

# National Auto Policy

(Draft Version 2)

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Government of India  
Ministry of Heavy Industries & Public Enterprises

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# 1 Executive Summary

The automotive industry is a pillar of the economy and a key driver of macroeconomic growth and technological advancement. In India, the automotive industry contributes 7.1% to the total GDP and provides employment to about 32 million people, directly and indirectly<sup>1</sup>. Strong domestic demand coupled with supportive Government policies have led to the Indian automotive industry climbing up the ranks to be one of the global leaders. India is the largest manufacturer of two-wheelers, three-wheelers and tractors in the world, and the fifth largest vehicle manufacturer overall<sup>1</sup>.

The Government of India and the Indian automotive industry articulated their objectives for the future of the industry through the Automotive Mission Plan 2016-26 (AMP 2026). The plan envisions that by the year 2026, India will be among the top three in the world in engineering, manufacturing and export of vehicles and auto components. To achieve these objectives, the industry will have to ensure persistent growth over the next decade and resolve the following key issues:

**Policy instability and governance issues:** The mandates for the automotive industry in India are currently being decided or influenced by multiple stakeholders, which may, at time, lead to unforeseen and abrupt changes for the industry. There is also an opportunity to adopt a more transparent and robust basis for major regulatory and policy changes which is backed by strong scientific or commercial analysis.

**Absence of a long-term industry roadmap:** Currently, the industry needs a long-term visibility of automotive regulations in India and hence avoid any uncertainty on the future requirement of technologies, testing and skills. Better alignment is needed between the planning horizon required for automotive investments and announcements and implementation timeline for regulatory changes, thereby facilitating investments in the sector.

**Potential for improvement in technology access and R&D expertise:** Technological progress of the automotive industry in India has been restricted by limited access to emerging technologies and innovations. Also, the domestic research and development eco-system has significant potential which can be tapped by increased levels of investments in building domestic engineering capabilities and better collaboration between industry and academia.

**Shortage of skilled manpower:** The automotive industry in India is in continuous need of skilled manpower, given the limited training capacity and employability of the trained workforce. Penetration of vocational education and training in India is also not at par with other leading countries.

**Issues with the supply chain infrastructure:** Inadequate development of logistics and supply chain infrastructure in India leads to inefficiencies, delays and high costs. This is a critical bottleneck to the expansion and competitiveness of the automotive industry.

In addition to the above, there are specific issues that are hindering development of different parts of the automotive value chain in India. Considering this situation, the National Auto Policy is formulated to create an enabling environment for the automotive industry and address the key issues impacting the industry. Through a comprehensive policy framework, it envisions the growth of the automotive industry as per the goals of AMP 2026.

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<sup>1</sup> Society of Indian Automobile Manufacturers(SIAM) data, 2017

The key policy guidelines prescribed by the National Auto Policy are listed below:

- 1. Rollout a comprehensive long-term (10 year) roadmap** that will define the emission standards applicable after BSVI with a target of harmonizing with the most stringent global standards by 2028, across all vehicle segments. This roadmap will in turn enable the industry and support agencies to define the requirement of technologies, testing facilities, skill development and plan long-term investments
- 2. Adopt reduction in CO<sub>2</sub> through Corporate Average Fuel Economy (CAFE) regulations:** Roadmap will define corporate average CO<sub>2</sub> g/km targets for all passenger vehicle manufacturers from 2020 onwards. Also, introduce economic penalties for manufacturers that do not meet the corporate average targets.
- 3. Introduce a composite criterion based on length and CO<sub>2</sub> emissions to classify vehicles for taxation:** Vehicle length based classification will target reduction in vehicular congestion and CO<sub>2</sub> emissions based classification will align with the overall vision of reducing Green House Gas(GHG) emissions. Monitor and review the thresholds based on market evolution and target of increasing share of greener vehicles
- 4. Harmonize standards over the next 5 years:** Define a roadmap for harmonizing key standards and testing methods with global benchmarks. Agencies like ARAI and NATRiP should be upgraded in line with the harmonization plan, to develop capabilities which are at par with global testing and certification agencies. Also evaluate accession to the UNECE WP.29 1958 agreement within the next 5 years, which will eliminate a major technical barrier to trade
- 5. Implement measures to increase exports of vehicles and components.** Conduct a detailed study of business environment, procedures, infrastructure etc. in export dominant countries such as China and Japan to identify areas of improvement in India. Identify and initiate trade agreements with countries having attractive markets for Indian automotive exports, in consultation with SIAM and ACMA. Consider phased increase of duty credit scrips (from 2%) for export of vehicles and auto components in line with comparable products to target countries under Merchandise Export from India Scheme (MEIS)
- 6. Improve the skill development and training eco-system.** Increase the accountability of Automotive Skills Development Council (ASDC) through performance based funding linked to metrics such as incremental employment generated, level of employment, curriculum coverage, industry feedback etc. ASDC to implement a Labor Market Information System (LMIS) for aggregated information of certified candidates and serve as a marketplace to match demand and supply of skilled labor.
- 7. Scale-up of indigenous R&D** with focus on commercially viable innovations. Set-up a 'Technology Acquisition Fund' to acquire technologies through licensing agreements, joint ventures or acquisitions. Incentivize PPP based industry investments in research and development of commercially viable technologies through a Hybrid Annuity Model (HAM).
- 8. Implement an outcome-based funding scheme for Industry-Academia collaboration** to promote innovation in technologies and processes that have a direct impact on the automotive industry and have high commercialization potential. To be applicable for funding, the proposed project should have been initiated by industry or jointly by the industry and academia.
- 9. Retain weighted tax deduction on R&D expenditure,** define applicable R&D expenditure heads and mandate audits by statutory auditors to verify R&D expenditure for companies to qualify for exemption.

10. **Define a list of target technologies** in the areas of green mobility, emission control, safety etc. with corresponding components and equipment that will be eligible for import duty reduction
11. **Support auto component cluster programs** in dedicated regions. Establish shared training and testing facilities in these clusters for technology improvement and skill development.
12. **Harmonize AIS and BIS standards** on safety critical parts over next 3 years, with eventual target of single standards.
13. **Provide import duty exemption on auto component prototypes** to encourage domestic R&D and testing. Duty exemption will be given on an annual pre-declared volume of prototypes planned by each company.
14. **Utilize the 'Technology acquisition fund'** for development and acquisition of critical technologies
15. **Upgrade facilities and develop expertise at NATRiP** as per requirements for testing as per Bharat New Vehicle Safety Assessment Program (BNVSAP). Promote safer vehicles by mandating fleet purchases in identified public and private sector (taxis, rental cars etc.) to be of minimum BNVSAP rating.
16. **Finalize a technology agnostic green mobility roadmap** through evolution of emission and fuel consumption standards, along with incentives plan and related infrastructure investments.
17. **Use the Government e-Marketplace (GeM) portal to aggregate all green vehicle orders** from government departments, with standard specifications over three months and enable bulk procurement.
18. **Conduct a detailed study on requirement of public infrastructure for Green Vehicles** to determine the quantity, density and mix of green mobility infrastructure required in the country as per target adoption plans. Also, standards for green vehicle infrastructure in terms of power supply, connectors, refueling etc. will be proposed.
19. **Ensure an investment and upgradation plan, for autonomous research and testing agencies** such as NATRiP and ARAI so that facilities and capabilities for development and testing are available for auto companies at the right time.
20. **Propose upgradation of few NATRiP centers to become one-stop or turn-key development and testing solution providers** to Industry. Explore HAM based PPP models for funding, without conflicts of interest

In addition to the above, the National Auto Policy prescribes other policy guidelines specific to value-chain focus areas to address the issues faced by different stakeholders.

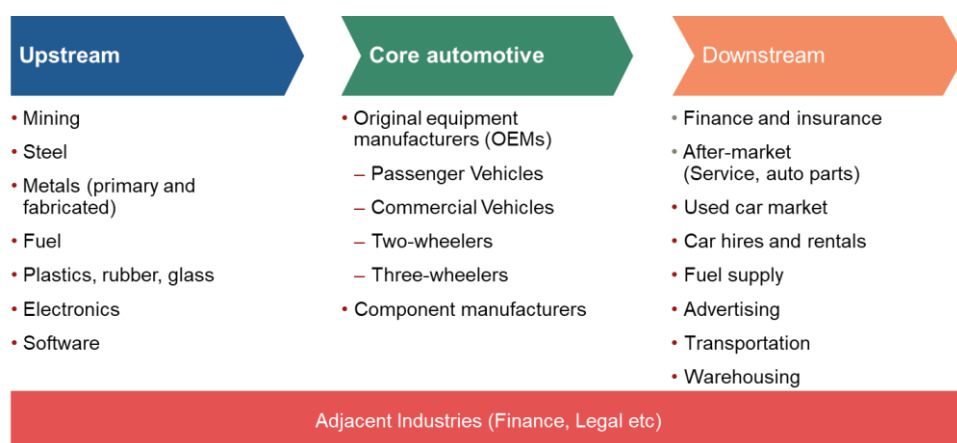
The effective implementation of these policies will require co-ordination across different ministries, government bodies. To ensure synergy, the National Auto Policy proposes the formation of a nodal body for the automotive industry that will be the key consultative agency for Ministry of Heavy Industries and Public Enterprises (MoHI&PE), Ministry of Road Transport and Highways (MoRTH) and other ministries involved in the formulation of automotive related regulations and policies. Membership of the nodal body will include ministers and department representatives from relevant ministries, along with nominated stakeholders from industry, academia and related agencies.

