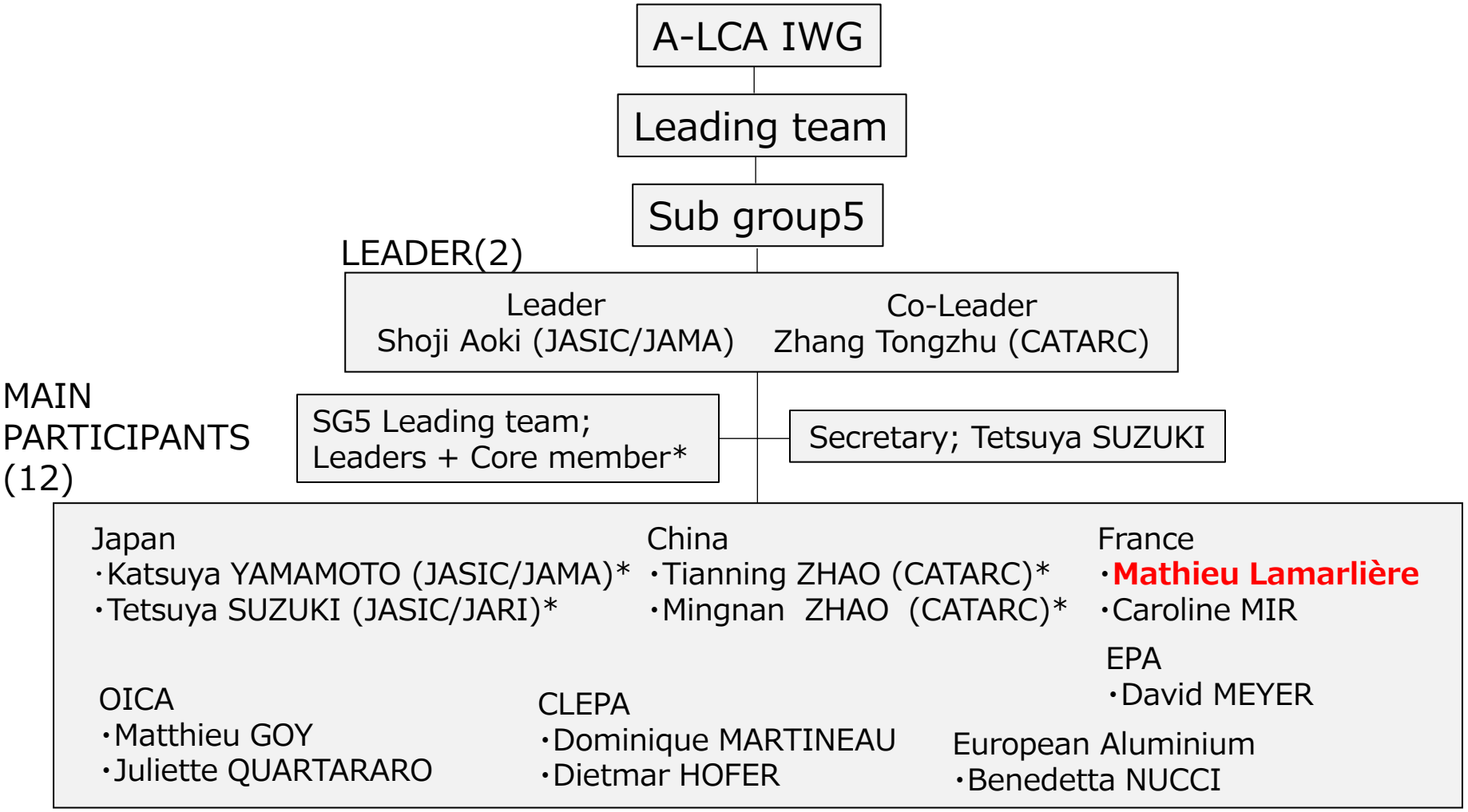
GRPE A-LCA IWG
SG5(EoL) Meeting 012

17th June 2024

GRPE A-LCA IWG SG5
Leader ; Shoji Aoki (JASIC/JAMA),
Co leader; Zhang Tongzhu (CATARC)

1. Organization -Organization Chart-

[3] 17th June. '24



Emissions-Consumptions regulations in UTAC

Agenda

1. SG5 011 minutes & 012 agenda confirmation
2. EoL LCA discussion
   1) Material/Parts recycling modeling finalization
      - Each CPs and NGOs position updating
      - SG5 common position
      - Drafting of “Recycle modeling”
   2) Other controversial topics finalization
      - ELV management out of sale region
      - Secondary data
3. Drafting -“Table of Contents”-
4. Interaction with other SG
5. Next action

