A-LCA-15-07e

Progress of SG3

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Contents

Overview

- Decided
  - Declared unit

- Under discussion
  - Allocation hierarchy for multi output process
  - Data Quality Rate
  - GHGs
  - Materiality limit
  - Primary Data Share
  - Recycling
  - System boundaries
  - Transportation emission
  - Waste criteria & treatment
  - Handover point SG2&3 for battery materials
  - Representative vehicle

SG3 Status 04/2024

Overview on SG3 Alignment:

Discussion Topics		Status	Poll Results									
			China	Japan	Korea	UK	AECC	CLEPA	ETRMA	EUROGAS	MECA	OICA
Aspects	Allocation hierarchy	Proposal	✓	✓	o	✓	o	✓	✓	✓	✓	✓
	Chain of custody	tbd										
	Data quality rating	Proposal	✓	o	o	o	✓	✓	✓	✓	✓	✓
	Declared Unit	Proposal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Geography	tbd										
	GHGases	Proposal	✓	✓	o	o	✓	✓	✓	✓	✓	✓
	Infrastructure	tbd										
	Materiality limit	Discussion										
	Offsets	tbd										
	Primary data share	Proposal	✓	o	o	o	✓	✓	✓	✓	✓	✓
	Recycling	Discussion										
	Representative vehicle	tbd										
	Secondary data	tbd										
	System boundaries	Discussion										
	Tranport emission	Discussion										
	Transparency vs Verification	tbd										
	Waste	Discussion										

✓ Approval
o Undecided
× Rejection

◥ Comments are provided in the Excel document

SG3 Status 04/2024

Overview on SG3 Alignment:

Discussion Topics		Status	Poll Results									
			China	Japan	Korea	UK	AECC	CLEPA	ETRMA	EUROGAS	MECA	OICA
Inter-SGs discussion	SG2											
	- handover points	done						✓				✓
	- battery materials	Proposal			Opt.2 or 3			Opt.3				Opt.3
	- recyled material	tbd										
	SG4											
	- hand over point	tbd										
	- level concept	tbd										
	SG5											
	- End of life allocation	tbd										
	SG6											
	- handover point	done						✓				✓

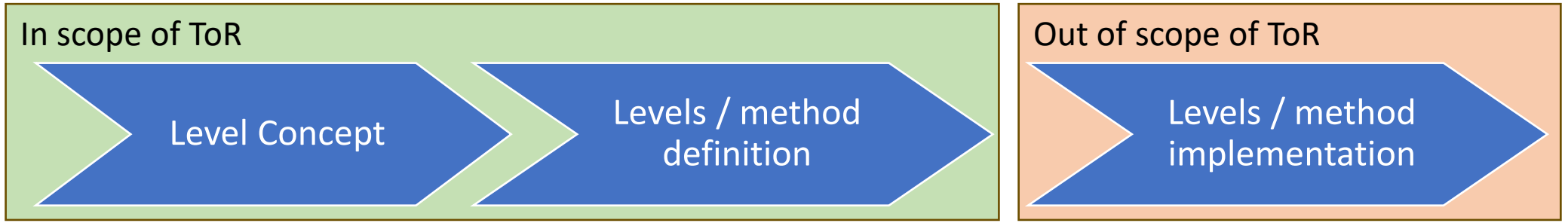
✓ Approval
o Undecided
× Rejection

◥ Comments are provided in the Excel document

Leveling Concept

Common understanding on the level concept

- Harmonized understanding of the levels is required to avoid misinterpretation and misunderstanding between subgroups
- Level concept helps to structure complex discussions



Defined	Ongoing	Future Implementation	
Done ✓	To be finished by end of 2024	• Lv 1 ✓ • Lv 2 ✓ • Lv 3 • Lv 4	<u>Conditions:</u> • Databases • Verification • IT infrastructure • …

