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Chemistry, storage and what's next: The evolving state of battery materials

London Metal Exchange

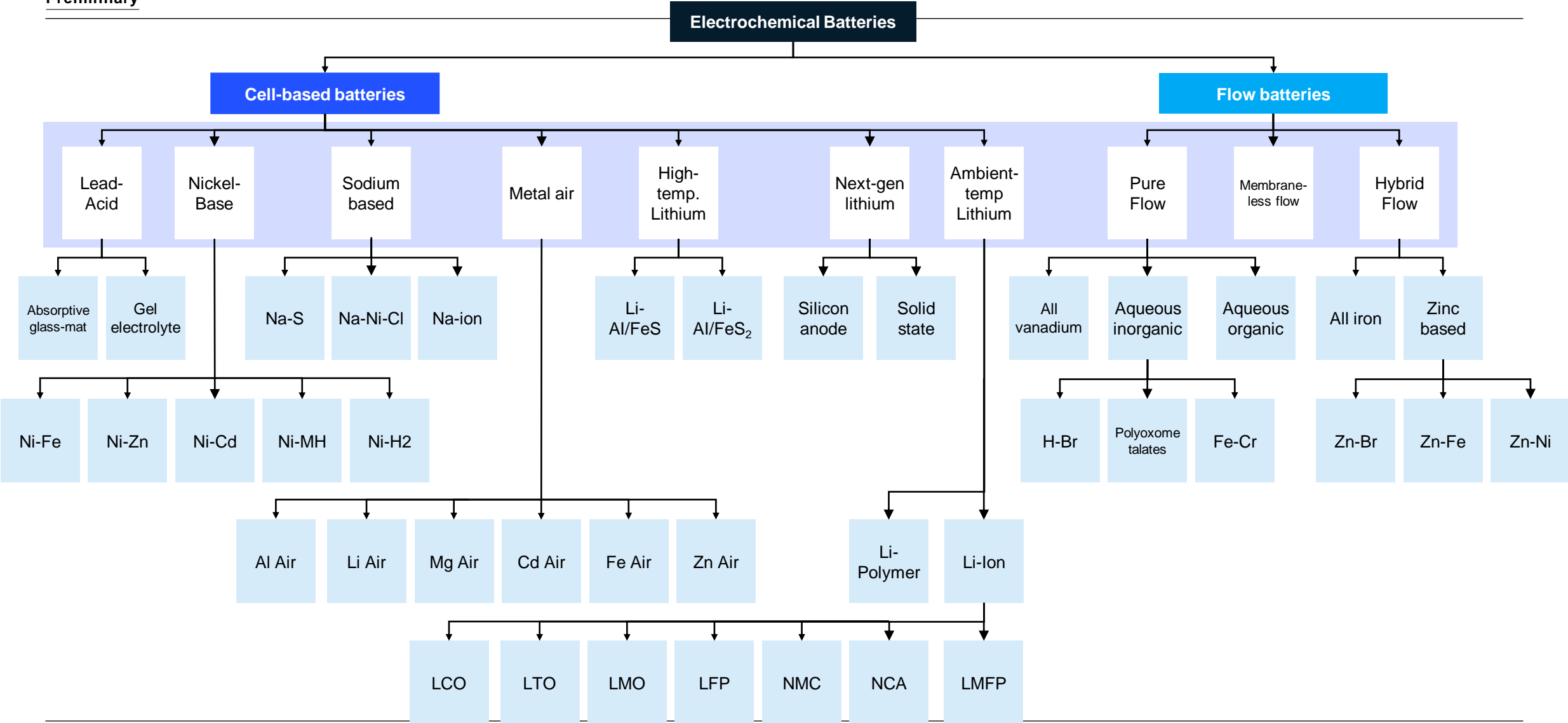
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The type of potential solutions to the world's battery needs is vast and changing every day, especially for the ESS Space

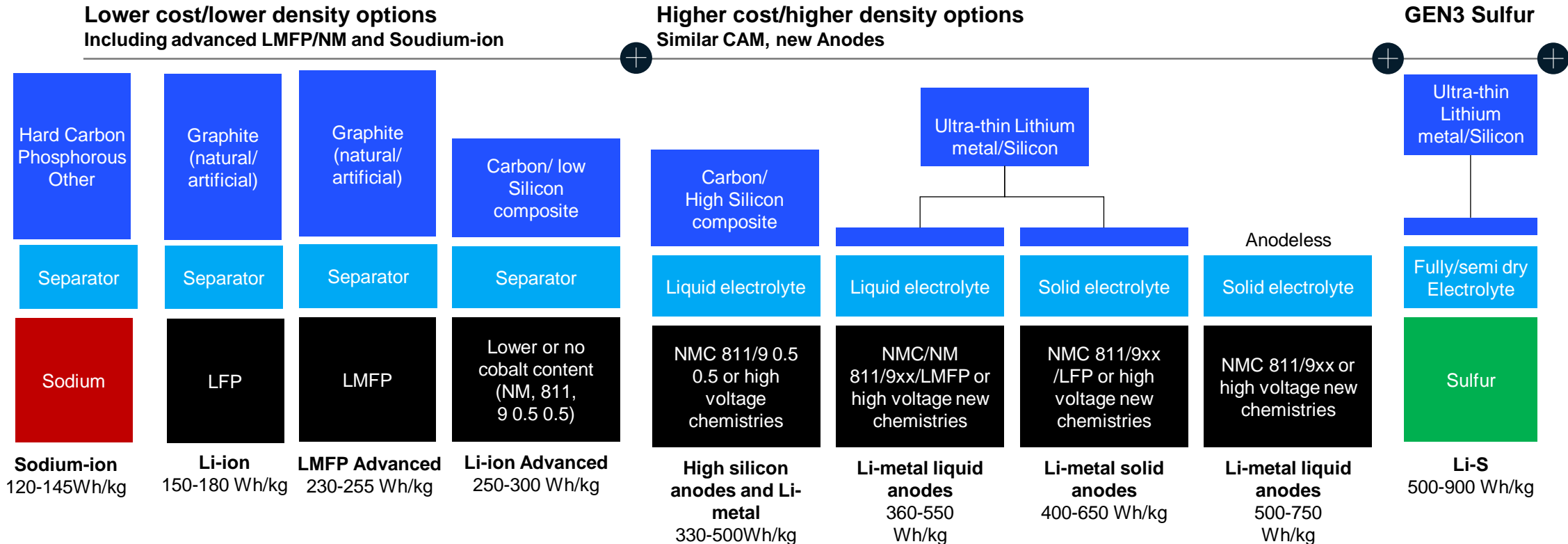
Preliminary



We see battery chemistry evolving continuously and not in a straight line—manganese could be the next major metal

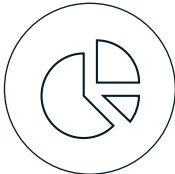
Understand cathode AND anode material qualities and implications

■ Anode ■ Separator/Electrolyte ■ Cathode



1. Very early stage reflexion
2. Based on 7-year contracts in average, last known supply order signed with Volkswagen in March 2021

5 questions to think about when building my battery raw materials value chain



What is my technology roadmap, how often do I update



What materials must I secure, what are less critical



Should I partner, JV, just secure long term supply contracts



How do new regulations impact raw material demands on costs and supplies



How do I build the entirety of the value chain and who do I need to run it