



**PE INTERNATIONAL**  
EXPERTS IN SUSTAINABILITY

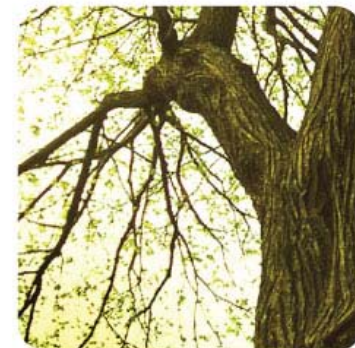


**LowC<sup>VP</sup>**  
*low carbon vehicle partnership*

***Developing a consistent  
approach to life-cycle  
assessment?***

Dr Peter Shonfield  
**PE INTERNATIONAL**

- **Introduction to PE INTERNATIONAL**
- **Introduction to life cycle assessment (LCA)**
- **Environmental issues in the automotive sector**
- **Consistency in automotive LCAs**
- **Summary**



### We help our clients to

- **Understand** the Impact of Sustainability on their Business



- **Improve** Product and Corporate Sustainability Performance



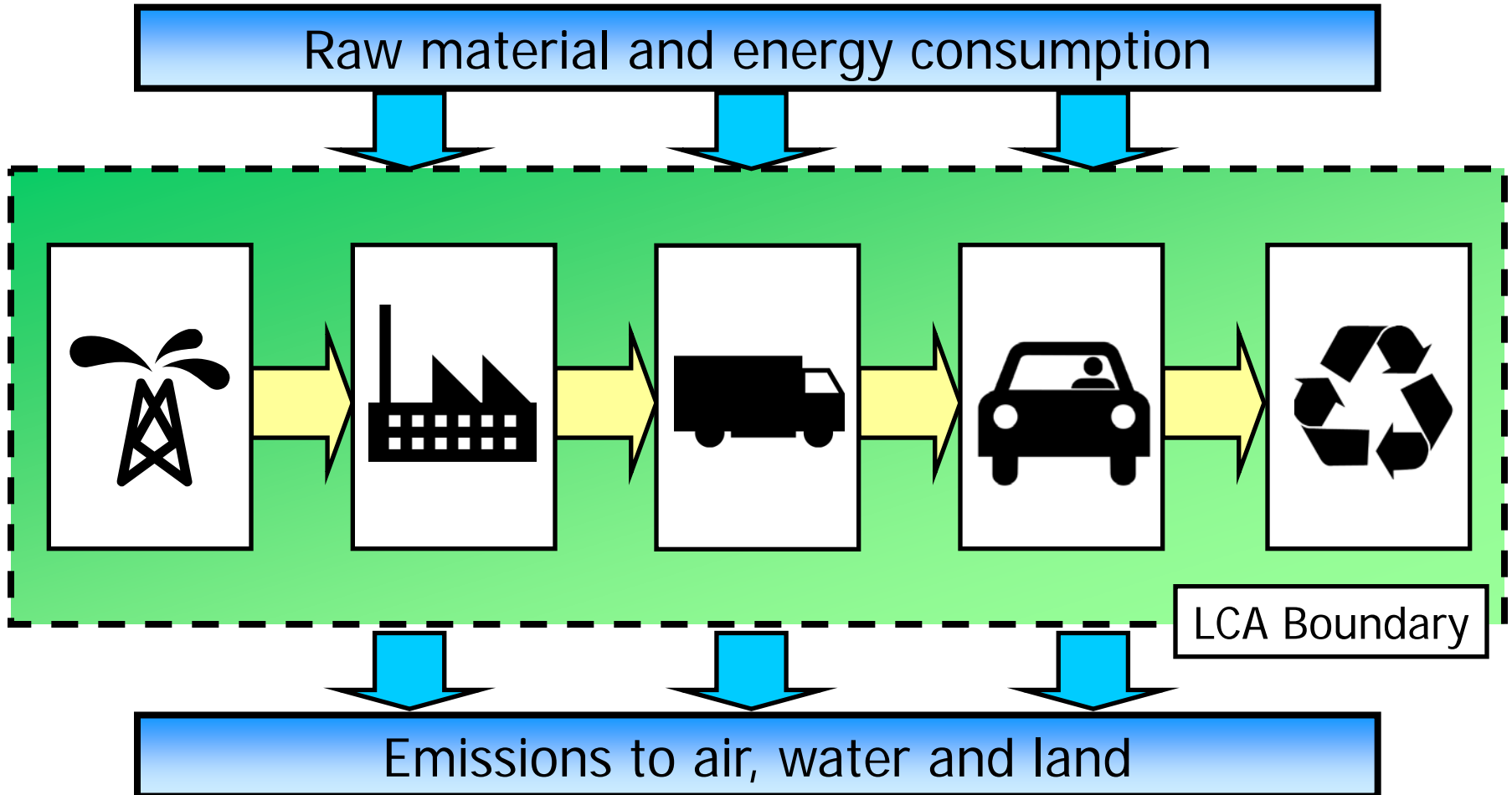
- **Succeed** in the Market Place with a more sustainable Business Model



