



Representative Vehicle

OICA's proposal



LCA calculations following the harmonised methodology will be desired at fleet or vehicle level

- Vehicles are complex products
- Individual configurations make each vehicle unique

- It would require high administrative burden for OEMs & Authorities to provide LCAs for each individual vehicle
- It is reasonable to go for a 'Representative Vehicle' which provides LCA for a group of vehicles "LCA group"
- Representative vehicle selection should be globally harmonised



Why do we need to define a Representative Vehicle (RV)?

- Vehicle's LCAs are complex calculations
 - It is essential to define a RV, which is representing a group of vehicles with similar parameters (e.g. drivetrain type, vehicle weight, hotspots, ...)
 - We focus only on passenger cars, HDVs need a separate discussion
- Specific „non generic“ LCAs can't be performed in advance of a vehicle's production
 - RV is the solution to deliver LCAs that are fit for use

➤ For RV selection we need:

- A Simple & easy concept
- A globally useable concept
- To group the vehicles based on defined parameters



Why do we need to define a Representative Vehicle (RV)?

Only Passenger cars

Under discussion

- Vehicle's LCAs are complex calculations
 - It is essential to define a RV, which is representing a group of vehicles with similar parameters (e.g. drivetrain type, vehicle weight, hotspots, ...)
 - We focus only on passenger cars, HDVs need a separate discussion
- Specific „non generic“ LCAs can't be performed in advance of a vehicle's production
 - RV is the solution to deliver LCAs that are fit for use

➤ For RV selection we need:

- A Simple & easy **concept**
- A globally useable **concept**
- To group the vehicles based on defined **parameters**



Parameters to define LCA group

Only Passenger cars

Under discussion

At least to consider the initial parameters:

- OEM, Vehicle type
- Drivetrain (ICE, PHEV, EV,...) & fuel
- one representative vehicle is representing all EVs of a specific vehicle type or all ICE petrol of a specific vehicle type

Additionally the OEMs can precise the selection of LCA group by including more parameters & refine the definition of LCA group:

- Geographical location
- Vehicle weight (vehicle glider* incl. material mix) BOM (IMDS)
- Capacity/chemistry of the Battery or Engine size, 2WD or 4WD, with or without turbocharger
- Other hotspots: interior trim, sunroof, electronics, etc ...
- More parameters lead to build smaller LCA groups per vehicle type

**Vehicle glider: vehicle without powertrain*

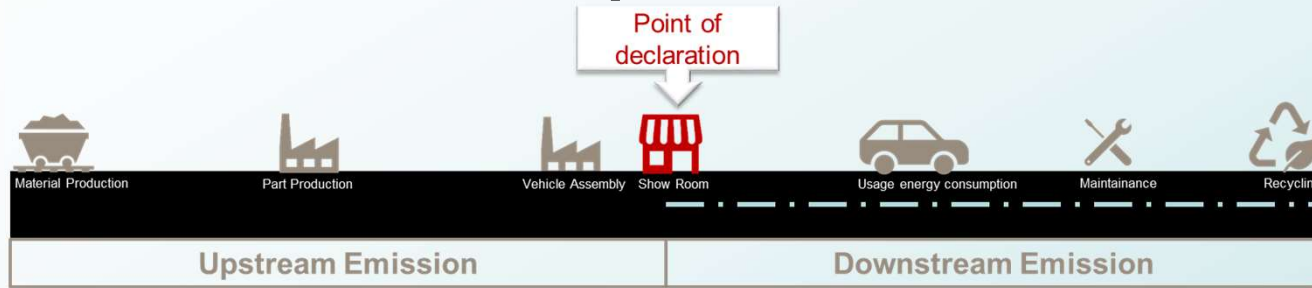
It is the responsibility of the OEMs to define how to precise the definition of LCA group
Bigger group means less LCAs per vehicle type and smaller groups means more LCAs per vehicle type