Minutes of GRPE A-LCA IWG SG5 meeting #11

Date and time:Thursday, May 23, 2024, 12:00–14:00 (CET)
Location :Online (Teams)
Attendees :See attendee list

Agenda:

1. SG5 010 minutes & 011 agenda confirmation
2. EoL LCA discussion
   1) Material/Parts recycling modeling discussion
      - Each CPs and NGOs position
      - Module D study final report and discussion
      - CFF or RCM application guideline 3rd draft
   2) Other controversial topics discussion
      - ELV management out of sale region
      - Incineration with energy recovery
      - EoL process modeling harmonization
3. SG5 Drafting plan
4. Interaction with other SG
5. Next action

Notes:

1. SG5 010 minutes & 011 agenda confirmation

- The minutes and agenda were approved unanimously.

2. **EoL LCA discussion**

1) Material/Parts recycling modeling discussion

- Each CPs and NGOs position

- Mr. Goy (OICA) was positive about the JRC compromise but wanted more time for further discussion within OICA. Mr. Aoki (JASIC) informed him to wait until the next SG5 meeting.

- Module D study final report and discussion

- Mr. Aoki (JASIC) proposed the final report of the Module D study at the SG5 expert subcommittee. The conclusions were as follows:
  - CLEPA asked JRC not to apply the Module D concept to all types of materials and EU Aluminium asked JRC to study this application to batteries. JRC agreed to study and will bring their idea to the next SG5 meeting in May.
  - OICA will study JRC's compromise Module D concept in detail to update and finalize its position as soon as possible.
- Mr. Patrone (JRC) presented JRC's study. The main points were as follows:
  - There are several ways to map materials and components as an initial scope: refer to existing regulations (ELV new regulation proposal, EU battery regulation, etc.); start with large components (EV battery, electric motor, chassis material, etc.). This should cover 95% of the carbon footprint.
  - In the proposed new ELV Regulation, Article 6 requires the minimum recycled content of plastic, steel, aluminum, and critical raw materials. Article 49 reports on the total quantity and weight of parts, components and materials removed from ELVs and reused. Annex VII Part C lists the parts and components to be removed (e.g. xEV batteries and e-drive motors).
  - Regarding the secondary datasets related to the EoL process, key parameters for the use of the CFF for the most common materials are available in the Environmental Footprint Annex C3. Core life cycle datasets are under development for the EF4.0 database to be released in 2026–2027. In particular, the database under development will cover the main base metals, the main polymers, and also some additional technical materials (e.g., flat glass and electronics). Potentially missing data (e.g., technical glass, tires and rubber, and other specific materials used in the automotive industry) could also be developed with the support of the industry in accordance with the EF 4.0 background data.
- The main questions and answers, and comments on the JRC presentation were as follows:
  - Aoki (JASIC): Please note that this suggestion is only an example. The guidelines we are developing do not specify a particular component or material. Only the LCA owner, such as government authority of LCA regulation, can decide that.

- Paffumi (JRC): I agree with your point. We just wanted to make sure that this was an example to discuss with you how to apply this method and how to map components and materials.
- Hofer (CLEPA): Thank you for presenting this draft. Making the secondary databases for each region available on an open-access basis is something CLEPA has wanted to raise many times in this IWG. So, we very much welcome the fact that this will be free access.

- CFF or RCM application guideline 3rd draft

- Mr. Aoki (JASIC) presented the third draft with the third bullet point modified. The main questions and answers, and comments were as follows:
  - Martineau (CLEPA): This draft does not define the materials to be evaluated in the CFF.
  - Aoki (JASIC): As we have previously confirmed, the JRC study is an example. We do not believe listing specific materials or component names in this guideline is necessary.
  - Martineau (CLEPA): I agree, but my point is that the guidelines apply under certain constraints. This means that LCA practitioners have to define the product or material somewhere. I think we need to at least mention that somewhere.
  - Aoki (JASIC): I will modify the draft to reflect this point.
  - Goy (OICA): I see a lot of positive potential in this compromise, but I also have concerns: if we want the CFF to be fully applicable, we need to make sure that all data is readily available.
  - Aoki (JASIC): As noted in the second bullet, if you have difficulty obtaining the appropriate data for CFF, we can select RCM.
  - Mir (ADEME): If there are two OEMs, one OEM includes many materials and components in Module D, and the other includes only one component, can the CFP of the first OEM be worse?
  - Aoki (JASIC): When comparing products, identical materials and components must be applied to the CFF calculations. However, this is a general concept and is not mentioned in the A-LCA IWG for comparison.
  - Mir (ADEME): I thought the main purpose of harmonization was to improve comparability. However, if it is not explicitly mentioned in the A-LCA IWG, I understand what you are saying.