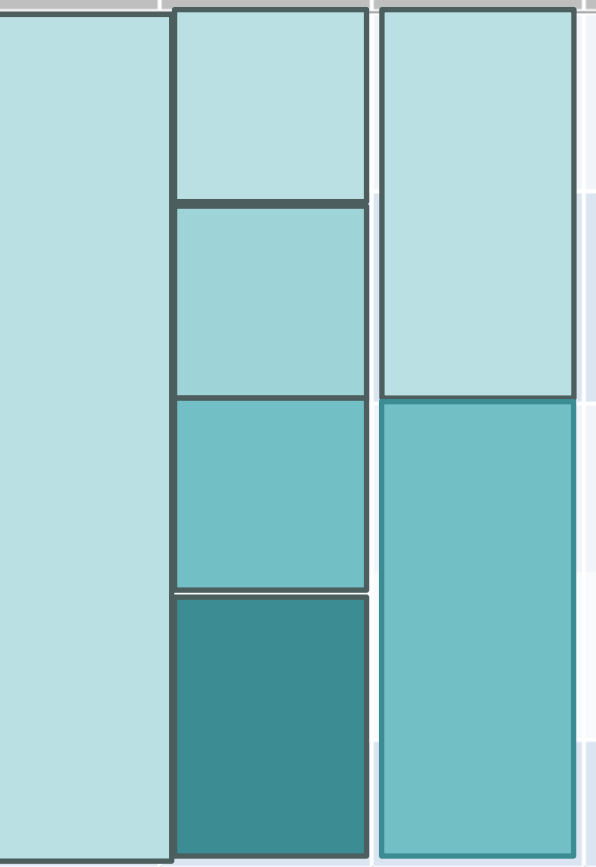
Please put all topics into the level concept
(SG 4 as an example)

			SG4	SG4	SG4	SG4	SG
LCA Level	**Possible Applications**	**Geographic Representativeness**	**Service life [km]**	**Energy consumption**	**Maintenance**	**Leakages**	**in pr**
Level 1	Analysis of **general technical concepts** (e.g. drivetrains, specific vehicle fuel efficiency, lightweight concepts, ...)	**Global** average / **regional** average					
Level 2	Analysis of **general technical concepts** (e.g. drivetrains, ...) **based on an exemplary "real" car** vehicle model	**Global** average / **regional** average					
Level 3	Analysis of a **representative model of an OEM's fleet**	**Regional** average **& individual supply chains for hotspots**					
Level 4	Analysis of a **specific OEM model**	**Individual supply chains**					

Information can be uniform for all levels

… or differ from level to level.

			SG4	SG4	SG4	SG4	SG
LCA Level	**Possible Applications**	**Geographic Representativeness**	**Service life [km]**	**Energy consumption**	**Maintenance**	**Leakages**	**in pr**
Level 1	Analysis of **general technical concepts** (e.g. drivetrains, specific vehicle fuel efficiency, lightweight concepts, …)	**Global** average / **regional** average					
Level 2	Analysis of **general technical concepts** (e.g. drivetrains, …) **based on an exemplary "real" car** vehicle model	**Global** average / **regional** average					
Level 3	Analysis of a **representative model of an OEM's fleet**	**Regional** average **& individual supply chains for hotspots**					
Level 4	Analysis of a **specific OEM model**	**Individual supply chains**					



			SG4	SG4	SG4	SG4	SG
LCA Level	**Possible Applications**	**Geographic Representativeness**	**Service life [km]**	**Energy consumption**	**Maintenance**	**Leakages**	**in pr**
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Level 3	Analysis of a **representative model of an OEM's fleet**	**Regional** average **& individual supply chains for hotspots**					
Level 4	No obligatory need for primary data for each topic!						

Level concept implementation for SG5 / 6

				SG5	SG5	SG6	SG 6
LCA Level	**Possible Applications**	**Geographic Representativeness**	**Vehicle breakdown & weight**	**included EoL processes**	**...**	**Energy provision (use phase)**	**...**
Level 1	Analysis of **general technical concepts** (e.g. drivetrains, specific vehicle fuel efficiency, lightweight concepts, ...)	**Global** average / **regional** average	**No material information & average vehicle curb weight**				
Level 2	Analysis of **general technical concepts** (e.g. drivetrains, ...) **based on an exemplary "real" car** vehicle model	**Global** average / **regional** average	**BOM** from material information system (IMDS/CMDS) **& specific vehicle curb weight**				
Level 3	Analysis of a **representative model of an OEM's fleet**	**Regional** average **& individual supply chains for hotspots**	**BOM („part-by-part") & gross part weight**				
			BOM from material information system (IMDS/CMDS) & specific net				

