**Background Data**

**Comparative study on resources and environmental impact of lithium iron phosphate batteries and ternary lithium batteries for electric vehicles based on life cycle assessment**

This article provides comprehensive data on 1KWh LFP and NCM batteries, including battery data from previously published literature, statistical yearbooks, experimental reports, government reports, and some enterprise production data.

|  |  |  |
| --- | --- | --- |
| **1. Inventory analysis** | **1.1 NCM batteries**  | **S1-S12** |
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**1. Inventory analysis**

The background parameters over the life cycle of NCM and LFP batteries in this study are shown in S1-S23.

**2.1 NCM batteries**

***S1. NCM battery cathode materials***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 2.74E+01 |
| Materials |
| Ternary precursor | kg | 4.32E+00 |
| Water | kg | 6.21E+00 |
| Lithium carbonate | kg | 1.77E+00 |
| Oxygen | m3 | 2.76E-01 |
| Nano-alumina | kg | 4.54E-02 |
| **Output** |
| Atmospheric Pollutant |
| CO2 | kg | 1.05E+00 |
| Dust | g | 3.19E-01 |
| Cobalt | g | 1.01E-01 |
| manganese | g | 1.52E-01 |
| Nickel | g | 2.35E-01 |
| CO2 | kg | 1.05E+00 |
| Water pollutants |
| Biological Oxygen Demand (BOD) | g | 1.93E-01 |
| Chemical Oxygen Demand (COD) | g | 7.45E-01 |
| Suspended solids | g | 5.87E-01 |
| Ammonia nitrogen | g | 1.16E-01 |
| Production |
| Cathode material | Kg | 4.62E+00 |

***S2. NCM battery Ternary precursor***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 4.35E+00 |
| Natural gas | m3 | 1.97E+00 |
| Materials |
| Nickel sulfate | kg | 7.84E+00 |
| Cobalt sulfate | kg | 2.75E+00 |
| Manganese sulfate | kg | 1.65E+00 |
| Water | kg | 1.62E+01 |
| Ammonia | kg | 2.88E+00 |
| Sodium hydroxide | Kg | 1.42E+01 |
| Nitrogen | kg | 1.04E-01 |
| **Output** |
| Atmospheric Pollutant |
| SO2 | g | 3.52E-01 |
| Dust | g | 7.20E-01 |
| Nitrogen oxides | g | 3.43E-01 |
| Ammonia | g | 6.88E+01 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 3.89E+00 |
| Suspended solids | g | 3.11E-01 |
| Ammonia nitrogen | g | 5.63E-01 |
| Production |
| Ternary precursor | Kg | 4.32E+00 |

***S3. NCM battery Manganese sulfate***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 2.71E-01 |
| Materials |
| Manganese dioxide | kg | 1.64E+00 |
| Pyrite | kg | 1.64E-01 |
| Concentrated sulfuric acid | kg | 9.26E-01 |
| Hydrogen peroxide | kg | 5.52E-04 |
| Sodium sulfate | kg | 2.71E-02 |
| Sodium sulfide | kg | 1.08E-02 |
| biomass fuel | kg | 3.25E-01 |
| Sodium hydroxide | kg | 1.42E+01 |
| Water | kg | 1.62E+00 |
| Manganese carbonate | kg | 5.41E-02 |
| **Output** |
| Atmospheric Pollutant |
| CO2 | g | 2.30E+01 |
| Dust | g | 1.42E-02 |
| Sulfuric acid mist | g | 1.15E-02 |
| Nitrogen oxides | g | 3.32E-01 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 3.30E-02 |
| Suspended solids | g | 1.62E-03 |
| Ammonia nitrogen | g | 5.59E-02 |
| Production |
| Manganese sulfate | kg | 1.65E+00 |

***S4. NCM battery Nickel sulfate***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 1.25E+01 |
| Hard coal | kg | 3.42E+01 |
| Materials |
| Laterite nickel ore | kg | 2.47E+02 |
| Calcium hydroxide | kg | 1.30E+01 |
| Sodium hydroxide | kg | 2.01E+01 |
| Water | kg | 1.52E-02 |
| Flake alkali | kg | 1.82E+00 |
| Extracting agent | kg | 5.06E-02 |
| Calcium carbonate | kg | 3.55E-01 |
| Hydrogen peroxide | kg | 8.87E-01 |
| Sulfuric acid | kg | 4.91E+00 |
| Concentrated sulfuric acid | kg | 1.68E+02 |
| **Output** |
| Atmospheric Pollutant |
| SO2 | g | 7.84E+01 |
| Dust | g | 8.65E+01 |
| Nitrogen oxides | g | 7.37E+01 |
| Sulfuric acid mist | g | 9.39E+00 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 5.70E+00 |
| Ammonia nitrogen | g | 7.50E-01 |
| Production |
| Nickel sulfate | kg | 7.84E+00 |