Concept definition

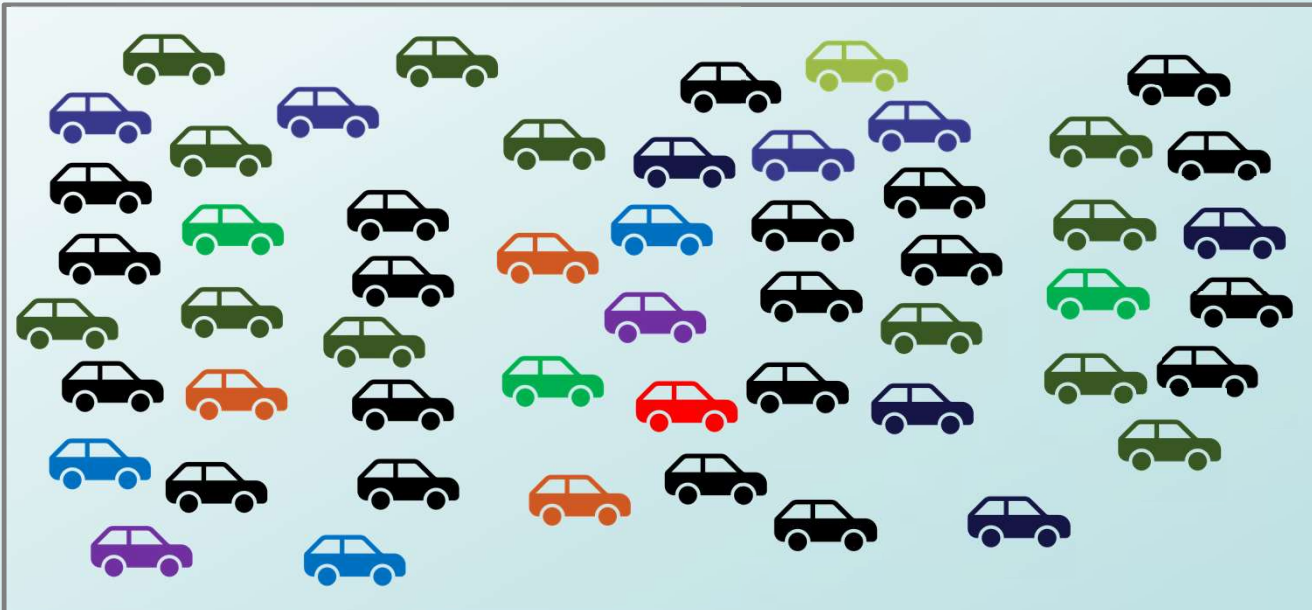
Only Passenger cars

Under discussion



Define a RV for overall carbon footprint

Vehicle type

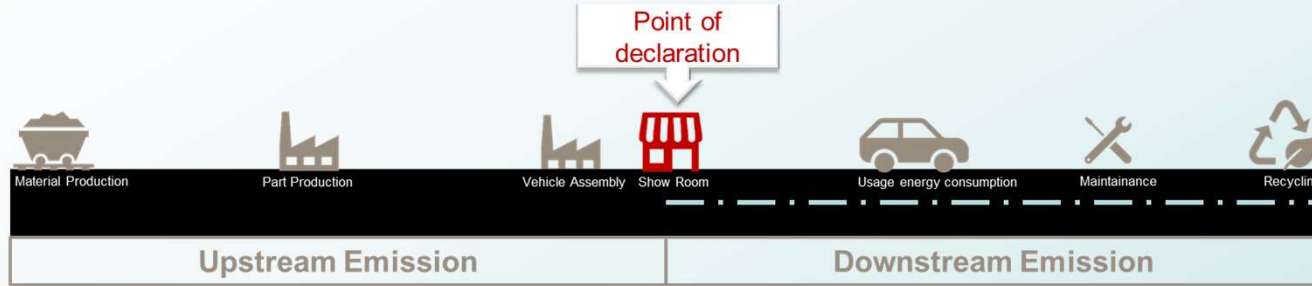




Concept definition

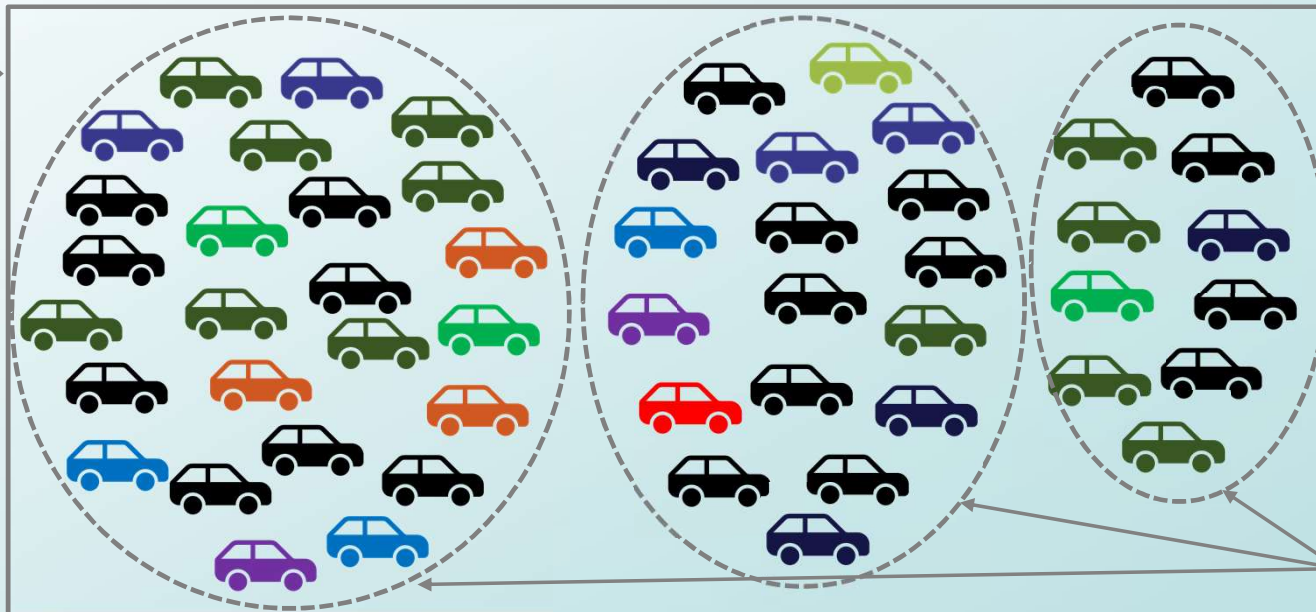
Only Passenger cars

Under discussion



Define a RV for overall carbon footprint

Vehicle type



LCA groups defined based on specific parameters



Concept definition

Only Passenger cars

Under discussion

Best & Worst case concept
(2 LCAs / group)

A representative vehicle to be defined & calculated based on best- & worst-case configuration

Worst case: Highest weight, largest battery, highest spec, highest fuel/energy consumption,...

