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ELECTRIC VEHICLES ARE NOT JUST THE WAVE OF THE FUTURE, THEY ARE SAVING LIVES TODAY

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ABSTRACT

Our lives and the environment are being saved by electric automobiles. Transportation is the main cause of climate pollution. We must make the cars and trucks on our roads as clean as possible in order to address the climate catastrophe. In order to mitigate the worst effects of climate change, we only have ten years left to modify the way we use energy. As these cars and batteries become more affordable, consumers become more environmentally concerned, and governments work to reduce pollution, the market for EVs is expanding. It goes without saying that more nations are worried about the threat posed by climate change. Already, certain areas are dealing with more extreme weather, including intense droughts, flooding, storms, heat waves, and rising sea levels. The need to lower carbon emissions globally and develop a more sustainable transportation industry is growing. There isn't just one way to achieve these objectives, though. The environment must be protected and various measures to minimize climate change must be done.

KEY WORDS:

Electric Automobiles, Transportation, Catastrophe, Pollution, Flooding and Storms.

1. INTRODUCTION

An electric car is one that runs on an electric motor rather than an internal combustion engine. Electric vehicles are advantageous since they cut down on the harmful emissions that an engine-powered vehicle releases. They can significantly contribute to lowering atmospheric air pollution. For instance, nations are emphasizing the switch to sustainable energy, which includes introducing EVs on the road. Consider the state of California, which will legally outlaw the sale of any gas-powered vehicles by 2035. A lot of buyers are also thinking about buying an EV because of worldwide inflation.

The emissions from vehicles and trucks harm not only the environment but also our health. Asthma, bronchitis, cancer, and early mortality are all caused by the air pollutants released by petrol and diesel-powered automobiles.

Localized air pollution has long-term negative effects on health, which are manifested in heart diseases, lung damage, and asthma attacks. According to Rashmi Joglekar, a staff scientist with Earth justice's Toxic Exposure & Health Programme, a Harvard University study discovered "a striking association between long-term exposure to harmful fine particulate matter and COVID-19 mortality in the United States." The combustion of petrol and diesel engines in motor vehicles is one of the main contributors to fine particulate matter pollution (PM2.5). In addition to big-rig tractor trailers, electric vehicles today comprise cars, transit buses, trucks of all sizes, and even trucks of all sizes.

There are three primary types of electric vehicles:

1. Electricity kept in a battery pack powers battery-electric cars.
2. In plug-in hybrid vehicles, an electric motor and sizable rechargeable battery are combined with a petrol or diesel engine.
3. The electricity needed to power the motor in fuel cell automobiles is created by splitting hydrogen molecule electrons.



Figure 1. Represent the several types of Electric Vehicles

Advantages of Electric Vehicles:

1. Electric vehicles have the advantage that many of them can be recharged wherever they call home, whether that be your home or a bus stop.
2. Because of this, electric vehicles make sense for fleets of trucks and buses that frequently visit a central depot or yard.
3. New recharging options, such as providing additional public charging spots in retail spaces, parking garages, and workplaces, will be necessary for people and businesses without the same access at home as more electric vehicles join the market and are utilised more widely.



Figure 1. Represent the Charging process of Electric Vehicles

2. HOW ELECTRIC VEHICLES IMPACT THE ENVIRONMENT

Electric vehicles are frequently thought to be better for the environment because they don't use conventional petrol or produce emissions. Let's examine some of the environmental effects of EVs, both beneficial and detrimental. Here we can discuss the positive effects as well as negative effects of the electrical vehicles.

Positive Impacts

The following are the list of positive impacts:

1. No air pollution-causing tailpipe emissions are produced by EVs.
2. EVs do not contribute to noise pollution because they are comparatively quiet.
3. Engine oil, which is typically detrimental for the environment, is not used in EVs.
4. Due to their unique design, EV brake pads "don't corrode, crumble, and fail prematurely" necessitating costly maintenance.
5. When possible, EV makers typically aim to employ environmentally friendly materials.

