



SOCIAL AND ENVIRONMENTAL IMPORTANCE OF ELECTRIC VEHICLES



INTRODUCTION

- The automobile industry has evolved over the years, advancing it to suit the needs of the current world. The advancements have reached to a level where the vehicles are being built on the grounds of being more ecofriendly, safer and money saver on long term basis.
- Hybrid cars are one such innovation. It is the new major trend towards which the world is shifting. Combining the forces of a regular engine with an electric motor, hybrids present a more practical option on being safer on the environment as well as saving most of the amount spent on oil refilling's.
- The project titled '*Evaluating the insides of an hybrid car and the study of its effects on entities*' is going to showcase a critical study on what are hybrid cars and the types of it, how the hybrid engine works together and contributes to less pollution as well as a detailed study on batteries contained.
- A case study will be followed, on Toyota Prius and information from primary sources will be coined together. Results will include the effects hybrid vehicles will have on different aspects, followed by a discussion to show the importance of this analysis and the conclusion.



POLLUTION

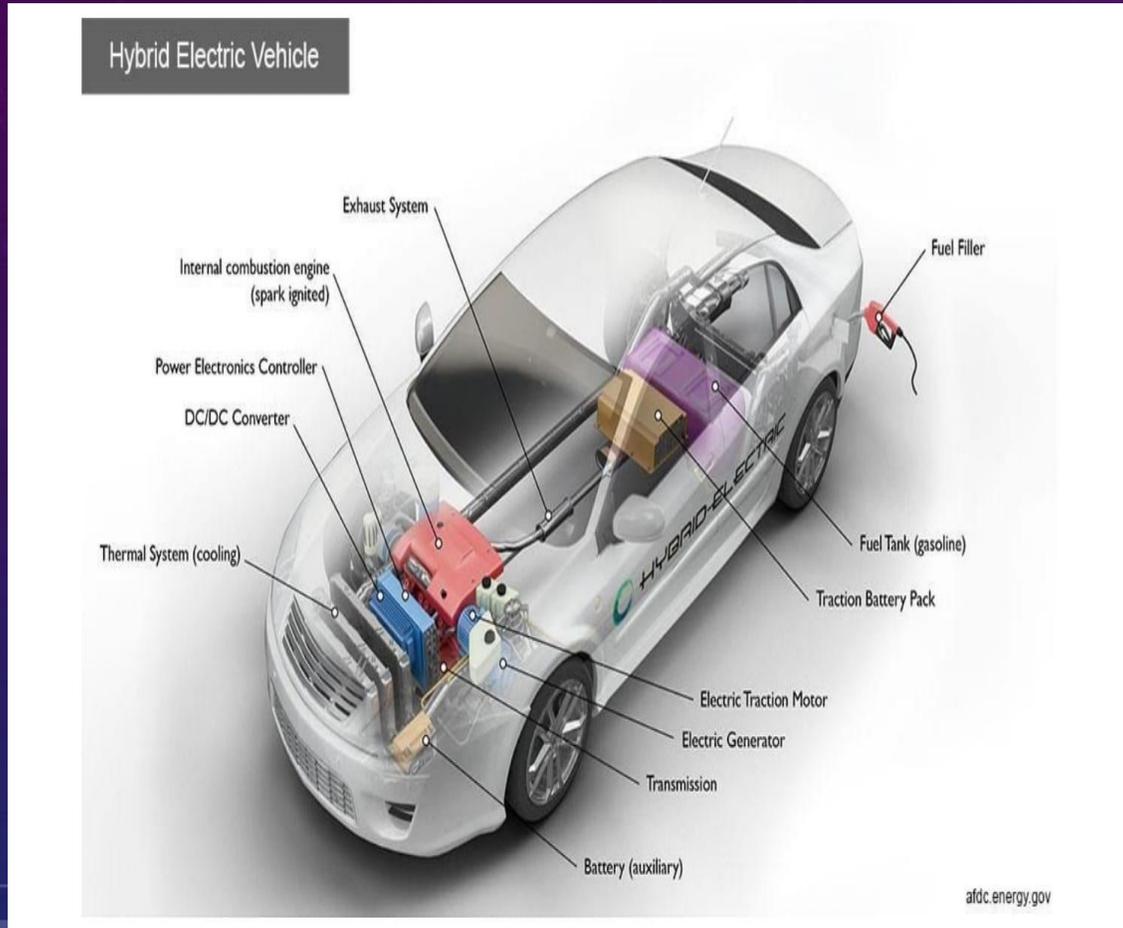
- A typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year. This number can vary based on a vehicle's fuel, fuel economy, and the number of miles driven per year. Click on the questions below to learn more about this estimate and see answers to common questions about greenhouse gas emissions from passenger vehicles.
- Every time you go for a drive, pollution is emitted directly into the air which causes significant risks for your health, especially for people who live near busy roads, and for the environment.
- The smoke billows from your car's exhaust pipe, and from all the different forms of transportation we rely on to get around and to move goods around the planet vehicles are a major contributor to air pollution
- Air pollution refers to the presence of foreign substances in the air that don't belong there, or excessive amounts of certain impurities that wouldn't harm us otherwise. When cars burn gasoline, they emit pollutants. Gasoline fumes escape into the air even when we pump gasoline into our fuel tanks.

