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Meet Biographite: EV battery component made from wood chips

Adoption of this technology could help reduce the carbon footprint of each EV battery by 30 percent, claims the manufacturer.



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INNOVATION



Waste from timber industry could help power electric vehicles in the future
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New Zealand-based company [CarbonScape](#) has developed graphite using wood chips, the by-product of the forestry and timber industry. The approach can help mitigate risks in the supply chain of graphite, an important component of electric vehicle (EV) batteries.

The world is banking on battery-powered EVs to transition from fossil-fuel-powered transportation to electric ones. Still, crucial components of the EV battery, such as [lithium and graphite](#), are derived using fossil fuels. A higher demand for these components will result in higher usage of fossil fuels in the future, which is counterintuitive to the net-zero goals.

Founded in 2006, CarbonScape only began to look into alternative methods to source graphite in 2016 and has now patented its technology to make what it calls "sustainable biographite."

Why make sustainable graphite?

Graphite is the most significant component of lithium-ion batteries by weight and accounts for half of the weight of the battery. Currently, there are two methods to source graphite: natural or synthetic.

Naturally sourced graphite is mined, which is an energy-intensive process and is highly dependent on the location of graphite deposits. Synthetic graphite, on the other hand, is made from petroleum products, which leads to more [usage of fossil fuels](#).

In both these approaches, the graphite also needs to be transported to locations where EV batteries are being manufactured, adding to more emissions in the manufacturing process. CarbonScape claims that graphite production is one of the largest carbon emitters in the battery supply chain and changing one component alone could lead to a 30 percent reduction in the carbon footprint of each battery.



Image from CarbonScape's pilot production facility
[CarbonScape](#)

Where can sustainable graphite be made?

Details of the process of making biographite are under wraps but Carbonscape states that its process is carbon-negative and saves 30 tonnes of CO2 emissions per tonne of material compared to synthetic or mined graphite. The process uses wood chips and sawdust, which are by-products of the forestry and timber industry in Europe and North America.

A switch to biographite could help the EV battery business avoid 86 million tonnes of CO2 annually by 2030. The development also comes at a time when countries looking to make an electric transition are keen on alternatives for graphite sourcing. Currently, China is the major producer of graphite, and geopolitical tensions can quickly derail the supply chain for renewables.

Additionally, even for its production prowess, China is expected to fall short of the graphite demand by the end of this decade. By 2030, graphite is expected to see a global supply deficit of 777,000 tonnes, [Reuters reported](#).

CarbonScape is confident that its approach can be used to manufacture graphite at centers closer to battery manufacturing. Not only will this reduce emissions from transportation, but it can also mitigate supply chain risks, allowing graphite production to happen in the West.

Finnish-Swedish forestry firm Stora Ensa is one of the many companies that have invested in CarbonScape as it looks to move toward commercial production of graphite in the U.S. and Europe. By using a mere five percent of forestry waste every year, CarbonScape is confident of meeting half the projected demand for graphite at the end of the decade in the region, the *Reuters* report added.