***S5. NCM battery Cobalt sulfate***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | Electricity | kWh |
| Hard coal | Hard coal | kg |
| Materials |
| Cobalt concentrate | kg | 3.57E+01 |
| Concentrated sulfuric acid | kg | 6.76E+00 |
| Sodium sulfite | kg | 2.18E+00 |
| Water | kg | 1.83E+02 |
| Sodium carbonate | kg | 3.11E-01 |
| Calcium triple superphosphate | kg | 8.51E-01 |
| Sodium Chlorate | kg | 1.04E-01 |
| Hydrochloric acid | kg | 2.40E+01 |
| Sulfuric acid | kg | 4.91E+00 |
| Sodium hydroxide | kg | 2.36E+01 |
| Ammonia | kg | 1.50E-01 |
| Oxalic acid | kg | 3.73E-01 |
| Ammonium bicarbonate | kg | 4.79E+00 |
| Sodium sulfide | kg | 2.45E-01 |
| Extracting agent | kg | 5.54E-02 |
| Calcium oxide | kg | 3.68E+00 |
| **Output** |
| Atmospheric Pollutant |
| SO2 | g | 7.09E+01 |
| Dust | g | 2.27E+01 |
| Nitrogen oxides | g | 3.00E+01 |
| Ammonia | g | 3.77E-01 |
| Sulfuric acid mist | g | 3.37E+00 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 7.86E+00 |
| Suspended solids | g | 2.55E+00 |
| Biological Oxygen Demand (BOD) | g | 1.11E-01 |
| Ammonia nitrogen | g | 5.57E-02 |
| Production |
| Cobalt sulfate | kg | 2.75E+00 |

***S6. NCM battery Lithium carbonate***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Steam | kg | 1.09E+01 |
| Hard coal | kg | 3.77E+00 |
| Materials |
| sulfuric acid | kg | 3.50E+00 |
| Sulfur acid | kg | 1.40E+00 |
| Lime Stone | kg | 1.31E+00 |
| Sodium hydroxide | kg | 3.56E-01 |
| Sodium Carbonate | kg | 3.56E+00 |
| Ultrapure water | kg | 3.13E+00 |
| **Output** |
| Atmospheric Pollutant |
| SO2 | g | 1.41E+01 |
| CO2 | g | 5.56E+02 |
| Dust | g | 2.20E+00 |
| Nitrogen oxides | g | 7.86E+00 |
| Sulfuric acid mist | g | 2.24E-02 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 2.83E-02 |
| Suspended solids | g | 2.83E-02 |
| Production |
| Lithium carbonate | kg | 1.77E+00 |

***S7. NCM battery anode material***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 2.74E+01 |
| Natural gas | kg | 4.50E-02 |
| Materials |
| Natural Graphite | kg | 2.25E+00 |
| Water | kg | 1.74E+00 |
| Asphalt | kg | 2.51E-01 |
| **Output** |
| Atmospheric Pollutant |
| non-methane hydrocarbons | g | 1.69E+00 |
| Dust | g | 9.94E-01 |
| Benzo[a]pyrene | g | 3.36E-06 |
| soot | g | 3.98E-01 |
| Production |
| Anode material | Kg | 2.37E+00 |

***S8. NCM battery Electrolyte***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 3.01E+01 |
| Natural gas | kg | 1.71E-01 |
| Steam | kg | 1.25E+01 |
| Materials |
| Pure water | kg | 7.30E-01 |
| nitrogen | kg | 5.32E-01 |
| Sodium hydroxide | kg | 7.71E-02 |
| Water | kg | 1.35E+00 |
| **Output** |
| Atmospheric Pollutant |
| SO2 | g | 7.84E+01 |
| CO2 | g | 9.20E+02 |
| Dust | g | 5.40E-02 |
| Fluoride | g | 9.61E-03 |
| Hydrogen fluoride | g | 8.08E-02 |
| Hydrogen chloride | g | 2.11E-01 |
| Volatile Organic Compounds (VOC) | g | 3.70E-01 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 1.42E-01 |
| Fluoride | g | 4.70E-03 |
| Suspended solids | g | 1.36E-01 |
| Ammonia nitrogen | g | 1.38E-02 |
| Production |
| Electrolyte | kg | 2.05E+00 |

