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A BARRERS OF ELECTRIC VEHICLE IN INDIA

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ABSTRACT

Electric vehicles are an important option for reducing emission of greenhouse gases. Electric vehicles Not only reduce the dependency on fossil fuel but also diminish the impact of ozone depleting Substances and promote large scale renewable deployment. Despite comprehensive research on the Attributes and characteristics of electric vehicles and the nature of their charging infrastructure, electric Vehicle production and network modeling continues to evolve and be constrained. The paper provides an overview of the studies of electric vehicle, hybrid electric vehicle, plug-in-hybrid electric vehicle and battery electric vehicle penetration rate into the market and discusses their different modeling approach and optimization techniques.

Keyword = electric vehicle to grid optimization technique CO2 reduction.

Introduction of electronic vehicle

Electronic vehicle are vehicles that are either partially or fully powered on electric of an internal – combustion engine that generates power by burning a mix of fuel and gases. Eclectic vehicles have low running costs as they have less moving parts for maintaining and also very environmentally friendly as they use little or no fossil fuels (petrol or diesel) . Therefore, such as vehicle is seen as a possible replacement for current – generation automobile, in order to address the issue of rising pollution, global warming, depleting natural resources, etc

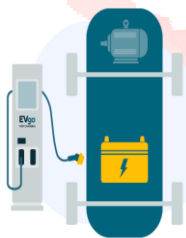
Though the use of EVs has begun people are depending upon fossil fuel powered vehicles. However, the EVs are facing challenges on life cycle assessment, charging and driving range compared to the conventional fossil fuelled vehicles. Harmful emission from the transport sector, and investment by different OEMs, there arises a concern for growing more and low cost EVs in the forthcoming years . several factor such as technological advancement, reduction in the cost of a vehicle, govt. policy support, vehicle purchasing incentives, parking benefit, and good public

Charging infrastructure facility could result in the uptake of EVs in India. As the production of EVs is very low, the overall share of EVs in the Indian market is negligible

Types of electric vehicles

Battery electric vehicles (BEVs)

Powered solely by an electric battery with no gas engine parts most BEVs are capable of fast charging and L2 charging.



Plug-in hybrid electric vehicles (HEVs)

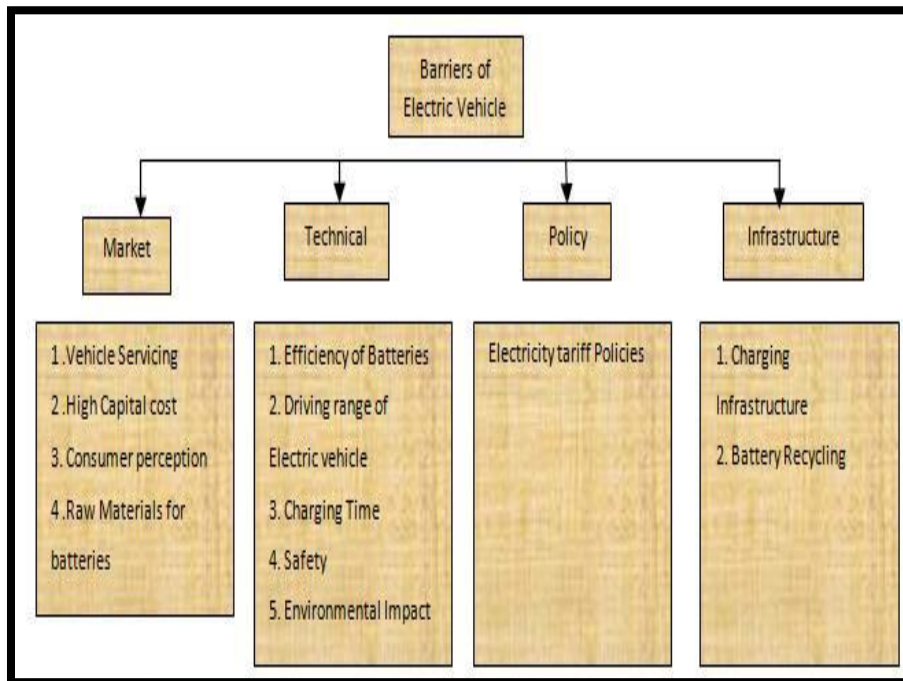
Similar to a hybrid but with a larger battery and electric motor. Has a gas tank and a charging port .can charge by using L2 chargers.