6. When run on renewable energy, EV chargers are less harmful to the environment and its resources than conventional petrol stations. Unlike a petrol station, which must carry fuel, there is no requirement for transportation to get the "fuel" to the chargers.

Negative Impacts

The following are the list of Negative impacts

1. Electricity from power plants, which still burn fossil fuels, is typically used by EV chargers. This might provide a challenge in regions like California, where the electrical grid is already stressed during the sweltering summer months, forcing citizens to endure more rolling blackouts.
2. The creation of EV batteries may have a negative effect on the environment, resulting in things like biodiversity loss, air pollution, and a shortage of freshwater.
3. Materials that need a lot of energy to extract, such nickel, lithium, cobalt, and others, are used in EV batteries. Additionally, these minerals are frequently exploited in areas with a bad environmental track record. Consider the lithium mining that is currently taking place in Argentina.

3. COMPARISION OF PRIMITIVE ICE VEHICLES AND PRESENT EV VEHICLES

In this section we are going to discuss about the Internal Combustion Engine(ICE) and recent Electric Vehicles and their differences in clear:

Due to their various propulsion systems and designs, electric vehicles (EVs) and traditional internal combustion engine (ICE) cars have different safety characteristics. To compare the safety aspects of EVs and ICE vehicles, consider the following critical points:

Crash Safety: To safeguard people, both EVs and ICE vehicles priorities crash safety. They both use crumple zones, airbags, and other similar safety features like seatbelts. Both types of vehicles have crash safety ratings, such as those offered by agencies like the Insurance Institute for Highway Safety (IIHS) and the National Highway Traffic Safety Administration (NHTSA).

Battery Safety: To ensure safe operation, EVs are fitted with sophisticated battery management systems that track the battery's temperature, voltage, and other factors. These controls assist in avoiding overheating, overcharging, and other potential safety problems with batteries. To reduce the possibility of thermal runaway or fire events, EV manufacturers also incorporate numerous safety features into the design and construction of the battery packs.

Fire Safety: EVs and ICE vehicles differ in terms of fire safety considerations, even though all vehicles pose some risk of fire in the event of a serious crash. To reduce fire dangers, EVs have flame-retardant materials, fire-resistant battery enclosures, and thermal management systems. EV batteries are built to shut down and isolate

damaged cells in the event of an accident, preventing future problems. Manufacturers adopt safety precautions like gasoline cutoff switches and strengthened fuel tanks since ICE vehicles have various fuel system fire risks.

Pedestrian Safety: The focus on pedestrian safety has increased in EVs, especially those with quieter electric motors. In order to notify pedestrians of the presence of the vehicle at low speeds, they are outfitted with pedestrian detecting systems and exterior speakers that produce warning sounds. This feature tries to increase overall pedestrian safety and make up for the lower noise that electric power trains produce.

Regenerative Braking: Regenerative braking, which aids in converting kinetic energy into electrical energy during deceleration, is a common characteristic of EVs. Better control and possibly shorter stopping distances are made possible by this feature. It's important to keep in mind that regenerative braking behaviour can differ between EV models and may necessitate some driver adaptation.

Vehicle Handling: Because EVs' heavier batteries are mounted in the chassis, they often have lower centres of gravity, which can increase stability and minimize the chance of rollovers. Additionally, better handling and increased control, particularly in corners, may result from the battery pack's uniform weight distribution along the floor.

Maintenance and Reliability: Compared to ICE vehicles, EVs typically have fewer moving parts and a simpler mechanical architecture. As a result, there may be less maintenance requirements and mechanical failure risks. It's crucial to remember that EVs have certain maintenance requirements, such as periodic software upgrades and checking battery health.

4. NOISE POLLUTION REDUCTION

Due to the migration of ICE to EV, there is a great change in noise pollution impact.