2) Other controversial topics discussion

- ELV management out of sale region

- At the last SG5 meeting, Mr. Yamamoto asked the participants who are in favor of Option 3 to clarify the traceability system in Option 3. The current status were as follows:
  - CATARC: Under study.
  - JRC: Option 3. If this is not feasible, Option 2 should be preferred. In this case, regional averages (e.g. European averages) could be used instead of global averages.
  - EPA: Option 3. If this is not feasible, Option 2, as the global average, should be the default.
- Mr. Aoki (JASIC) proposed the new draft. Since this draft includes Option 1 as an alternative, not Option 2, the leading team will revise it again, taking into account today's views of the JRC and EPA.

- Incineration with energy recovery

- This is the first discussion on this issue. Mr. Aoki (JASIC) presented two options: Option 1 is incineration only; Option 2 is incineration and thermal/electric recovery by CFF. The current positions of each CP/NGO were as follows:
  - ADEME: Option 2. Further internal discussion is needed.
  - EPA: Option 2. Further internal discussion is needed.
  - OICA: Neutral and subject to CP's decision. Want the option that is least susceptible to greenwashing.
  - CLEPA: Similar to OICA.
  - JRC: The CFF may include Option 2 depending on the parameter settings. Further internal discussion is needed. It should be clearly stated that double counting between the currently analyzed life cycle and subsequent life cycles must be avoided.

- EoL process modeling harmonization

- Since the EoL processes in each region are very similar, Mr. Aoki (JASIC) proposed the Japanese EoL process as a harmonized EoL process for drafting the guideline. OICA will discuss this internally and present its views at the next SG5 meeting.
- Mr. Aoki (JASIC) presented the global status of secondary data availability. At the same time, he emphasized that the IWG will not develop and provide the data itself. The main questions and answers, and comments were as follows:
  - Hofer (CLEPA): I have seen that EoL data is missing in different regions of the world. Does this mean that CFPs in regions with missing data will ultimately be better? How can we avoid that? So, I always thought that harmonization would also include both data and use cases. How can we compare them at the end? That is my main concern.
  - Aoki (JASIC): Reflecting on our earlier discussion of ELV management outside the sales region, we have concluded that the global average data is the best solution for evaluating the EoL LCA. In other words, a global average can be calculated from the figures of these three parties and used as a reference value.
  - Hofer (CLEPA): Understood. This means that a summary of the secondary dataset available at that time becomes the default scenario for calculating the EoL phase in the absence of other available data.
  - Aoki (JASIC): Do you have any concerns about my idea of developing a global average for reference only?
  - Suzuki (JASIC): We all know that we need a global average, but I would not recommend the activity of developing a number in the IWG, even if it is for reference.
  - Aoki (JASIC): For example, is it possible to ask a US representative to develop the regional representative value?
  - Suzuki (JASIC): IWG and SGs can specify data types or recommend datasets provided by other organizations, countries, etc. However, I don't think they can actually develop and provide the data.

- Goy (OICA): The main concern is that any type of data could be chosen, and secondary data have no advantage over primary data. We should encourage LCA practitioners to try to obtain primary data whenever possible.
- Aoki (JASIC): The default LCA timing is before use. This means that the use and EoL phases should be evaluated based on future scenarios. There are no primary data other than vehicle and component weights.
- Goy (OICA): Yes, but it is generally accepted that secondary data should be selected that does not provide an advantage over the primary data.
- Aoki (JASIC): But if the LCA is performed before the use phase, how can primary data other than component and vehicle weights be obtained from the EoL phase?
- Goy (OICA): Of course, projections of numbers are necessary. However, such projections should be kept to a minimum if we want the numbers to be as representative as possible. So, while they are unavoidable, efforts should be made to reduce the need for projections.
- Aoki (JASIC): Do you have any suggestions or measures to solve this problem?
- Goy (OICA): No, I do not. I will think about it.
- Aoki (JASIC): Do you have any ideas on how secondary datasets could be prepared in the US?
- Meyer (EPA): There are several ways to do this. We are trying to get in touch with the people who are developing the GREET model so that we can develop a secondary dataset for the US. We will find out qualitatively what the ELV processes are in the US and survey other countries around the world that use the same type of processes. Then we will adapt the process locally using the necessary energy processes. Another way is to find sources that seem similar to the process we have in mind. Then, based on more localized processes, such as energy and transportation, we would make it specific to the US. That would require staff. Trying to do that within the EPA would take another year or more to get the project up and running.

