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# Career Opportunities for Employees in the Electric Vehicle Sector

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**ABSTRACT:** The introduction of electric cars marks the beginning of the end for conventional motor vehicles. The main reasons for switching to electric vehicles are the need to reduce engine pollution emissions and dependence on expensive fuels. By the end of 2016, there were more than two million electric cars on the road in the world. The rising popularity of electric vehicles has been influenced by a number of factors, including technological development, an increase in traction battery storage capacity coupled with a decrease in cost, and an expansion of public and governmental charging infrastructure. Incentives. The two EV technologies that are now leading the pack are battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV).

As an environmentally beneficial method of transportation, electric vehicles have drawn a lot of attention in this new era from sellers, buyers, and research, which has prompted a number of thorough and in-depth analyses. Regarding the infrastructure, battery utilization, and charging stations for electric vehicles, there are many different viewpoints. This document takes into account the difficulties and advantages that the global adoption of electric vehicles would bring. The study performed a fantastic job of briefly addressing a variety of features of electric vehicles, including analyses of governmental rules, charging strategies, crucial procedures, charging effects, and answers to related problems.

## I. INTRODUCTION

Concerns about environmental preservation and fuel efficiency are spreading over the world, and research and development on electric vehicles have accelerated. The digitization of the automotive industry is causing disruption on a global scale. The automotive industry in India is also feeling the consequences of rising automation, which is reshaping the sector for a new revolution in the twenty-first century. The complexities of the Indian economy, market demands, and consumer preferences make the Indian EV market unique when compared to other worldwide markets.

To manage the changes our industry will experience in the future, understanding and reinventing are crucial. These changes will alter how people move around and create fresh opportunities for rivalry and cooperation. Future expansion will be used to supply the anticipated rise in services that are needed. 13 of the 20 cities in the India has some of the worst air pollution in the world, thus it's critical to lower the rising levels of automobile pollution. Electrification is having an impact on the car sector globally. Electric vehicles, including battery electric vehicles and plug-in hybrid vehicles, are expected to account for up to 50% of new vehicle sales by 2030. The whole automotive value chain, including the manufacturers, will be greatly impacted, including vehicle sales both internationally and in India.

**The vehicles can be divided into three categories based on their type:**

1. HEVs, or hybrid electric vehicles
2. PHEVs are plug-in hybrid electric vehicles.
3. Vehicles with batteries alone (BEV).

**1. Positions in design and development include:** The experts who create and develop the technology utilized in electric vehicles include engineers, engineering technicians, drafters, software developers, and industrial designers. Engineers provide workable solutions to technical problems using mathematical and scientific ideas. Their efforts act as a link between new scientific understanding and useful application. Many engineers define requirements, develop, test, and integrate components to generate designs for new products.

**2. Manufacturing jobs:** The production of electric vehicles is a complicated process that calls for a large, experienced staff. Due to the complexity of electric car systems compared to conventional internal combustion engines, specific manufacturing techniques are needed.

### 3. Electric vehicle maintenance

**Jobs:** Just like any other type of vehicle, electric vehicles require sporadic maintenance and repairs. Normal repair personnel can handle the majority of the routine maintenance and repairs, although skilled technicians with experience in electric vehicle drivetrains and electrical systems are frequently required.[2] Personnel with the necessary training are needed to install or repair the batteries in electric vehicles. Depending on usage and battery type, batteries need to be replaced every couple of years.

**4. Jobs in infrastructure development include:** There will be a greater need for charging stations as there are more battery-electric and plug-in hybrid cars on the road. Specialized charging facilities and expanded electric grid capacity are needed for electric vehicles. The majority of these chargers will be found in public charging stations or in the residences of electric vehicle owners. People who are gone from their home chargers will need public charging stations to power their autos

#### Objective The Study Includes:

1. To comprehend the employment possibilities in the electric vehicle sector.
2. To secure the automotive industry's future with electric vehicle technology.

### III. METHODOLOGY

The study's major goal was to satisfy consumer demands and wants while offering insightful data on electric and hybrid automobiles, as well as whether the customer.

We gathered the information from a variety of sources. 100 respondent were chosen as the sampling unit for the current study, which is where the basic data came from.

#### Simple Technique:

Random sampling was utilized to pick responders who met the criteria.