...with a unique set of Services, Solutions, Content & Expertise!

### Our customers succeed with our solutions

Automotive	
Automotive supplier	
Electronics	
Materials	
Chemical	
Aerospace	
Energy	



INTERNATIONAL  
STANDARD

ISO  
14044

First edition  
2006-07-01

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**Environmental management — Life cycle  
assessment — Requirements and  
guidelines**

*Management environnemental — Analyse du cycle de vie — Exigences  
et lignes directrices*



Reference number  
ISO 14044:2006(E)

© ISO 2006

- **Goal and scope**
  - Study boundaries
  - Functional unit
- **Data quality**
  - Proportion of primary/secondary data
  - Data sources
  - Cut-off criteria
- **Methodology**
  - Accounting for recycled content/recycling at end of life
  - Co-product allocation
  - Impact assessment methods
- **Assumptions**



**RENAULT Z.E.**



- OEMs are using LCA in three main ways
  - Whole vehicle LCAs to achieve “environmental certification”
  - Component level assessments to compare design options
  - Assessments of manufacturing for process optimisation



### The Passat Environmental Commendation

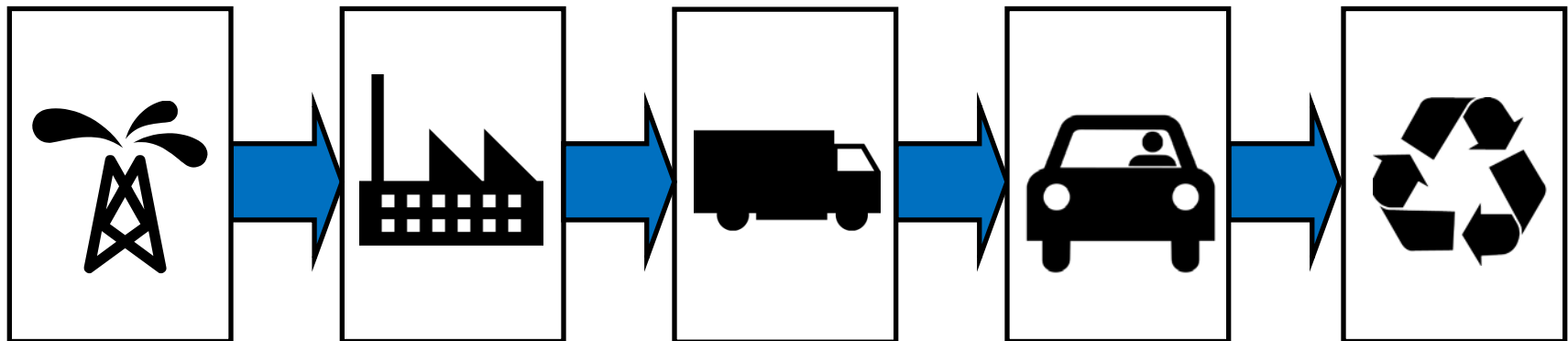


-Zertifikat  
Benz C-Klasse  
ntal Certificate  
Benz C-Class

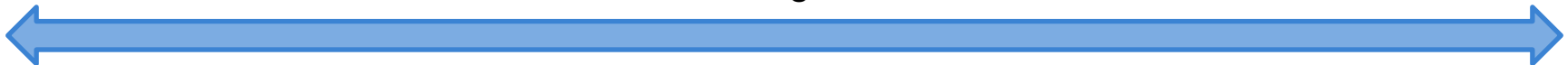


Mercedes-Benz





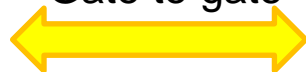
Cradle to grave



Cradle to gate



Gate to gate



Gate to grave

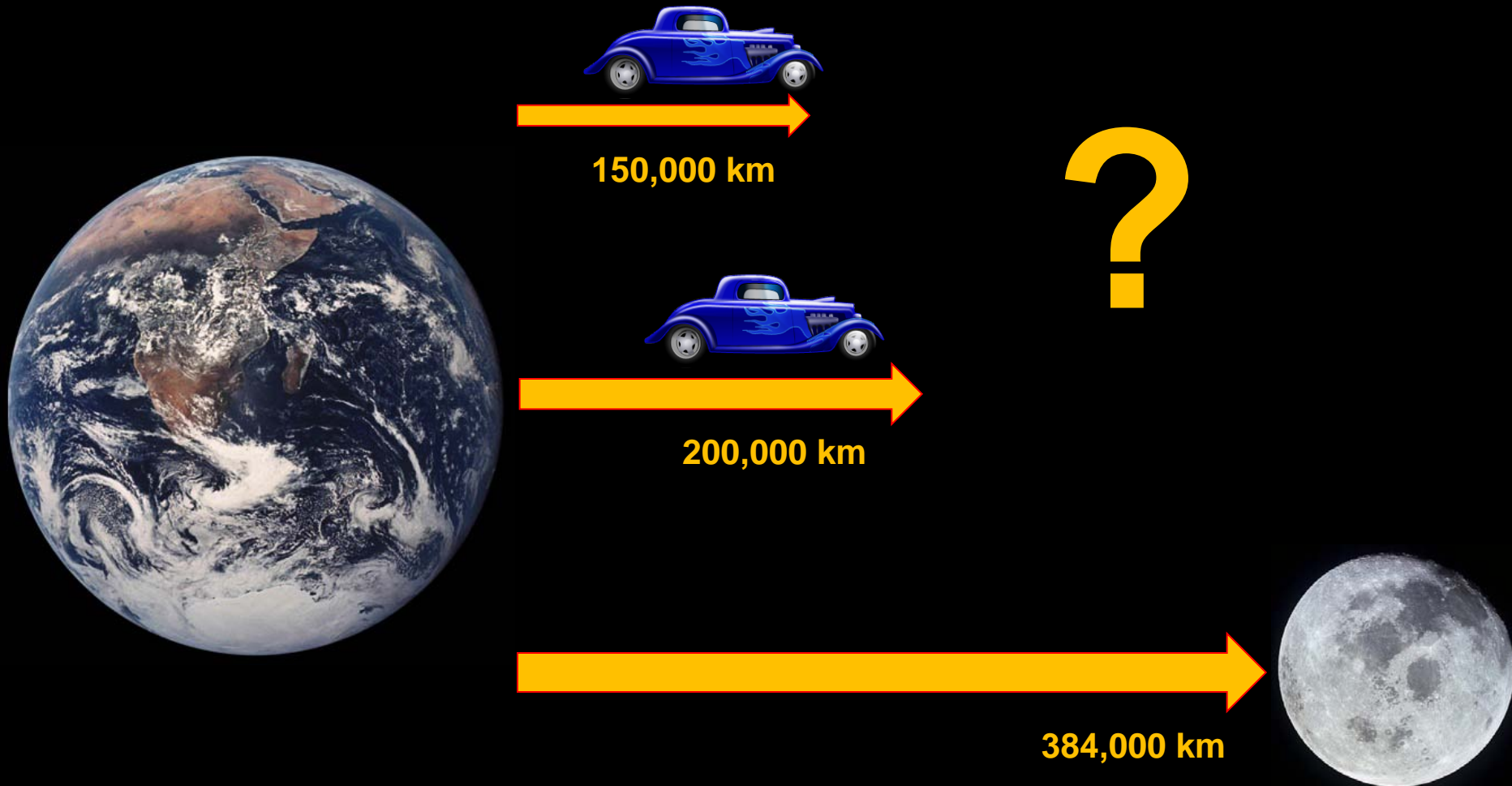


# LCA in the automotive sector

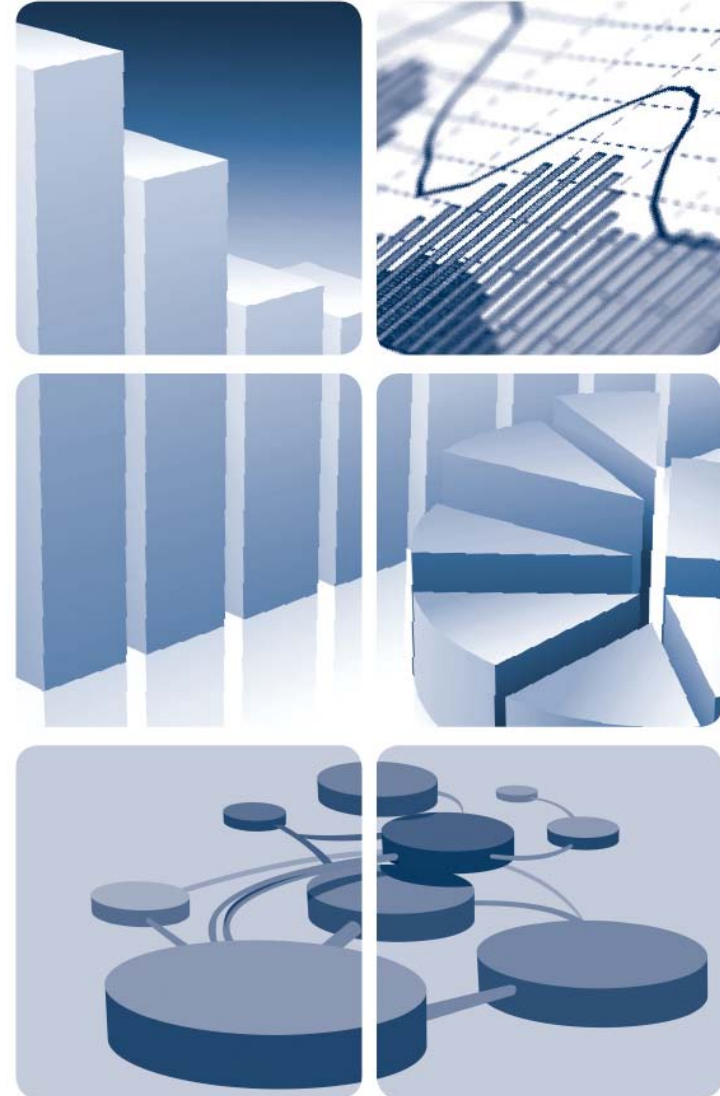
Consistent functional unit?