Collectively, the policy measures accompanied with a nodal governing structure is expected to promote robust growth of the industry and unlock its potential, with the aim of achieving global leadership.

## 2 Preamble

The Automotive industry is a pillar of an Industrial economy and a key driver of macroeconomic growth and technological advancement. It is a consistent direct and indirect contributor to GDP, foreign investment, employment and innovation in countries such as Germany, United States, Japan, South Korea, Italy and most recently China. Development of the auto industry is a major policy focus of Governments in these countries. In India, the automotive industry is a powerful engine of industrial growth. It contributes 7.1% to total GDP of and employs about 32 million people, directly and indirectly<sup>2</sup>. Furthermore, the sector attracted US\$ 16.5 Billion in foreign direct investment between April 2000 and December 2016, and is slated to attract around US\$ 8-10 Billion more in local and foreign investment by 2023.

The core automotive industry (vehicle and component makers) is a key contributor to a wide range of industries in the economy (see Figure 1). This results in a high multiplier effect for economic growth and development. Also, the scale, expertise, experience and innovation generated in the automotive industry can benefit adjacent industries such as aerospace, defense, construction and agriculture.



**Figure 1: Industries impacted by the core automotive sector**

The growth of the automotive industry in India since the early 1990's is a shining example of how industrial prowess supported by progressive policies and national economic growth can yield rewards to all stakeholders. Turnover of the Indian automotive industry increased at the rate of about 10% from 2009-10 to 2014-15<sup>3</sup>. Several global and domestic OEMs and component manufacturers now operate in the country, offering consumers an ever-expanding range of vehicles with global standards of technology, features and quality. India is also one of the only major automobile producing nations that is witnessing steady growth in both domestic sales and exports.

Government of India is cognizant of the significant changes taking place in the global automotive landscape. However, Indian Automotive companies now have the advantage of experience, scale and expertise, along with the stimulus of high domestic demand. This provides the domestic industry with a unique opportunity to achieve global leadership in both manufacturing and engineering, especially in emerging areas, and to create a clean, sustainable mobility ecosystem.

<sup>2</sup> Society of Indian Automobile Manufacturers (SIAM), 2017

<sup>3</sup> SIAM and ACMA 2017



## 3 Introduction

### 3.1 State of the Indian Economy

The Indian economy is expanding at a fast pace, boosting living standards and reducing poverty nationwide. India is the fastest growing G20 economy in the world, recording a GDP growth of 7.1% in 2016 with a forecast of 6.7% growth in 2017 and 7.4% in 2018<sup>4</sup>. In comparison, emerging markets and developing economies as a group are expected to grow at the rate of 4.6% in 2017 and 4.9% in 2018. No country above USD 1 Trillion GDP is expected to grow as fast as India in the next 5-6 years<sup>5</sup>. At the same time, GDP per capita in India grew 5.9% in 2016, and about 140 million people have been taken out of poverty in less than 10 years<sup>6</sup>.

Key drivers of the projected growth of the Indian economy over the next few years are a favorable demographic dividend, increasing urbanization and rising incomes levels and consumption. India's population between the age of 15 and 64 is slated to rise from 860 million in 2015 to about 1 billion over the next 20 years, i.e. its labor force will rise by about 30%, making it bigger than that of China<sup>7</sup>. 33% of India's population currently lives in urban areas, an increase from 18% in 1960 but is much lower than the urbanization levels in countries such as China (57%) and United States (82%)<sup>8</sup>. The estimated increase in urbanization to 37% by 2025 is expected to improve economic well-being in terms of literacy rate, population growth, infant mortality rate and poverty rate. Also, a higher urban population is correlated to an increase in middle class consumption. By 2030, India (23%) is expected to beat US (7%) and China (18%) to account for the biggest source of middle-class consumption demand in the world<sup>Error!</sup>  
No bookmark name given.

India's economic progress is also in part due to several major reforms introduced by the Government in the past few years. It is now easier to do business in India, administrative requirements have been simplified, bankruptcy laws have been modernized and Foreign Direct Investment (FDI) regulations have been eased. Important steps have been taken to fight illegal economic activity and promote tax compliance. The implementation of the landmark Goods and Services Tax(GST) reform is a major leap forward to integrate the Indian market. More reforms are planned by the Government to target competitive and co-operative federalism, financial inclusion and labor regulations. India climbed 30 places to enter the top 100 in the World Banks Ease of Doing Business Index 2017, which is a validation of the impact and positive perception being created by the reforms implemented and planned by the Government of India.

### 3.2 Automotive Industry in India

Two decades of robust growth have propelled India from being a net importer of automobiles to a leading manufacturer and exporter of vehicles and components. By volume, India is the fifth largest vehicle manufacture in the world. It is the largest manufacturer of two-wheelers, three-wheelers and tractors, fourth largest in manufacture of light commercial vehicles and fifth largest in manufacture of heavy commercial vehicles<sup>8</sup>. It is estimated that by 2020 the automobile industry in India will be the third largest in the World after China and USA.

Starting with the de-licensing of the domestic automotive market in 1991, growth of the industry has been galvanized by several sector focused policies and initiatives introduced through Auto Policy 2002,

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<sup>4</sup> World Economic Outlook October 2017 by International Monetary Fund (IMF)

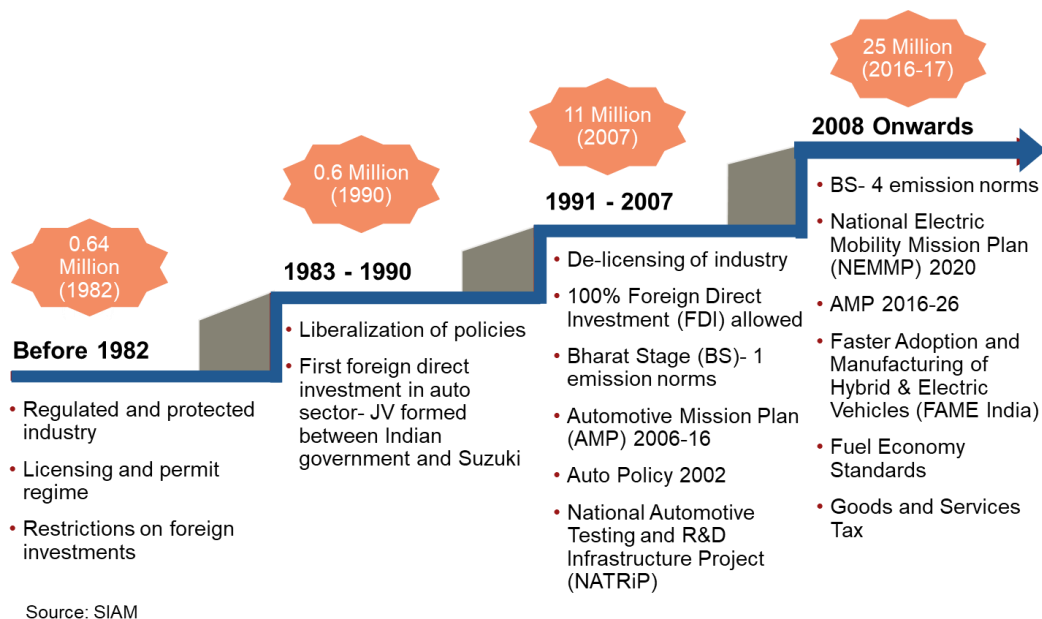
<sup>5</sup> IMF, Deutsche Bank

<sup>6</sup> OECD Economic Survey, February 2017

<sup>7</sup> United Nations Population Database

<sup>8</sup> World Bank data, 2016

Automotive Mission Plan(AMP) 2006-16, National Electric Mobility Mission Plan (NEMMP) 2020 and AMP 2016-26.



**Figure 2: Timeline of major policies and regulations for the automotive industry**

The domestic demand for automobiles is expected to remain strong as only 20.3 out of every 1,000 Indians own a car, among the world’s lowest rates. An expanding car market counterbalanced by rapid population growth with a large young population and rising incomes is expected to raise this to 29.5 per 1,000 by 2021<sup>9</sup>. It is the Government and automotive industry’s intention that this growth be supplemented with higher safety standards, technological improvement, and measures to reduce pollution and congestion.

The Paris Agreement, enforced from November 2016 and ratified by India, set the objective of limiting the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius<sup>10</sup>. The greenhouse gases emissions reduction that would be compatible with this target would require a significant increase in the share of zero or low emission vehicles over the coming years. These regulations combined with growing environmental and sustainability consciousness of the population will lead to a major transformation of the global auto industry from Internal Combustion Engine Technology to Green Mobility technologies (such as Hybrid Vehicles, Battery Electric Vehicles, Fuel Cell Vehicles, Alternative-Fuel Vehicles).

Government of India has unequivocally demonstrated its intention to curb vehicular pollution through pivotal initiatives such as Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) scheme, and regulatory measures such as early introduction of Bharat Stage- VI in 2020. Also, fuel consumption standards for Indian vehicles came into force in India in April 2017 for petrol, diesel, liquefied petroleum gas (LPG) and compressed natural gas (CNG) passenger vehicles. These standards are based on a Corporate Average Fuel Efficiency (CAFE) system and targets to bring about around 18% improvement in fuel consumption of passenger vehicles by 2022, compared to 2012.