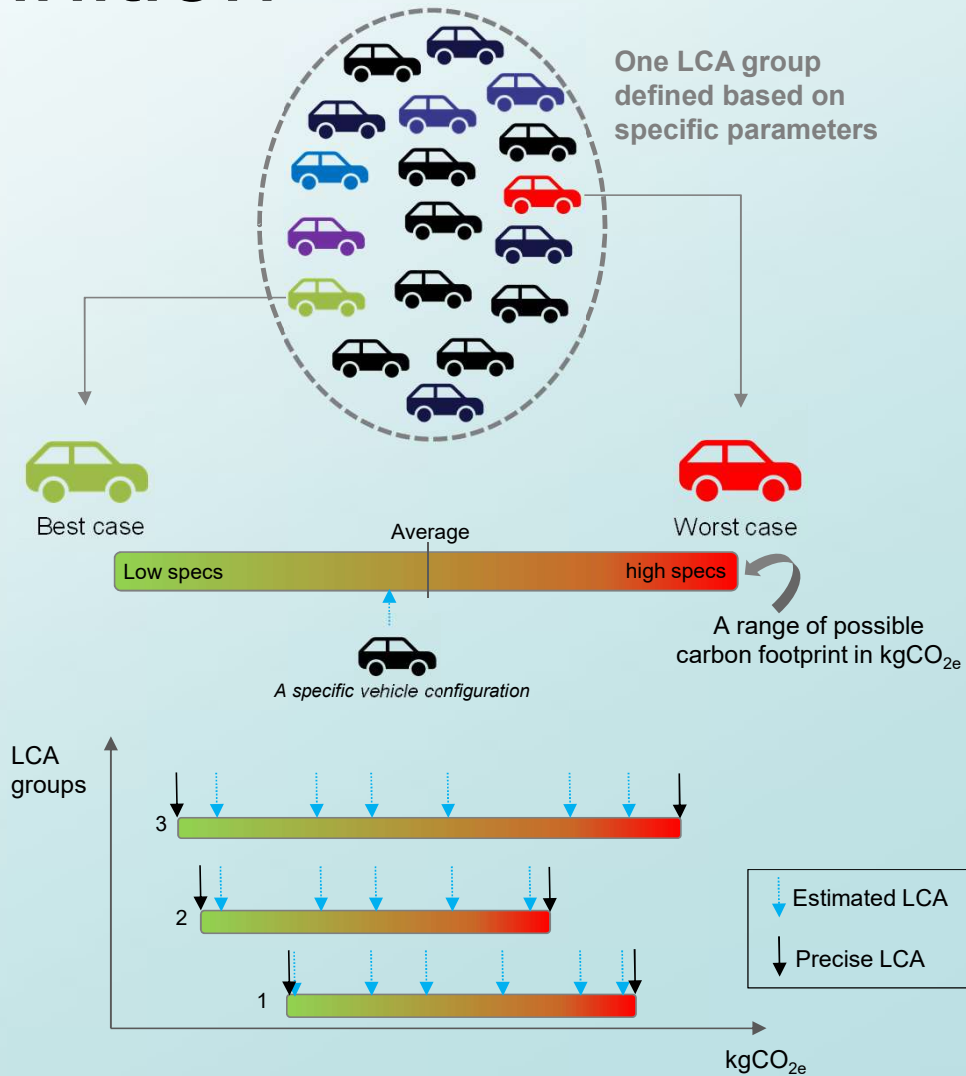
Best case: lowest weight, smallest battery, lowest spec, lowest fuel/energy consumption,...

→ Output is a range of possible CF for this LCA group (max/min)

→ 2 precise LCAs (best & worst case)

→ Based on the range, an estimation of the CF for specific configuration is possible by the following formula:

$CF = Emission\ factor \times weight$





Summary

Only Passenger cars

Under discussion

- Parameter: At least the initial parameters to be considered to build a LCA group.
However OEMs can decide individually to be more precise with the calculation and to build more LCA groups which of course leads to more LCA calculations
- Concept: RV to be defined based on the best & worst case.