



An Analysis of Role Of The Indian Automobile Industry In Reaching Net Zero Plan

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DOI- 10.5281/zenodo.7583109

Abstract

The automobile industry is one of the core industries which determine the nation's economic growth. This industry contributes 7.5 percent to the country's GDP, as its share, every year, in the last two decades. Actually, it is this industry, which drives the growth of other industries in India and so as economic development. The automobile industry, being a 4.8 billion industry, is rated as the 4th largest industry, on a sales basis and the 7th largest industry, on a production basis in the world. This segment is the seventh largest producer of commercial vehicle in the world and is anticipated to march towards the fifth position by year 2025. As countries accelerate their transition to a net-zero world, the automobile industry is one which took a greater part to achieve green economy. In reaching out of green economy by the year 2070 India will reach the growth towards the decarbonized economy. In the progression there will be a 1 billion tones reduction in projected Carbon emission by 2030. which is a key breakthrough on the way to a Net Zero plan. The reliance on fossil fuel needs to be hacked by the way utilizing the renewable energy. And of course, it's no anonymity that India's transport sector has a big role to play in this regard. Up gradation of electrification of mobility, alternative clean fuel arrangements will play a meaningful role in curtail the carbon emission. But before to start there are critical factors that we need to examine on this uptake of green mobility. Hence this research articles helps to indentify & analyze the role of Indian automobile industry towards attainment of Net Zero Plan.

Key Words: Automobile, Analyses Critical Emission, Green economy, Net Zero Plan, Role

Introduction

Net Zero means reducing Carbon and other green house gas emission to as close to zero as possible by the 2050. The Carbon neutrality is a state of net-zero carbon dioxide emissions, thus reduce the Earth's net climate change. India's one of the fastest growing chief economy in the world. It is expected to be one of the top three economic powers in the world over the next 5 to 10 years. Though all the industries are the backbone , especially agriculture, for the nation's economic development, the automobile industry contributes the major part to the Indian Economic Development. This industry subscribes 7.5 percent to the country's GDP, of this Commercial vehicle manufacturers plays a dominant role. This can be swearing to the fact that this segment contributes more than 50 percent of the total

share of 7.5 percent of automobile industries in country's GDP every year. Even though of all the above said merits the automobile industry, It is one which contributes dominant part in climate change. To reduce the emissions and decarbonizes all sectors of the Indian economy from automobile to agriculture is the main strategy of net zero emission level The important milestone of the automobile industry in India is leading to reduce the emission level by discovering the new strategies that can help optimize utility operations to deliver better sustainability in maintaining the green economy. Limiting global warming to 1.5 degrees C (2.7 degrees F) is still possible. But to avoid the worst climate impacts, global greenhouse gas (GHG) emission will need to drop by half by 2030 and reach net-zero around mid-century. India Guarantees those businesses have adequate

funds to meet the short-term and long term financial commitments to reach the net-zero. Sound management of funds detailed plan to be fixed before travelling the path to reach Net-zero in automobile industry. Through the analysis, it gives a clear picture that the automobile industry has a significant role to play in making India a Net-zero economy by 2070.

Statement of the problem

Across the country many business sectors are also doing their bit by pumping long term-term investments into green technology. Automobile Industry contributes to the overall expansion in battery production, solar power setups, alternative clean fuel arrangements, etc. At the same time among all emissions associated with the automotive industry emission related to the use of vehicle account to more than 90% of most car manufacturers reported is a carbon dioxide emission. Automobile segment show a negative trend in their performance of controlling the emission level.. Hence the researcher is interested to really know the reason for such gloomy performance of the firms. So the study is took its shape.

Review of Literature

Review enlightens the researcher to gain insights into various dimensions in which the previous research works in the proposed research domain were carried out. This review helps the researcher to discover and explore the unexplored research areas and dimension in the relevant research domain and incorporate the same in the present research.

Nirvikar Singh (2022) This paper reviews and assesses India's energy policy in the context of its commitment to achieving the target of net-zero carbon emissions by 2070. It emphasizes the central role of green electrification, particularly through the expansion of solar power capacity. It discusses policies outside the energy sector that need to be part of a strategy for achieving this target, including the use of information technology, infrastructure development, and transportation. Furthermore, it examines possible policy options for accelerating the target date to 2050, especially with the use of carbon capture to manage the transition from the current heavy use of coal. The paper also discussed the possible financial and growth implications of various strategy options,

arguing that feasible external financing commitments can allow India to achieve net-zero goals without sacrificing economic growth.