- 1) Engine Noise Reduction:** Compared to conventional internal combustion engine (ICE) vehicles' combustion engines, EVs' electric motors run significantly more quietly. The overall noise produced by automobiles, particularly during slow-speed city driving, is significantly reduced when there is no engine noise. The citizens of the city benefit from a quieter and more pleasant urban environment because to this reduction in noise levels.
- 2) Lower Noise Emissions:** EVs emit less noise overall in addition to the silent functioning of electric motors. Traditional automobiles with internal combustion engines produce noise from the engine, the exhaust system, and the gearbox, among other places. Particularly in densely populated urban areas, the elimination of these noise-emitting components in EVs substantially reduces noise pollution.
- 3) Enhanced Quality of Life:** Noise pollution negatively impacts urban settings' quality of life. Stress, sleep disorders, and other health problems can be brought on by excessive noise. EVs contribute to a quieter

environment by dramatically lowering vehicle-related noise, which improves the comfort and well-being of city dwellers. Outdoor activities, social connections, and general community happiness can all benefit from quiet streets.

4) Improved Pedestrian Safety: EV noise reduction may increase pedestrian safety. To make up for the lack of engine noise at low speeds, electric vehicles frequently use pedestrian recognition systems and warning noises to alert pedestrians. It may be simpler for pedestrians to hear oncoming vehicles and cross roadways safely thanks to this feature.

5) Noise Reduction at Night: Because ambient noise levels are lower at night, noise pollution is more annoying. Due to their quieter operation, EVs help to reduce nighttime noise pollution, which is advantageous for residents of residential areas close to busy roadways. Lower noise levels allow for a more relaxing sleep environment and enhance general health.

6) Impact on Public Spaces: Using EVs can result in lower noise levels, which can improve the quality of public spaces including parks, leisure areas, and outdoor dining areas. These areas are more welcoming and peaceful because there is less excessive traffic noise to be enjoyed there. Environments that are quiet promote leisure time, relaxation, and a love of nature.

5. PROPOSED KEY OBJECTIVES

In this we try to discuss about the proposed key objectives of our article.

- To investigate how Indian consumers feel about electric automobiles.
 - To investigate consumer knowledge about electric vehicles in the Indian market.
 - To research what influences customers when they buy electric automobiles.
 - To research the barriers keeping consumers from buying electric automobiles.
 - To persuade producers of electric vehicles and related goods and services to produce more of them in the nation.
 - To lower air pollution and vehicle emissions across the nation.
 - Seek to build a charging infrastructure for electric vehicles.
 - By 2030, the goal is to replace 30% of all vehicles with electric ones.
- Low maintenance expenditures and lower operating costs
- Financial and tax advantages
 - Reduces the use of petrol and diesel, which is harming our world.

Future electric vehicles will function as expected by users in terms of usability and vehicle attributes. For instance, dependability, cost-effectiveness, driving range, range forecast, charging station accessibility, overall trip time, and particularly convenience of long distance travel and comfort under all environmental conditions

and traffic scenarios. Eco-routing, also known as the most economical route determined by connectivity and range prediction. Regarding the shortest road and the fastest path, the possible energy savings per journey range from 5% to 15%; eco-driving, or the most economical driving technique for the chosen route. This is based on connectivity, proximity sensors, radar, and eco-trip planning. The eco-coaching advisor is expected to enable the driver to save 20% on average.

