SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
COIMBATORE-35
Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

UNIT I: INTRODUCTION TO HYBRID ELECTRIC VEHICLES

TOPIC: Social and Environmental Importance of Hybrid Vehicles

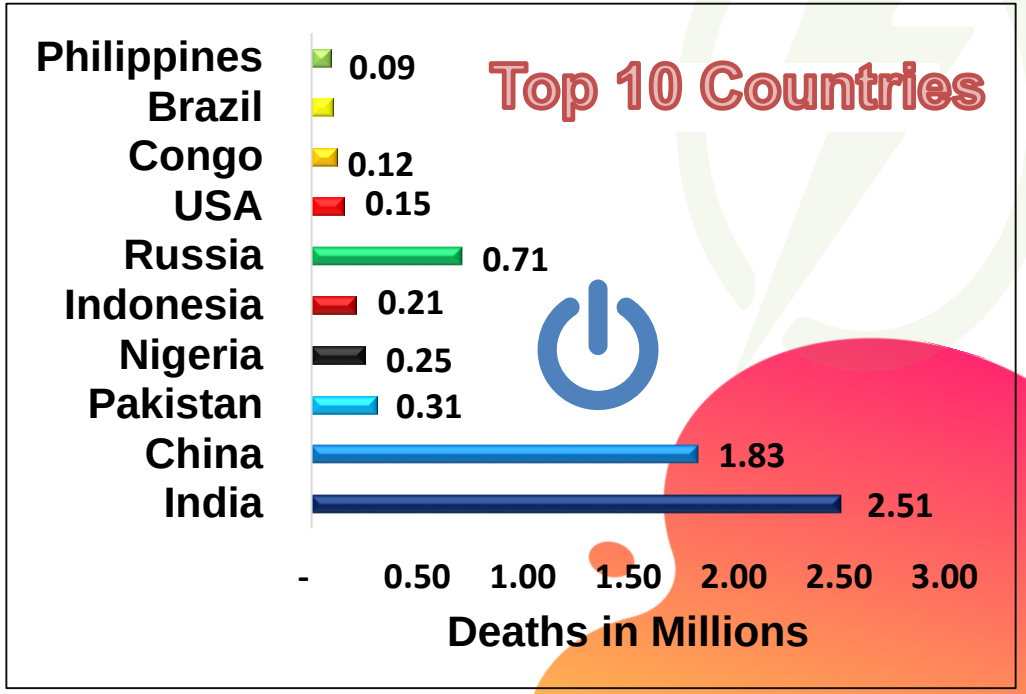
TOPIC OUTLINE

An Electric Vehicle is a vehicle that operates on an electric motor, instead of an internal combustion engine that generates power by burning a mix of fuel and gases. Electric vehicle is seen as a possible replacement for the current-generation automobile in near future to address environmental challenges.

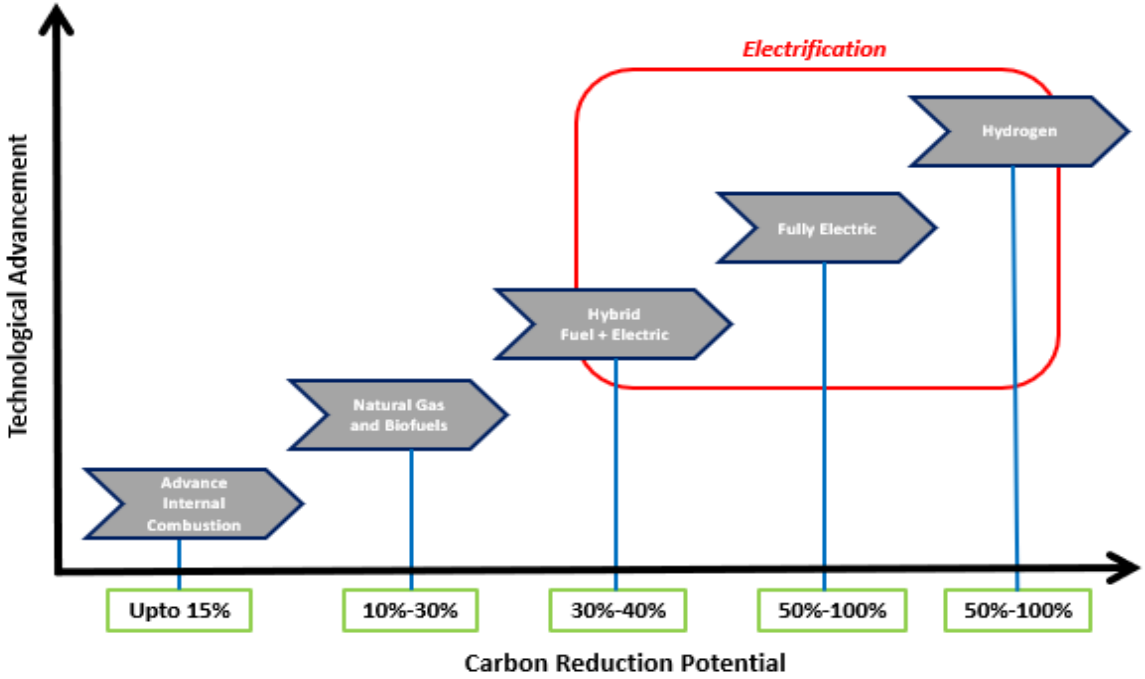
- **Inspired by road going automobiles powered by electricity.**
- **Propelled by one electric motor or more using batteries.**
- **Electric motors give instant torque, and smooth acceleration.**
- **Plug-in electric vehicles (EVs) are fast, fun and efficient. Maintenance is simpler and cheaper.**