Overarching aspects

LCA Level	Possible Applications	Geographic Representativeness	Vehicle breakdown & weight	Individual decarb. measure	Logistics (material prod.)	Logistics (material p. - parts p.)	Logistics (parts prod.)	Logistics (Parts p. - veh. prod.)	Logistics (veh. prod.)	Logistics (veh. p. - consumer)	Logistics (consumer - EoL processing)	Multi-functionality handling	EoL allocation (pre-consumer)	EoL allocation (post-consumer)	...
Level 1	Analysis of **general technical concepts** (e.g. drivetrains, specific vehicle fuel efficiency, lightweight concepts, ...)	**Global** average / **regional** average	**No material information & average vehicle curb weight**	none											
Level 2	Analysis of **general technical concepts** (e.g. drivetrains, ...) **based on an exemplary "real" car** vehicle model	**Global** average / **regional** average	**BOM** from material information system (IMDS/CMDS) **& specific vehicle curb weight**	none											
Level 3	Analysis of a **representative model of an OEM's fleet**	**Regional** average **& individual supply chains for hotspots**	**BOM („part-by-part") & gross part weight**	included											
			BOM from material information system (IMDS/CMDS) & specific net weight	none											
Level 4	Analysis of a **specific OEM model**	**Individual supply chains**	**BOM („part-by-part") & gross part weight**	included											

Definition of point(s) of hand-over

<u>Further topics:</u>

Infrastructure

FU

Timeframe of data (especially for energy supply, consistency among life cycle phases)

…

SG3: Shared topics with other SGs

Subgroup	Topic	Consequence for Level concept application	
SG1	?		
SG2	Handover point / system boundary	SG2 assumes „primary data boundary" = boundary between SG2 and SG3	
SG2	Granularity of parts & vehicle modelling	SG2 sees risks in too detailed material definition	
SG2	Primary data till which tier in SC?	Affects level 3 and 4	
SG4	FU, lifetime milage	Identical for all levels / LC phases / …?	
SG4	Representative vehicle definition	Relevant for level defintion	
SG5	EoL allocation	Identical for all levels / LC phases / …?	
SG6	Multifunctionality handling	Identical for all levels / LC phases / …?	
SG6	Timeframe of data		

Shared topics among SGs

	SG 1	SG 2	SG 3	SG 4	SG 5	SG 6	SG 7
SG 1							
SG 2							
SG 3		Handover point, …		Repres. vehicle. , ...	EoL allocation, …	Multifunctionality handling, …	
SG 4							
SG 5							
SG 6							
SG 7							