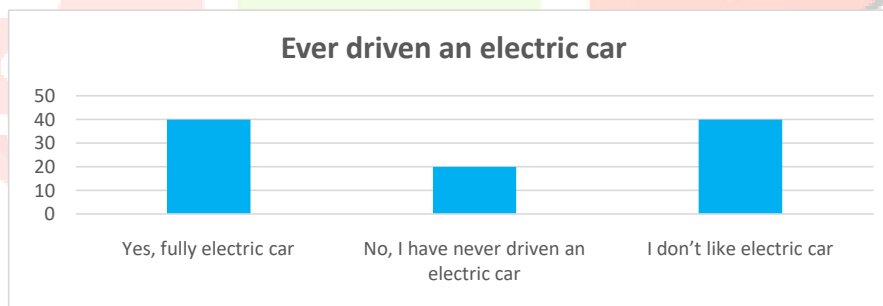
6. REVIEW REPORTS

In this section we try to show the analysis of review reports which are gathered from several users based on some inputs collected related to the electric vehicles.

PROPERTIES TABLE:

S. No	Ever driven an electric car	No. Of Respondents	Percentage
1	Yes, fully electric car	40	40%
2	No, I have never driven an electric car	20	20%
3	I don't like electric car	40	40%

CORRESPONDING GRAPH

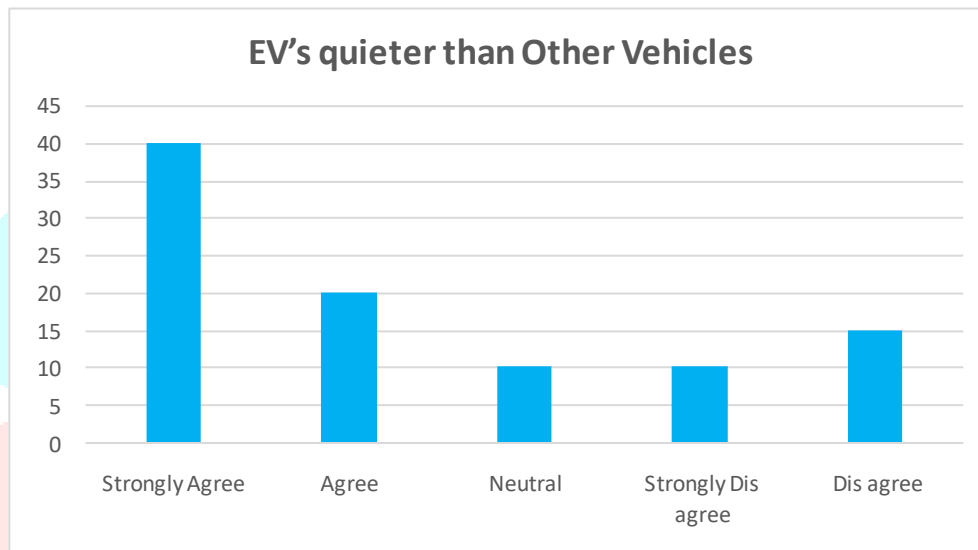


Interpretation:

The above graph represents that some of the people agree that they drive electric cars and some not due to lack of awareness.

