GRPE A-LCA IWG
SG5(EoL) status report

Shoji Aoki (Japan)
Zhang Tongzhu (China)

15th A-LCA IWG meeting
18th,19th April 2024

Agenda

1. LCA Timing Discussion for SG4, SG5, and SG6
2. EoL controversial topics
    - Recycling modeling
    - System boundary
    - Secondary data set
3. Schedule

A-LCA IWG Meeting
LCA Timing Discussion for SG4, SG5, and SG6

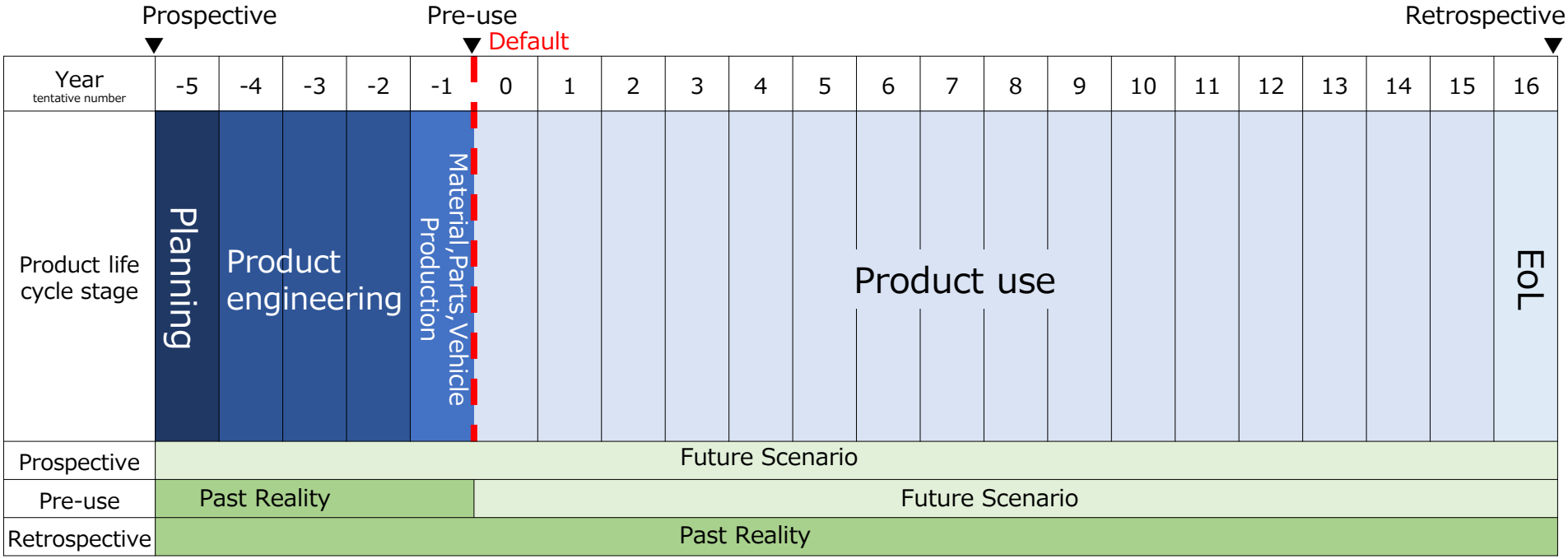
Shoji Aoki (Japan)
Katsuya Yamamoto(Japan)

Thu 7th Mar. 2024

Discussion on timing of LCA implementation in A-LCA

■ Considerations for LCA Implementation Timing

- For automobiles with long product life, there is little need for Retrospective LCA.
- The LCA results in the pre-use stage are equivalent to the environmental performance evaluation at the time of purchase ,which is expected to be utilized for consumer purchasing decisions and environmental policies.
- Primary objective of A-LCA ToR is a harmonization of methodology to promote carbon neutrality ,so that A-LCA policy does not define specific use cases.
- Based on this policy,both Prospective and Retrospective LCA cannot be excluded.



Draft of proposal

- In principle, all three timings are within the scope of A-LCA IWG.
- However, pre-use is given default, considering the most representative use cases, until 2025 of A-LCA IWG goal period.

