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Corrigendum

Corrigendum to ‘Life cycle assessment of battery electric buses' [Transportation Research Part D: Transport and Environment 112 (2022) 103498]

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The authors regret that there was an error in the modelling of the lithium iron phosphate (LFP) cathode, which warrants a revision and update of results. The active cathode material had incorrectly been linked to lithium nickel manganese cobalt oxide (NMC) rather than LFP in the model. In addition, the energy use for the LFP cathode was erroneously reported in Table S 5 in the supplementary information. Thus, the overall impact of the LFP 200 kWh and LFP 400 kWh bus alternatives have been updated; other bus results remain unchanged. Relative to the other buses, the 400 kWh LFP bus originally had the highest environmental impacts across all impact potentials studied, for both life cycle considerations. The general picture now is the same, since with the updated results it has the highest (acidification and freshwater ecotoxicity) or second highest (global warming, photochemical oxidant formation, ozone layer depletion, and resource depletion) impacts for both life cycle considerations. Change in results is also observed for the medium range 200 kWh LFP bus. Relative to the other buses, the 200 kWh LFP bus now has the lowest impact potentials in terms of global warming, photochemical oxidant formation, ozone layer depletion, and resource depletion over both life cycle considerations.

The updated results do not change the general conclusions of the original manuscript; lithium titanium oxide (LTO) batteries offer a good solution for battery packs where frequent fast charging can compensate for limited driving range, while NMC batteries are more appropriate where higher capacity battery packs allowing for extended driving range and vehicle autonomy is a priority. Based on the updated LFP results, we may add that for medium range buses, both NMC and LFP are suitable alternatives.

The updated results are provided in Figures 1, 2, and 3, which replace Figures 2, 3, and 4 in the original article. The updated supplementary information provides the corrected energy for the LFP cathode (Table S 1), the updated carbon intensity of the LFP battery on both pack

and cell level (Figures S 1 and S 2), and the updated complete numerical results for the 200 kWh and 400 kWh LFP buses (Tables S 2 to S 19).
The authors would like to apologise for any inconvenience caused.