Jagdish Prasad Baisantri (2019) The study's main objectives are to identify the barriers and challenges for the Indian automobile industry to sustain itself in the market. The automobile industry grew at the rate of 14.4% over the past decade, making India the world's sixth largest producer of automobiles in terms of volume and value. The sector employed 12.5 million people (about one percent of India's population), directly and indirectly, and contributed nearly five percent to India's GDP. Currently, India's the share of global production of automobiles is 4.9 percent, making it the fifth largest producer after China, Japan, Germany, and South Korea. The government of India aims to make automobile manufacturing the main driver of the 'Make in India' initiative, as it expects the passenger vehicles market to triple to 9.4 million units by 2026, as highlighted in the Auto Mission Plan (AMP) 2016-26. in international trade research paper Indian Automobile industry is flourishing its twigs worldwide and is close to a fruition of triumph in the global competition. The spine of the industry is its suppliers of auto components and accessories which is also an exclusive industrial segment. Today the auto industry is enjoying the benefits while the auto component sector is in its gloom despite hard efforts to survive. The factors making the differences are the unavailability of resources like skilled labor and technology, the high cost of production due to inflation, and Government policies of indirect taxes such as customs and excise. The paper highlights the challenges faced by the Indian automobile industry in the domestic and global markets. Biswajit Mahanty and Virupaxi Bagodi (2007) More than 55 million two-wheelers are moving on Indian roads. Accordingly, two-wheeler service sector should have generated revenue amounting to INR 100,000 million per year, but in reality, this has not been realised in the organised service sector, the Indian two-wheeler service industry has not considered servicing as a line of business and providing conveniently reliable services is most important in two-wheeler services in India to capture the market. Oyama (2012) Honda Motor wants to be number one in the Indian market and the

company wanted 30% of Honda's global sales to come from Indian operations by 2020. HMSI have had issues related to production in the past with most of its models having the longest waiting period in the country, this reduced in Honda's penetration in the rural market, which is less than a third of Hero Moto Corp.

Objectives of the study

To find out the key areas required to reduce the emission to reach a net zero plan to analyse the role of the Indian automobile industry in reaching the net zero plan.

Research Methodology:

The descriptive-evaluative method is used for the study. The study is mainly review-based. It is purely supported by the secondary source of data, i.e., books, journals, Newspapers, articles, and the internet.

Key areas required to reduce the emission to reach a net zero plan

1 Work more closely with customers

Companies will not succeed unless there is ongoing, widespread demand for their new products. The key question for automotive is how quickly customers will change their buying behavior in favor of greener vehicles. Legislation is expected to play a role in driving consumer demand, but rather than wait until regulations are in place, companies should work swiftly to educate their customers and influence their mindsets and collaborate directly with them to generate demand early on.

2 Focus on technology to create growth

With low-carbon/negative-carbon technologies now at various stages of maturity and development, companies need to explore, understand, and assess them for future growth and value-creation potential. Low-carbon electric vehicle technologies are clearly at the heart of the automotive industry's future, but there are still significant value and sustainability gains to be made through the increased digitalization of companies' business and manufacturing operations.

3 Develop new business models

In the Net Zero world, new business models will open up new growth opportunities. For instance, by moving from supplying hardware to providing services, automotive companies can create new business models across areas such as mobility, smart cities,

and logistics. In addition, CEOs will need to get used to running "two-speed companies"—one that is tied to the core/legacy business, and one that is much more agile, constantly innovating and bringing out new-generation products and services.

4 Align internal priorities

Achieving success starts by aligning priorities across the board, management, and employees. The Chief Executive and senior management need to work hard to communicate and increase awareness of Net Zero objectives across the organization to boost engagement. Companies then need to think through and act to set the type and time horizon of incentives and ensure that all employee objectives fit with the company's Net Zero aims.

Ultimately, Net Zero must be completely integrated into the automotive industry's strategic planning going forward, as well as being built into each company's overall revenue model. Emissions reduction and financial growth are possible, but it requires vision, commitment, and bravery to achieve these dual objectives.

Indian Automobile market The India passenger car market was valued at US\$ 32.70 billion in 2021, and it is expected to reach a value of US\$ 54.84 billion by 2027, while registering a CAGR of over 9% between 2022-27.

The electric vehicle (EV) market is estimated to reach Rs. 50,000 crore (US\$ 7.09 billion) in India by 2025. A study by CEEW Centre for Energy Finance recognised a US\$ 206 billion opportunity for electric vehicles in India by 2030. This will necessitate a US\$ 180 billion investment in vehicle manufacturing and charging infrastructure.

