**Hotspot definition consideration as related to estimation of different emission sources (how emissions are estimated vs. cutoff criteria if certain emission sources are included)**

**The 2017 UNEP hotspot Definition**

*“Having attributed impacts to each life cycle stage and normalised / weighted the impacts to allow them to be prioritised, hotspots can be defined. Two approaches may be used. These are illustrated in the figure below.*

|  |  |  |  |
| --- | --- | --- | --- |
| Hotspot  A life cycle stage whose contribution to the impact category is greater than even distribution of that impact across the life cycle stages. | Warmspot  A life cycle stage whose contribution is approximately equivalent to an even distribution of the impact across the life cycle stages. | | Cold Spot  A life cycle stage whose contribution to any impact category is less than even distribution of that impact across the life cycle stages |
| Hotspot  All life cycle stages collectively contributing more than 50% to any impact category. | | Cold Spot  All life cycle stages collectively contributing less than 50% to any impact category. | |
|  |  |  |  |

*Options for identifying hotspots*

***In the first approach*** *a hotspot shall always be a percentage greater than if the impacts were evenly distributed across life cycle stages. So, if there are 5 life cycle stages, a hotspot should not be defined lower than 20% of the impact category, and if there are 7 stages, it should not be lower than 14%.*

*Where the hotspot has been identified based on qualitative information, it will not be possible to identify a hotspot with quantitative precision. To ensure that hotspots are covered, the analysis should therefore be confident that the majority of impacts (i.e., over 50%)* ***(the second approach)*** *are covered. Depending upon the number of impact categories selected, the number of hotspots may vary.*

The first approach should be implementable. That is, if a stage contributes more than the average share of all stage for automotive LCA, then the stage is considered to be a hot spot.

**Applications of the hotspot definition in the LCA guideline**

**Material/vehicle manufacturing.** The current language in SG1 N4 draft for separate estimation of battery emissions from the rest of vehicle manufacturing emissions appears to be based on this rationale: The current guideline version allows linear extrapolation of per-vehicle results with vehicle weight. The guideline realizes that battery capacity (and weight) may be independent from vehicle weight. In this regard, the guideline should make battery as an unscalable example with vehicle weight for separation. If this is the case, some general consideration, instead of specific battery consideration, for separation based on **un-scalability** should be worded.

**EoL.** As determined on June 19, EoL may use static energy system results if EoL is determined not to be emission hotspot.

**Reference**

Barthel, M., Fava, J., James, K., Hardwick, A., & Khan, S. (2017). Hotspots Analysis: An overarching methodological framework and guidance for product and sector level application. United Nations Environment Programme: Paris, France. [https://www.lifecycleinitiative.org/library/hotspots-analysis-an-overarching-methodological-framework-and-guidance-for-product-and-sector-level-application/](https://urldefense.us/v3/__https:/www.lifecycleinitiative.org/library/hotspots-analysis-an-overarching-methodological-framework-and-guidance-for-product-and-sector-level-application/__;!!G_uCfscf7eWS!c1Isa5_1xOvi2us7zE2MvkPys5Ufi0D56zLBMJS5PcN1NgpDDtcDpiQbwFVRrFpbGuVRMuDW-yV-zM07nkyogYAznA$)