***S9. NCM battery separator***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Steam | kg | 1.09E+01 |
| Materials |
| Polypropylene | kg | 2.17E-01 |
| Polyethylene | kg | 1.09E-05 |
| Aluminum oxide | kg | 4.33E-01 |
| Carboxymethylcellulose sodium | kg | 4.35E-06 |
| Aqueous acrylic acid | kg | 5.41E-02 |
| water | kg | 5.57E-01 |
| **Output** |
| Atmospheric Pollutant |
| Volatile Organic Compounds (VOC) | g | 1.08E-01 |
| Dust | g | 2.06E-02 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 6.68E-03 |
| Suspended solids | g | 1.45E-02 |
| Production |
| Lithium carbonate | m2 | 3.25E+01 |

***S10. NCM battery copper foil***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 1.40E+01 |
| Natural gas | kg | 3.12E-04 |
| Materials |
| Copper | kg | 1.13E+01 |
| Concentrated sulfuric acid | kg | 1.83E-02 |
| hydrochloric acid | kg | 1.57E-04 |
| Tartaric Acid | kg | 1.52E-03 |
| Active carbon | kg | 3.78E-04 |
| Cobalt Sulphate Hexahydrate | kg | 7.56E-04 |
| Zinc Sulphate Heptahydrate | kg | 7.64E-04 |
| Carboxyethyl cellulose | kg | 1.51E-04 |
| 3-Carboxy-1-propanesulfonate | kg | 7.54E-05 |
| Water | kg | 1.26E+01 |
| **Output** |
| Atmospheric Pollutant |
| Sulfuric acid mist | g | 8.54E-01 |
| Volatile Organic Compounds (VOC) | g | 1.20E-01 |
| Water pollutants |
| Copper | g | 4.23E-04 |
| Cobalt | g | 5.59E-05 |
| Production |
| Copper foil | kg | 1.13E+00 |

***S11. NCM battery aluminum foil***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Materials |
| Electrolytic aluminum | kg | 6.18E-01 |
| Water | kg | 1.33E+00 |
| Diatomite | kg | 1.92E+00 |
| Rolling Oil | kg | 6.08E+00 |
| **Output** |
| Atmospheric Pollutant |
| non-methane hydrocarbons | g | 1.53E+00 |
| chemical oxygen demand(COD) | g | 2.31E-02 |
| Water pollutants |
| Suspended solids | g | 4.63E-04 |
| Ammonia nitrogen | g | 4.62E-04 |
| Production |
| aluminum foil | kg | 4.67E-01 |

***S12. NCM battery Shell***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 2.35E+00 |
| Materials |
| stretching oil | kg | 1.88E-01 |
| Water | kg | 1.03E-02 |
| Aluminum | kg | 4.70E-01 |
| **Output** |
| Production |
| Shell | P | 6.27E+00 |

**1.2 LFP batteries**

***S13. LFP battery cathode material***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Materials |
| Iron Phosphate | kg | 2.41E+00 |
| Water | kg | 5.78E-01 |
| Lithium carbonate | kg | 6.02E-01 |
| Glucose | kg | 2.41E-01 |
| Nitrogen | kg | 2.42E-02 |
| **Output** |
| Atmospheric Pollutant |
| CO2 | g | 4.12E+00 |
| Dust | g | 2.31E-01 |
| Water pollutants |
| Suspended solids | g | 1.64E-02 |
| phosphorus | g | 1.20E-04 |
| Production |
| cathode material | kg | 2.41E+00 |

***S14. LFP battery Iron Phosphate***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kwh | 8.43E+00 |
| Steam | kg | 1.93E+01 |
| Materials |
| Iron powder | kg | 8.99E-01 |
| Sulfur acid | kg | 1.62E+00 |
| Phosphoric acid | kg | 1.84E+00 |
| Ammonia | kg | 4.26E+00 |
| Hydrogen peroxide | kg | 9.04E-01 |
| Desalted water | kg | 2.05E+01 |
| **Output** |
| Atmospheric Pollutant |
| Ammonia | g | 2.22E+00 |
| Dust | g | 7.93E-01 |
| Sulfuric acid mist | g | 4.89E-01 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 2.22E-00 |
| Biological Oxygen Demand (BOD) | g | 2.23E-01 |
| Ammonia nitrogen | g | 3.13E-03 |
| Suspended solids | g | 8.87E-02 |
| Production |
| Iron Phosphate | kg | 2.41E+00 |