<sup>9</sup> Economist Intelligence Unit Forecast

<sup>10</sup> United Nations Framework on Climate Change, The Paris Agreement

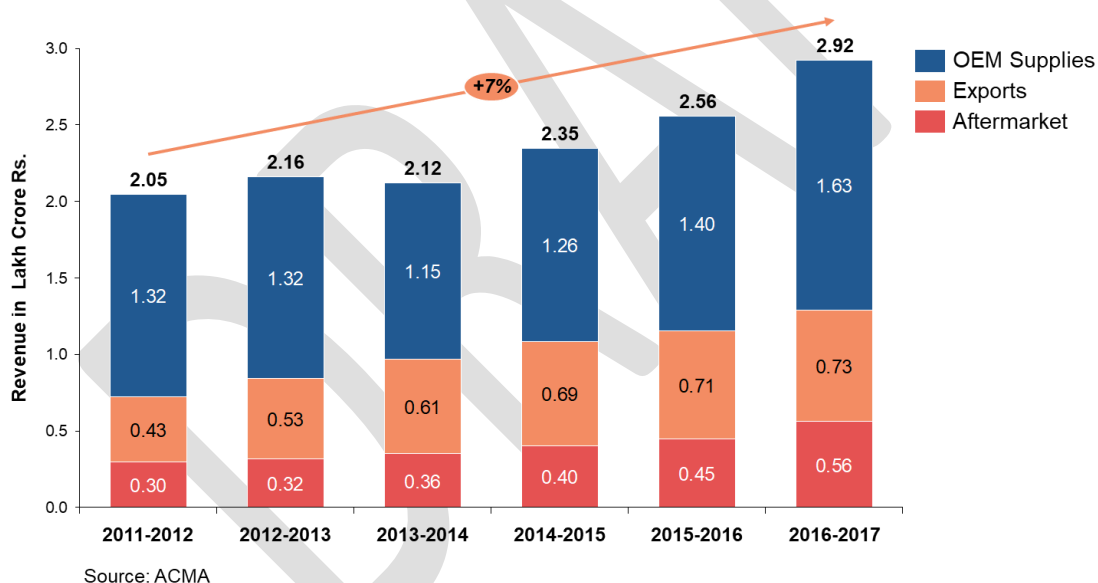
## Innovation, research and development

In the year 2016, 88.1 million cars and light commercial vehicles were sold worldwide. While production of these cars is confined to about thirty countries, majority of the cars sold worldwide are designed and developed in just five countries i.e., Japan, Germany, USA, South Korea and Italy.

Auto companies spend the third most on R&D of any industry<sup>11</sup> – in 2015 global automotive R&D spend accounted for 16.1% of the total R&D spend, while healthcare and computing and electronics accounted for 21.3% and 24.5% of the total R&D spend respectively. India is emerging as hub for automotive R&D. It already has more than 30 automotive R&D centers by corporates, 85 percent of which have headquarters in Europe. However, within the spectrum of R&D, the initiatives and efforts so far in India are inclined towards exploitation of the lower labor costs and restricted to simulation and testing in most areas.

## Auto components manufacturing

The Indian Auto components industry registered a turnover of Rs. 2.92 Lakh Crores in 2016-17, consisting of domestic supplies to OEMs, domestic aftermarket sales and exports<sup>12</sup>. The sector has grown at a rate of 7% since 2011-12 and at 14% over the last decade<sup>12</sup>. Auto components sector growth has been majorly driven by a growing domestic automobile market, emergence of India as a global hub for the manufacture of small sized engines and cars, inherent cost advantages, favorable policies for manufacturing in India and increase in the number and scale of global and domestic component manufacturers.



**Figure 3: Revenue growth of the Indian auto components sector**

Exports currently contribute 25% to the total sector revenue and has grown at 11% since 2011-12. However, auto component imports still exceed exports, with a trade deficit about Rs 1,700 Crores in 2016-17<sup>12</sup>. Around 26% of the total imports into India have been from Chinese component suppliers. India is a large exporter of engine and transmission components whereas imports are dominated by electrical and electronic components and modules. The unorganized auto component sector has proliferated in India with more than 10,000 players, catering mainly to the aftermarket segment. However,

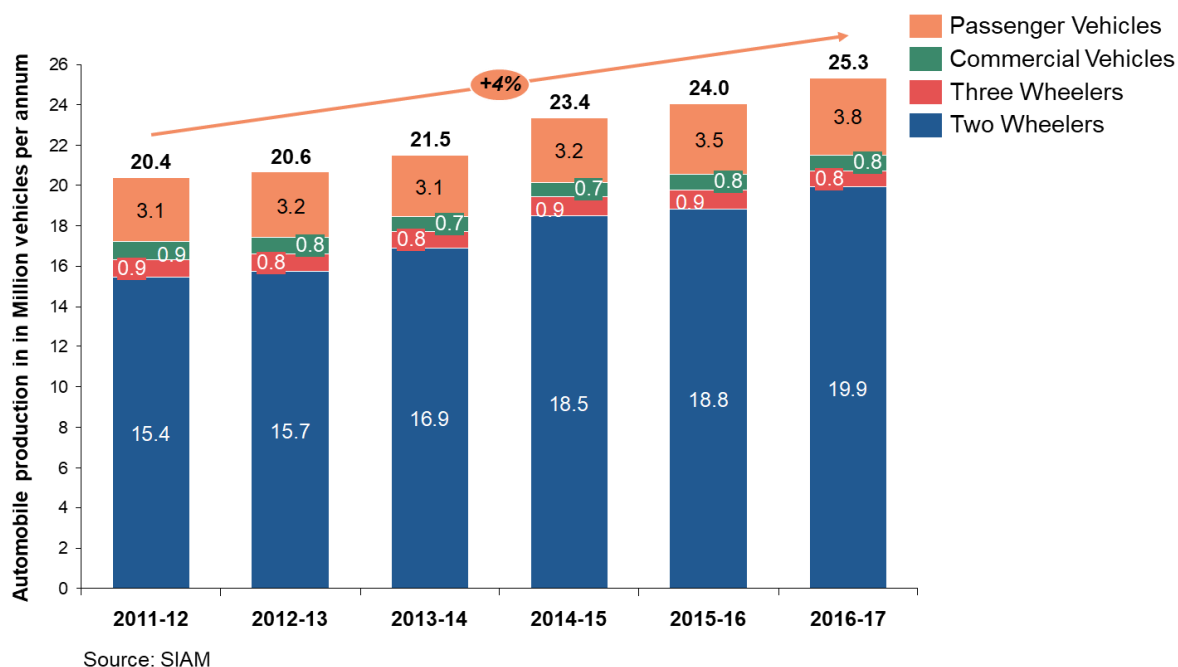
<sup>11</sup> 2015 Global Innovation 1000 Report

<sup>12</sup> Automotive Component Manufacturers Association of India (ACMA), 2016-17 Annual Report data

the unorganized companies contribute only 15% to the total sector revenue, while around 700 organized players contribute the rest<sup>13</sup>.

## Vehicle manufacturing

The Indian automobile industry produced a total of 25 million vehicles, comprising of passenger vehicles, commercial vehicles, two-wheelers, three-wheelers and quadricycles<sup>14</sup>. Two-wheelers dominate the domestic market with about 80 percent share, followed by passenger vehicles segment with 13 percent share. The vehicle manufacturing landscape in India is a mix of home-grown domestic companies competing with global companies operating in the country independently or through joint ventures. So far, Passenger vehicle sales have been dominated by global brands, whereas domestic brands hold higher market shares in the commercial vehicles and two-wheelers space. However, the traditional bastions are being challenged with higher technology requirements, greater competency and competitiveness of Indian OEMs, and increased domestic market focus and expansion by global OEMs.



**Figure 4: Segment wise vehicle production trends in India**

## Green mobility

For the national auto policy, green mobility refers to all those mobility options that emit lower emissions – in terms CO<sub>2</sub> g/km than pure Internal Combustion Engine vehicles – through the use of alternate fuels, drive-train technologies or other measures. Following is an illustrative(non-exhaustive) list of the leading green mobility options based on current technological maturity and commercial viability:

- 1) Bio-fuel and Methanol based mobility
- 2) Compressed Natural gas (CNG) based mobility
- 3) Electric and Hybrid Mobility (xEV)
- 4) Hydrogen energy and fuel cell based mobility

<sup>13</sup> Automotive Component Manufacturers Association of India (ACMA), FY 2015 data

<sup>14</sup> Society of Indian Automobile Manufacturers (SIAM) data

Green mobility technologies have the potential to revolutionize the transportation of people and goods. Currently, India stands far behind countries such as China, United States, Norway and United Kingdom who have taken the lead in converting their vehicles fleets green and becoming engineering and production hubs for green mobility vehicles.

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## Enabling ecosystem

### Skill and capability development

By the year 2020, the Ministry of Skill Development and Entrepreneurship estimates a requirement to provide skills training to around 127 million workers, of which the automotive industry shall account for around 2.2 million workers. The Automotive Skills Development Council (ASDC), under the ambit of the National Skills Development Council (NSDC), is responsible for the training standards and oversees the assessment and certifications for vocational training in the sector.

While pioneering steps have already been taken towards the development of occupational standards in engagement with the automotive industry, there is still a large gap between the needs of the industry and the skills being imparted through the training eco-system. OEMs and large component manufacturers are spending large amounts of resources and time to re-skill and up-skill workers in the automotive industry.

Due to the rapid evolution of technology and standards in the automotive sector globally such as autonomous vehicles, shared mobility etc., the skill development eco-system needs to be equally dynamic and focus on quantitative and qualitative improvements to ensure global competitiveness of the automotive industry.