Number Of Deaths Due To Pollution

- Number of deaths due to pollution is much higher in India than other developing/developed countries.
- As per studies conducted, deaths due to pollution is 8 times higher in India than neighbouring country Pakistan and more than times than USA.
- Due to India's large population density, deaths occur more often than any other country.



Carbon Emission



Air Quality In Indian Cities

Major Factor That Attracts HYBRIDs

YOU SHOULD GO HYBRID DUE TO THESE MAJOR FACTORS

Reliability & Flexibility

Electric cars require less maintenance. New models hitting the market also offer more flexibility of car size and style.

Growing Infrastructure

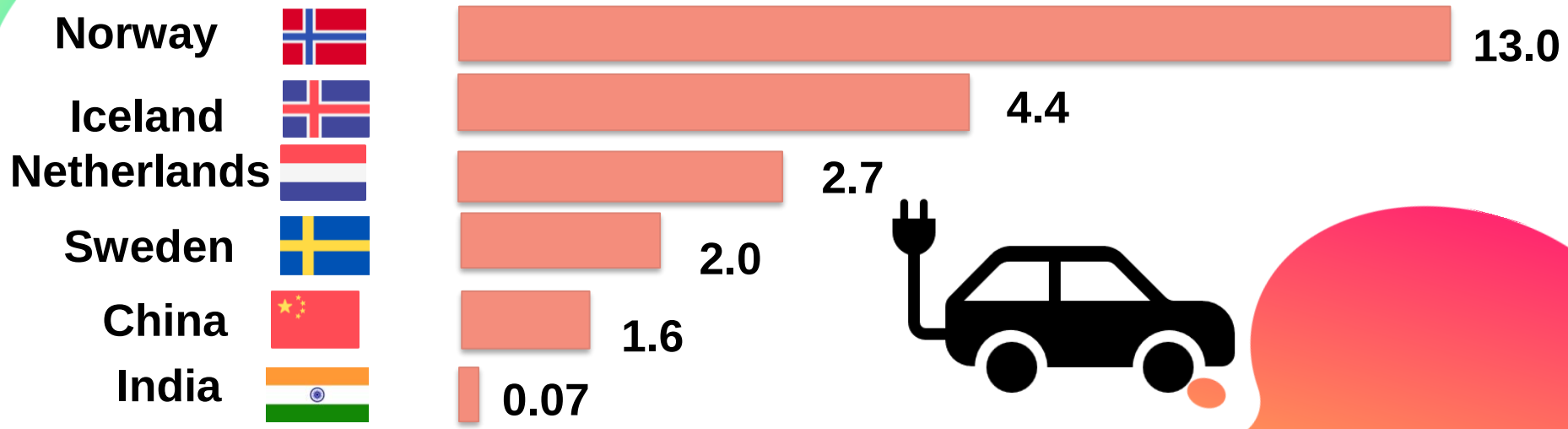
You can plug your car in right at home. And more and more areas have charging stations for when you're on the go.

Affordability

Electric cars are less expensive to fuel and maintain. And as new models come out, costs to buy electric cars are plummeting.