***S15. LFP battery Lithium carbonate***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Steam | kg | 3.71E+00 |
| Hard coal | kg | 1.28E+00 |
| Materials |
| sulfuric acid | kg | 1.19E+00 |
| Sulfur acid | kg | 4.76E-01 |
| Lime Stone | kg | 4.46E-01 |
| Sodium hydroxide | kg | 1.21E-01 |
| Sodium Carbonate | kg | 1.12E+00 |
| Ultrapure water | kg | 1.07E+00 |
| **Output** |
| Atmospheric Pollutant |
| SO2 | g | 4.80E+00 |
| CO2 | g | 1.89E+02 |
| Dust | g | 7.49E-01 |
| Sulfuric acid mist | g | 7.68E-03 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 9.63E-03 |
| Suspended solids | g | 9.36E-01 |
| Production |
| Lithium carbonate | kg | 6.02E-01 |

***S16. LFP battery anode material***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 9.36E-01 |
| Natural gas | kg | 1..99E-02 |
| Materials |
| Natural Graphite | kg | 9.94E-01 |
| Water | kg | 7.68E-01 |
| Asphalt | kg | 1.11E-01 |
| **Output** |
| Atmospheric Pollutant |
| non-methane hydrocarbons | g | 7.46E-01 |
| Dust | g | 4.39E-01 |
| Benzo[a]pyrene | g | 1.48E-06 |
| soot | g | 1.76E-01 |
| Production |
| Anode material | Kg | 1.05E+00 |

***S17.*** ***LFP battery Electrolyte***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 2.76E+00 |
| Natural gas | kg | 1.57E-01 |
| Steam | kg | 1.15E+01 |
| Materials |
| Pure water | kg | 6.70E-01 |
| nitrogen | kg | 4.89E-01 |
| Sodium hydroxide | kg | 7.08E-02 |
| Water | kg | 1.24E+00 |
| **Output** |
| Atmospheric Pollutant |
| CO2 | g | 8.45E+02 |
| Dust | g | 4.96E-02 |
| Fluoride | g | 8.82E-03 |
| Hydrogen fluoride | g | 7.42E-02 |
| Hydrogen chloride | g | 1.94E-01 |
| Volatile Organic Compounds (VOC) | g | 3.40E-01 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 1.30E-01 |
| Fluoride | g | 4.32E-03 |
| Suspended solids | g | 1.25E-01 |
| Ammonia nitrogen | g | 1.27E-02 |
| Production |
| Electrolyte | kg | 1.88E+00 |

***S18. LFP battery separator***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 4.22E+00 |
| Materials |
| Polypropylene | kg | 1.88E-01 |
| Polyethylene | kg | 9.44E-05 |
| Aluminum oxide | kg | 3.75E-01 |
| Carboxymethylcellulose sodium | kg | 3.75E-06 |
| Aqueous acrylic acid | kg | 4.69E-02 |
| water | kg | 4.83E-01 |
| **Output** |
| Atmospheric Pollutant |
| Volatile Organic Compounds (VOC) | g | 9.36E-01 |
| Dust | g | 1.78E-02 |
| Water pollutants |
| Chemical Oxygen Demand (COD) | g | 5.76E-03 |
| Production |
| batteryseparator | m2 | 2.82E+01 |

***S19. LFP battery copper foil***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 1.12E+01 |
| Natural gas | kg | 2.49E-04 |
| Materials |
| Copper | kg | 9.04E-01 |
| Concentrated sulfuric acid | kg | 1.46E-02 |
| hydrochloric acid | kg | 1.21E-04 |
| Tartaric Acid | kg | 1.02E-04 |
| Active carbon | kg | 3.02E-04 |
| Cobalt Sulphate Hexahydrate | kg | 6.04E-04 |
| Zinc Sulphate Heptahydrate | kg | 6.04E-04 |
| Carboxyethyl cellulose | kg | 1.21E-04 |
| 3-Carboxy-1-propanesulfonate | kg | 6.04E-05 |
| Water | kg | 1.01E+01 |
| **Output** |
| Atmospheric Pollutant |
| Sulfuric acid mist | g | 6.38E-01 |
| Water pollutants |
| Copper | g | 3.38E-04 |
| Cobalt | g | 4.47E-05 |
| Production |
| Copper foil | kg | 9.04E-01 |

