



## EV CARBON LIFE CYCLE.

An electric vehicle's (EV) carbon life cycle is the sum of all greenhouse gas emissions from the vehicle's manufacturing, use, and disposal. It accounts for the emissions produced at different points in an EV's lifespan, such as during manufacture, electricity production for charging, and end-of-life procedures. Here is a summary of an EV's carbon life cycle:

### 1. MANUFACTURING:

- **RAW MATERIALS:** The extraction, processing, and transportation of materials used in EV production, which include lithium, cobalt, and uncommon earth metals, can generate carbon emissions.
- **VEHICLE ASSEMBLY:** The production technique itself, which includes the meeting of additives and the construction of the vehicle, produces carbon emissions.

### 2. BATTERY PRODUCTION:

- **BATTERY MANUFACTURING:** The manufacturing of lithium-ion batteries, which is a key issue of EVs, entails electricity-in-depth methods that emit carbon emissions. This consists of the extraction and processing of raw materials, battery cell production, and assembly.

### 3. VEHICLE OPERATION:

- **CHARGING:** The carbon emissions associated with EV operation depend on the source of energy used for charging. Charging from renewable energy sources, consisting of solar or wind, has lower emissions as compared to electricity generated from fossil fuels.
- **POWER GENERATION:** If the electricity used for charging comes from fossil fuel-based energy plants, there are emissions related to the combustion of fossil fuels to generate electricity.

### 4. MAINTENANCE AND UPKEEP:

- **TIRE WEAR AND BRAKE MAINTENANCE:** EVs, like every other vehicle, require tire substitute and brake maintenance, which have associated carbon emissions because of the production and disposal processes of these additives.

### 5. END-OF-LIFE:

- **DISPOSAL:** When an EV reaches the end of its existence, the proper disposal and recycling of its components is critical to minimize environmental effects. The recycling method might also contain strength consumption and emissions.

It is crucial to remember that, despite an EV's production phase often having higher emissions than that of conventional vehicles, the operational phase frequently has lower emissions because of the possibility of employing renewable electricity sources and more effective energy use. The operational emissions of EVs can also go down as the electricity grid grows cleaner over time by incorporating renewable energy.

Efforts are being undertaken to enhance manufacturing procedures, increase the use of recycled components, create more environmentally friendly battery technologies, and switch to renewable energy sources to produce electricity to lessen the carbon life cycle impact of EVs.



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Overall, the carbon life cycle of an EV is influenced by elements like the carbon intensity of the electricity grid, the kind of battery used, vehicle efficiency, and sustainable manufacturing techniques. Constant technological advancements and the adoption of renewable energy will further reduce the carbon footprint of EVs throughout their life cycle.

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