The transport sector accounts for nearly 25% of global greenhouse gas (GHG) emissions, and 95% of the energy required by the sector comes from fossil fuels. The GHG emissions from transport are projected to go up to close to 50% by 2050 if no action is initiated by nations to bring them down. Electric mobility, coupled with improved public transportation, is the only choice left for countries to reduce GHG in the transport sector. Energy for charging stations coming from renewable sources is crucial to ensuring that electric mobility does not lead to the burning of more fossil fuels and GHG emissions. An international energy agency estimates that at least 20% of all road transport vehicles will be required to be electrically driven if the international climate policy goal of limiting global warming to less than 2 degrees Celsius by 2100 compared to pre-industrialization levels is to be achieved. According to estimates from the Ministry of Environment, Forests, and Climate Change, the transport sector contributes to about 12.1% of India’s energy-related carbon emissions and 9.7% of the country’s total GHG emissions, but there is little room for complacency. With the rapid expansion of highways and road networks and the growing demand for personal mobility, the demand for road transport in the country is growing fast, which has led to an increase in GHG emissions in the transport sector. The country’s two-wheelers and cars are growing at a compound annual growth rate of 10%, driven by the growth in the automobile sector and rapid urbanisation. The urban population is projected to increase from around 498 million in 2021 to 600 million by 2030. India’s Long Term Carbon Development Strategy highlights that, given the current growth and transport sector trends, the on-road freight segment is likely to be a significant driver of transport emissions in the long term in a business-as-usual scenario. Emissions from heavy-duty vehicles would account for the majority of such emissions, and therefore addressing both passenger and freight transport is an important goal for India’s low-carbon development, adds the strategy document. Steps initiated to reduce emissions in the transport sector include notifying Bharat Stage VI emission norms for all categories of new vehicles, mandatory scrapping of old, unfit polluting vehicles and replacement of end-of-life vehicles, the use of compressed natural gas and liquefied natural gas as fuel alternatives,

ethanol blending with fuel, and pushing electric mobility. Implementation of the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME India) scheme, Stages I and II, the subsidised scheme for promoting adoption of electric vehicles, has hit speed bumps due to inadequate charging infrastructure and the high upfront vehicle cost of electric vehicles due to the high cost of batteries. Inadequate charging infrastructure and long charging hours add to the range anxieties of vehicle owners, which explains why FAME in both stages I and II had more takers among two-wheelers compared to a low percentage of four-wheelers. India set the target of achieving EV sales of 30% of cars on the roads, 70% of commercial vehicles, and 80% of two- and three-wheelers by 2030. A latest report of the NITI Aayog on 'Electric Vehicle Charging Infrastructure and its Grid Integration in India' states that close to 66% of all EVs sold in the country are electric three-wheelers, followed by electric two-wheelers with 30%, while electric cars and other heavy-duty vehicles account for the remaining 4% of EVs. With barely six-and-a-half years left for the 2030 targets, the EV scenario in the country is akin to the egg and chicken situation. The government and industry viewpoint is that since EV adoption is in its initial stage, the EV charging infrastructure is growing in the country at the desired pace. For vehicle owners, range anxiety tops the list of issues in EV adoption due to a lack of adequate charging facilities along their routes. Such perceptions of vehicle owners about the EV charging ecosystem determine if they should go for EV adoption. The NITI Aayog report insists that "policy and regulation, informed by a thorough understanding of the EV charging ecosystem, can offer solutions to this chicken-and-egg problem." The report also underscores the need for EV policy, including provisions that identify and avoid administrative barriers to the inception of charging stations such as permission for land, permission of local bodies, electricity authority, and electricity tariff. Removing the barriers that lead to unforeseen delays in EV charging business ventures is critical to encouraging setting up EV charging stations as hassle-free business ventures. Fossil fuels account for 58% of the country's energy mix; the transition to non-fossil fuel is critical to achieving the primary objective of adoption of electric mobility. A mere increase in

EV charging facilities, ignoring this fact, will only lead to an increase in the demand for more fossil fuel-based power generation. EV charging stations powered by renewable energy are the key to sustainable decarbonization in the transport sector.