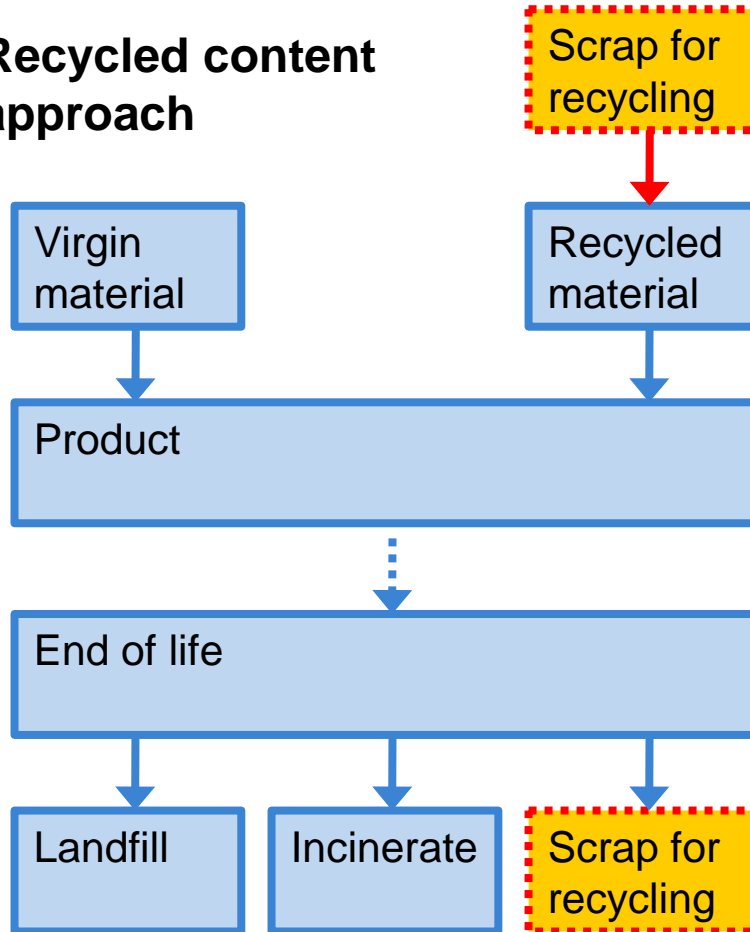
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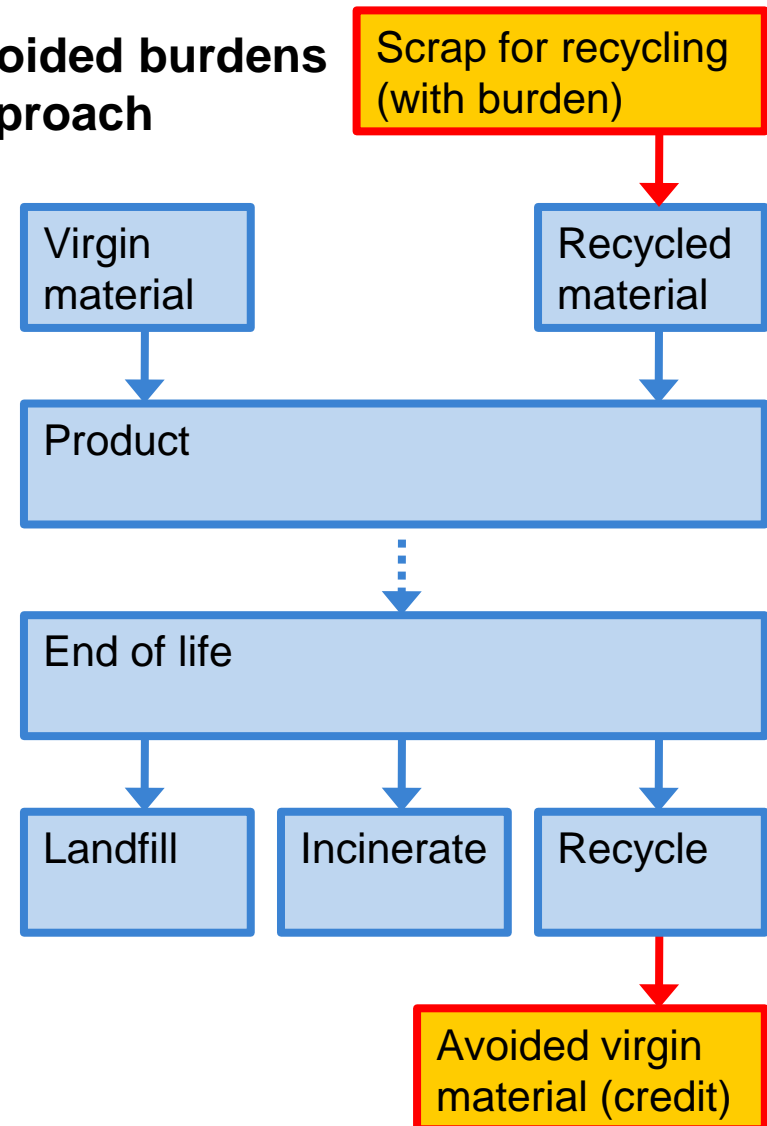
- **GaBi DfX** is widely used throughout the automotive industry
- Allows data to be imported from a Bill of Materials (BOM)
  - automatically links to PE datasets
  - enables assessment of very complex systems
- Detailed end of life scenarios can be modelled
- Can be used to demonstrate compliance with regulations e.g.
  - EU Directive 2005/64/EC
  - ISO 22628
  - RoHS