- Further discussion of this issue will continue at the next SG5 meeting.

3. SG5 Drafting plan

- Mr. Aoki (JASIC) presented the drafting plan. There were no comments.

4. Interaction with other SG

- This item was canceled due to lack of time.

5. Next action

- The next SG5 meeting will be held online on Monday, June 17, from 12:00 to 14:00 CET.

The leading team proposed that the July SG5 meeting be held online at the same time on July 9, and that the next SG5 meeting be held face-to-face in Brussels on September 25, before the IWG meeting. This will be finalized at the next SG5 meeting in June/

Appendix 1: Attendee list

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   1) Material/Parts recycling modeling finalization
      - Each CPs and NGOs position updating
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      - Drafting of “Recycle modeling”
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Material/Parts recycling modeling
Internal discussion summary of Cutoff and CFF

As of 23rd May

		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	• Mr. Goy (OICA) was positive about the JRC compromise but wanted more time for further discussion within OICA. Mr. Aoki (JASIC) informed him to wait until the next SG5 meeting.	
	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).

Drafting of “Material and parts recycling modeling”

- Circular Footprint Formula (CFF) or Recycled Content Method (RCM) should be applied to the evaluation of material and parts recycling.

- In cases where obtaining appropriate data for CFF parameter setting is difficult, Recycled Content Method (RCM) may be applied.

- In case of CFF application, 1) Production burden should be evaluated in the material production stage. Both 2) Burdens and benefits related to secondary materials input and 3) Burdens and benefits related to secondary materials output should be evaluated and merged in the disposal/recycling stage as *Module D (naming t.b.d.).* *Module D* should be separately reported and included into total vehicle CFP .
The material and parts to which CFF is applied should be reported (according to the reporting requirement.)

Circular Footprint Formula

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

⇩ *Module D structure (naming t.b.d.)*

1) Production burdens $(1-R_1)E_V + R_1 \times E_{recycled}$

2) Burdens and benefits related to secondary materials input $-(1-A)R_1 \times \left(E_{recycled} - E_V \times \frac{Q_{Sin}}{Q_P}\right)$

3) Burdens and benefits related to secondary materials output $(1-A)R_2 \times \left(E_{recyclingEoL} - E_V^* \times \frac{Q_{Sout}}{Q_P}\right)$

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SG5 Controversial topics -Progress and actions-

Topic	Option 1	Option 2	Option 3
0.Material/Parts recycling modeling	Recycled content method (Cutoff)	Closed Loop Approximation Method (CLAM)	Circular Footprint Formula (CFF)
1.Boundary conditions	Agree with LT proposal	Disagree	
2.Secondary data			
3.Second life parts	Include	Exclude	
4.Logistics	Include		
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
6.Recycle process	Current process		
7. Incineration with energy recovery	Incineration only	Incineration and thermal/electricity recovery by CFF	

-SG5 common position confirmed

-EoL process modeling harmonization provisionally confirmed
-Secondary data availability of each EoL process and CFF parameter in Japan. China, US and EU confirmed. It should be treated as "Reference"

