From trash to treasure

How the auto industry is upcycling landfill items into car parts

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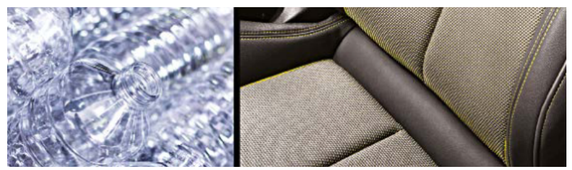
Car headlights made from waste coffee beans. Thrown away plastic bottles that become car seat. What next? If there is one thing that can be said about humanity, it is that we love to create a mess in the most literal sense. On average we create 1.3 billion tons every year, and most of it is just simply thrown away. Automakers are stepping up to do their bit by turning waste into shiny new parts.

Coffee chaff headlight cover

MacDonald's, being one of the largest fast-food chains in the world, creates a lot of food waste. For example, it produces around 30 thousand tons of coffee chaff — the husk of coffee beans that peels off during roasting — every year. Previously, all that chaff used to end up in a landfill and later burned, contributing to the global CO2 emission. Enter the Ford Motor Company. Since 2019, the blue oval entered a partnership with the golden clown to have all that waste transferred into their factory. There, they use the chaff as one of the components to build high-temperature plastic items, such as headlight cover. The resulting products are 20% lighter compared to normal plastic and take 25% less energy to build. It is still plastic though, meaning you can't just crush down your Ranger's headlamps to have a good old cup of joe.



Plastic bottle seat upholstery

If you are even slightly concerned with climate change, the monumental problem of plastic waste should not be news to you. We produce around 300 million tons of plastic waste every year, about half of when are single used plastic items such as PET bottles. Such bottles are single-use by design and most are simply thrown away instead of being recycled. This is where car manufacturers come in. Audi has begun programs to collect these bottles and turn them into seat materials. They shred these bottles into tiny little strips, melt them into a liquid paste, and then turn that paste into a spool of yarn. The said yarn is later woven into fabrics to decorate the interior of a brand-new Audi A3. Hip new petrolheads would consider this earth friendly label to be a plus point.

Cloth sound-deadening panels

Let's face it, we all update our wardrobe every now and then. When we do, we discard our old clothes by either giving them away or just throwing them into the trash. Nissan found another use for them. Their budget-friendly EV the Leaf uses sound-deadening panels made from worn away cloths. Nissan does this be shredding all these clothes to their raw fiber then compressing them into sheets. Nissan recycles almost 300 tons of clothing every month, reducing the need to make certain car parts from brand new materials.

Iceland moss cabin air filter

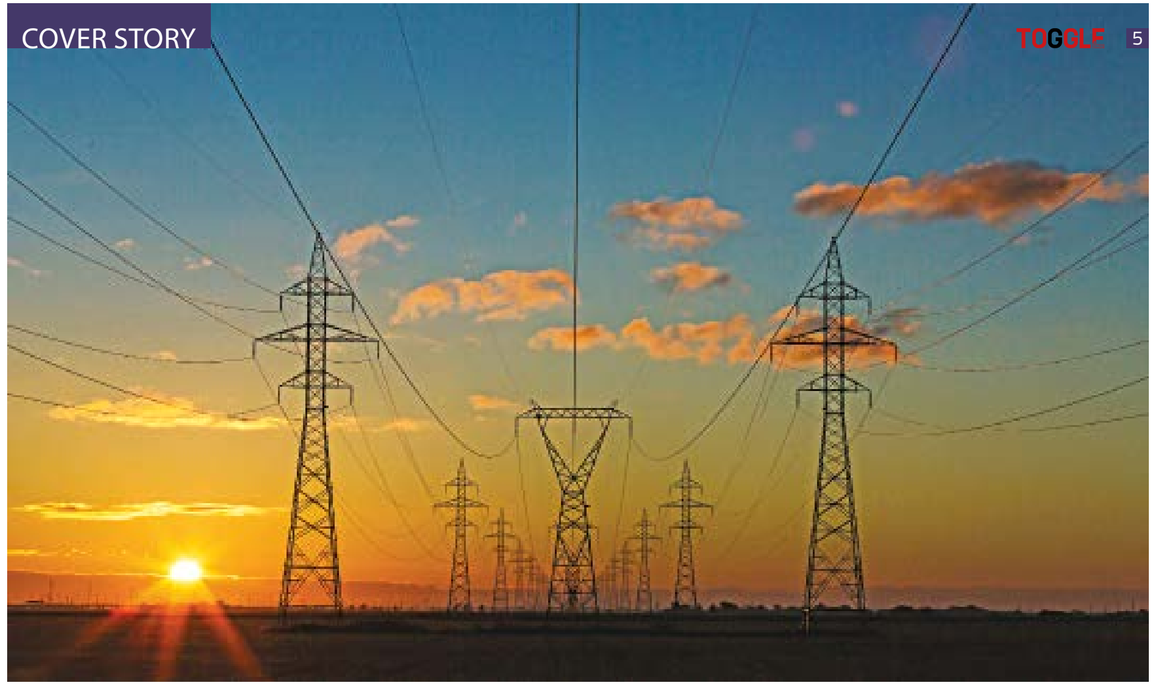
The cabin air filter is the component that prevents dust and other harmful particles from entering your vehicles. Generally, they are made out of paper, which is made comes from trees. But the innovative German EV start-up Sono Motors decided to get rid of the middleman plant trees right inside of your dashboard. Their Iceland moss acts as both a natural air filter by binding dust particles from the air and acting as de facto air-cooler as it draws water from the air, effectively regulating humidity and maintaining a comfortable cabin environment. It should be noted that unlike normal air filters they can't be cleaned and have to be replaced after some time, though their biodegradability makes recycling much easier.

