PRESS RELEASE

New Delhi, March 14th, 2024

The first country-wide study on the impacts of the transition to electric vehicles (EVs) on the automobile sector released by iFOREST.

- The study "Just Transition in India's Automobile Sector" examines the challenges and opportunities of transitioning to electric vehicles for businesses, workers, and the environment.
- The study finds that 45-84% of parts of the internal combustion engine (ICE) vehicle, primarily powertrain components, will become obsolete due to the EV transition, impacting the manufacturers of such components.
- An analysis of 729 auto component manufacturers, who are members of the Automotive Component Manufacturers Association of India (ACMA), shows that about 34% of them will be highly impacted.
- The top 3 states most impacted by the transition are Haryana, Maharashtra, and Tamil Nadu, given the concentration of auto manufacturers in these states producing parts for ICE powertrain sub-assemblies. The impact will be most on MSMEs. The transition of these small businesses to the EV ecosystem is crucial for retaining jobs.
- The overall impact on jobs will be positive, even though the technological shift will make one-sixth of the ICE-related job roles obsolete.
- Overall, the number of job roles in the EV ecosystem is about 5% higher than in the ICE vehicle ecosystem, but the skill requirements of jobs will change as the EV ecosystem will require more educated and skilled workers.
- The impact will also be positive in terms of absolute job numbers. While the number of jobs per EV car is lower than that per ICE car, due to massive EV penetration in the coming years, there will be a net increase in the number of jobs. In passenger car manufacturing alone, the number of jobs will double from 1.7 million in 2023-24 to 3.3-3.7 million in 2036-37.
- Overall, to make the transition from ICE to EV a win-win in all respects, the report recommends a comprehensive Just Transition Policy Framework for the Automobile Sector, built on four interrelated pillars: Technology and skilling, Green manufacturing, Sustainable mobility choices, and Green energy and material circularity.

New Delhi, March 14, 2024: The International Forum for Environment, Sustainability and Technology (iFOREST), a prominent environmental think tank, released the country's first comprehensive study on the impacts of the transition to electric vehicles (EVs) on the automobile sector. The study "Just Transition in India's Automobile Sector" examines the challenges and opportunities of transition to electric vehicles for businesses, workers and the environment. The study includes six separate studies of various aspects of the internal combustion engine (ICE) vehicle to EV transition and outlines a comprehensive Just Transition Framework for India's

Automobile Sector.

The six studies cover a spectrum of issues, including the impacts on auto component manufacturers, auto manufacturing clusters, and jobs.

The report was released at a public event in Delhi that brought together various stakeholders, including government officials, industry players, auto cluster representatives, skilling agencies, and thank tanks.

While inaugurating the event, Mr. Amitabh Kant, the G20 Sherpa, and a strong advocate of clean mobility transition, said that "While India is taking important steps for EV transitions, we need to increase our ambition to remain competitive in the global market. For this, some of the key aspects will be scaling up R&D investments, development of advanced technologies, improving access to finance for enterprises including risk capital and boosting skilling measures."

Dr. Hanif Qureshi, Additional Secretary of the Ministry of Heavy Industries, in his address at the inaugural session, emphasised that. "We need detailed data and information to develop policies and plans for transitions. This will be important for industries to design measures." He also said that "R&D investment is important for job creations."

Speaking on the occasion, Dr. Chandra Bhushan, CEO of iFOREST, said, "The EV revolution in India has set the ball rolling for a clean mobility future, along with new growth opportunities. However, the paradigm change in the mobility sector will have a disruptive effect on the industry and workers. This can be minimized by timely adoption of just transition policies and practices. We have proposed 4 pillars that should guide India's green mobility future - Technology and skilling; Green manufacturing; Sustainable mobility choices; and Green energy and material circularity". The advancement of technology and the development of human resources must progress together to ensure the availability of skilled personnel to fully leverage technological capabilities. Simultaneously, technology needs to be designed and implemented in ways that reduce job displacement and improve job prospects".

Atika Wadhwa, Director, Urban Transition said that "Automobile clusters or manufacturing hotspots are engines of growth for local economy with high dependence on livelihood.so this transition cannot be on isolation. Interventions to reduce vulnerability are hence necessary. And the time is ripe for developing a transition roadmap for the sector."

Key Findings and Recommendations of the Studies

1. Modelling projections by iFOREST show that under various policy scenarios, India is

poised for a massive EV penetration in total vehicle manufacturing in the next 10-12 years.