Meeting minutes

■ Date: Thursday, 7th March 2024

■ Participants

SG4: TRIPATHY Samarendra (OICA), DI PIERRO Giuseppe (JRC)
SG5: AOKI, SHOJI (Japan), YAMAMOTO, KATSUYA (Japan), Tongzhu ZHANG (China)
SG6: Romain Denayer (EVB/AVERE), N. Kawaharada (Japan)

■ Agenda

1. Recap of 14th A-LCA IWG
2. Discussion on timing of LCA implementation in A-LCA

■ Conclusion

It was agreed to make the following statement with one voice

- In principle, all three timings are within the scope of A-LCA IWG.
- However, pre-use is given default, considering the most representative use cases, until 2025, which is the goal period of A-LCA IWG.

■ Remarks from participants

- It was proposed to set pre-use timing as the default option. After our proposal, we need to check for feedback from other SGs (AOKI, SHOJI).
- It is considered the best scenario when considering the IWG (DI PIERRO Giuseppe).
- When we say primary data, it does not necessarily mean primary data. We are planning to use certification. I fully agree with this proposal (TRIPATHY Samarendra).
- I have no feedback today. Maybe I will create a visualization and present it at next SG5 meeting, as I have some thoughts (Tongzhu ZHANG).
- I made a presentation about this timing in the SG6 meeting and assume SG6 would accept this default timing with no major issues (N. Kawaharada).
- In subgroup 6, we are still waiting to see how other subgroups are approaching this, as we understand that some other subgroups are further behind in these discussions. We value the input from the other subgroups (Romain Denayer).

SG5 Controversial topics list

Reporting item

Summary of the latest status

Topic	Option			Status
0.Material/Parts recycling modeling	Recycled content method (Cutoff)	Closed Loop Approximation Method (CLAM)	Circular Footprint Formula (CFF)	Under discussion
1.Boundary conditions				Agreed to common boundary
2.Secondary data	Global harmonised	Region by region	Country by Country	Under study data availability
3.Second life parts	Include	Exclude	-	Agreed to include with a condition of traceability
4.Logistics	Include	Exclude	-	Under discussion
5.ELV management out of sale region	Take into account process of country of sale	Take into account global average	Take into account process of country of EoL	Under discussion
6.Recycle process	Current process	Future process	-	Agreed to apply current process

Material/Parts recycling modeling
Internal discussion summary of Cutoff and CFF

- US(EPA) position updated, “Both Cutoff and CFF method are preferable”.
- SG5 leading team are expecting OICA to bring their position in coming SG5 meeting and can support OICA if necessary.

		Result	Remarks
Leading Team	China (CATARC)	・Both Cutoff and CFF methods should be included in the standard	① CFF method： for the purpose of comparing different technical route without considering responsibilities ; ② CUT-OFF method：for the purpose of comparing different individual products with same technical route。 ・Detailed boundary and principle of these two methods presemted in SG5 006
	Japan (JASIC)	・Support CATARC proposal	・Specific use case description on Cutoff or CFF to be discussed respecting ToR of A-LCA
Main Participants	France	・Both Cutoff and CFF methods could be acceptable, CFF is favorable	・No strong position. A final official position will be taken at the next SG5 meeting.
	US(EPA)	・Both Cutoff and CFF methods are preferable	
	OICA	・OICA sees the potential of the CATARC proposal. However, it is needed to wait for CLEPA to present their proposal too, and to get more detailed information on the CATARC proposal. ・Secondly, To request of a clear definition/condition when to use which method	
	CLEPA	・Cradle-to-Gate, step 1 (level 3&4 ‚reporting‘): Support Cutoff ・Cradle-to-Grave, step 2 (level 1&2 ‚technology comparison‘): Support CFF for selected parts and associated Materials	
	European Aluminum	・Only CFF, need to study Scenario, but having both methodologies in A-LCA could be acceptable	
Observers	JRC	・CFF approach is favorable. Considering both methodologies in the discussion according to the scope could be acceptable	European Commission Recommendation (EU) 2021/2279 on the use of the environmental footprint methods to measure and communicate the life cycle environmental performance of products and organisations, in which Annex 1 e 2 refer to PEF (Product Environmental Footprint) while Annex 3 e 4 to OEF (Organisation Environmental Footprint).

