

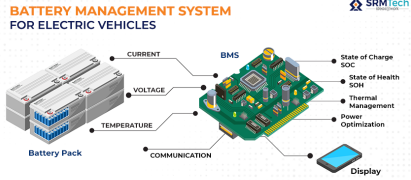
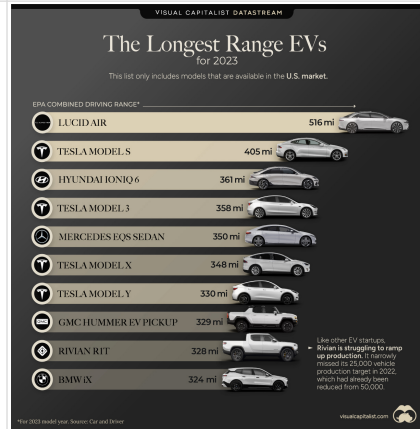



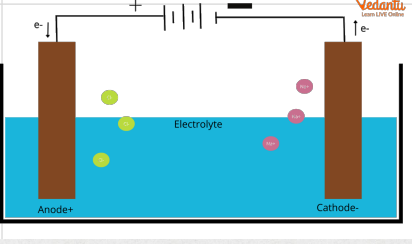
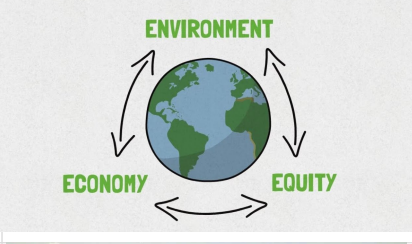

# UNIT 4: EV Production & Battery Development



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## --- VOCABULARY

Term	Description	Image																						
<b>Electric Vehicle</b>	A vehicle that uses an electric drivetrain and battery as its primary source of power instead of an internal combustion engine.																							
<b>Lithium-Ion Battery</b>	The most common type of battery used in electric vehicles, known for its high energy density and rechargeable properties using lithium ions to store and release energy.																							
<b>Battery Management System</b>	A system that monitors and manages a battery's performance, ensuring safety, efficiency, and longevity by regulating temperature, voltage, and charging cycles.	 <p><b>BATTERY MANAGEMENT SYSTEM FOR ELECTRIC VEHICLES</b> <span style="float: right;">SRMTech</span></p>																						
<b>Range</b>	The total distance an electric vehicle can travel on a single charge, typically measured in miles or kilometers, and influenced by factors such as battery capacity and driving conditions.	 <p><b>Visual Capitalist Datastream</b></p> <p><b>The Longest Range EVs for 2023</b></p> <p>This list only includes models that are available in the U.S. market.</p> <table border="1"> <thead> <tr> <th>Vehicle</th> <th>EPA Combined Driving Range*</th> </tr> </thead> <tbody> <tr> <td>Lucid Air</td> <td>516 mi</td> </tr> <tr> <td>Tesla Model S</td> <td>405 mi</td> </tr> <tr> <td>Hyundai Ioniq 6</td> <td>361 mi</td> </tr> <tr> <td>Tesla Model 3</td> <td>358 mi</td> </tr> <tr> <td>Mercedes EQS Sedan</td> <td>350 mi</td> </tr> <tr> <td>Tesla Model X</td> <td>348 mi</td> </tr> <tr> <td>Tesla Model Y</td> <td>330 mi</td> </tr> <tr> <td>GMC Hummer EV Pickup</td> <td>329 mi</td> </tr> <tr> <td>Rivian R1T</td> <td>328 mi</td> </tr> <tr> <td>BMW iX</td> <td>324 mi</td> </tr> </tbody> </table> <p><small>*EPA 2023 model year. Source: EPA and Drive.</small></p> <p><small>Like other EV startups, Rivian is struggling to ramp up production. It formerly targeted 20,000 vehicles production target in 2022, which has since been reduced from 50,000.</small></p> <p><small>visualcapitalist.com</small></p>	Vehicle	EPA Combined Driving Range*	Lucid Air	516 mi	Tesla Model S	405 mi	Hyundai Ioniq 6	361 mi	Tesla Model 3	358 mi	Mercedes EQS Sedan	350 mi	Tesla Model X	348 mi	Tesla Model Y	330 mi	GMC Hummer EV Pickup	329 mi	Rivian R1T	328 mi	BMW iX	324 mi
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<p><b>Charging Infrastructure</b></p>	<p>The network of charging stations and equipment necessary to recharge electric vehicles, including home chargers, public charging stations, and fast chargers.</p>	
<p><b>Anode and Cathode</b></p>	<p>The two electrodes in a battery where the electrochemical reactions occur. The anode releases electrons during discharge, while the cathode accepts them, facilitating the flow of electric current.</p>	
<p><b>Sustainability</b></p>	<p>The focus on creating environmentally friendly and resource-efficient practices in electric vehicle production and battery development, including the use of renewable materials and recycling.</p>	
<p><b>Gigafactory</b></p>	<p>A large-scale manufacturing facility specifically designed for the mass production of electric vehicles and batteries. Tesla popularized the term with their battery factories.</p>	
<p><b>Solid-State Battery</b></p>	<p>An emerging type of battery technology that uses a solid electrolyte instead of a liquid one, potentially offering higher energy density, faster charging, and improved safety compared to conventional lithium-ion batteries.</p>	<p><b>Solid-State Lithium-Metal Batteries</b></p> 