2. While India's total vehicle production is expected to double by 2030-31 and triple by 2036-37 compared to present levels (25.9 million units in 2022-23), EV production will experience a more rapid acceleration. With an anticipated annual growth rate of 38-42% from 2022 to 2030 and 15-16% from 2030 to 2036, the production will scale up to 36 to 51.4 million units by 2036-37.
3. The penetration will be steep in the two-wheeler and three-wheeler segments, with their market share projected to increase between 50-70% by 2036-37 for two-wheelers and 100% for three-wheelers. For passenger cars, the growth will be more modest, reaching a penetration between 25-50% by 2036-37, depending on various scenarios.
4. The total cost of ownership (TCO) will be a crucial factor for the adoption and market penetration of EVs. A key factor for this is the cost of batteries. Currently, for passenger cars, the powertrain of an EV is roughly 20% more expensive, primarily due to the higher cost of batteries. If the battery cost is set aside, the powertrain of an EV car costs less than half compared to that of an ICE car. Therefore, reducing the costs of batteries and electronics is crucial for decreasing the TCO of electric vehicles.
5. The transition from ICE to EV will make about 90-100% of parts of the powertrain of an ICE vehicle obsolete. Thus, there will be a significant impact on the business of auto component manufacturers (ACMs) as they will have to supply fewer parts.
6. A pan-India assessment of ACMs (729 ACMA members) shows that about 34% of them will be highly impacted by the change in part requirements for powertrain sub-assemblies, such as engine and fuel exhaust, transmission, and driveline. The impact will be more pronounced in states like Haryana, Maharashtra, and Tamil Nadu, where these manufacturing units are concentrated.
7. A primary survey of three top auto clusters in these states- Gurugram cluster, Pune cluster, and Hosur cluster, shows that a significant impact of the transition will be on the MSMEs, which dominate the number of enterprises in the manufacturing segment. It is as high as 90-95% in clusters like Pune and Hosur. These businesses, particularly small and micro enterprises, remain highly vulnerable due to their limited financial resources and capacity to adopt new technology.
8. The impact on MSMEs will also impact a large number of contractual and informal workers associated with these enterprises. Overall, contractual and informal workers constitute nearly two-thirds (66%) of the workers in ACMs. The informality is higher in micro and small enterprises.
9. Overall, there will be a significant impact on traditional job roles in the auto sector. About 31% of the job roles will be affected - 14% will become obsolete, and 17% will require reskilling. Maximum job roles will be affected in the ICE manufacturing segment.
10. However, the overall impact on jobs will be positive. Firstly, the EV ecosystem will

have 5% more job roles than ICE vehicles. Secondly, while the number of jobs per vehicle supported by EVs is slightly lower than ICE vehicles, there will be a net increase in employment in the automobile sector due to the large penetration of EVs. Modelling projections by iFOREST show that the total number of jobs in passenger car manufacturing alone will grow from 1.7 million in 2023-24 to 3.3-3.7 million in 2036-37.

Considering the prospective impacts on businesses, jobs, and the environment (due to increased personal vehicle adoption), the study proposes a comprehensive 'Just Transition Policy Framework for the Automobile Sector' highlighting 12 key interrelated policy aspects. Some of the key policies that the Framework highlights include:

- A national e-mobility Policy with defined targets to promote EV deployment.
- Policies to support R&D investments to make India an innovation hub.
- Fiscal policies to provide incentives to OEMs and ACMs for adopting green manufacturing practices.
- Policies to strengthen skilling and reskilling measures aligned to the EV ecosystem. Also, OEMs should be mandated to develop a Workforce Transition Plan to strengthen enterprise-level action.
- Instituting a Right to Repair and Servicing Policy to reduce the vulnerability of workers engaged in servicing and repairing.
- Establishing a dedicated transition fund to provide targeted support to the MSMEs in the auto sector, aligned with the objectives of the MSME Act (2006).
- Promote the idea of Mobility as a Service (MaaS) through supporting policies and plans to reduce congestion, improve environmental conditions in urban areas, and boost service sector employment opportunities in the clean mobility ecosystem.

"The objective of the transition from ICE to EV should be to achieve a holistic transformation. We have the technology, the knowledge, and the human resources. These should be collectively leveraged to boost green growth in the auto sector, increase employability and job opportunities in the new EV ecosystem, and ensure positive environmental outcomes, said Chandra Bhushan.