Material/Parts recycling modeling

CFF or RCM(Cutoff) application guideline (Draft)

1. Circular Footprint Formula (CFF) or Recycled Content Method (RCM) should be applied to the evaluation of material/parts recycling.
2. In cases where it is difficult to obtain appropriate data to set CFF parameters, Recycled Content Method (RCM) should be applied with the effort to develop CFF parameter
3. LCA owner should decide CFF or RCM application based on Use case taking Pros/Cons of each methodology into account.

Main remarks

CLEPA
- Clarify the definition of a functional unit

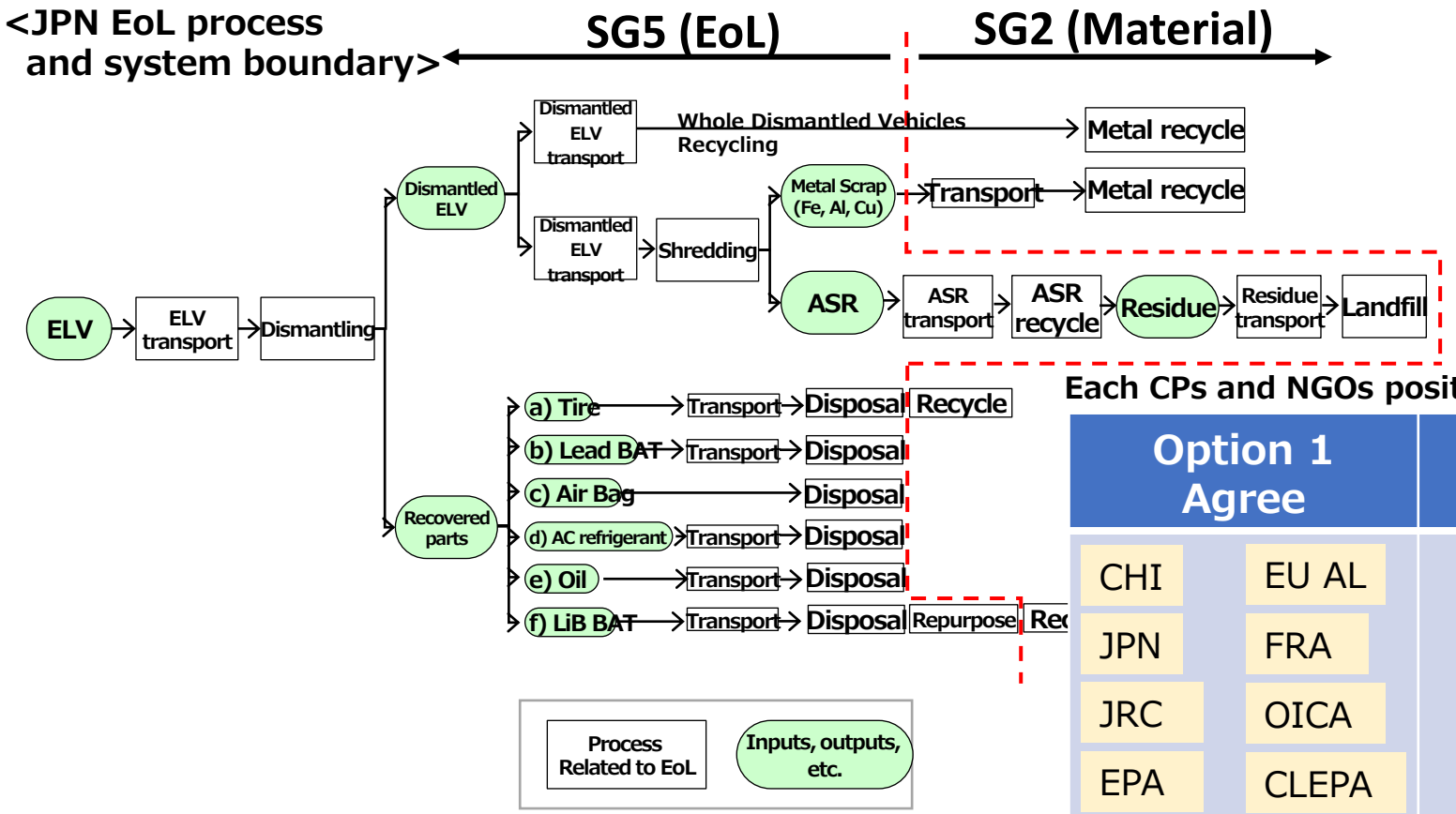
European Aluminium
- Supports draft, allowing companies to choose RCM or CFF based on study purpose and data availability.