According to NITI Aayog and the Rocky Mountain Institute (RMI), India's EV finance industry is likely to reach Rs. 3.7 lakh crore (US\$ 50 billion) by 2030. A report by the India Energy Storage Alliance estimated that the EV market in India is likely to increase at a CAGR of 36% until 2026. In addition, projection for the EV battery market is expected to expand at a CAGR of 30% during the same period.

Indian automotive industry is targeting to increase export of vehicles by five times during 2016-26. In FY22, total automobile exports from India stood at 5,617,246.

Number of Automobiles Produced in India (in million)



Source (IBEF)

Role of Indian automobile sector reaching zero

India's growth towards a decarbonized economy by the year 2070, especially considering the size of its population. In this process, there will be a 1 billion tonnes reduction in projected carbon emission gas by 2030, which is a important milestone to hit on the way to a net-zero economy. This gives us a clear path to follow, and in order for the end result to be efficiently affected. A larger reliance on renewable energy will have to be hammer out and our dependence on fossil fuel will need to be exceptionally hacked if we're to achieve these goals. And, of course, it's no mystery that India's transport sector has a very important role to play in this regard. A conscious, simultaneous, and decisive upgrade to the electrification of mobility will play a meaningful role in curtailing carbon emissions. The adoption of electric mobility is giving rise to sustainable mobility currently witnessing is happening at a rate that's far greater than what was predicted and forecasted, especially when it comes to electric two-wheelers. This rapid transition presage well for the future, but there are a couple of factors that need to come into play before we can seriously lean on green mobility. There are needs significant overhaul of the charging stations which are laid out across the country. and the charging stations to be present as far and wide as regular fuel pumps. Eradicating range anxiety is the job of not just the battery capacity of an electric vehicle, but also the frequency of charging locations. The automobile industry has a significant role to play in making India a net-zero economy by

2070. The signs all point towards a harmonious collaboration among multiple sectors, which is the only way we can achieve commitments. There is a tremendous opportunity to not just be a part of the future here, but to shape it. And it's an opportunity to relish.

India's roadmap towards low carbon and Sustainable mobility

Vision for a sustainable mobility network in India focuses on their should not lack relevance and targeted goals. As experts believe, India is at a historic inflection point in global transportation, expecting paradigm shift in mobility over the next few decades. With a population of over 1.34 billion, India needs a well-integrated and transformative mobility system that is equitable and affordable, also efficient and sustainable. Rethinking of mobility should include all stakeholders, citizens, industry, business entities, governments, academia, etc. Technology is likely to be the key stakeholders in this paradigm shift, but we must ensure that they are people-centric, thereby enabling innovation for sustainable development. The idea of mobility as a service is fast catching up pointing out that governments are realizing that they are funding not 'buses but 'mobility', which is essentially crucial for social good. Lastly, the role of 'culture' as an enabler in transformation of mobility can hardly be ignored. The mobility visions of most of the Scandinavian nations are based on its respective cultures. The vision of future mobility must recognize cultural aspirations on personal mobility in India and efforts should be initiated to engender behavioural change in the society. By this way, we can

ensure that the process of visioning future mobility in India sits on the right track towards sustainable development, meeting human development goals and environmental stability.

Emission Control Strategies

Number of techniques is employed to control crankshaft emission. Several of modifications to positive crankcase ventilation (PCV) were proposed by Tracy et al way back in 1970. For evaporative emission control vapor recovery system and adsorption regeneration system are employed. Several technological options available for exhaust

emission control include:

- (1) Engine operating variables modification
- (2) Fuel design modification
- (3) Exhaust gas circulation for Nox control
- (4) Exhaust gas treatment devices; and
- (5) Fuel modifications

The above technologies are well documented in literature. Table 8 shows some of possible control techniques for two stroke SI engines. As apparent there are no suitable control techniques which can effectively control HC emissions. In view of this switching from two stroke to four stroke engine is highly desirable. Number of techniques is employed to control crankshaft emission. Several of modifications to positive crankcase ventilation (PCV) were proposed by Tracy et al way back in 1970. For evaporative emission control vapor recovery system and adsorption regeneration system are employed. Several technological options available for exhaust

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Conclusion

The automotive industry is a prime example of small steps bringing change and contributing to a more environmentally friendly world. Suppliers are working with manufacturers to find solutions for a more sustainable interior. India has accelerated the e-mobility transition by adopting electric and hybrid vehicle manufacturing schemes. A policy on voluntary vehicle scrapping is being applied to eliminate old and unfit automobiles to support existing schemes. The country is, in fact a great supporter of the global EV30 @30 campaign. It aims to make at least 30% of new automobile sales to be electric by the year 2030.

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