India's Standing in World Position

Hybrid cars as a proportion of the number of cars in a country (in %)

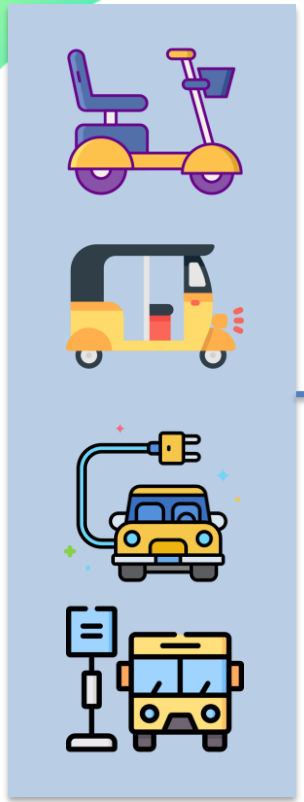


As of 2019, the world had 7.2 million electric cars, a 40% jump over 2018. While 1.6% of cars in China are EVs, electric cars comprise just 0.07% of the cars in India. Moreover, Norway, Iceland, Netherland and Sweden have even higher percentage.

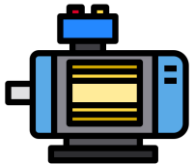
Comparison between Hybrid and Petrol Vehicle

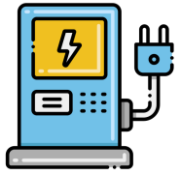
Model	(HSS) (Li-ion)	(LSS) (Lead Acid)	Petrol
Ex-showroom Price	87,790	35,490	60,849
Fuel consumed in running 50km/day	1.5 units of electricity	1.5 units of electricity	1 liter of Petrol
Cost of fueling for per 50km run (Rs.)	11	11	60
Duration of Ownership (Years)	5	5	5
Total running in 5 years (km)	75,000	75,000	75,000
Average Maintenance for 5 years (Rs.)	10,000	10,000	25,000
Cost of Refueling for 5 years (Rs.)	15,750	15,750	90,000
Battery Cost for 5 year (Rs.)	-	30,300	-
Cost of running for 5 year (Rs.)	1,13,540	91,540	1,75,489
Saving in 5 year (Rs.)	61,949	83,949	-
CO_2 Reduction by using EVs in 5 year (MT)	1.90	2.00	-

EVs Components Industry Growth FY 25



- Electric motors $1.23 Billion
- Batteries $1.86 Billion
- Power electronics $1.47 Billion
- Charging stations $0.230 Billion



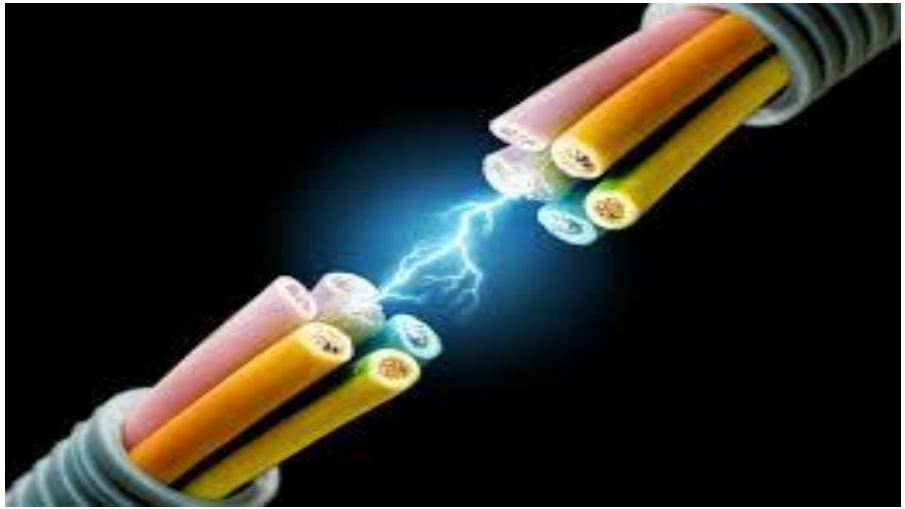


1/3rd
Of the EV motor market will show up from need in EV Buses in India in 2025

67%
Will be passenger car segment's share in Battery market in 2025

15.6 million kWh
Will be the total demand for Li-ion battery pack in 2025

61%
Will be the 2W vehicle segment's share in the power electronics market in 2025



…THANK YOU