CLEPA
- we need to take into account what we discussed about EPD.
- We can only apply CFF to specified materials.

US
- Flexibility in LCA is crucial for making informed decisions.

Boundary conditions

1) From ELV transport to Disposal (e.g. Incineration or Landfill)
2) Material recycling
   -SG5(EoL) ; to Scrap generation
   -SG2(Material) ; From Material recycling
3) Parts reuse/repurpose
   -SG5(EoL) ; to reuse/repurpose parts generation



Each CPs and NGOs position

Option 1 Agree		Option 2 Not Agree
CHI	EU AL	
JPN	FRA	
JRC	OICA	
EPA	CLEPA	

Secondary data

- Study data availability in each country or region (by the end of April)
- The latest Status: Japan-available, China-partly available, US-not available

Topic	Option 1<Level2>	Option 2 <Level3>	Option 3 <Level3>
Secondary data	Global harmonised	Region by region	Country by Country

EoL process			Activity data (Primary data)	Functional unit												
				Level 2	Level 3					Level 4						
				Secondary	Secondary					Primary						
				Global	NA	PRC	EU	IND	JPN	US	PRC	FRA	GR	KR	IND	JPN
ELV treatment	ELV transport		ELV weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
	Dismantling		ELV weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
	Dismantled ELV transport		Dismantled ELV weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
	Shredding		Dismantled ELV weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
Recovered parts treatment	1. Tire	Disposal/Recycle	Parts weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
	2. Lead BAT	Disposal	Parts weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
	3. Air Bag	Disposal	Parts weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
	4. Lubricant	Disposal	Parts weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
	5. AC refrigerant	Disposal	Parts weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
	6. LiB BAT	Repurpose/Recycle/Disposal	Parts weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
	7. Other Parts	Disposal/Recycle	Parts weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
		transport	Parts weight [kg]							***	***	***	***	***	***	***
ASR trearment	ASR transport		ASR weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
	ASR Recycle		ASR weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***
	Residue transport		Residue weight [kg]		**	**	**	**	**	***	***	***	***	***	***	***
	Landfill		Residue weight [kg]	*	**	**	**	**	**	***	***	***	***	***	***	***

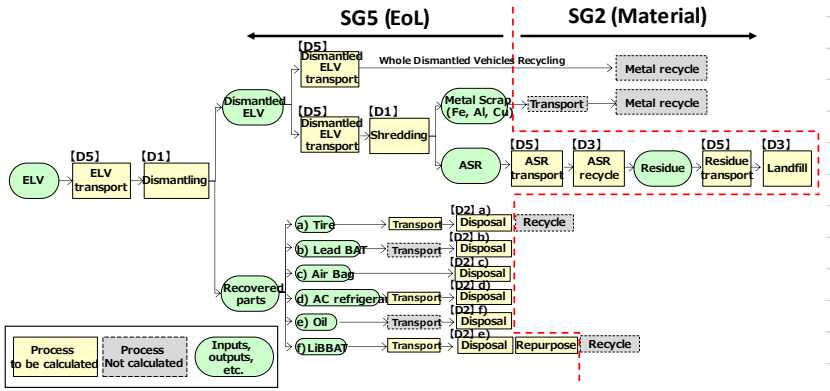
Secondary data availability –EoL process-

Region or Country;

For detai EoL process confirmation, please refer to Sept SG5 material in Wiki

EoL process			Activity data (Primary data)	Intensity data		
				Secondary data availability	Secondary data set information	Remarks
【D1】ELV treatment	Dismantling		ELV weight [kg]			
	Shredding		Dismantled ELV weight [kg]			
【D2】 Recovered parts treatment	a)Tire	Disposal	Parts weight [kg]			
	b)Lead BAT	Disposal	Parts weight [kg]			
	c)Air Bag	Disposal	Parts weight [kg]			
	d)AC refrigerant	Disposal	Parts weight [kg]			
	e)Oil	Disposal	Parts weight [kg]			
	f) LiB BAT	Parts Remanufactuaring	Parts weight [kg]			
		Parts Reuse	Parts weight [kg]			
		Parts Repurpose	Parts weight [kg]			
		Disposal	Parts weight [kg]			
	Other Parts	Disposal/Recycle	Parts weight [kg]			
【D3】ASR trearment	ASR Recycle (Thermal recovery)		ASR weight [kg]			
	ASR Residue landfill		Residue weight [kg]			