-Almost SG5 common position confirmed
-JRC; Neutral, FRA; t.b.c

-Proposed as one of overarching aspects in IWG.
-Wait for SG1 direction

・Follow up the compromise solution

-SG5 common position confirmed

-SG5 common position confirmed

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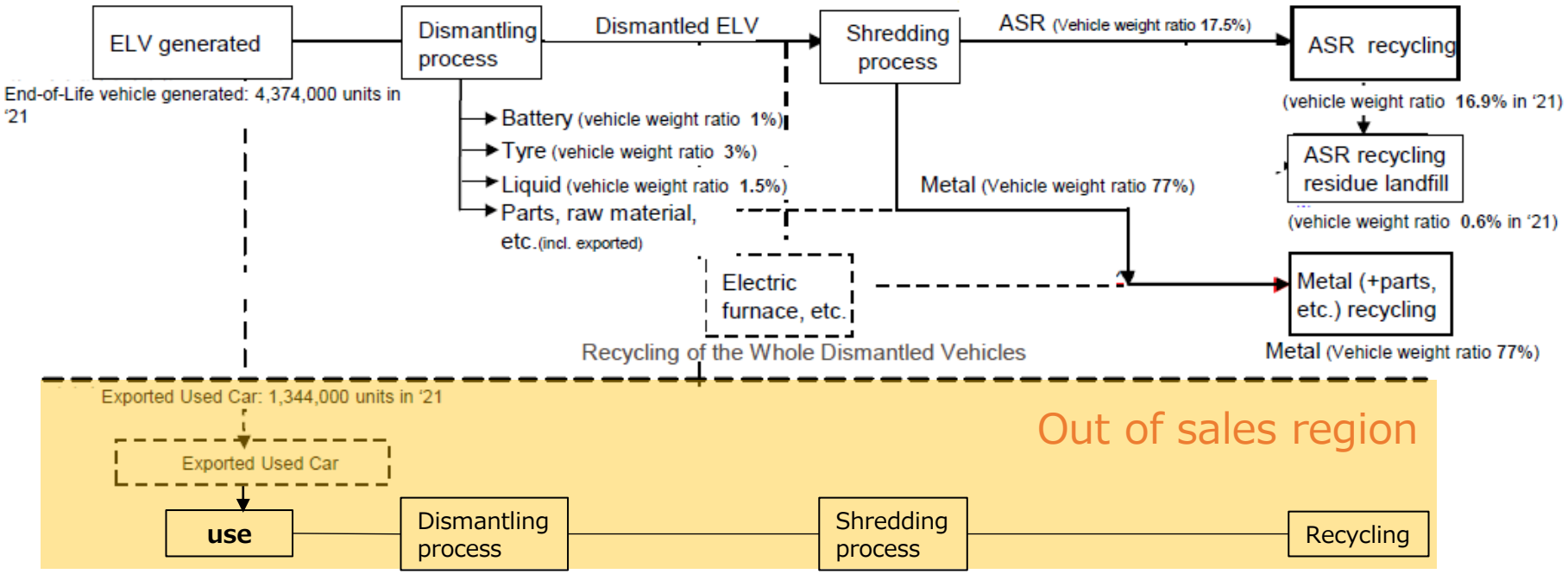
5. ELV management out of sale region

FRA OICA

Topic	Option 1	Option 2	Option 3
ELV management out of sale region Neutral CLEPA	Take into account process of country of sale JPN Or,EU AL	Take into account global average Or,EU AL	Take into account process of country of EoL JRC CHI EPA

Japan End-of-Life Vehicle Recycling and Treatment Flow



Reminder in May SG5

5. ELV management out of sale region

FRA OICA

Topic	Option 1	Option 2	Option 3
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
Neutral CLEPA	JPN Or,EU AL	Or,EU AL	JRC CHI EPA

Compromise

<New proposal draft>
The EoL GHG emission of vehicles exported from the country where they were sold/used should be evaluated by the EoL process of the country where they were exported, used and disposed/recycled.
However, if the country to which they were exported cannot be tracked or it is difficult to grasp the EoL process of the country where they were exported, used and disposed/recycled, the EoL process of the country in which the new car was sold/used may be provisionally applied as not being exported.

Exported Used Car

New proposal 1 in June SG5

5. ELV management out of sale region

FRA OICA

Topic	Option 1	Option 2	Option 3
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
Neutral CLEPA	JPN Or,EU AL	Or,EU AL	JRC CHI EPA

Compromise

New version

<New proposal 1>

The EoL GHG emission of vehicles exported from the country where they were sold/used should be evaluated by the EoL process of the country where they were exported, used and disposed/recycled. However, if the country to which they were exported cannot be tracked or it is difficult to grasp the EoL process of the country where they were exported, used and disposed/recycled, the global average secondary data of EoL process may be applied.

Exported Used Car: 1,344,000 units in '21

-How can the global average secondary data be defined and calculated ?
-Can we draft without the global average secondary data specification?

New proposal 2 in June SG5

5. ELV management out of sale region

FRA OICA

Topic	Option 1	Option 2	Option 3
ELV management out of sale region Neutral CLEPA	Take into account process of country of sale JPN Or,EU AL	Take into account global averag Or,EU AL	Take into account