### Supply chain and enabling infrastructure

Currently, India's logistics costs as a percentage of GDP are relatively high at around 14 percent. Recent reforms such as the Goods and Services Tax (GST), have already disrupted the supply chain in India towards higher operational efficiency, scale-driven warehousing, and use of more efficient sourcing models. To increase the competitiveness of the domestic industry in comparison to global markets, the government needs to expedite the building of critical infrastructure that will reduce delays, costs and inefficiencies being faced in both inland and export trade. With ambitious targets for green mobility, and need for improvement in public transportation, the government needs to intensify efforts towards rapid development of an integrated and comprehensive infrastructure aligned with the evolution of the automotive industry.

### Automotive standards

In India, CMVR-Technical Standing Committee (CMVR-TSC), Automotive Industry Standards Committee (AISC) and the Bureau of Indian Standards (BIS) formulate and recommend standards for the Automotive Industry. Ministry of Road Transport and Highway (MoRTH) along with other ministries such as Ministry of Environment & Forest, Ministry of Petroleum & Natural Gas, Ministry of Power, Ministry of Non-Conventional Energy Sources are also involved in formulation of standards related to safety, emissions, noise, fuels, energy consumption and alternatively-fueled vehicles.

World Forum for Harmonization of Vehicle Regulations (WP.29) under the United Nations Economic Commission for Europe (UNECE) was formed with an aim to harmonize vehicle regulations worldwide. Three UN Agreements, adopted in 1958, 1997 and 1998, provide a legal and regulatory framework and provisions related to performance-oriented test requirements and procedures to contracting parties (member countries). India is not a contracting party to the 1958 agreement but is a signatory to the WP.29 1998 Agreement since 2006 and is an active participant in the development of Global Technical Regulation(GTRs). Unlike the 1958 Agreement, the 1998 agreement does not mandate reciprocal acceptance of approvals of vehicle systems, parts and equipment issued by other Contracting Parties. As per industry bodies, currently India has more than 70% safety regulations which are either partially or fully aligned with GTRs and UN Regulations while keeping in view the Indian specific driving and environmental conditions.

Government of India is focused on aggressive upgradation of standards to expedite reaching global benchmarks, especially in safety, emissions and fuel consumption. In this direction, major regulatory announcements have taken place recently such as skipping of Bharat Stage(BS)-V emission norms and earlier introduction of BS-VI from 2020, requirement of corporate average fuel consumption standards for

Passenger Vehicles and approaching implementation of Bharat New Vehicle Safety Assessment Program (BNVSAP).

### **Testing and certification**

Automotive testing infrastructure in India comprises in-house testing facilities by OEMs and component manufacturers, private testing agencies and government funded autonomous agencies such as Automotive Research Association of India (ARAI) and International Centre for Automotive Technology (iCAT). National Automotive Testing and R&D Infrastructure Project (NATRiP) project was launched by the Government with a vision to create state of the art testing infrastructure in the country. The testing capabilities and facilities available and planned in India have an opportunity to cater beyond the conventional powertrain and vehicle technologies and therefore are in the process of setting up testing Facilities for electric vehicles & its sub-systems. The level of readiness needs to be ramped up to support emerging technologies green mobility, autonomous driving etc. As the technologies used on vehicles advance quickly, with sophisticated electronics and software, the process of testing, certification and compliance verification also needs to develop at a corresponding pace, to support industry readiness.

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## 4 Auto Policy 2002

The last National Auto Policy, released in 2002, was the first comprehensive policy for the Automotive Industry in India, created with the vision of establishing a globally competitive automotive industry in India and doubling its contribution to the economy by 2010.

Some of the major objectives of the policy were:

- Exalt the sector as a lever of industrial growth and employment and to achieve a high degree of value addition in the country
- Promote a globally competitive automotive industry and emerge as a global source for auto components
- Establish an international hub for manufacturing small passenger cars and a key center for manufacturing Tractors and Two-wheelers in the world
- Conduce incessant modernization of the industry and facilitate indigenous design, research and development

To achieve these objectives, some of the key policy measures and themes addressed by the Auto Policy 2002 are explained herewith:

- Automatic approval for foreign equity investment up to 100% in manufacturing of automobiles and components.
- Proper maintenance, upgradation and development of roads by encouraging private sector participation besides public investment and incorporating latest technologies and management practices to take care of increase in vehicular traffic.
- Promotion of R&D by providing suitable fiscal and financial incentives such as increase in weighted tax deduction for sponsored research and in-house R&D expenditure by vehicle and component manufacturers.
- Encouragement of use of low emission fuel technology and formulation of an auto fuel policy to plan a roadmap for auto fuel quality as per emission norm requirement and ensure availability of appropriate auto fuels / fuel mixes at minimum social costs, across the country.



## 5 Vision, Mission and Objectives of the Auto Policy

### 5.1 Vision

“To provide a **long-term, stable and consistent policy regime** and to have a **clear roadmap for the automotive industry**, making India a **globally competitive auto R&D and manufacturing hub** and achieving the targeted objectives of **green mobility**”

### 5.2 Mission

The National Auto Policy is envisaged to achieve the following missions:

- **To propel the automotive industry in India to be** amongst the top 3 nations in the world in engineering, manufacturing and export **of automotive vehicles and components**
- **To scale-up exports to 35-40% of the overall output and become one of the major automotive export hubs in the world**
- **To enable the automotive sector to become** one of the largest employment creation engines
- **To enable the automotive sector in India to become** a global hub for research & development
- **To drive the automotive sector in India to adopt** safe, clean and sustainable technologies

### 5.3 Objectives

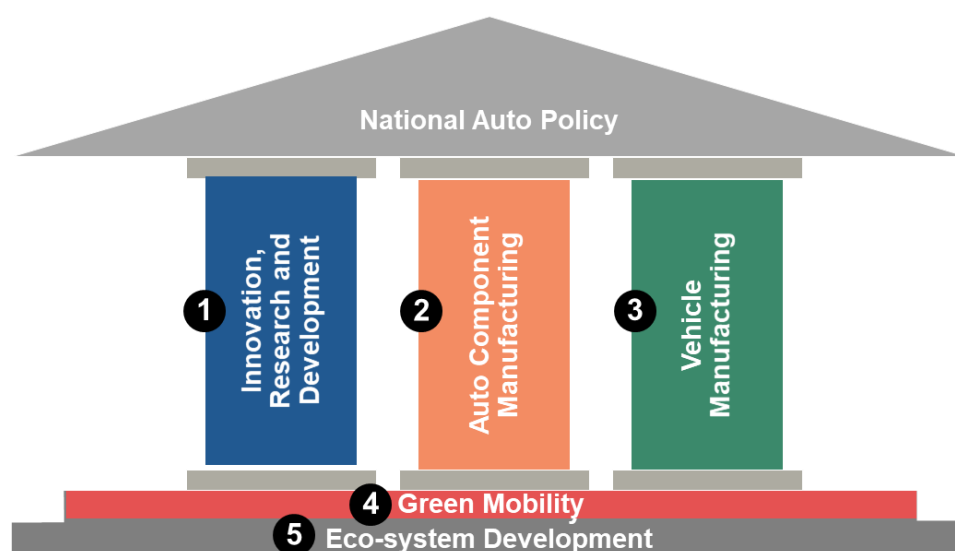
The objectives of the National Auto Policy are:

- **Increase contribution to GDP**  
To support the growth of the automotive industry in India and become one of the major contributors to the country's GDP and comprise a considerable proportion of the manufacturing sector GDP by 2026
- **Increase exports**  
To scale-up exports to 30-40% of the overall output over the next decade and improve the brand recognition, competitiveness and technological advancement of the Indian automotive industry across the world
- **Drive employment generation and skill development**  
To become a solid foundation for job creation in the automotive sector, both direct and indirect, over the next decade and become a major driver of the 'Skill India' program
- **Increase local R&D investments**  
To drive the R&D efforts in the automotive sector towards indigenous research, design and engineering in both automotive vehicles and components
- **Promote clean, efficient and sustainable mobility**  
To promote clean, safe, efficient and comfortable mobility for every person in the country, with a focus on environmental protection and affordability

## 6 Guiding Framework

The objectives of the National Auto Policy will be met through policy interventions across five identified focus areas:

- 6.1.1 Innovation, Research and Development** forms the mainstay of sustained growth in a technology intensive industry such as automotive. Automotive companies across the value-chain will be encouraged to intensify innovation and research by developing domestic capabilities.
- 6.1.2 Vehicle Manufacturing** in India is poised for unprecedented growth through burgeoning domestic demand, positive macroeconomic environment, and higher exports potential. New entrants and existing OEMs will be supported in their domestic and export growth ambitions, while ensuring a level playing field for all.
- 6.1.3 Auto Component Manufacturing in India** has immense growth potential in domestic supplies, exports and aftermarket sales. Component manufacturers will be encouraged to move up the value chain through higher value-added offerings in electronics, electrical and system supplies.
- 6.1.4 Green Mobility** will be the future of the global automotive industry. India needs to rapidly develop building capabilities, scale and increase consumer adoption to meet the nations environmental targets and leverage the global opportunities created because of this technology shift.
- 6.1.5 Eco-system development** for achievement of policy objectives needs to be prioritized as it will form the foundation for growth across the value-chain. Skill development, supply chain improvement, ease of doing business, standards, testing, and other areas will be upgraded and scaled up with a long-term vision.



**Figure 5: Guiding framework for National Auto Policy**

The proposed policy measures encompass regulatory and fiscal measures that are directed towards resolving the key issues being faced by the automotive industry in these five identified areas to achieve the objectives laid down by the National Auto Policy.