#### Tools and strategies include:

1. Interviewing Method

### IV. LITERATURE REVIEW

Industries will play a significant role in fulfilling the Indian vision of 100% by 2030, according to research published in 2018 by RachanaVidhi and PrasannaShrivastava from Harvard. Several influential businesses, like oil and gas, will suffer while a number of new industries will flourish. Most of the innovation while implementation will be driven by transport optimization algorithms, technical improvement, and desire for reduced battery prices.

the provision of mobility. To guarantee an affordable supply of batteries, the lithium mining and battery manufacturing industries must mature. The rise in the number of electric vehicles on the road will result in a rise in the demand for electricity. Currently, petrol and diesel are easily accessible at filling stations, but in a nation where power outages are frequent, electric vehicles would be seen as an unreliable form of mobility.

Research released in September 2018 by the NITI Aayog Council claims that ICE vehicles are a significant source of urban air pollution, and that switching to EVs will significantly improve the quality of the air. Assuming that each of these cars uses roughly 200 litres of gasoline annually, or little more than half a litre per day,

These vehicles utilise roughly 34 billion gallons of petrol worldwide. This would cost roughly 2.4 lakh crores at 70 rupees per litre. One might avoid importing oil worth 1.2 lakh crores even if we assume that 50% of this is the price of imported crude (since tax and other costs may be 50% of this). But for this to happen, innovations, a governmental system that promotes access to the newest technologies, and a deliberate push by the Indian sector to attain global success would all be necessary using cutting edge technologies and gaining the necessary scale to compete.

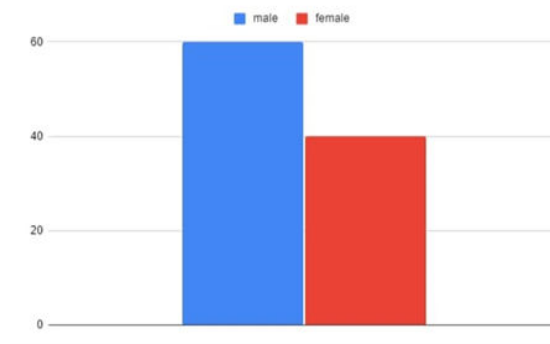


**Analyzing and Interpreting data:**

S.No	Measure	Item	Frequency	%
1	Gender	Male	60	60
		Female	40	40
2	Region	Sec 18	23	25
		Sec 16	27	27
		Sec 22	30	35
		Sec 15	20	13
3	Income	Less than 30,000	55	55
		30,000-60,000	30	30
		More than 60,000	15	15

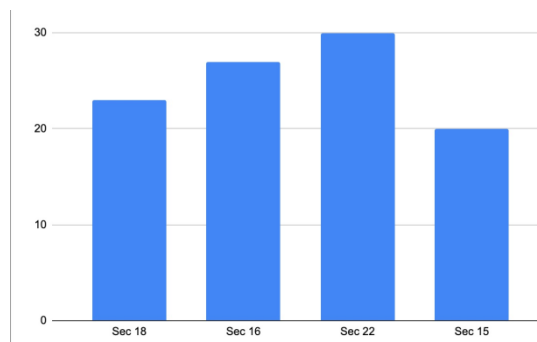
**GENDER**

Out of the 100 total responses, 60%, or 60 replies, were male, with 40 female responses accounting for 40% of the total. The proportion of responses from men and women varies very little. As a result, almost equally as many men as women took part in the data collection.



**REGION**

The four unique geographic zones covered by this parameter were Sec 18, Sec 16, Sec 15, and Sec 22. 23% of respondents are from Sec 18. The Sec. 104 group comes in second with a percentage of 27%. It is 30% from Sec. 22 and 20% from Sec. 15%



**Income**

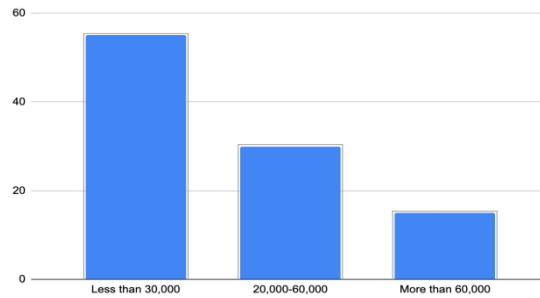
Three categories were included under this criterion, and 55 E.V. owners with a percentage of 55% make up the majority of respondents, who came from income groups with less than \$30,000 in annual income.