Compromise

Option 4

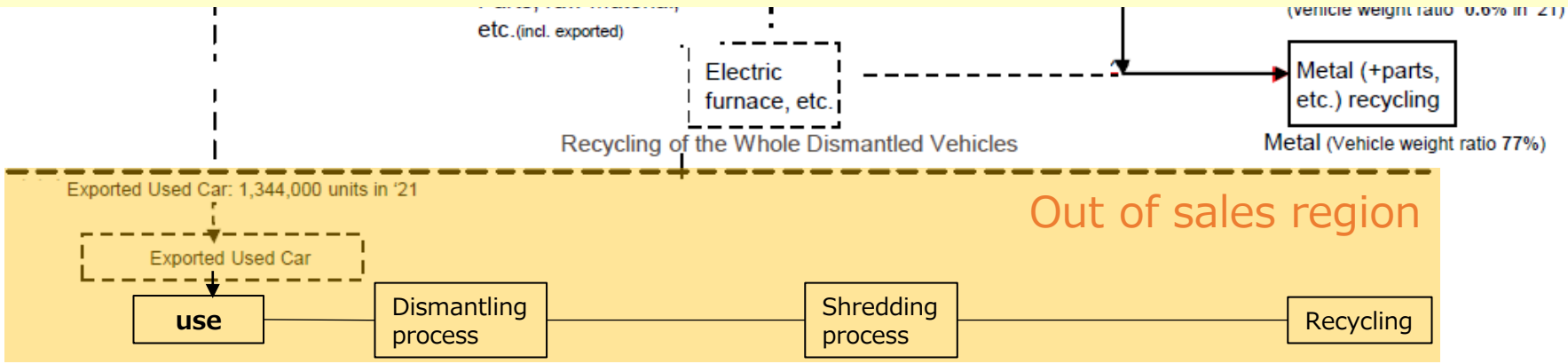
Cut off Use and EoL phase of exported vehicle out of sales region

<New proposal 2>

To be aligned with SG4

<System boundary>

-Exclude second Use and EoL phase of exported used car to out of sales region or country (due to not enough traceability, second use or EoL process information,,,,)



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Ref. Secondary data availability

-【D1】ELV treatment and【D3】ASR treatment; The secondary date are available in EU, JPN and CHI.
-【D2】Recovered parts treatment; Some secondary data are not available depending on parts in JPN and CHI

-Secondary data of each EoL process and CFF parameter, which have been investigated by SG5, should not be specified in A-LCA as the official dataset according to IWG direction. It will be treated as "Reference".
-The secondary data which is applied should be reported (according to the reporting requirement).

EoL process			Activity data (Primary data)	Intensity data availability (Secondary data)			
				EU	JPN	CHI	US
【D tre							
【D Re pa tre							
	f) LiB BAT	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]	✓	✓	✓	–

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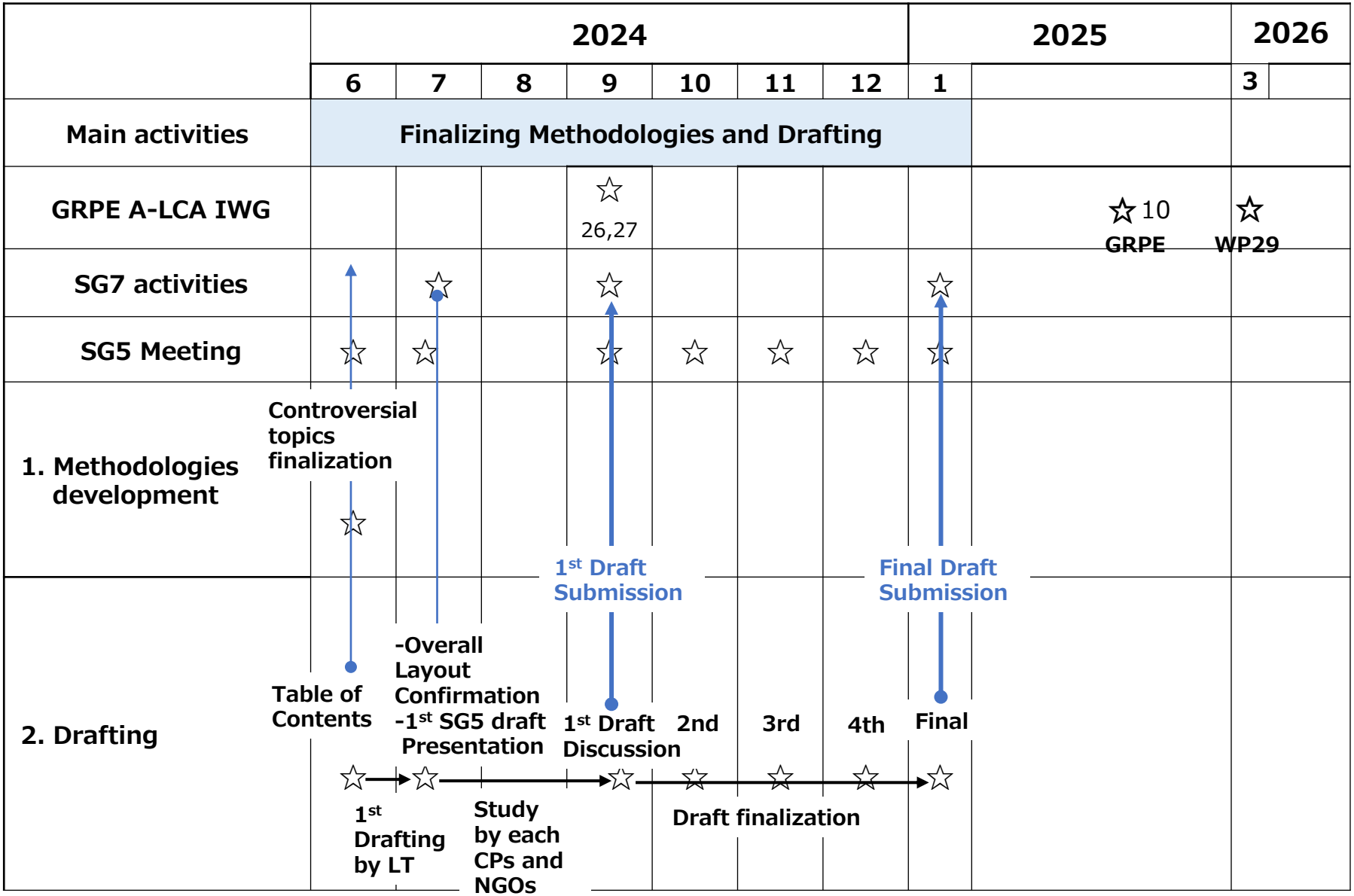
SG5 6 months schedule for Drafting