# 7 Opportunities and Challenges for the Industry

## 7.1 Opportunities and Challenges Across the Industry

### 7.1.1 Policy instability and governance issues

The mandates for the automotive industry in India are currently being decided or influenced by multiple stakeholders, leading to frequent changes for the industry. There is also an opportunity to adopt a more transparent and robust basis for major regulatory and policy changes which is backed by strong scientific or commercial analysis.

### 7.1.2 Absence of a long-term industry roadmap

Currently, the industry needs long-term visibility of automotive regulations in India and avoid any uncertainty on the future requirement of technologies, testing and skills. Better alignment between the planning horizon required for automotive investments and announcement and implementation timeline for regulatory changes will facilitate investments in the sector.

### 7.1.3 Potential for improvement in technology access and R&D expertise

Technological progress of the automotive industry in India has been restricted by limited access to emerging technologies and innovations. Also, the domestic research and development eco-system has large potential which can be tapped into by investments in building domestic engineering capabilities and lack of collaboration between industry and academia.

### 7.1.4 Shortage of skilled manpower

The automotive industry in India is in continuous need of skilled manpower, given the limited training capacity and poor employability of the trained workforce. Penetration of vocational education and training in India needs to be at par with other leading countries. The issue is expected to be compounded with the impending technological disruptions in the automotive industry that will make the traditional skills obsolete.

### 7.1.5 Issues with the supply chain infrastructure

There is an opportunity to develop logistics and supply chain infrastructure in India and eliminate inefficiencies, delays and high costs. The integration of roads, railways and ports in the country can be further enhanced, thus leading to an integrated logistics network. Provision of modern infrastructure and availability of dedicated facilities can potentially facilitate expansion of the industry and improve global competitiveness.

## 7.2 Opportunities and Challenges Specific to Focus Areas

### Innovation, Research and Development

#### 7.2.1 Limited expenditure on R&D

Research and development expenditure as a percentage of GDP in 2015 was 0.63%, which is much lower than that in other automobile producing nations such as South Korea (4.23%), Japan (3.28%), Germany (2.88%) and China (2.07%)<sup>15</sup>. Automotive R&D spend in India comprised only 3% of the worldwide automotive R&D spend. In comparison, China's share stood at 11%. While leading global auto

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<sup>15</sup> World Bank Data, 2017

suppliers spend 5 to 10 percent of their revenues on R&D, in India most auto companies spend less than 1 percent.

### **7.2.2 Limited collaboration between the industry and academia**

Collaboration between industry and academia in India has been restricted to niche research areas that have low commercial significance. Innovations from India that have been implemented and commercialized in the automotive space through joint development projects have been scarce. In comparison, industry-academia partnerships are a rich source of technological advancement and improvement in other countries.

## **Auto components manufacturing**

### **7.2.3 Low capability in new technology areas**

Technology transfer and domestic capability building has potential growth opportunity in the auto components sector, after the entry of several international component manufacturers. With increasingly stringent regulations and standards, there is a critical need to improve technology access, capability and skill levels at component manufacturers. Also, domestic capability for producing components used in green vehicles is extremely low and will be a major bottleneck for shifting the domestic mix to cleaner vehicles.

### **7.2.4 Different standards for OE and Aftermarket components**

Currently, automotive components being supplied to OEMs in India must conform to AIS standards, whereas those being sold through the aftermarket channel need to be certified according to BIS standards. Discrepancies between the standards of new and replacement parts can cause major issues in safety, emissions, and performance of the vehicle. Also, the dual certification requirements lead to higher cost of compliance for smaller manufacturers.

### **7.2.5 Import duty on auto component prototypes is same as volume production parts**

Price of imported auto component prototypes is several times higher than the volume production price, depending on extent of novel child parts, equipment and material used. Currently, import duty on prototypes is at the same rate as that on volume production parts imports. High landed price of prototypes restricts access to new technologies and hinders testing and innovation by corporates and universities.

## **Vehicle manufacturing**

### **7.2.6 Vehicle classification criterion for taxation does not promote technology advancement and emissions reduction**

Currently, vehicle classification for the purpose of taxation in India is based on length, engine size, engine type, and type (SUV, Luxury etc.). These parameters do not directly promote reduction in emissions and technology advancements. Vehicle taxation has a major impact on demand and it is necessary that the criterion is modified to catalyze investments in technology upgradation and green mobility.

### **7.2.7 Enabling infrastructure is not setup or upgraded in alignment with new regulations**

Bharat New Vehicle Safety Assessment Program (BNVSAP) and Voluntary Vehicle Modernization Program(V-VMP) are two major government initiatives that will be implemented soon. BNVSAP will increase the safety standards of vehicles produced in India through mandatory frontal and side impact test requirements; and V-VMP will target scrappage of old vehicles beyond a certain age and replacement with higher technology and cleaner vehicles. However, the readiness of testing

infrastructure and expertise, such as NATRiP for BNVSAP and scrappage centers for V-VMP is very low currently to support effective rollout.

## Green mobility

### 7.2.8 Lack of clarity on Government strategy for green mobility

Policies and announcements by different government ministries and supporting bodies in the recent past will need to be aligned on the green technologies that will be the focus of government incentives and infrastructure investments. Investments and products decisions to ramp-up the green mobility manufacturing base will require a long-term roadmap and vision.

### 7.2.9 Low demand for green vehicles

Large-scale adoption of green mobility options is limited by consumer concerns regarding technical performance of vehicles, reliability and dependability, limitation on range and refueling options, higher upfront costs etc. Consumer awareness of the benefits of green vehicles along with incentives for purchase in the initial years will be essential to boost adoption.

### 7.2.10 Limited supply of green mobility vehicles and components

Manufacturing capacity in India for green mobility components and vehicles has significant growth potential currently, compared to countries such as China and United States. This presents an opportunity to address higher prices and limited options of green mobility vehicles to consumers which in-turn restricts experience and awareness. India can reduce dependence on imports for green vehicles and components by nurturing and developing the domestic supply eco-system.

### 7.2.11 Limited infrastructure established for green mobility

Most green mobility options require exclusive infrastructure for refueling and charging. Current public infrastructure for green mobility technologies such as CNG, LNG and Electric Vehicles is limited to cities and selected clusters. Nationwide network expansion needs to go hand-in-hand with other demand and supply side measures, to pro-actively address consumer anxieties regarding adoption and usage.

## Enabling Ecosystem

### Skill and capability development

#### 7.2.12 Inadequate training capacity

The number of new entrants to the workforce requiring skills training will increase to 10 million per annum by 2020 and further to 12 million per annum by 2025, however, India's current Vocational Education Training ecosystem in the best-case scenario can provide training to only 7 million workers per year<sup>16</sup>. During the FY2015-16, the National Skill Development Agency (NSDA) reported that of the target of skilling and up-skilling approximately 12.6 million workers, only around 83% of the workers were skilled.

#### 7.2.13 Limited employability of the workforce

There is a considerable opportunity to bridge the gap between the quality of workers trained out of the skill development institutions and the industry requirements. Out of the 0.4 million engineering graduates joining the workforce every year in India, only 20% are readily employable<sup>17</sup>. Rapid progression of technology in the sector poses and even bigger challenger to the employability of workers in the automotive industry.

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<sup>16</sup> Report of Committee for Rationalization and Optimization of the Functioning of the Sector Skill Councils, December 2016

<sup>17</sup> NSDC Website

#### **7.2.14 Absence of a roadmap for skill development**

The skills being imparted to technicians, engineers and shop floor workers in the Indian automotive industry may turn obsolete in merely a span of 2-3 years due to the rapid evolution of technology. By aligning the skill development plan with the technological changes forecasted, the workforce across the value chain can be prepared to meet the needs of the future. Eco-system of skill development for the automotive industry needs to be flexible and dynamic.

### **Supply chain and enabling infrastructure**

#### **7.2.15 Escalating costs of supply chain operations**

India's logistics costs as a percentage of GDP are relatively high at around 14 percent. While the government needs to expedite the building of critical infrastructure, the industry must focus on innovative and analytical solutions to rationalize costs. The government needs to enable the automotive industry to improve the modal mix of transport and shift from a traditionally dominant share of road transport towards more cost-effective means of transport such as railways, coastal routes etc.

#### **7.2.16 Inadequate infrastructure to handle higher exports**

AMP 2026 envisages exports to comprise 35-40% of the automotive sector over the next decade. To achieve this the Indian automotive industry will need to transform towards a globally integrated model and a tailored value chain. To support the automotive industry in such a transformation, the government must facilitate comprehensive development of dedicated facilities at several ports to reduce lead times and costs.

### **Automotive standards**

#### **7.2.17 Indian standards are not yet harmonized with global benchmarks**

India has not yet acceded to the UNECE WP.29 1958 agreement that requires harmonization of standards and mutual recognition of type approval between contracting parties. Complete harmonization will not only upgrade technology and quality standards of products produced in India, but also remove technical barriers to trade and generate higher export potential

#### **7.2.18 Corporate Average Fuel Economy (CAFE) standards introduced in India is not leading to increase in share of green technologies**

CAFE standards in India should clearly define corporate average CO<sub>2</sub> emission targets for OEMs, benchmarked against similar standards implemented in other countries. By mandating stringent CO<sub>2</sub> standards, companies will have to increase the share of green technologies that have zero or very low emissions. This will in turn support the Government of India's vision for green mobility and electric vehicles adoption.