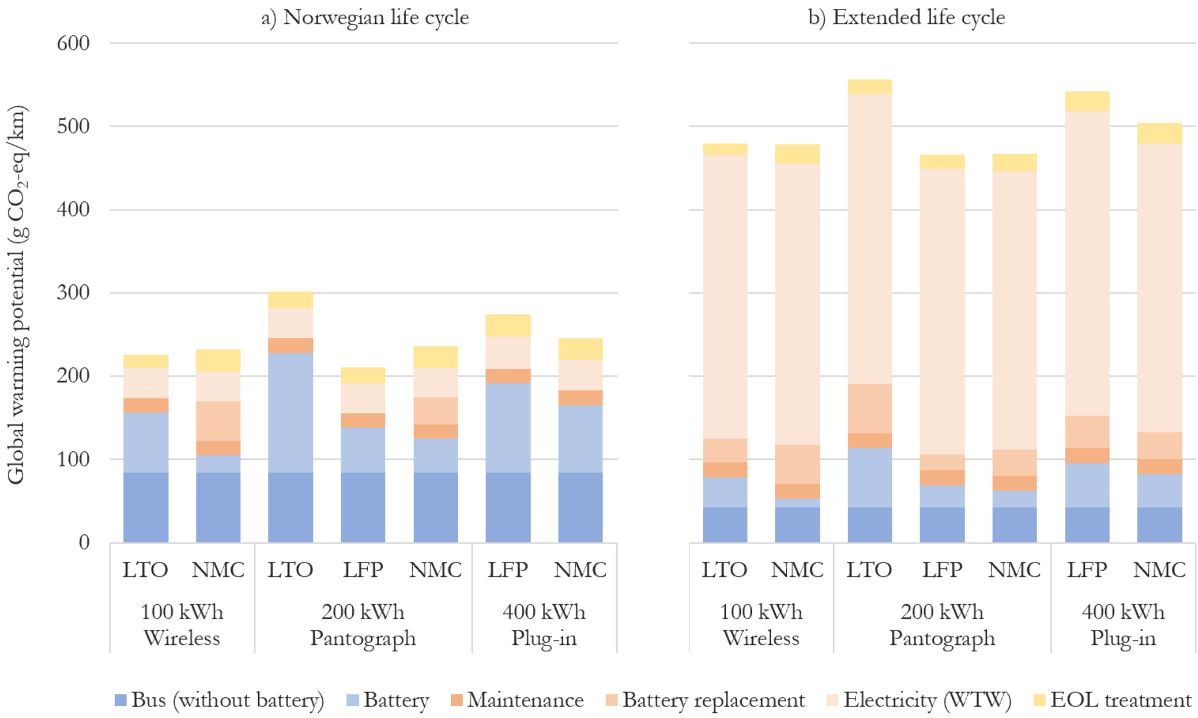

Figure 1 Cradle-to-grave GHG emissions per kilometer for a) the Norwegian life cycle with a total mileage of 600 000 km and 10 years of operation (left) and for b) the extended life cycle with a total mileage of 1 200 000 km and 20 years of operation in Norway and Hungary (right).