VEHICULAR POLLUTION

Vehicular pollution is the introduction of harmful material into the environment by motor vehicles. These materials, known as pollutants, have several bad effects on human health and the ecosystem. Transportation is a major source of air pollution in many countries around the world due to the high number of vehicles that are available on the roads today. An increase in purchasing power means that more people can now afford cars and this is bad for the environment. Vehicular pollution has grown at an alarming rate due to growing urbanisation in India. The air pollution from vehicles in urban areas, particularly in big cities, has become a serious problem. The pollution from vehicles has begun to tell through symptoms like cough, headache, nausea, irritation of eyes, various bronchial and visibility problems.

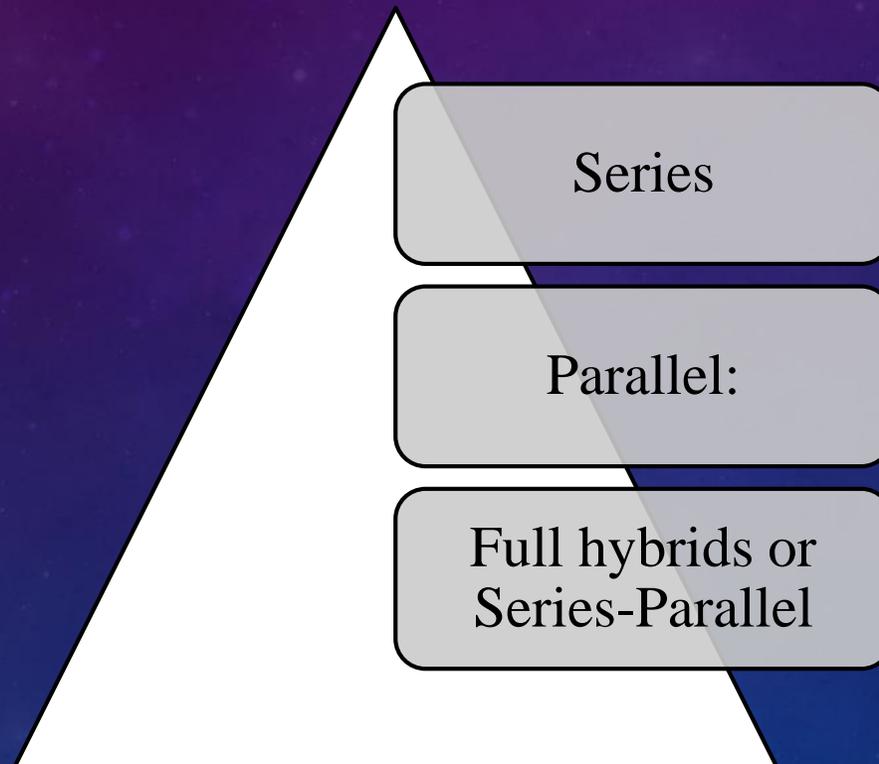


TECHNOLOGY INVOLVED IN HYBRID CARS



Hybrid electric vehicles are powered by an internal combustion engine and one or more electric motors, which uses energy stored in batteries. A hybrid electric vehicle cannot be plugged in to charge the battery. Instead, the battery is charged through regenerative braking and by the internal combustion engine.

TYPES OF HYBRIDS



SERIES

The electric motor is in charge here. The gas engine or a generator plays the role of recharging the battery packs of the motor. Since it runs majorly on motor, such cars are better for driving shorter distances within the cities with more stops. The engine is usually held back to be used only for situations that actually requires the car to run more efficiently. This makes the engine smaller and the built of motors bigger since it's the major source. The bigger the size of the motor, the larger the battery it needs, hence adding all together, ends up being more expensive than a parallel hybrid. Example: The BMW i3.

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PARALLE



Here, both the IC engine and the motor are allowed to work together to power the car. The engine is never switched off here, and it keeps contributing to the car's progress. The gas is provided to the engine by the fuel tank and the batteries are charged using generators. At low power, motor can also be converted to a generator to supply power. This makes the size of battery pack smaller. This saves more fuel and is more preferable for far away travels. Example: LaFerrari.

FULL HYBRIDS OR SERIES-PARALLEL



In this version of hybrid, as the name suggests, it mixes the power of both the above mentioned types. This allows the IC engine to take up the role of powering the vehicle completely or even let the motor be in charge fully and disconnect itself. With such options, the vehicle can operate at high efficiency, but at lower speeds it is usually the motor's job. This means a battery pack of bigger size and more work to manage the dual system. This category has a better performance and saves much more fuel than the alone series and parallel. Example: Toyota Prius.