ELECTRIC VEHICLES ARE MUCH QUIETER THAN OTHER VEHICLES**Table:**

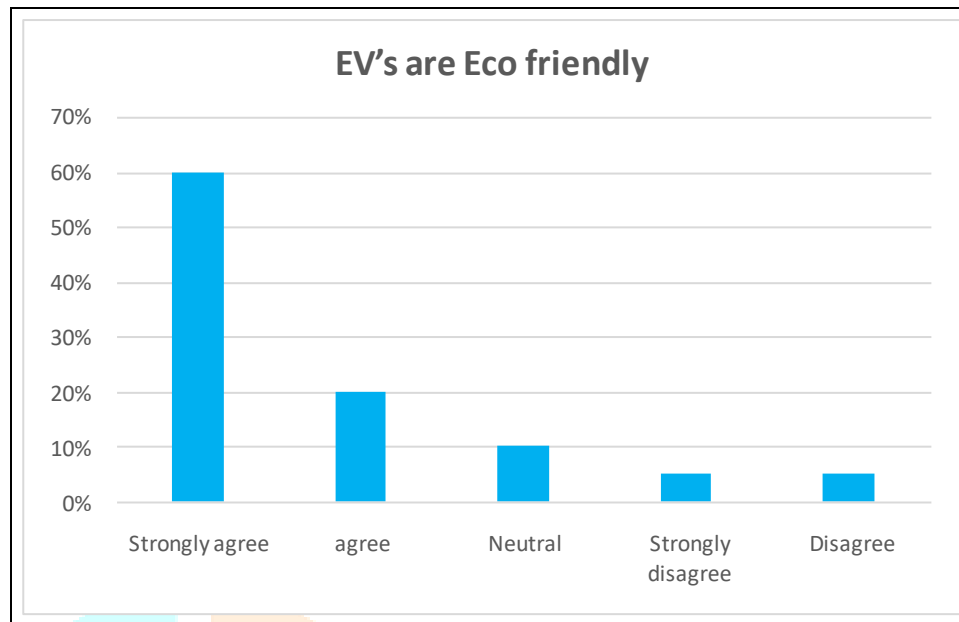
S. No	EV's quieter than Other Vehicles	No. Of Respondents	Percentage
1	Strongly agree	40	40%
2	agree	20	20%
3	Neutral	10	10%
4	Strongly disagree	10	10%
5	Disagree	15	15%

CORRESPONDING GRAPH**Interpretation:**

The above graph represents that most of the people agree that electric vehicles are much quieter than other vehicles. But due to lack of awareness about EV'S some customers don't go with the above statement.

ELECTRIC VEHICLES ARE ENVIRONMENTALLY FRIENDLY BECAUSE THEY HAVE ZERO EMISSIONS**Table:**

S. No	EV's are Eco friendly	No. Of Respondents	Percentage
1	Strongly agree	60	60%
2	Agree	20	20%
3	Neutral	10	10%
4	Strongly disagree	5	5%
5	Disagree	5	5%

CORRESPONDING GRAPH**Interpretation:**

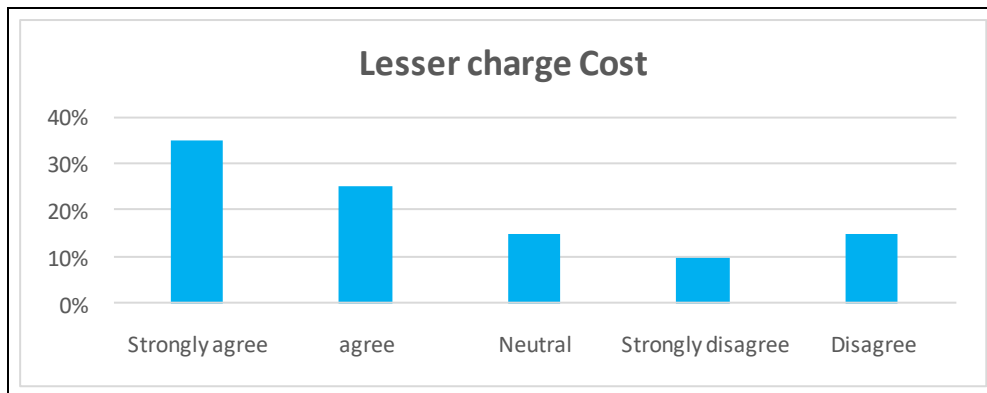
The above graph interprets that most of the respondents accept that EV'S are eco-friendly as they are build for protecting the environment by zero emission.