### **Testing and certification**

#### **7.2.19 Upgradation of testing centers is not aligned to progress of technology and standards**

Rapid technological changes and evolution of regulations and standards can make existing testing facilities obsolete in a short time span. It is essential that the long-term roadmap of the industry is cascaded down to evaluate the testing requirements for development and certification, based on the technology outlook. This will enable the relevant agencies to plan capacities, seek funding and setup required facilities in alignment with the development timeline of OEMs and component manufacturers.

## 8 Policy Guidelines

### 8.1 Overall Policy Guidelines

#### 8.1.1 Roll out a comprehensive long-term roadmap for the automotive industry

Government of India has demonstrated its clear intention to curb vehicular pollution through pivotal initiatives such as Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME) scheme, and regulatory measures such as early introduction of Bharat Stage- VI in 2020.

While the industry prepares to meet the BS-VI timeline, it is important to provide visibility on emission standards even beyond BS-VI, to enable the industry to plan its technology and investment roadmap. The policy therefore proposes to roll out a comprehensive long-term roadmap for the automotive industry.

- Define the emission standards that will be applicable after BS-VI (Table 1) with a target of harmonizing with the most stringent global standards by 2028, across all vehicle segments; introduction of new norms shall initiate in 2026 with a 2-year phase-in period
- This roadmap will in turn enable the industry and support agencies to define the requirement of technologies, testing facilities, skill development and plan long-term investments

| Segment             | Stage      | Year | Engine Type | Test Cycle | CO                              | HC   | NMHC  | NO <sub>x</sub> | HC + NO <sub>x</sub> | PM     |
|---------------------|------------|------|-------------|------------|---------------------------------|------|-------|-----------------|----------------------|--------|
|                     |            |      |             |            | g/km for PV & 2W; g/kw-h for CV |      |       |                 |                      |        |
| Passenger Vehicles  | BS VI      | 2020 | PI          | IDC        | 1                               | 0.1  | –     | 0.06            | –                    | 0.0045 |
|                     |            |      | CI          | IDC        | 0.5                             | –    | –     | 0.08            | 0.17                 | 0.0045 |
|                     | Post BS VI | 2028 | PI          | WLTP +     | 0.5                             | 0.05 | –     | 0.02            | -                    | 0.002  |
|                     |            |      | CI          | RDE        | 0.5                             | -    | –     | 0.02            | -                    | 0.002  |
| Commercial Vehicles | BS VI      | 2020 | CI          | WHSC       | 1.5                             | 0.13 | –     | 0.4             | –                    | 0.01   |
|                     |            |      | CI          | WHTC       | 4                               | 0.16 | –     | 0.46            | –                    | 0.01   |
|                     | Post BS VI | 2028 | -           | WHSC       | 1.5                             | 0.13 | –     | 0.27            | –                    | 0.01   |
|                     |            |      | -           | WHTC       | 4                               | 0.16 | –     | 0.27            | –                    | 0.01   |
| Two-Wheelers        | BS VI      | 2020 | PI          | WMTC       | 1                               | 0.1  | –     | 0.06            | –                    | 0.0045 |
|                     |            |      | CI          | WMTC       | 0.5                             | 0.1  | –     | 0.09            | –                    | 0.0045 |
|                     | Post BS VI | 2028 | PI          | WMTC       | 0.5                             | –    | 0.068 | 0.06            | –                    | 0.0045 |
|                     |            |      | CI          | WMTC       | 0.5                             | –    | 0.068 | 0.06            | –                    | 0.0045 |
| Three-Wheelers      | BS VI      | 2020 | PI          | IDC        | 0.44                            | –    | –     | 0.13            | 0.435                | -      |
|                     |            |      | CI          | IDC        | 0.22                            | –    | –     | 0.16            | 0.2                  | 0.025  |
|                     | Post BS VI | 2028 | PI          | IDC        | 1                               | –    | 0.068 | 0.06            | -                    | 0.0045 |
|                     |            |      | CI          | IDC        | 0.5                             | –    | 0.068 | 0.06            | -                    | 0.0045 |

Announced
Proposed
XX – Changed compared to BS VI    XX – No change from BS VI

**Table 1: Suggested emission roadmap beyond BS VI**

CO – Carbon Monoxide, HC – Hydrocarbons, NMHC – Non- Methane Hydrocarbons, NO<sub>x</sub> – Oxides of Nitrogen, PM – Particulate Matter, PI – Positive Ignition, CI – Compression Ignition, IDC – Indian Drive Cycle, WLTP – Worldwide Harmonized Light Vehicles Test Procedure, RDE – Real Driving Emissions, WHSC – Worldwide Harmonized Stationary Cycle, WHTC – Worldwide Harmonized Transient Cycle, WMTC – Worldwide Motorcycle Emission Test Cycle

### **8.1.2 Implement reduction in CO<sub>2</sub> emissions through Corporate Average Fuel Economy (CAFE) regulations**

The Paris Agreement, enforced from November 2016 and ratified by India, set the objective of limiting the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The greenhouse gases emissions reduction that would be compatible with this target would require a significant increase in the share of zero or low emission vehicles over the coming years. These regulations combined with growing environmental and sustainability consciousness of the population will lead to a major transformation of the global auto industry from Internal Combustion Engine Technology to Green Mobility technologies (such as Hybrid Vehicles, Battery Electric Vehicles, Fuel Cell Vehicles, Alternative-Fuel Vehicles).

Fuel consumption standards for Indian vehicles came into force in India in April 2017 for petrol, diesel, liquefied petroleum gas (LPG) and compressed natural gas (CNG) passenger vehicles. These standards are based on a Corporate Average Fuel Efficiency (CAFE) system and targets to bring about around improvement in fuel consumption of passenger vehicles by 2022. The policy supports a continuous reduction in CO<sub>2</sub> emissions through Corporate Average Fuel Economy (CAFE) regulations

- Phase I:
  - Define corporate average fuel efficiency standards (CO<sub>2</sub> g/km) for all passenger vehicle manufacturers from 2020 onward.
  - Evaluate and notify difference between target and actual fuel efficiency in CO<sub>2</sub> g/km
  - Define and levy penalties for manufacturers with average fuel efficiency above target
- Phase II:
  - Develop provisions for banking of CO<sub>2</sub> credits and trading of credits between companies
  - Allow manufacturers to form a pool to jointly meet their CO<sub>2</sub> emission targets

### **8.1.3 Introduce a composite length and emissions based criterion for vehicle taxation**

Over the years, the industry has seen various parameters for classifying vehicles. A number of these classification criteria is also used for taxation purposes. The policy proposes to introduce a composite length and emissions based criterion for vehicle taxation. Each dimension of the classification framework will be aligned to meet the key objectives of reduction in congestion and CO<sub>2</sub> emission.

- Rationalize the GST structure for automobiles that is currently based on length, engine displacement, engine type and ground clearance
- Replace the current classification criteria with a composite criterion based on vehicle length and CO<sub>2</sub> emissions (refer annexure 1)
- Vehicle length based classification will target reduction in vehicular congestion and CO<sub>2</sub> emissions based classification will align with the overall vision of reducing Green House Gas(GHG) emissions
- Define thresholds for length and CO<sub>2</sub> emissions with the objective of neutralizing impact on GST revenue
- Monitor and review the thresholds based on market evolution and target of increasing share of greener vehicles



#### **8.1.4 Harmonize standards over the next 5 years**

Three UN Agreements, adopted in 1958, 1997 and 1998, provide a legal and regulatory framework and provisions related to performance-oriented test requirements and procedures to contracting parties (member countries). India is not a contracting party to the 1958 agreement but is a signatory to the WP.29 1998 Agreement since 2006 and is an active participant in the development of Global Technical Regulation(GTRs). Unlike the 1958 Agreement, the 1998 agreement does not mandate reciprocal acceptance of approvals of vehicle systems, parts and equipment issued by other Contracting Parties.

As per industry bodies, currently India has more than 70% safety regulations which are either partially or fully aligned with GTRs and UN Regulations while keeping in view the Indian specific driving and environmental conditions. Government of India is focused on aggressive upgradation of standards to expedite reaching global benchmarks. The policy therefore proposes to harmonize auto standards over the next 5 years

- Define a roadmap for harmonizing key standards and testing methods with global benchmarks
- Upgrade agencies like ARAI and NATRiP, in line with the harmonization plan, to develop capabilities which are at par with global testing and certification agencies
- Evaluate accession to the UNECE WP.29 1958 agreement within the next 5 years, which will eliminate a major technical barrier to trade

#### **8.1.5 Implement measures to increase exports of vehicles and components**

- Conduct a detailed study of business environment, procedures, infrastructure etc. in export dominant countries such as China and Japan to identify areas of improvement in India
- Identify and initiate trade agreements with countries having attractive markets for Indian automotive exports, in consultation with SIAM and ACMA
- Consider phased increase of duty credit scrips (from 2%) for export of vehicles and auto components in line with comparable products to target countries under Merchandise Export from India Scheme (MEIS)

#### **8.1.6 Improve the skill development and training eco-system**

- Increase the accountability of Automotive Skills Development Council (ASDC) through performance based funding linked to metrics such as incremental employment generated, level of employment, curriculum coverage, industry feedback etc.
- ASDC to implement a Labor Market Information System (LMIS) for aggregated information of certified candidates and serve as a marketplace to match demand and supply of skilled labor

