

The Electric Car's Tortuous Journey

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Purpose – The purpose of this paper is to explore the historical development of the electric automobile, particularly in the United States, from the creation of the first automobiles through the current time. Focus of the paper is on the forces of the marketplace and the desires of the prospective consumers. This consumer focus is especially insightful in regard to the selection, for a limited period of time, of automobiles powered by electricity, as opposed to those vehicles using gasoline or other types of liquid fuel. Steam turbine engines were also an option at first, although this mode of operation was the first to be discontinued. Some of the same decisions now are facing many consumers today, as the gas versus the electric propulsion decision again faces consumers although today's marketplace also includes such modern-day vehicles with hybrid technology incorporating multiple propulsion sources.

An examination of the marketing environment, and its changes over time, provided insight into the reasons for the initial demise of the electric car model as it lost sales to the gasoline-powered automobiles. Ironically, it was the addition of an electric starter in those early vehicles which made the gas-powered automobile the most popular vehicle, over the electric or steam powered car.

However, despite the 'distance' advantages of the gasoline-powered automobiles, hindsight seems to identify the lack of charging sites outside urban areas as a critical reason for the rise of the gas car, and demise of the early electric ones. Electric vehicles, from the start, ran smoother, were cleaner, and appeared to be far more 'user-friendly,' than the dirty, oily, gas powered cars. Had the electric car manufacturers undertaken to install charging stations at greater distances to the urban centers, it is possible that the electric car would have continued to be at least a viable option far longer than actually occurred. As well, however, Henry Ford's assembly line manufacturing operation also provided the gas automobile with a far less expensive production cost, while the electric vehicles continued to be far more expensive to purchase. Since gasoline, in the early 1900s was relatively inexpensive and usually easily available, this also appeared to be a major influence in the preference for a gas powered automobile.

The growing awareness of the impact of petroleum-generated pollution from combustion engines appeared to be one reason for the increased attention to more efficient gas automobile engines in the late 20th and early 21st centuries. However, at least in the United States, the rising cost of gasoline to the consumer, along with the country's increasing debt in its purchase of foreign petroleum without offsetting exports, has been cited as the major reason for the exploration of alternative power sources for automobiles. The paper provides a review of relatively recent activities involving electrically powered vehicles, as well as descriptions of the current types of automobile power sources and designs.

Design/methodology/approach – Review and research of secondary resources comprised most of the content for the research design for this paper. While books and early periodical articles provided much of the historical background, trade press articles, public relations releases and corporate communications have been utilized for more insight into recent and current vehicle information and insight. Videos and filmstrips on the topic of the development of the automobile, especially the electric car, have been utilized when available and appropriate.

Research limitation/implications – Unlike some subjects where the historical background comprises the entire research boundaries, the exploration of the development, implementation, and acceptance of the electrically powered automobile is an ongoing saga, at least at this point in time. Further, the

background and early development of the automobile and its various power sources remains a combination of mechanical dexterity, manufacturing expertise, consumer purchase feasibility, and political intrigue. Much of the information available provides the facts, but attempting to obtain some of the more subjective aspects in this area, is far less obvious and far more difficult.

Keywords – electric automobile, car, batteries, hybrid vehicles, pollution, sustainability

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