THE COST TO CHARGE AN ELECTRIC VEHICLE IS MUCH LESS THAN THE FUEL COSTS FOR A PETROL OR DIESEL VEHICLE

Table:

S. No	Lesser charge Cost	No. Of Respondents	Percentage
1	Strongly agree	35	35%
2	Agree	25	25%
3	Neutral	15	15%
4	Strongly disagree	10	10%
5	Disagree	15	15%

CORRESPONDING GRAPH



Interpretation:

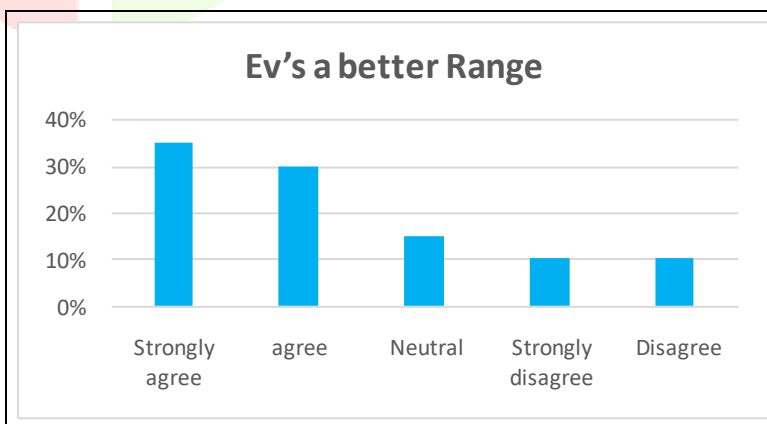
The above graph interprets that most of the respondents agree that EV’S maintenance cost is lesser than fossil fuel cars. Only the customers who use EV’S quoted the above statement.

ELECTRIC VEHICLE TECHNOLOGY HAS IMPROVED AND THEY NOW HAVE A MUCH BETTER RANGE

Table:

S. No	Ev’s a better Range	No. Of Respondents	Percentage
1	Strongly agree	35	35%
2	agree	30	30%
3	Neutral	15	15%
4	Strongly disagree	10	10%
5	Disagree	10	10%

CORRESPONDING GRAPH

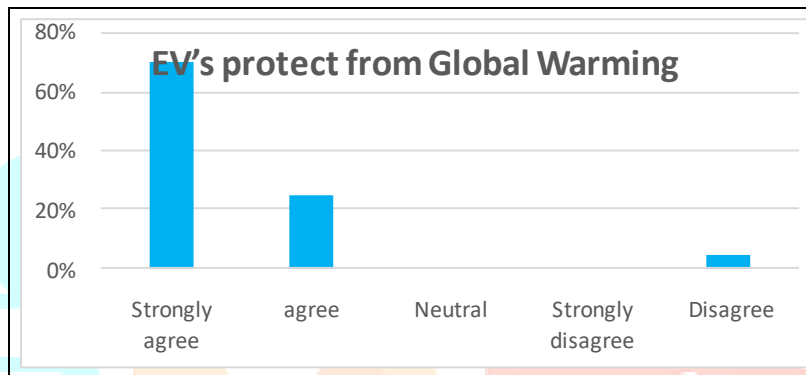


Interpretation:

The above graph represents that most of the customers using EV’S stated that electric vehicles have better range in technology and zero emission.

ELECTRIC CARS CAN PROTECT FROM GLOBAL WARMING**Table:**

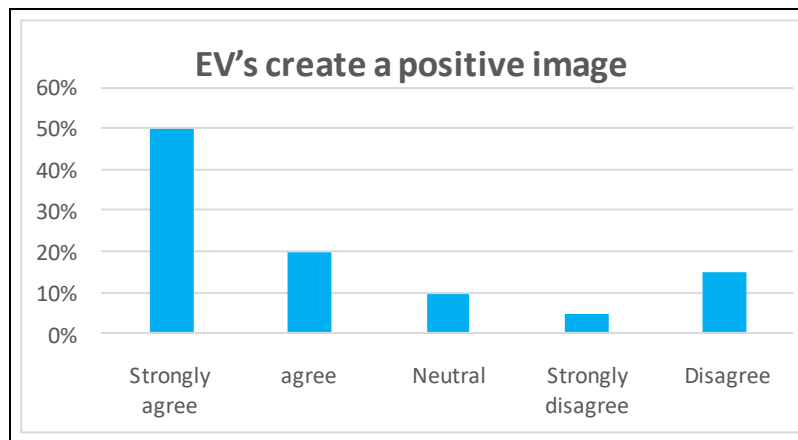
S. No	EV's protect from Global Warming	No. Of Respondents	Percentage
1	Strongly agree	70	70%
2	agree	25	25%
3	Neutral	0	0%
4	Strongly disagree	0	0%
5	Disagree	5	5%

