

Students' Round Table – 3rd Edition

A presentation on

GREEN TECHNOLOGY (ELECTRIC VEHICLES)

By

Maduagwu Ifeanyi Damian

Date: 24.04.2023

WHY GREEN TECHNOLOGY IS NECESSARY

Green technologies essentially reduces the risks posed to our environment and in conserving natural resources.

Green technology ensures that **clean, renewable** energy sources are used to prevent the other non-renewable sources from being fully depleted.

The use of green technologies combat global warming by reducing greenhouse gas emissions through alternative sources of energy which do not deplete critical fossil fuels.



ELECTRIC VEHICLES (EVs)



Creator: David Zalubowski | Credit: AP

With the transport industry being responsible for roughly 28% of total carbon dioxide (CO₂) emissions and road transport accounting for more than 70% of transport sector emissions, Electric vehicles are capable of promoting sustainable and efficient transportation.

The use of Electric vehicles can reduce the concentration of air pollutants, CO₂, and other greenhouse gases.

ADVANTAGES OF ELECTRIC VEHICLES

- ◆ **Zero emissions:** These cars produce no tailpipe pollutants, CO₂, or nitrogen dioxide (NO₂).
- ◆ **Simplicity:** Their engines are simpler and more compact resulting substantially lower maintenance.
- ◆ **Reliability:** EVs are not subject to the wear and tear caused by engine explosions, vibrations, or fuel corrosion. Hence they are fewer failures.
- ◆ **Cost:** The vehicle's maintenance and power expenses are substantially lower when compared to typical combustion cars' maintenance and fuel expenditures.
- ◆ **Comfort:** Traveling in an EV is more comfortable since there are no tremors or engine noise.

DIFFERENT TYPES OF EVs

Battery Electric Vehicles (BEVs): Vehicles 100% are propelled by electric power.

Plug-In Hybrid Electric Vehicles (PHEVs): EVs propelled by a conventional combustible engine and an electric engine charged by a pluggable external electric source.

Hybrid Electric Vehicles (HEVs): EVs propelled by a combination of a conventional internal combustion engine and an electric engine.

Fuel Cell Electric Vehicles (FCEVs): These EVs are provided with an electric engine that uses a mix of compressed hydrogen and oxygen obtained from the air.

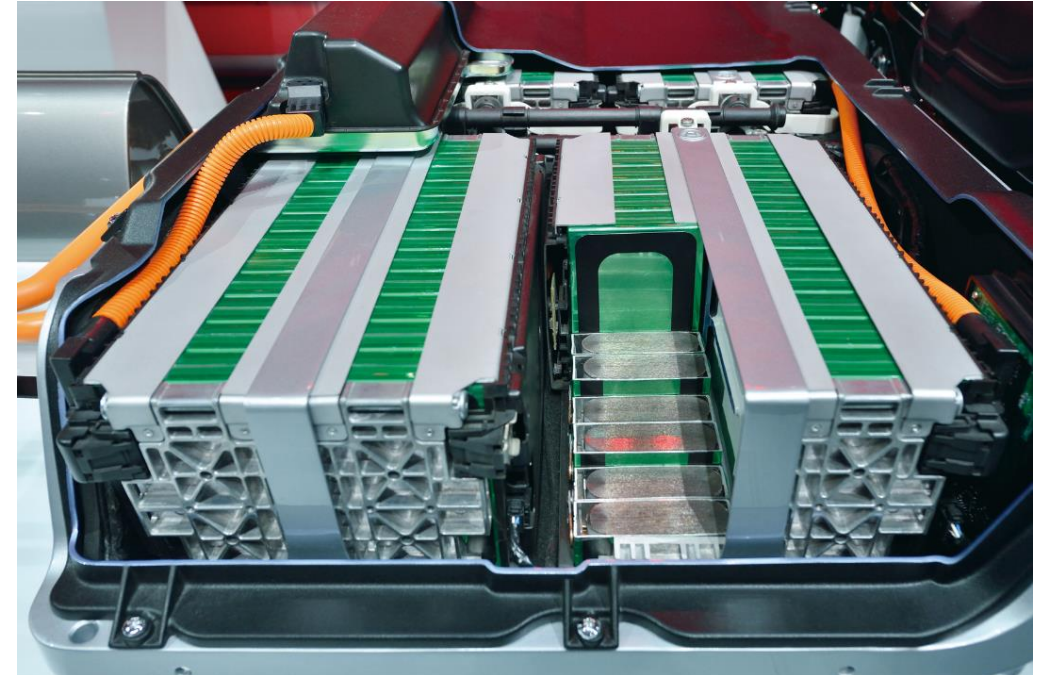
Extended-range EVs (ER-EVs): Similar to the BEV category except that they are provided with a supplementary combustion engine, which charges the batteries of the vehicle if needed.



Illustration by Ryan Olbrysh | Car and Driver

CHALLENGES OF ELECTRIC VEHICLES

- ◆ **Driving range:** With a full charge, range is normally restricted to 200 to 350 km,
- ◆ **Charging time:** It might take 4 to 8 hours to fully charge the battery pack.
- ◆ **Battery price:** Big battery packs are costly.
- ◆ **Bulk and weight:** Battery packs are hefty and take up a lot of room in the car.



Creator: zorazhuang | Credit: Getty Images/iStockphoto

Researchers, however, are working on new battery technology in order to boost driving range while decreasing charging time, weight, and cost. These elements will eventually define the future of electric vehicles.

CONCLUSION

- ◆ The primary benefit of Electric vehicles (EVs) propulsion technology is its significant reduction in greenhouse gas emissions compared to traditional vehicles.
- ◆ Electric Vehicles have the potential to lower consumer fuel costs, increase energy security, and offer new job possibilities in the green economy.
- ◆ Electric vehicle has proven to be essential in combating climate change, improving air quality, and in natural resource conservation.
- ◆ While there are still some challenges to overcome, such as range anxiety and battery recycling, the benefits of electric vehicle propulsion technology make it a compelling choice for a sustainable transportation future.

REFERENCE

Ajanovic, A. (2015). The future of electric vehicles: Prospects and impediments. WIREs Energy Environment.

Gondelach, S. (2010). Current and future developments of batteries for electric cars—An analysis. Thesis, Utrecht University.

Sanguesa, J.A.; Torres-Sanz, V.; Garrido, P.; Martinez, F.J.; Marquez-Barja, J.M. A Review on Electric Vehicles: Technologies and Challenges. Smart Cities 2021, 4, 372–404.

Title page Cover Image Source: <https://electrek.co>



THANK YOU

Contact email: maduagwuifeanyi51@gmail.com