Request from IWG Chair

1st phase of SG7

- Target:

  To update "Table of Contents" of PCR

Subgroups are requested;

- To submit draft "Table of Contents" of relevant section(s) to SG7
- To submit outline of contents of relevant section(s) to SG7
- SG3 to draft "words glossary (definition of technical terms) "

Deadline 21st of June 2024 (Coordination between SGs will follow.)

EoL process modeling harmonization

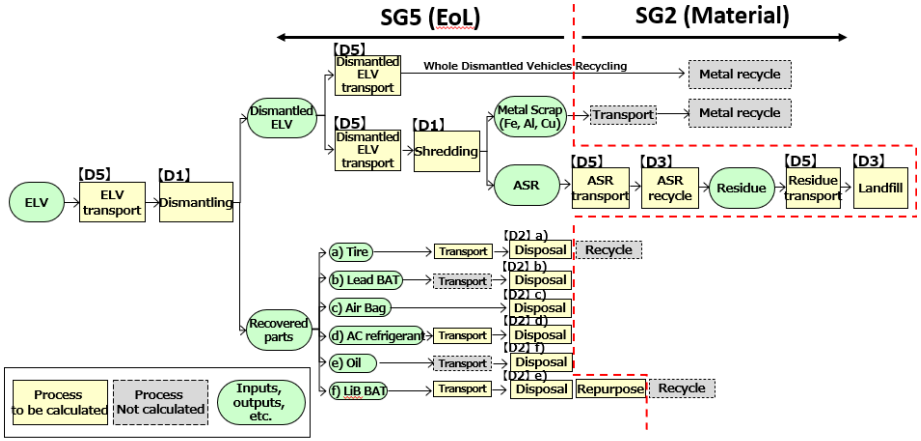
-EoL processes in each region is almost the same

-Propose JPN EoL process as a harmonized EoL process modeling for A-LCA drafting

【JPN】

EoL system boundary

- Vehicle EoL GHG emission-

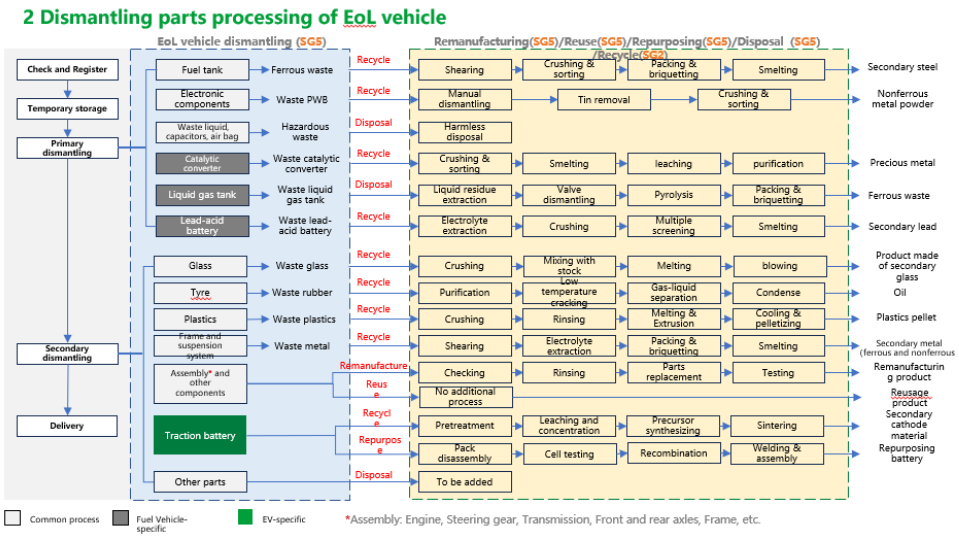


Vehicle EoL GHG emission=Σ(Process to be calculated GHG emission)