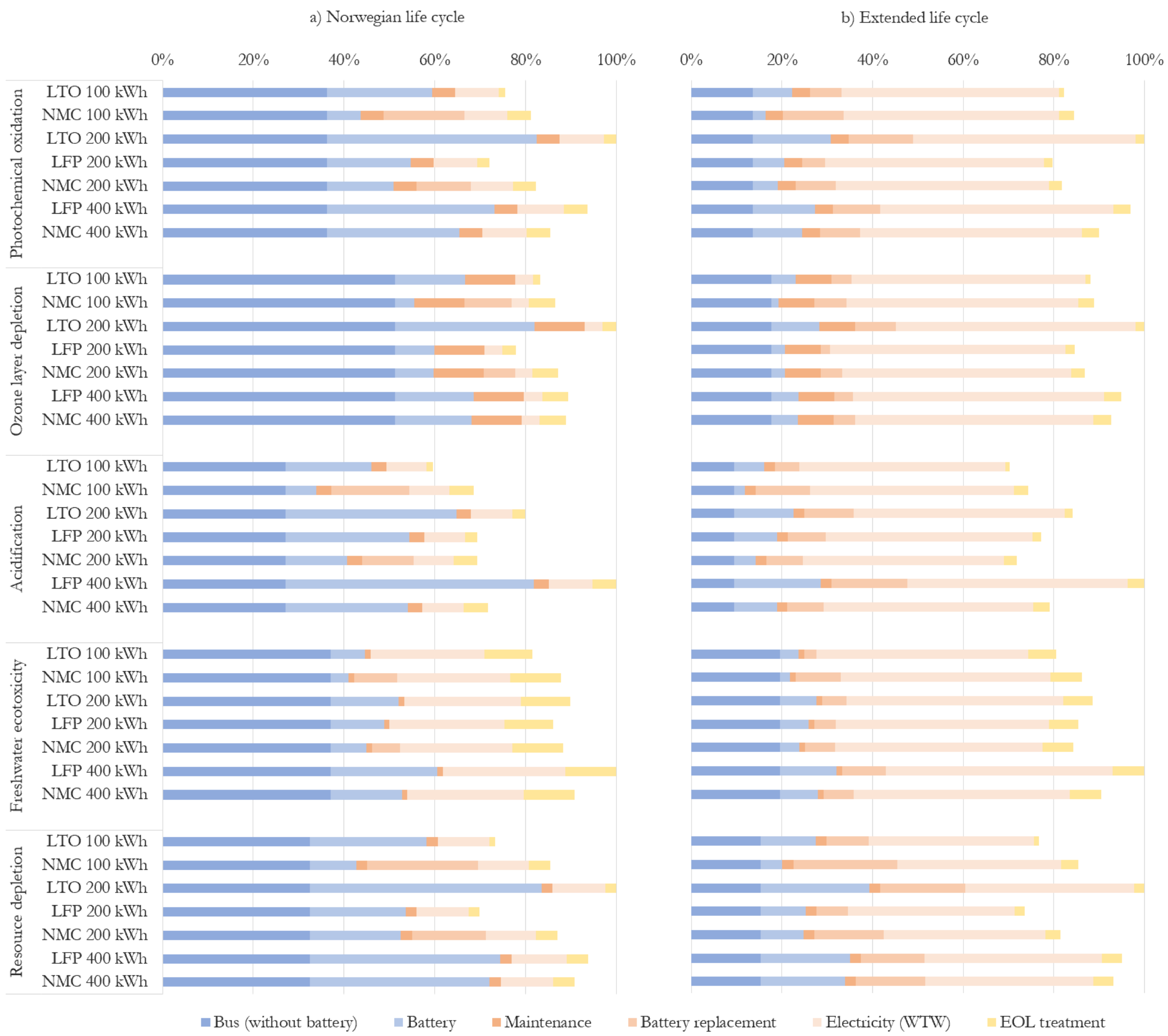

Figure 2 Comparison of environmental impact potentials with results presented relative (%) to the highest results over a) the Norwegian life cycle (left) and b) the extended life cycle (right).

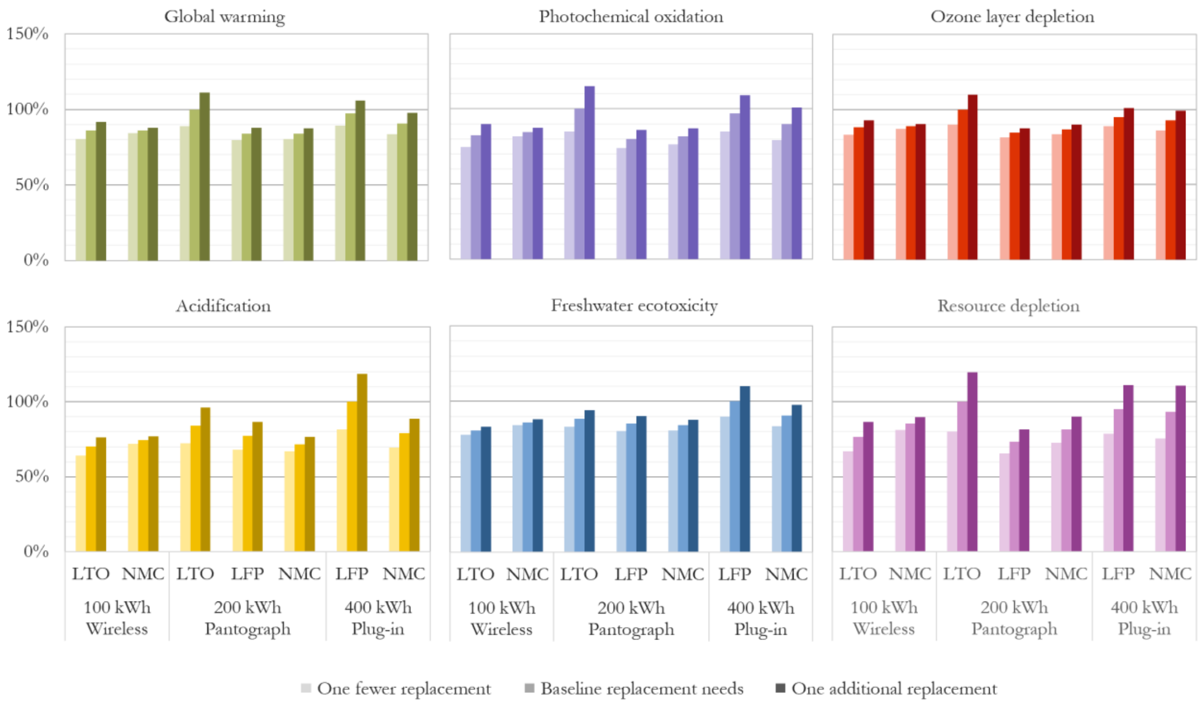

Figure 3 Sensitivity analysis considering the relative effect of one additional or less battery module replacement. The analysis is performed across the extended life cycle (1 200 00 km over 20 years) with results presented relative (%) to the highest baseline results. Light, medium, and dark colors denote the results with one less battery replacement, baseline assumptions, and one additional battery replacement, respectively.

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