CORRESPONDING GRAPH:**Interpretation:**

The above graph interprets that most of the respondents states that EV'S are eco-friendly and they plays a major role in protecting the earth from global warming.

BUYING ELECTRIC CAR WILL HAVE POSITIVE EFFECT ON MY IMAGE**Table:**

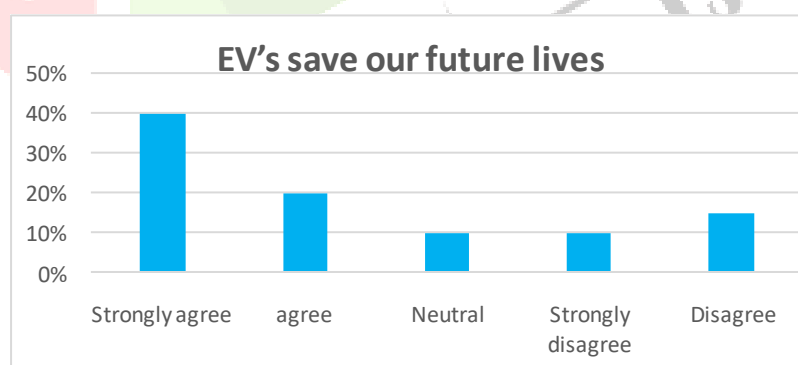
S. No	EV's create a positive image	No. Of Respondents	Percentage
1	Strongly agree	50	50%
2	agree	20	20%
3	Neutral	10	10%
4	Strongly disagree	5	5%
5	Disagree	15	15%

CORRESPONDING GRAPH:**Interpretation:**

The above graph represents that most of the respondents stated that EV'S create a positive image in the society.

ELECTRIC VEHICLES SAVES ENVIRONMENT AS WELL AS FUTURE LIVES?**Table:**

S. No	EV's save our future lives	No. Of Respondents	Percentage
1	Strongly agree	40	40%
2	agree	20	20%
3	Neutral	10	10%
4	Strongly disagree	10	10%
5	Disagree	15	15%

CORRESPONDING GRAPH:**Interpretation:**

The above graph interprets that most of the respondents says that EV'S save environment as well as future lives.

7. CONCLUSION

This study reveals that consumers who do not already possess electric vehicles are also interested in purchasing them in the future. In the future, it will be harder to get fossil fuels like diesel and petrol, which will cause more people to switch to electric vehicles. We started this study because we thought it would be beneficial and have an effect on the environment in the future. The introduction of electric automobiles will be a wise environmental decision. This survey proved that people had a positive attitude towards purchasing electric vehicles. One of the challenges we encountered during the research was customers' ignorance of electric automobiles. We are quite pleased with this research because we were able to obtain pertinent data from the customers. In light of these findings, it can be said that consumers have a favourable attitude and impression of both electric vehicles and the environment. Since they have no emissions and very little environmental impact, electric vehicles are also one of the factors that help keep the planet's surface cool and prevent global warming. The conclusion is that electric vehicles are "Electric vehicles are not just the wave of the future, they are saving lives today."

8. REFERENCES

1. Ankit, K., Chaudhary, S.K., & Chethan, K.N. (2018) Consumer viability of electric vehicles in India.
2. Survey monkey
3. T Varghese V S Abhilash S V Pillai A Study on Consumer Perception and Purchase Intention of Electric Vehicles in India Asian
4. <https://earthjustice.org>
5. www.abacademies.org
6. Wikipedia

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