A second category with 30 respondents and a proportion of 30% contains an income range of \$30,000 to \$50,000. With a 15% response rate, the third group of 15 responders earns more than \$60,000 each year.



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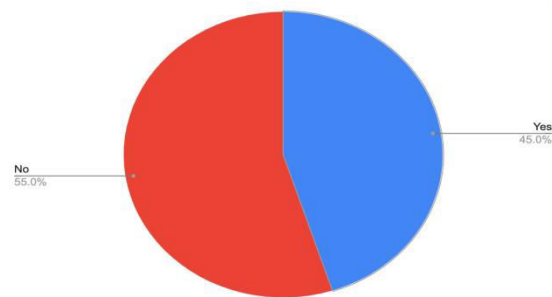


**Questionnaires:**

1. How will the rise in EVs impact the labour market?

Yes -45%

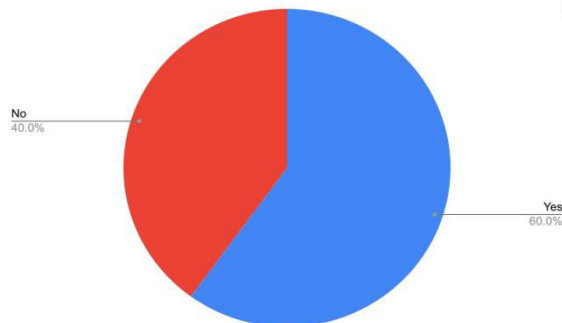
No-55%



2. How will the environment be impacted by the construction of infrastructure to support the EV industry?

Yes-60%

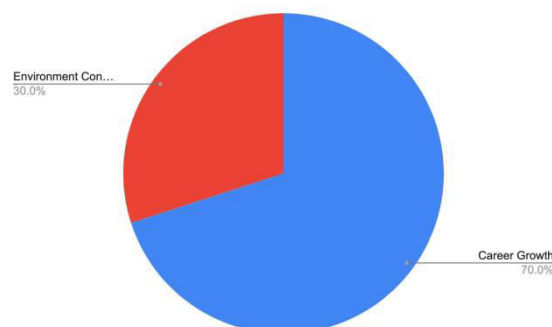
No-40%



3. What influenced your decision to pursue a career in the electric vehicle sector?

1. 70% career growth

2. Environmental Awareness 30%

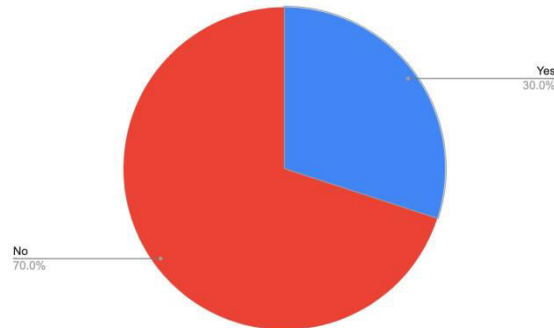




4. Will electrical vehicles help salespeople advance their careers?

Yes-30%

No-70%



## V. RESULT AND CONCLUSION

1. The electrical vehicle industry will promote job growth in a variety of divisions, including research and development, infrastructure, and manufacturing.

2. According to the report, at least 30% of workers are interested in working in the EV industry because they care about the environment.

## VI. CONCLUSION

The fuel efficiency of vehicles can be improved by hybrid, plug-in hybrid, and electric vehicles, although these vehicles are more expensive to acquire than conventional vehicles. Over the course of their lifetime, customers, society, automakers, and policymakers generally profit economically from their decreased petroleum consumption and greater production. The literature, summary, and recommendations for HEV, PHEV, and BEV penetration rate are all covered in detail in the paper Automaker - an overview | Science Direct Topics research on the Indian market. The Indian government's recent measures and several incentives will support the country's move towards e-mobility. When unconventional energy sources are not available, a novel idea called "vehicle-to-grid" can either supply energy to the grid or be utilized to recharge the battery. This technology is crucial for energy security, and renewable energy, and provides a lot of opportunities to address challenges with global warming. The main originality of the study is a description of the obstacles and issues with electric vehicles in the Indian setting.

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