

Ville neuss lithium-iron-phosphate batteries lfp

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arising from Xu et al. Communications Materials https://doi/10.1038/s43246-020-00095-x (2020)

Xu et al.1 offer an analysis of future demand for key battery materials to meet global production scenarios for light electric vehicles (LEV). They conclude that by 2050, demands for lithium, cobalt and nickel to supply the projected >200 million LEVs per year will increase by a factor of 15-20. However, their analysis for lithium-iron-phosphate batteries (LFP) fails to include phosphorus, listed by the Europen Commission as a "Critical Raw Material" with a high supply risk2. We outline below that, whilst timely, their analysis is incomplete in that it does not consider the complexities of the global anthropogenic phosphorus cycle in the context of supply chain resilience and sustainability for the emerging LEV sector.

Opportunities for cross-sector circularity are potentially missed by Xu et al.1 in considering only mined materials as the primary supply to LEVs. To provide clarity on phosphorus, we encourage Xu et al1. to extend their analysis to include detailed and comparable future projections, including closed-loop recycling capacity within the LEV sector.

B.M.S. led discussions with the authors of the original manuscript, the development of the text, and the estimates of phosphorus demand in the electric vehicle sector. W.J.B. led the estimates of global phosphorus demand, and together with D.C., L.H., and J.M.M., contributed to the development of the text and responses to the original authors" responses to earlier drafts.

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