EoL system boundary
- Vehicle EoL CO2 emission-



Vehicle EoL CO2 emission=Σ(Process to be calculated CO2 emission)

Process to be calculated CO2 emission=Activity data×Intensity data

<legend symbol>

✓ ; Available

－ ; Not available

＊ ; Other. e.g. Primary data is available or possible to make secondary data

Secondary data availability –CFF parameter-

Region or Country;

CFF parameter		Data set availability	Data set information	Remarks	Reference; JPN case: Data set availability	Data set information	Remarks
Material/Parts recycling	A				✓	PEFCR	
	R1				✓	JAMA LCA guideline data set	Steel, Al, Cu only
	R2				✓	JAMA LCA guideline data set	Steel, Al, Cu only
	Qsin/Qp				✓	JAMA LCA guideline data set	Steel, Al, Cu only
	Qsout/Qp				✓	JAMA LCA guideline data set	Steel, Al, Cu only
	Ev				✓	JAMA LCA guideline data set	Steel, Al, Cu only, IDEA basis
	E*v				✓	JAMA LCA guideline data set	Steel, Al, Cu only, IDEA basis
	Erecycled				✓	JAMA LCA guideline data set	Steel, Al, Cu only, IDEA basis
	ErecyclingEoL				✓	JAMA LCA guideline data set	Steel, Al, Cu only, IDEA basis
Energy (ASR thermal recovery etc)	EER				✓	JAMA LCA guideline data set	
	LHV				✓	General JPN industrial database	
	XER,heat				✓	General JPN industrial database	
	ESE, heat				✓	General JPN industrial database	
	XER,elec				✓	General JPN industrial database	
	ESE, elec				✓	General JPN General database	

For detail CFF and CFF parameter confirmation, please refer to the European Commission Recommendation (EU) 2021/2279 through below link

https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021H2279&from=EN

material $(1-R_1)E_V + R_1 \times \left(AE_{recycled} + (1-A)E_V \times \frac{Q_{Sin}}{Q_P}\right) + (1-A)R_2 \times \left(E_{recyclingEoL} - E^*_V \times \frac{Q_{Sout}}{Q_P}\right)$

energy $(1-B)R_3 \times \left(E_{ER} - LHV \times X_{ER,heat} \times E_{SE,heat} - LHV \times X_{ER,elec} \times E_{SE,elec}\right)$

disposal $(1-R_2-R_3) \times E_D$

<legend symbol>
✓ ; Available
- ; Not available
*** ; Other. e.g. possible to take CFF parametr**

SG5 12 months Schedule

			2023						2024					
			7	8	9	10	11	12	1	2	3	4	5	6
Main activities			**Develop Methodologies**											
GRPE A-LCA IWG			☆10		☆7	☆ 17-18		☆4	☆ 7-8	☆ 20		☆ 18-19		
SG5 leading team Meeting (LTM)			☆11 ☆26	☆ 23	☆6 ☆20	☆12 ☆25	☆9 ☆22	☆5 ☆21	☆18 ☆31	☆21	☆ ☆	☆ ☆	☆ ☆	☆ ☆
SG5 Meeting		☆26	☆12		☆4	☆19	☆13	☆12	☆23	☆ 22	☆ 26	☆ **23**	☆	☆
Objectives	**1. Level concept Definition & Initial target**		☆12											
	2. System boundary with activity data & Intensity data based on each regional EoL process				Reginal info. sharing						**Harmonization**			
					☆ JPN, CHI	☆ EU#1	☆ EU#2			☆ US	☆ **#1**		☆ **#2**	☆ **Final**
											Regional 2ndary data Study			
	3. Contro versial topics	**1) Material/Parts recycling modeling**	☆JRC CFF intro.		☆ JAMA CFF intro.	☆ #1	Common Pros/Cons Discussion ☆ #2	☆ #3	☆ #4	☆ #5	**CFF or RCM Application condition Study** ☆ #1	☆ #2	☆ #3	☆ **Final**
		2) Other		Boundary Conditions	☆		1.Boundary #2 3. 2nd life Parts 4. Logistics	☆	☆	☆	☆	☆	**2.Secondary data 5. ELV management out of sale region 6. Recycle process**	
	4. Summary for drafting													☆