Representative vehicle

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

Only Passenger cars

Under discussion

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

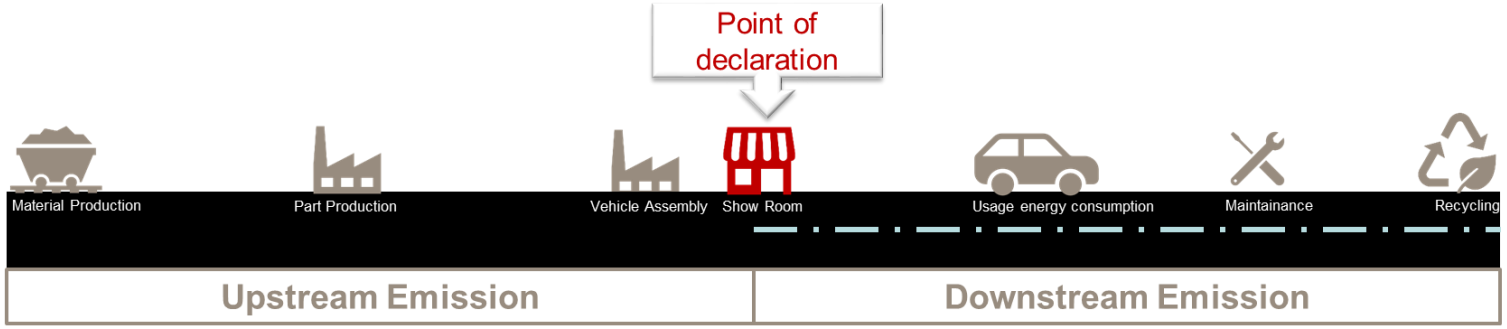
➢ <u>For RV selection we need:</u>

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

Concept definition

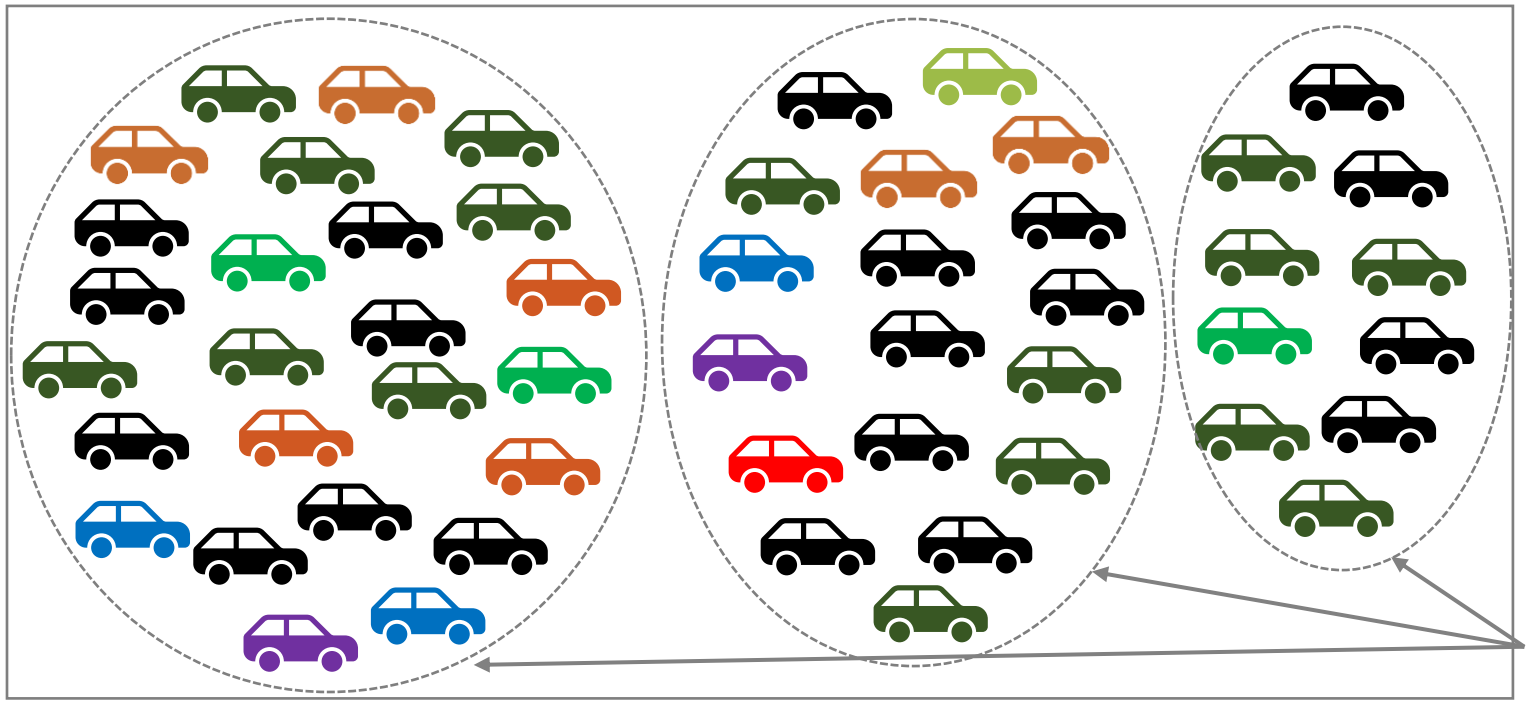
Only Passenger cars

Under discussion



Define a RV for overall carbon footprint

Vehicle type



LCA groups defined based on specific parameters

Allocation (EOL)