Hybrid electric vehicles (HEVs)

Low –emission vehicles that use an electric motor to assist gas-powered engines. All energy comes from gasoline .cannot charge with EV go.

Barriers for EVs in the Indian market



Barriers for EV in the Indian market can be addressed from various prospective as technical barriers policy barriers, and lack of infrastructure. These are shown in fig.

1. Market

- **Vehicle servicing**

A proper care of the electric car , a good technician should be available to repair, maintain, and find troubleshoot of the electric vehicle.

- **High capital cost**

The battery packs of an electric vehicle are expensive, and also it needs replacement more than once in its lifetime. The gas –power cars are cheap when compare with Electric vehicles.

- **Consumer perception**

Consumer perception plays a vital role in attracting new customer and retains an existing customer. Despite the growing range in the auto market with a broader range of electric customer. Despite the growing range in the auto market with a broader range of electric vehicles, the choice of buying an electric car is limited and is expected to continue over time.

- **Raw materials for batteries**

EVs batteries include the raw materials for lithium, nickel, phosphate and manganese, graphite, and cobalt, which are rare earth material. For an internal combustion engine, aluminum copper and steel are require.

2. Technical

- **Battery lifespan/ efficiency**

The electric cars are usually by using electric motors, batteries, charging and Controllers by replacing fuel tank and gasoline engine of a conventional vehicle.

- **Driving range of electric vehicle** A driving range is recognize as the main barrier of electric vehicle typically because EVs has a small range as compare with the equivalent ICE vehicle. The distance an electric vehicle can travel on a full charge or full tank is considered. As significant drawback to uptake the EV in the global market.

- **Charging time**

Charging time is closely related to the issue of driving range. With a slow charger, the EV can take up to 8 hours a full charge from the empty state using 7 KW charging point.

The charging time mainly depends upon the size of the battery.

- **Safety requirements of electric vehicle**

The electric vehicle must meet the safety standard by state or local regulation. The batteries should also meet the testing standards that are subject to conditions like overcharge, Temperature, short circuit, fire collision, vibration, humidity, and water immersion.

- **Environment impact-**

Generally, the electric vehicles do not pollute the environment, but the elements of the batteries are extracts from mines or brine in the desert. This extraction has a low environmental impact on mining.

3. Electric vehicle policy framework in India.

- Union government policies and schemes like FAME 1 and FAME 2, the PLI scheme, and the scrap page policy encourage the use of EVs and incentivize manufacturers.
- About 50% of Indian states have state policies for promoting the use of EVs.
- Concession to users includes a financial subsidy on purchase, exemption from road tax, registration charges, and low interest rates on loans.
- Initiatives for bulk purchasing of EVs for the public sector, personal and public transports entities, and last mile delivery operators.
- Infrastructure development for battery & vehicle manufacturing, charging infrastructure, and scrapping centers.



Conclusion

- Hybrid cars are definitely more environmentally friendly than internal- combustion vehicles. Batteries are being engineered to have a long life. When the hybrid cars become more widespread, battery recycling will become economically possible. Research into other energy sources such as fuel cells and renewable fuels make the future look brighter for hybrid cars.
- The progress the electric vehicle industry has seen in recent years is not only extremely welcomed, but highly necessary in light of the increasing global greenhouse gas levels.
- The biggest obstacle to the widespread adoption of electric powered transportation is cost related, as gasoline and the vehicles that run on it are readily available, convenient, and less costly.
- Additionally, the realization and success of this industry relies heavily on the global population, and it is our hope that through mass marketing and environmental education program people will feel incentivized and empowered to drive an electric powered vehicle.
- Each person can make a difference, so go electric and make a difference!

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