***S20. LFP battery aluminum foil***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Materials |
| Electrolytic aluminum | kg | 7.97E-01 |
| Water | kg | 1.72E+00 |
| Diatomite | kg | 2.48E+00 |
| Rolling Oil | kg | 7.84E+00 |
| **Output** |
| Atmospheric Pollutant |
| non-methane hydrocarbons | g | 1.79E+00 |
| chemical oxygen demand(COD) | g | 2.98E-02 |
| Water pollutants |
| Suspended solids | g | 5.93E-04 |
| Ammonia nitrogen | g | 5.86E-04 |
| Production |
| aluminum foil | kg | 6.02E-01 |

***S21. LFP battery Shell foil***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 6.58E-01 |
| Materials |
| stretching oil | kg | 5.26E-02 |
| Water | kg | 2.88E-03 |
| Aluminum | kg | 1.32E-01 |
| **Output** |
| Production |
| Shell | p | 1.75E+00 |

**1.3**  **the NCM and LFP batteries assembly phase**

***S22. NCM batteries assembly phase***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 7.05E-02 |
| Materials |
| Battery cell | P | 6.27E+00 |
| Battery management systems | P | 1.57E-02 |
| Water | kg | 1.96E-01 |
| shell | P | 3.13E-2 |
| **Output** |
| Production |
| NCM Battery | P | 1.57E-02 |

***S23. LFP batteries assembly phase***

|  |  |  |
| --- | --- | --- |
| **parameter name** | **unit** | **quantity** |
| **Input** |
| Energy and Power |
| Electricity | kWh | 3.75E-02 |
| Materials |
| Battery cell | kg | 1.75E+00 |
| Battery management systems | kg | 1.75E-02 |
| Water | kg | 1.05E-01 |
| shell | P | 1.75E-02 |
| **Output** |
| Production |
| LFP Battery  | P | 1.57E-02 |

1. **Parameters and Units**

**2.1** **ReCiPe 2016 Midpoint Method Assessment Indicators**

The parameters of the ReCiPe 2016 midpoint method assessment indicators in this study are shown in Table S24.

***S24. The parameters and units of the ReCiPe 2016 midpoint method***

|  |  |
| --- | --- |
| **Name of the impact category** | **Unit of Measurement** |
| Global warming | kg CO2 eq |
| Stratospheric ozone depletion | kg CFC-11 eq |
| Ozone formation, human health | kg NOx eq |
| Fine particulate matter formation | kg PM2.5 eq |
| Ozone formation, terrestrial ecosystems | kg NOx eq |
| Terrestrial acidification | kg SO2 eq |
| Freshwater eutrophication | kg P eq |
| Ionizing radiation | kBq Co-60 eq |
| Marine eutrophication | kg N eq |
| Land use | m2a crop eq |
| Freshwater ecotoxicity | kg 1,4-DCB eq |
| Human carcinogenic toxicity | kg 1,4-DCB eq |
| Mineral resource scarcity | kg Cu eq |
| Human non-carcinogenic toxicity | kg 1,4-DCB eq |
| Terrestrial ecotoxicity | kg 1,4-DCB eq |
| Marine ecotoxicity | kg 1,4-DCB eq |
| Water consumption | m3 |
| Fossil resource scarcity | kg oil eq |

**2.2 Background parameters of NCM and LFP battery life cycle models**

***S25. parameters of NCM and LFP battery***

|  |  |  |  |
| --- | --- | --- | --- |
| parameter name | unit | NCM | LFP |
| Vehicle mass | Kg | 2021 | 2380 |
| Battery mass | Kg | 531 | 600 |
| Electricity consumption per hundred kilometers | kWh/100km | 19.94 | 19.5 |
| Recharge mileage | Km | 320 | 300 |
| Battery capacity | kWh | 63.8 | 57 |
| Total mileage | Km | 200000 | 200000 |
| Battery charge and discharge efficiency | % | 95 | 90 |
| Mass energy density  | Wh/kg | 120.00 | 95.00 |