach based on tailpipe emissions with total life cycle assessment approach
  - Improvement of monitoring, using VIN data
  - Simplify rules for multi-stage vehicles



## Additional comments from respondents on effectiveness of the Regulations

- **Use of tailpipe emissions as the regulatory metric**
  - Increasing number of Plug-in electric vehicles – considered to be zero emission even if they are ‘inefficient’
  - As in-use emissions decline, need to pay more attention to production/recycling emissions – Lifecycle assessment
- **Utility parameter**
  - Mass is not a good measure of ‘utility’ for cars; need something related to size, e.g. footprint
  - Some respondents indicated that they believe that more lenient targets are given to larger cars that are driven further
  - Different situation for vans – ‘utility’ varies greatly compared to cars
- **Test procedure – NEDC**
  - There are issues associated with the way in which vehicle mass is simulated during the NEDC test procedure (i.e. use of inertia classes)
  - No regulatory benefits in reducing vehicle mass if the vehicle remains in the same inertia class
  - Increasing distance between real world and measured CO<sub>2</sub> – highly detrimental, as is the use of test cycle flexibilities
  - Important elements are omitted from test procedure (e.g. air conditioning)

## Efficiency: Are the costs resulting from the implementation of the Regulations proportional to the results that have been achieved?

- **Were there any costs that were not adequately considered/taken into account in the IA for cars/vans?**
  - Majority of respondents didn't know, or stated 'no'
  - However, those who thought costs were not adequately considered taken into account mentioned:
    - Cumulative impact of range of Regulations – CO<sub>2</sub>, safety, air quality etc.
    - Wider costs need to be taken into consideration, not just technology – e.g. marketing, research etc.
    - OEMs need to be contacted to gain better industry/cost data (although they may not disclose this information)
    - Multistage vehicles and manufacturing processes not given enough consideration.
    - Lot of uncertainty among respondents with regards to impacts of Van Regulations to date – mainly due to length of time in force.

- **What are the major sources of inefficiencies? What steps could be taken to improve the efficiency of the Regulations? Are there missing tools and/or actions to implement the Regulations more efficiently**
  - Test procedure used – divergence between measured CO<sub>2</sub> and real-world emissions (NEDC)
  - Utility parameter – use of mass rather than generally preferred alternative footprint
  - Lack of technology neutrality in the Regulations
  - Elements of the potential impacts of the Regulations were missing when they were agreed and adopted – e.g. eco-innovations

- **How coherent are the modalities of the Regulations with their objectives?**
- **How well do the Regulations fit with other EU policy objectives?**
- ***Some views expressed are as follows:***
  - Possible **lack of coherence** with other policy initiatives, in particular safety and air pollutants
  - **Trade offs** between environmental, economic and social impacts
  - **Social impacts** – some respondents indicated that they thought car prices had increased and that some people were unable to afford vehicles, meaning mobility affected
  - **Environment** – reduction in the rate of fleet renewal with negative environmental impacts
  - Trade-offs could be avoided by having a more comprehensive impact assessment taking account of costs more accurately.
  - **Manufacturers not provided with consistent incentives** for the wider EU policy framework (e.g. noise targets are set per vehicle, but meeting these will often incur a CO<sub>2</sub> penalty (silencers adding weight to cars). Similar issues with safety).

- **What is the EU added value of the Regulations?**
- **To what extent could the changes brought about by the Regulations have been achieved by national or individual measures only?**
  - ***Some views expressed are as follows:***
  - Generally, respondents believe that taking action at EU level is appropriate
  - Acknowledged that voluntary agreements didn't work
  - Some respondents felt that national level action could have happened
  - Different approaches would have been taken to reduce emissions at the national level, most likely fiscal measures (vehicle taxes), labelling. However, unlikely to be sufficient to replace Regulations
  - Regulations level out national interests by making sure the same requirements are in place across the EU
  - The level playing field that the Regulations offer is preferable to the alternative of patchwork of different Member State initiatives
  - The Regulations add value as they have increased the speed at which emissions have been reduced
  - Global harmonisation would be better

- **Are there other technological, economic or administrative issues that are not covered by the existing Regulations and that could be introduced in view of their potential added value?**
  - ***Some views expressed are as follows:***
  - More serious consideration of **LCA** – potential to stimulate R&D in other areas
  - Inclusion of **real-world emission tests**
  - Consideration of **off-cycle technologies** – many of which not eligible to be considered in eco-innovations
  - Chassis dynamometer used for tests – **common equipment and standards required** for the way in which tests carried out
  - **Update to rolling resistance parameter** in order to better reflect changes in road surfaces
  - IT tools that could be used to optimise vehicles for test cycles shouldn't be allowed.
  - **Regulation is not technology neutral** (e.g. penalises light-weighting technologies)
  - Economic - **Type Approval Authorities are in competition** – market themselves to meet needs of manufacturers – need Commission oversight so they cannot market themselves on basis of ability to optimise vehicles for the test cycle.

## Next steps

- Completion of stakeholder interviews: **End May 2014**
- Return of all surveys: **6<sup>th</sup> June 2014**
- Stakeholder engagement analysis: **June 2014**
  
- Evaluation analysis: **June to July 2014**
  
- Preparation draft Final Report: **July/August 2014**
- Submission draft Final Report: **September 2014**
- Comments/revised Final Report: **October 2014**

**QUESTIONS?**



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