#### **8.1.7 Conduct a detailed study to assess the logistics challenges being faced by the auto industry**

- The auto policy emphasizes the need to assess the logistics challenges being faced by the auto industry and based on the results of the study, support the development of a world-class logistics infrastructure such as:
  - Develop Automotive Logistics Parks around existing automotive clusters with shared warehousing infrastructure and integrated connectivity to roads, railways, ports and coastal sea routes
  - Improve the modal mix of cargo transportation and improve the utilization of low-cost modes such as railways, coastal shipping etc.
  - Improve port infrastructure to facilitate exports and ports of automobiles and components, such as dedicated storage space in ports

### **8.1.8 Establish a consumer feedback and rating system along with a consumer grievance redressal mechanism**

- Design and rollout a star-rating system to allow consumers to rate the performance of OEM dealerships, workshops and service centers, based on a set of pre-defined objective parameters. These ratings would be made available in public domain.
- Establish an Automotive Ombudsman to provide a grievance redressal mechanism for consumers before adopting a legal recourse. The proposed Ombudsman may intervene on a variety of issues;
  - **New car issues:** Reassurance that OEMs / suppliers will meet manufacturing obligations to the customers
  - **Vehicle sales issues:** Reassurance that OEMs / suppliers will meet highest standards of service during vehicle sales
  - **Service, repair and installation of mandatory components / kits:** Reassurance that OEMs / suppliers / service centers / workshops will meet highest standards of service, repair and installation of mandatory components / kits
  - **Vehicle warranty issues:** Reassurance that OEMs / suppliers will meet highest standards of service during vehicle sales

## 8.2 Policy Guidelines Specific to Focus Areas

### **Innovation, Research and Development**

#### **8.2.1 Scale-up indigenous R&D with commercially viable innovations**

- Set-up a 'Technology Acquisition Fund' to acquire technologies through licensing agreements, joint ventures or acquisitions
- Incentivize Public Private Partnership (PPP) based industry investments in research and development of commercially viable technologies through a Hybrid Annuity Model (HAM); under the HAM the government will contribute to 40% of the project cost as annual payments over a defined number of years, while the remaining 60% is paid as variable annuity contingent to project performance. Through this model, enough liquidity is available to the private player and the financial risk is shared by the government.

#### **8.2.2 Implement an outcome-based funding scheme for Industry-Academia collaboration**

- Vision of the scheme will be to promote innovation in technologies and processes that have a direct impact on the automotive industry and have high commercialization potential
- To be applicable for funding, the proposed project should have been initiated by industry or jointly by the industry and academia
- Funding pattern for selected projects will be 25% by industry and up to 50% by DHI. DHI funding will be minimum 25% if the project qualifies under the Uchchar Avishkar Yojana (UAY)

#### **8.2.3 Retain tax exemption on different levels of R&D expenditure**

- Implement tax exemption on different levels of R&D expenditure
  - 100% if R&D investment is <2% of turnover
  - 150% if R&D investment is 2-4% of turnover, and
  - 250% if R&D investment is >4% of turnover

- Define R&D expenditure heads under the standard accounting practice that will be eligible for exemption
- Mandate audits for classification of eligible R&D expenditure – only the expenses certified by a statutory auditor will be eligible for exemption

| S No. | R&D Expense Heads   |
|-------|---|
| 1     | Salary expenses for employees in the R&D department                       |
| 2     | Expenditure on machinery/equipment acquired for R&D purposes              |
| 3     | Expenditure on design, construction and testing of prototypes             |
| 4     | Costs incurred on patenting of research outcomes                          |
| 5     | Expenditure incurred on services provided by third parties to support R&D |

**Table 2: Illustrative list for R&D expense categories for tax deduction**

#### 8.2.4 Encourage development and registration of patents in India

- Ensure strict implementation and protection of Intellectual Property Rights (IPR) in compliance with Trade-Related Aspects of Intellectual Property Rights (TRIPS)
- Encourage patent registrations in India through streamlining and simplification of the patent application and registration process

### Auto Components Manufacturing

#### 8.2.5 Develop capabilities and technology improvement in identified areas

- Based on technology roadmap, identify the critical components for which domestic capacities and capabilities need to be developed
- Encourage FDI in coordination with Invest India to attract investments in identified areas
- Support auto component cluster development programs in identified areas of development
- Establish shared training and testing facilities at these clusters for technology and skill development

#### 8.2.6 Harmonize AIS and BIS standards for safety critical auto components

- Evaluate the need for dual standards – AIS for OE components and BIS for aftermarket components
- Reduce discrepancies between AIS and BIS for safety critical parts
- Create a roadmap for harmonization of AIS and BIS standards on safety critical parts over next 3 years, with eventual target of single standards

#### 8.2.7 Offer fiscal support on identified technologies and components

- Lower import duties on capital goods, equipment and machinery for manufacture of new technology components
- Use the 'Technology acquisition fund' for development and acquisition of critical technologies and drive cluster level technology improvements
- Use 'Technology acquisition fund' for providing import duty exemption on auto component prototypes. Companies will have to declare at the beginning of every financial year the volume of prototypes planned to be imported. Duty exemption will be given only on the pre-declared

volume. Imported prototypes should be used for R&D and testing only, without use in pilot production or volume production.

- Define a list of target technologies with corresponding components and equipment that will be eligible for import duty reduction (Table 3)

| S No. | Category                 | Component                                       |
|-------|--------------------------|---|
| 1     | Green Mobility           | CNG fuel injectors and pressure regulators      |
| 2     |                          | Ethanol and Methanol blend compatible injectors |
| 3     |                          | Hydrogen Fuel Cells                             |
| 4     | Emission Control Systems | Diesel Oxidation Catalyst (DOC)                 |
| 5     |                          | Particulate Filters (DPF, GPF)                  |
| 6     |                          | SCR Catalyst Substrate, Urea dosing systems     |
| 7     |                          | Exhaust sensors- NOx, Lambda                    |
| 8     | Safety Systems           | Air Bags and Air Bag Control Unit               |
| 9     |                          | Body Control Modules                            |
| 10    |                          | Tire Pressure Sensors                           |

**Table 3: Illustrative list of components for import duty reduction**

## Vehicle Manufacturing

### 8.2.8 Support readiness and fast track adoption of Bharat New Vehicle Safety Assessment Program

- Upgrade facilities and develop expertise at NATRiP as per requirements for testing as per BNVSAP
- Mandate fleet purchases in identified public and private sector (taxis, rental cars etc.) to be of minimum BNVSAP rating

### 8.2.9 Support implementation of vehicle scrapping policy - Voluntary Vehicle Modernization Program (V-VMP)

- Allocate responsibility for monitoring the compliance of processes being followed at the scrapping centers as per guidelines

## Green Mobility

### 8.2.10 Define a green mobility roadmap for India

- Finalize a technology agnostic green mobility roadmap through evolution of emission regulations
- Define the long-term roadmap for incentives and infrastructure investments for green mobility

### 8.2.11 Drive demand by expediting adoption of green mobility in the public domain

- Mandate minimum share of green vehicles among new vehicles purchased by central and state government agencies and municipal corporations, including:
  - 25% of all vehicles from 2023 and 75% of all vehicles from 2030 procured by central and state government
  - 50% of all vehicles from 2023 and 100% of all vehicles from 2030 procured by municipal corporations in metros

- Use the Government e-Marketplace (GeM) portal to aggregate all green vehicle orders with standard specifications over three months and enable bulk procurement

#### **8.2.12 Plan an advanced and extensive green mobility infrastructure network**

- Conduct a detailed study on requirement of public infrastructure for Green Vehicles
- Based on the study, define a national plan for establishment of public infrastructure for Green Vehicles, which will include the following:
  - Density and mix of green mobility infrastructure based on target adoption, technology requirements and capabilities. Example: Number of electric charging stations in terms of Electric Vehicle to Public Charge Point ratio, Mix of charging stations in terms of level (level (AC slow charging and DC fast chargers), type of connector and communication protocol.
  - Standards for public charging infrastructure in terms of power supply, connectors etc. to ensure quality, safety and interoperability
  - Back-end systems and payment mechanisms
- Invite private funding for green mobility infrastructure through PPP - Hybrid Annuity Models

#### **8.2.13 Strengthen the rollout of Faster Adoption and Manufacturing of Hybrid & Electric Vehicles (FAME) scheme**

- Fast track comprehensive implementation of FAME scheme and align with the overall Electric Vehicle (EV) vision of the country
- Continue incentives for public transport and restrict subsidies for private vehicles
- Introduce technical classification criteria for subsidies based on parameters like fuel consumption improvement, CO<sub>2</sub> emission reduction, battery energy density, all electric range, etc.