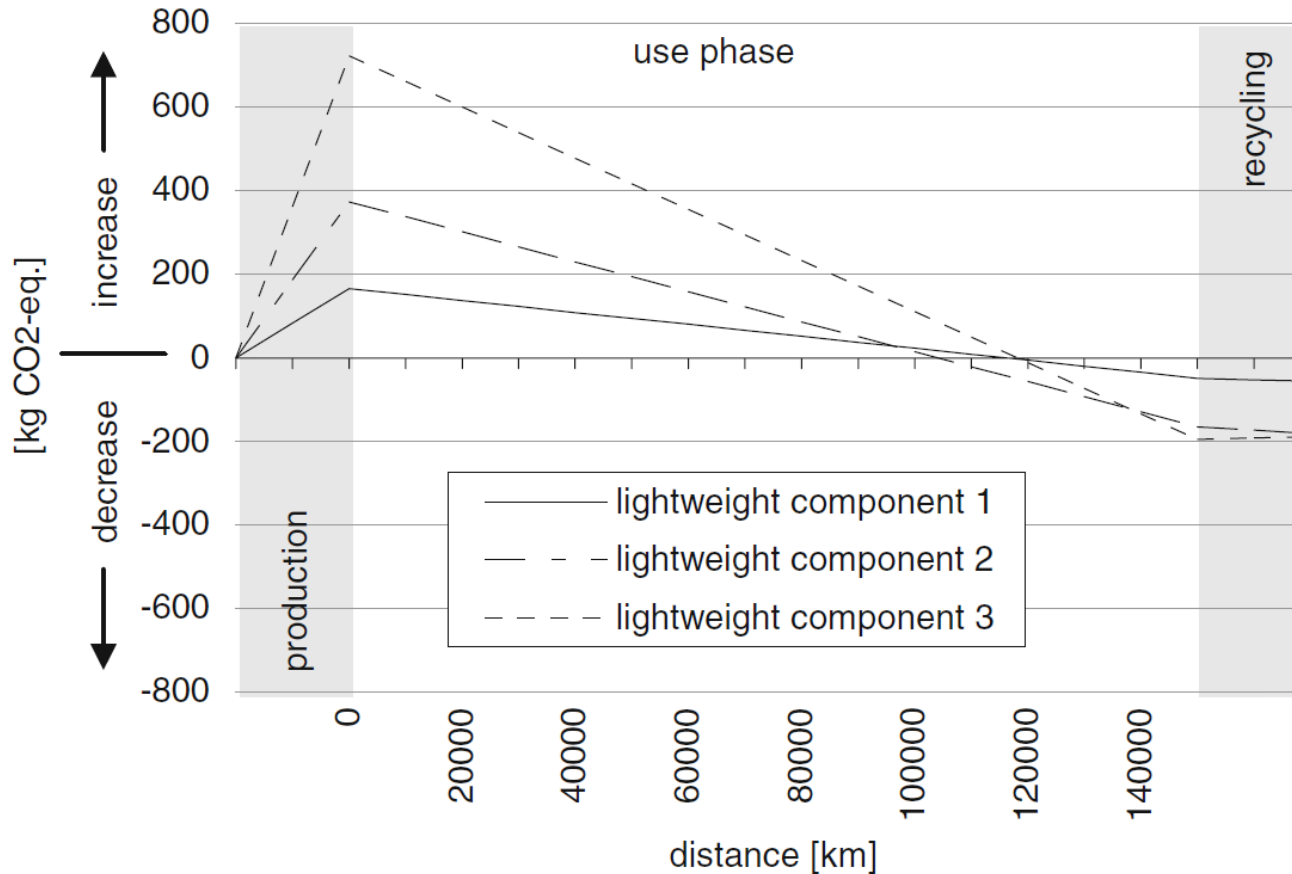


### Recycled content approach

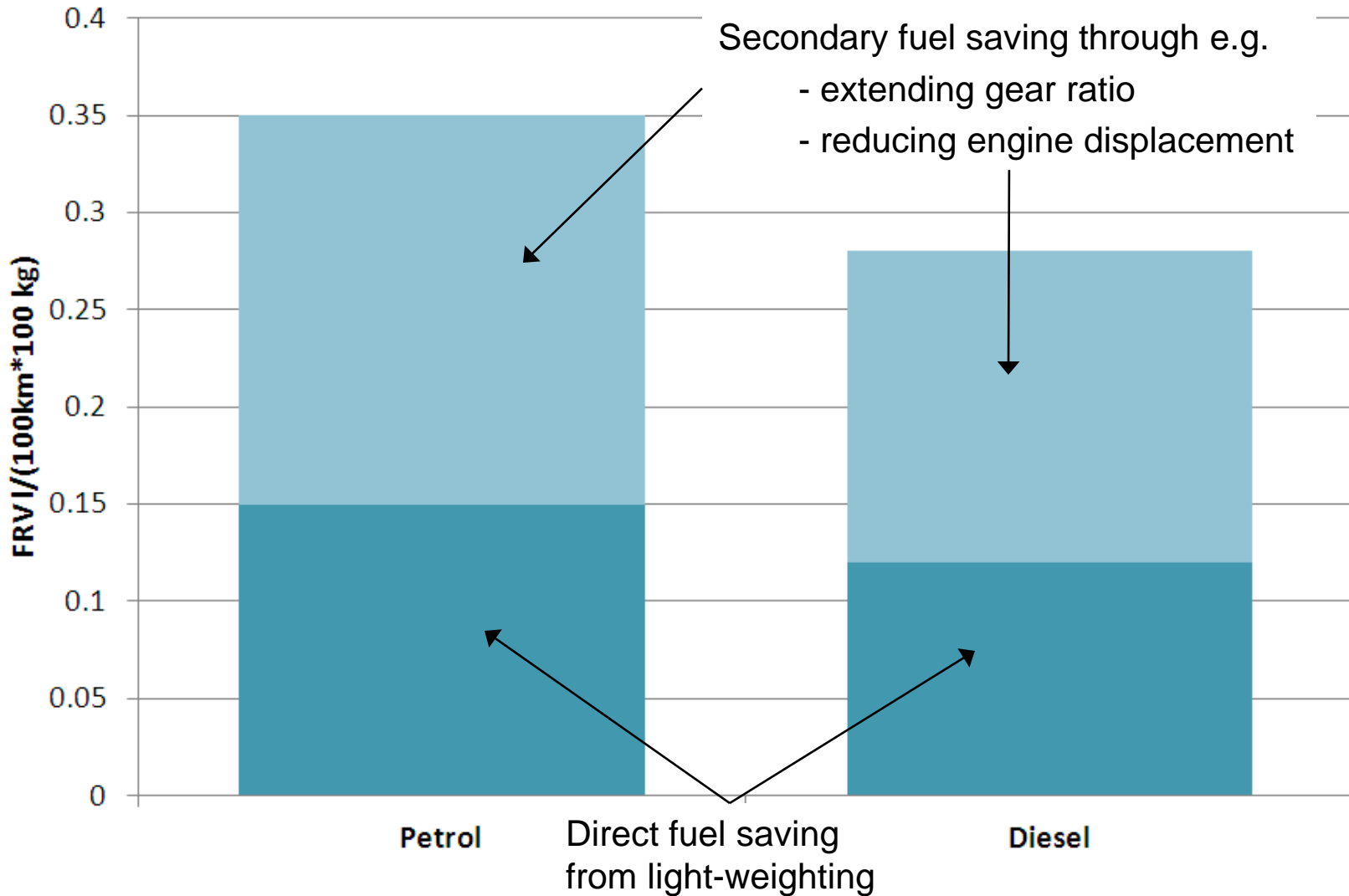


### Avoided burdens approach

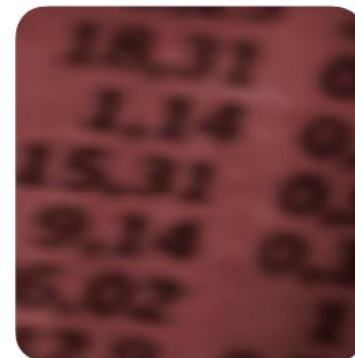




- Fuel savings are calculated using a fuel reduction value (FRV) based on standard driving cycle e.g. the New European Driving Cycle (NEDC)



- Product category rules (ISO 14025:2006)
  - Sector guidance created by a group of stakeholders and sector representatives to develop standard approaches for conducting LCAs
  - Initially developed for Environmental Product Declarations
  - Also accepted for use in revised PAS 2050, GHG Protocol Product Standard



- Environmental issues have a very high priority in the automotive sector
  - LCA is widely used to help OEMs understand environmental performance
- In many ways different OEMs are adopting similar approaches, e.g.
  - Application of LCA for marketing and to support R&D
  - Using same software tools and background data
- But...
  - ...assessments may differ in the details (e.g. product lifetime)
  - ...methodological choices may not be applied consistently across the sector
- No current industry initiatives to develop more consistent approaches (e.g. through PCRs)







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