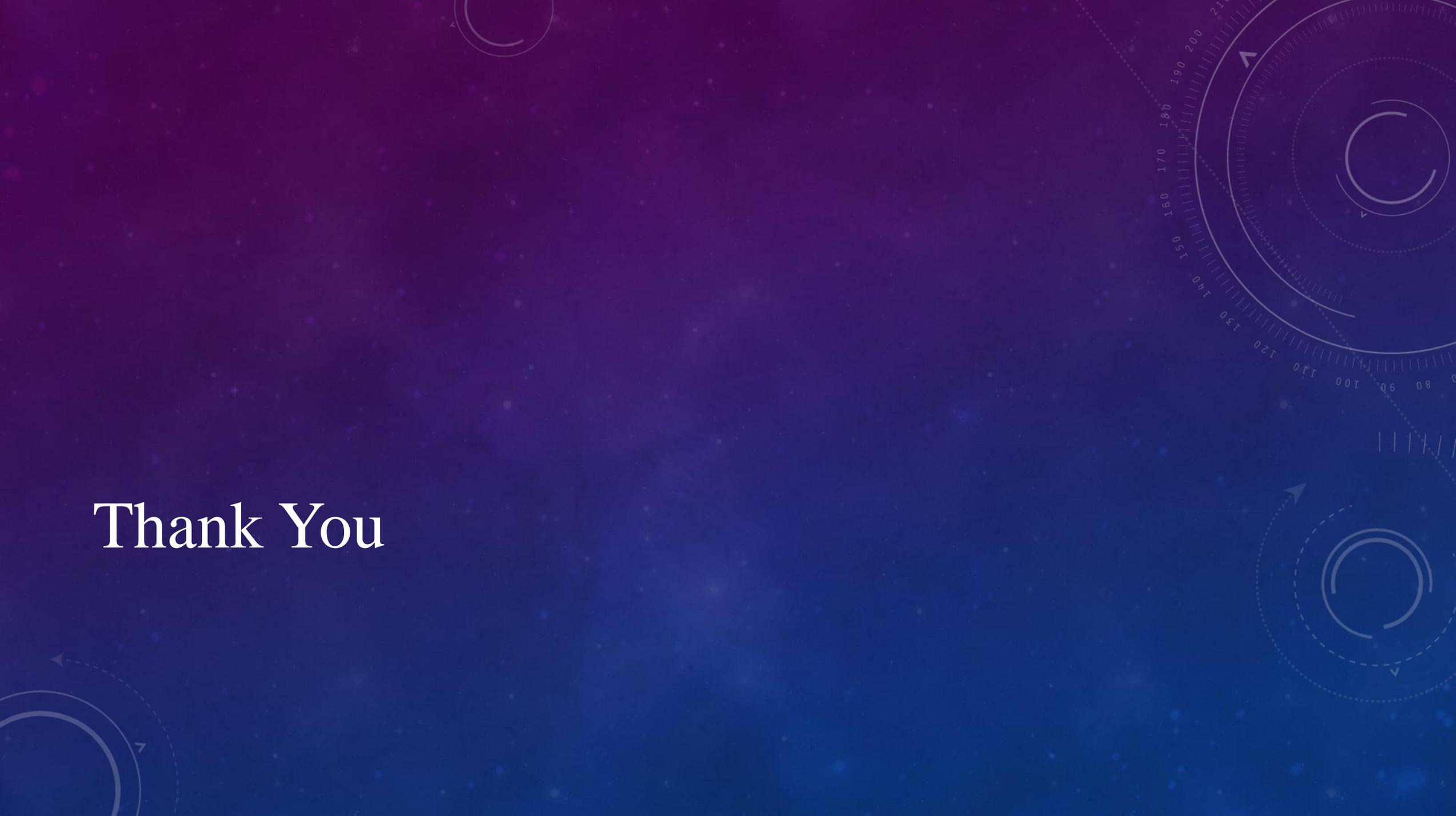
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IMPACT OF HYBRID CARS ON THE ENVIRONMENT

One of the major technologies found to have a significant contribution towards carbon emission reduction is the Hybrid Electric Vehicles or HEVs. This new type of vehicle is being praised for fuel efficiency and ultimately being environmental friendly. On the other hand, there are contradicting arguments regarding the impact of HEVs on the environment, which needs to be examined further. The environmental implications of HEVs can be better explored when observed in a smaller region where the data is more specific. Fuel prices in Oman are at a record high despite the fact that the country is a major global producer of petroleum products. As a result, a significant number of car owners in the country are shifting to HEVs. However, the shift towards HEVs is more on the economic than environmental position.

Thank You

The background features a blue gradient with a field of white particles. On the right side, there are several technical diagrams: a large circular gauge with a scale from 80 to 210, a smaller circular gauge with a scale from 100 to 140, and a dashed circular arrow diagram. In the bottom left corner, there is a partial view of a circular arrow diagram.