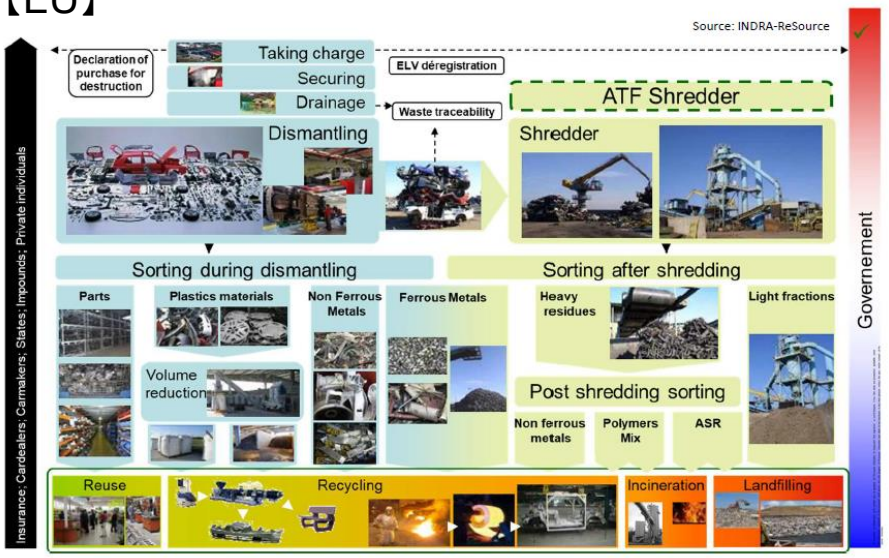
Process to be calculated GHG emission=Activity data×Intensity data

14

【CHI】



【EU】



Refer to Word document
“SG5 EoL_Table of Contents_N 240612”

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Shared topics among SGs „Tournament“

	SG 1	SG 2	SG 3	SG 4	SG 5	SG 6
SG 1						
SG 2	Database criteria					
SG 3	Verification	Handover point, multifunctionality, chain of custody				
SG 4	FU for 2nd use (non-automotive)	(none)	Repres. vehicle., ...			
SG 5	Timing of LCA Logistics	EoL allocation (e.g.CFF param.)	EoL allocation, waste trace/ treatment, 2nd life	EoL of maintenance part, reuse of parts		
SG 6	Database criteria	Dataset critera, data collection, handover point	Dataset critera, g reen energy req, multifunctionality	Conversion factor	Dynamic modell., emission factors, regional / global	

SG1 – SG5

- Transportation and logistics are part of overarching aspects
  - for efficiency reason, consider current available methodologies
- Scenario depends on region
- Purpose of IWG ; individual product vs product system
- A-LCA includes all powertrains
- The timing of LCA determination is one of open issues (pre-use timing is temporally default timing)

SG2 – SG5

- EoL allocation:
  - Cut-off for SG2
  - Cut-off & CFF for SG5
  - EoL is required at each life stage of the product
- Specific discussion on CFF parameters

Meeting 16th May 11:00 – 13:00 (CET)

SG3 – SG5

- EoL allocation
  - Clarify which impact the EoL allocation on SG3
- Trace & treatment of production waste
- 2nd Life & all related extended life
- Polluter pays principle?
  - How to count / how to handle / creditable or not?

Meeting 5th June 11:00 – 13:00 (CET): Discuss the topics & agree on next steps/discussions

SG4 – SG5

- System boundary: handover point is already agreed.
- EoL of maintenance parts.
- Re-use of parts : overarching topic and need guidance from IWG

Meeting 16th May 11:00 – 12:00 (CET)

SG5 – SG6

- Requests from SG5 will be shared with SG6

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- Next SG5 meeting

1. Date ; 2hours, the middle of July
2. Venue; Online
3. Attendee; all SG5 member
4. Agenda; according to SG5 6months drafting schedule
   - 1st EoL drafting
   - Interaction with other SG
   - Next action

<Proposal>
-July SG5 ; 18th July from 12:00 to 14:00 @CET
Remarks) JRC are not available on 9,10,16,17 July h. 12-14

-Sept SG5 ; Before IWG on 25th Sept in person, EU

Appendix