

Electric Vehicle. A cyclical story of death and resurrection.

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Abstract. Historically, EVs have not been widely adopted because of limited driving range before needing to be recharged. That's changing. As battery technology improves (increasing energy storage and reducing cost).

Electric cars no produce CO₂ emissions, reduce our dependency on oil, and are cheaper to operate. Of course, the process of producing the electricity produce emissions, but even dirty electricity used in electric cars usually reduces our collective carbon footprint.

Key words

Electric vehicle, Electric cars, Battery electric vehicle.

1. Introduction

Electric cars enjoyed popularity between the mid-19th century and early 20th century, when electricity was the preferred methods for automobile propulsion, providing a level of comfort and ease of operation that could not be achieved by the gasoline cars of those years.

Advances in internal combustion engine technology soon rendered this advantage moot; the greater range of gasoline cars, quicker refueling times, the invention of the electric starter etcetera, along with the mass production of gasoline vehicles by companies.

In 1897, electric vehicles found their first commercial application as a fleet of electrical New York City taxis.

By the 1920s, the heyday of electric cars had passed, and a decade later, the American electric automobile industry had effectively disappeared [1].

The energy crises of the 1970s and 80s brought about renewed interest in the perceived independence electric cars had from the fluctuations of the hydrocarbon energy market.

2. Comparison with internal combustion engine.

Typically a cruising speed of around 80 km/h is near-optimal for vehicle with internal combustion engines. For electric vehicles the equation is less complex, and maximum range is achieved at comparatively low speeds.

3. Batteries

Historically, electrical vehicles have had issues with high battery costs, limited range between battery recharging, charging time, and battery lifespan.

The future of battery electric vehicles depends primarily upon the cost and availability of batteries with high energy densities, power density, short charge time and long life, as all other aspects such as motors, motor controllers, and chargers are fairly mature and cost-competitive with internal combustion engine components.

4. Conclusion

CO₂ emissions of electric cars are lower than those of conventional cars.

A potential hazard is the reduced noise level from electric engines that may not be beneficial for all road users, as blind people.

A new type of electric vehicles is now under study for zero CO₂ emissions. Solar cars are electric cars that derive most or all of their electricity from built in solar panels.

References

[1] Electric automobile. Encyclopaedia Britannica Online. N.p., n.d. Web. Oct. 2009.