MITSUBISHI MOTORS

NOW YOU KNOW

Plug-in hybrids – the bridge toward a greener earth

As the word's effort against climate change ever grows stronger, so does its effort to reduce vehicle carbon emission. While pure electric vehicles are a step toward the right direction, their high price and long charging times limit their usability. A hybrid system, however, combines the best of both worlds. Vehicles such as the **Mitsubishi Outlander PHEV** have a carbon emission of just 46g/km, which is four times lower than its non-hybrid variant. Moreover, a PHEV can either recharge from home or fill up its tank form a fuel station. Making it both versatile and friendlier toward the environment.



Big tech's big shift to renewable energy

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The tech industry has been making a big shift to using renewable energy in their offices and operational spaces in the past few decades. In 2019, the tech giants were the biggest corporate buyers of renewable energy. The hunger for efficient expansion of the tech giants has led to triple the amount of energy being produced by companies who are developing renewable energy. According to an economic forecast publication, global corporations have managed to buy enough clean energy in the last 12 years that will surpass the total energy production capacities of small countries like Poland or Vietnam. This has allowed these companies to expand our world of digital cloud-based services without murdering the chances of survival of our planet. However, the reason probably does not have as much to do with caring about greener earth, as it does with big tech's long-term survival in the market. Let us look at why and how the big tech is making its big shift to renewable energy.

Powering data centres

Amazon, Facebook, Google & Microsoft have become the biggest buyers because they use this energy to power their data centres. The data centres serve as the operational headquarters of the tech industry, housing data analytics, and storage machines that require the use of massive amounts of light energy and electrical energy. They also need large coolers that keep the temperature stable, a source of emission of the harmful gas. These data centres were estimated to become the largest users of non-renewable energy by 2025, according to a forecast of consumption of power by a Swedish researcher, speeding up the process of reaching the extremity of fossil fuel. This prediction has now changed since the big tech started using renewable energy sources for their data centres. If the big tech companies did not change this practice of using non-renewable sources, their companies would face the problem of running out of enough sources to buy energy from after a few decades. Since most of their plans are based on long term longevity, it only made sense for the companies to make this shift in due time before it was too late. It takes time to establish green action plans, and if the pioneers of the tech industry waited until energy sources became scarce, it would be way more costly for them to make the shift later on. By entering the green energy market early, they have avoided the heavy cost they may have incurred that would threaten the expansion of their data centres, the very foundation of their services. Since the data centres are also considered to be a premium consumer of energy, and it has managed to survive functionally with renewable sources, this is working as a motivation for other smaller businesses and companies who were doubtful of renewable sources being efficient enough to sustain their business functionality.

Cheaper and localized sources

Going green has allowed them to use localized sources for energy, a source that manages to be both time-efficient and cheap. It's time-efficient because if you rely on localized sources, you will have quicker access to your source. It's cheaper because they can cut down on the costs of shipment. Google uses seawater from the Gulf of Finland for cooling its server in Hamina, Finland. This system uses no compressors or refrigerants for cooling, which are considered to be one of the primary contributors to harmful factors of the data centre system that threaten our climate. This system of using raw seawater has saved Google millions of dollars in shipment, maintenance, and energy source cost of cooling systems. Cooling systems are a non-negotiable part of data centres because they are vital to maintaining the temperature of the devices that are processing and storing data at a very high frequency.

Change in server system: The green cloud

The tech companies that rely on the server system for the services have built the cloud system for that purpose. Google, Amazon & Facebook routinely lend their cloud services to other companies so that they can store their data in these cloud systems. This means that instead of relying on big black boxes that had previously stored all the information about the vendors of a food delivery business, the business will now rely on the existing cloud systems of the big tech by purchasing a portion of their servers. This trend has reduced the energy consumption of many businesses, as they do not rely on in-house servers that continuously consumed energy for maintenance and outsource the job to big tech in many cases. The demand for cloud services has allowed the big tech to expand their businesses with renewables and claim energy efficiency by creating the "Green Cloud", as they help reduce overall energy consumption in the net calculation of businesses across the world.