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Tesla's Battery Supply Chain: A Growing Concern

As her last meeting of the day ended, Teresa Maddux[i] closed her computer and looked out her office window as the October sun dipped over Tesla's Palo Alto campus and the San Francisco Bay. Since 2018, Tesla had experienced tremendous growth in sales. Earlier in 2021, Tesla announced the delivery of its two millionth electric vehicle (EV), and Tesla vehicles comprised almost 40% of all EVs on the road globally. Momentum and excitement continued to build even as the company's heavy investment in manufacturing capacity strained to meet overwhelming demand.

As Tesla's global vice president for supply chain sustainability, Maddux had just finished leading another working session with her team on how to deal with the lifecycle end for the lithium-ion batteries (LIBs) that powered Tesla vehicles. Tesla battery packs contained significant amounts of toxic and rare earth metals, including lithium, cobalt, manganese, and nickel, and therefore posed a serious environmental risk if improperly disposed of. Furthermore, since LIBs relied on some conflict minerals, production of the batteries represented a growing human rights concern. A large percentage of the global cobalt supply was extracted from the Democratic Republic of Congo and directly linked to funding ongoing civil conflict in the region, while lithium production was concentrated in South America and recently indirectly linked to the 2019 Bolivian coup.[1] There were growing calls from global nongovernmental organizations (NGOs) for all manufacturers of EVs to address the conflict mineral issue in their supply chains, and recovery of those minerals from decommissioned batteries potentially represented a powerful tool in that effort.

In its 2020 impact report, Tesla said, "None of our scrapped lithium-ion batteries go to landfills and 100 percent are recycled."[2] Maddux knew this statement was more for generating positive sentiment for the company than a concrete plan to address the expected increase of LIB recycling. As environmental, social, and governance (ESG) reporting gained momentum and scrutiny, Tesla wished to remain a leader in advancing the sustainable enterprise model. Unfortunately, global recycling capacity for LIBs was in its infancy. Since large-scale production of Tesla vehicles only started in 2013, most vehicles remained on the

[i] Teresa Maddux is a fictional character.

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