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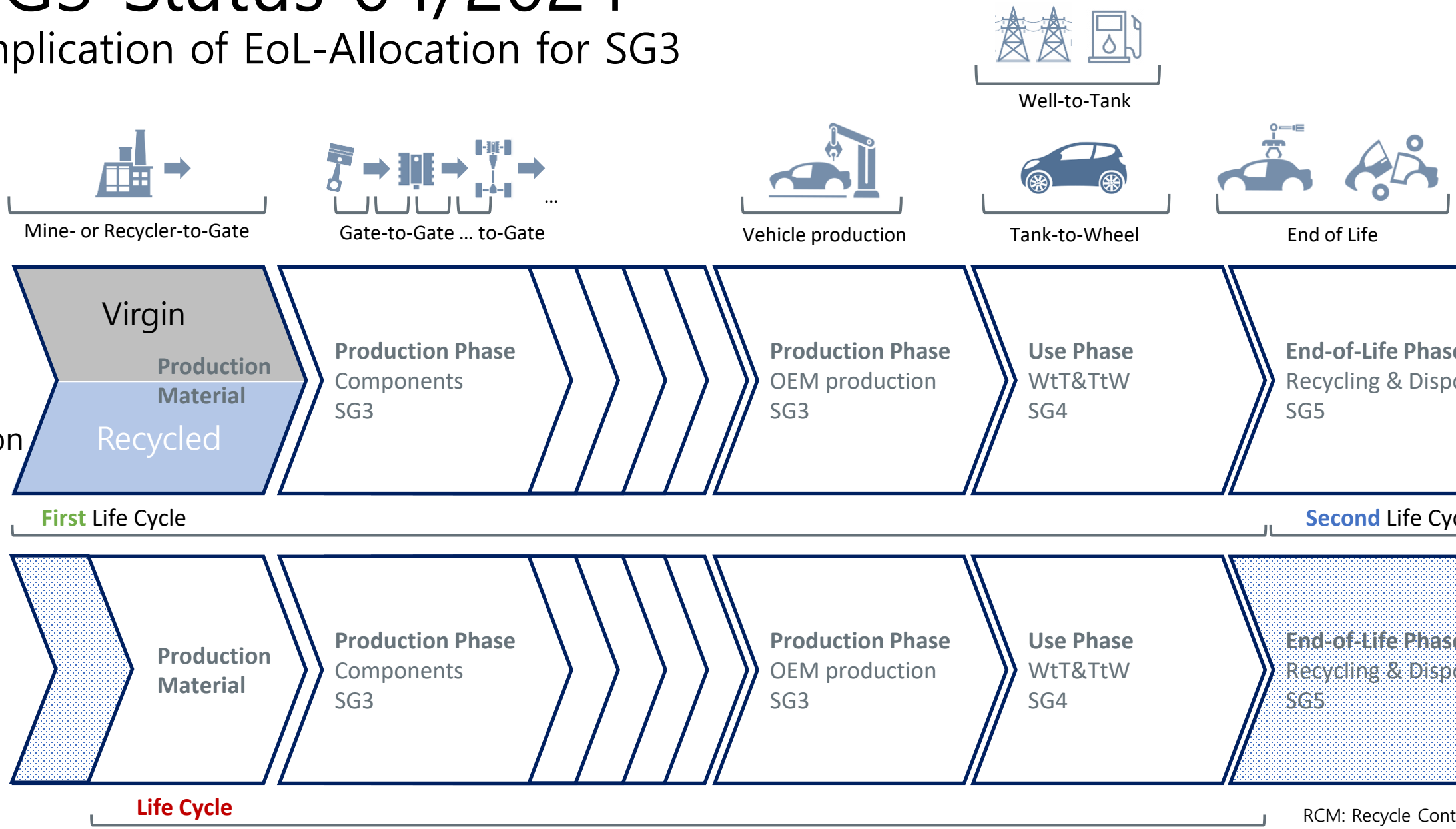
Implication of EoL-Allocation for SG3



RCM: Recycle Content Method

Thank you