#### **8.2.14 Increase consumer awareness of green mobility advantages and incentives**

- Develop a comprehensive nationwide consumer awareness campaign for green vehicles aimed at informing the public about the benefits of adopting green mobility
- Broadcast incentives being offered by the government for green vehicles

#### **8.2.15 Offer fiscal incentives for green mobility**

- Facilitate changes in the banking norms to ease loans and financing for green vehicles

### **Policy Guidelines for Enabling Eco-system**

#### **Automotive Standards**

#### **8.2.16 Increase the coverage of Corporate Average Fuel Consumption Standards**

- Include provisions for banking and trading of CO<sub>2</sub> credits by vehicle manufacturers. CO<sub>2</sub> credits awarded to a manufacturer for over-compliance should be valid for two to three years. Valid credits can be used to compensate against debits or it can be traded or transferred among manufacturers. This will offer flexibility to manufacturers and avoid penalties for transient non-compliance
- Create a public information system that will provide manufacturer and model level information on emissions and fuel consumption. Additionally, CO<sub>2</sub> credits/debits per manufacturer will be available to facilitate trade of credits between manufacturers

- Conduct periodic independent studies of the real-world fuel consumption data of vehicles and compare against the laboratory test measurements data. Based on these studies, appropriate adjustment factors need to be included to avoid overestimating fuel and environment benefits

## Testing and Certification

### 8.2.17 Ensure upgradation of test facilities in alignment with technology roadmap

- Establish an investment and upgradation plan of test facilities in India, aligned with overall industry roadmap
- Long-term outlook will enable autonomous research and testing agencies such as NATRiP and ARAI to plan and setup capabilities for development and testing at the right time

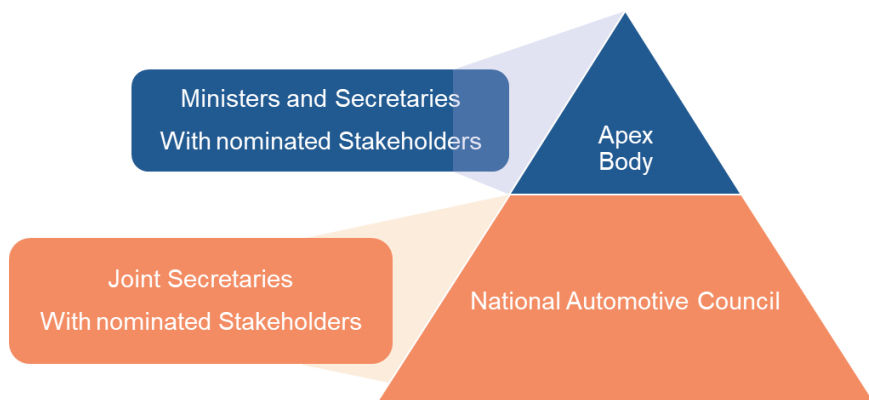
### 8.2.18 Expand testing facilities to meet industry requirements

- Propose upgradation of few NATRiP centers to become one-stop or turn-key development and testing solution providers to Industry
- Encourage sharing of manpower and expertise among NATRiP centers based on demand
- Explore PPP models for funding upgradation of testing facilities, without conflicts of interest

## 8.3 Nodal Body for the Automotive Industry

Effective implementation of the recommendations and guidelines in the National Auto Policy will require extensive co-ordination across different ministries, government bodies and industry participants. Also, the automotive industry is characteristically influenced by regulatory or policy decisions taken by different government ministries. In cognizance of this challenge, and the need for stability in regulations and policies for the industry, the National Auto Policy proposes the formation of a nodal body for the automotive industry.

The nodal body will be the central consultative agency for the Ministry of Heavy Industry and Public Enterprises (MoHI&PE), the Ministry of Road Transport and Highways (MoRTH), and other ministries involved in formulation of automotive related policies and regulations. The nodal body will also responsible for conducting detailed reviews four years (2022) and eight years (2026) after the announcement of the policy to assess progress and recommend course corrections. It will also serve as the repository of technical, domain expertise and data on all aspects of automobiles and their manufacturing, and be the technical advisor and the secretariat.



**Figure 6. Nodal Government body for the automotive industry**

The proposed nodal body will be a two-tiered structure with an Apex Body supported by the National Automotive Council (NAC).

Members of the Apex Body will be Ministers and Secretaries from Ministry of Commerce and Industry (MoCI), Ministry of Environment, Forest and Climate Change (MoEF), Ministry of Finance (MoF), MoHI&PE, Ministry of Labor and Employment (MoL&E), Ministry of Micro, Small and Medium Enterprises (MoMSME), Ministry of Natural Resources and Environment (MoNRE), Ministry of Petroleum and Natural Gas (MoPNG), Ministry of Power (MoP), MoRTH, Ministry of Science and Technology (MoST) and Ministry of Skill Development and Entrepreneurship (MoSDE). In addition to representation from ministries, the apex body will include eminent stakeholders nominated from industry and academia.

The NAC will consist of joint secretaries of above mentioned ministries along with nominated stakeholders, with the target of representation from across the automotive sector. Members will include representatives from auto OEMs, auto component manufacturers, industry bodies (SIAM, ACMA, SMEV, etc.), ASDC, Testing Agencies (NATRiP, iCAT etc.), design agencies, research Institutions, academia, independent consultants, nominated global experts etc.

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**Key functions and powers of the Apex Body:**

- Finalize and notify the short term and long-term industry roadmap
- Consider and recommend or approve overall broad policy guidelines, required funding requirements and strategies for overall development of the domestic automotive industry
- Approve the key interventions, projects and incentives required and prioritize the critical initiatives
- Highlight potential issues due to conflicting regulations and policies by different ministries
- Recommend to the government any new legislation or amendment to existing legislations

**Key functions and powers of the NAC:**

- Formulate regulatory roadmap and conduct techno-commercial assessment of implications
- Identify funding requirements for key projects and indicatives
- Co-ordinate across ministries to ensure alignment in policy and regulatory decisions
- Constitute sub-committees for focus area issues
- Monitor industry performance and recommend key interventions and course corrections



## 9 Summary of Key Recommendations

### 9.1.1 Develop a comprehensive long-term roadmap for the automotive industry

- Define the emission standards that will be applicable after BSVI with a target of harmonizing with the most stringent global standards by 2028, across all vehicle segments
- This roadmap will in turn enable the industry and support agencies to define the requirement of technologies, testing facilities, skill development and plan long-term investments

### 9.1.2 Develop a roadmap for reduction in CO<sub>2</sub> emissions through Corporate Average Fuel Economy (CAFE) regulations

- Roadmap will define corporate average CO<sub>2</sub> g/km targets for all passenger vehicle manufacturers from 2020 onwards. Vision will be to match CO<sub>2</sub> targets set by developed countries by 2025
- Introduce economic penalties for manufacturers that do not meet corporate average targets
- Evaluate mechanism for flexibilities and provisions such as banking and trading of emission credits

### 9.1.3 Introduce a composite length and emissions based criterion for vehicle taxation

- Rationalize the GST structure for automobiles that is currently based on length, engine displacement, engine type and ground clearance
- Replace the current classification criteria with a composite criterion based on vehicle length and CO<sub>2</sub> emissions
- Vehicle length based classification will target reduction in vehicular congestion and CO<sub>2</sub> emissions based classification will align with the overall vision of green mobility and reduction in Green House Gas(GHG) emissions
- Define thresholds for length and CO emissions with the objective of neutralizing impact on GST revenue
- Monitor and review the thresholds based on market evolution and target of increasing share of greener vehicles

### 9.1.4 Achieve harmonization of standards over the next 5 years

- Define a roadmap for harmonizing key standards and testing methods with global benchmarks
- Upgrade agencies like ARAI and NATRiP, in line with the harmonization plan, to develop capabilities which are at par with global testing and certification agencies
- Evaluate accession to the UNECE WP.29 1958 agreement within the next 5 years, which will eliminate a major technical barrier to trade

### 9.1.5 Implement measures to increase exports of vehicles and components

- Conduct a detailed study of business environment, procedures, infrastructure etc. in export dominant countries such as China and Japan to identify areas of improvement in India
- Identify and initiate trade agreements with countries having attractive markets for Indian automotive exports
- Consider phased increase of duty credit scrips (from 2%) for export of vehicles and auto components in line with comparable products to target countries under Merchandise Export from India Scheme (MEIS)

#### **9.1.6 Improve the skill development and training eco-system**

- Increase the accountability of Automotive Skills Development Council (ASDC) through performance based funding linked to metrics such as incremental employment generated, level of employment, curriculum coverage, industry feedback etc.
- ASDC to implement a Labor Market Information System (LMIS) for aggregated information of certified candidates and serve as a marketplace to match demand and supply of skilled labor

#### **9.1.7 Conduct a detailed study to assess the logistics challenges being faced by the auto industry**

- Based on the results of the study, support the development of a world-class logistics infrastructure such as:
  - Develop Automotive Logistics Parks around existing automotive clusters with shared warehousing infrastructure and integrated connectivity to roads, railways, ports and coastal sea routes
  - Improve the modal mix of cargo transportation and improve the utilization of low-cost modes such as railways, coastal shipping etc.
  - Improve port infrastructure to facilitate exports and ports of automobiles and components, such as dedicated storage space in ports

#### **9.1.8 Scale-up indigenous R&D with commercially viable innovations**

- Set-up a 'Technology Acquisition Fund' to acquire technologies through licensing agreements, joint ventures or acquisitions
- Incentivize Public Private Partnership (PPP) based industry investments in research and development of commercially viable technologies through a Hybrid Annuity Model (HAM)

#### **9.1.9 Implement an outcome-based funding scheme for Industry-Academia collaboration**

- Vision of the scheme will be to promote innovation in technologies and processes that have a direct impact on the automotive industry and have high commercialization potential
- To be applicable for funding, the proposed project should have been initiated by industry or jointly by the industry and academia
- Funding pattern for selected projects will be 25% by industry and up to 50% by DHI

#### **9.1.10 Propose and implement tax exemption on different levels of R&D expenditure**

- Implement tax exemption on different levels of R&D expenditure
  - 100% if R&D investment is <2% of turnover
  - 150% if R&D investment is 2-4% of turnover, and
  - 250% if R&D investment is >4% of turnover
- Define applicable R&D expenditure heads and mandate audits by statutory auditors to verify R&D expenditure for companies to qualify for exemption

#### **9.1.11 Develop capabilities and technology improvement in identified areas for auto component manufacturing**

- Based on technology roadmap, identify the critical components for which domestic capacities and capabilities need to be developed
- Encourage FDI in coordination with Invest India to attract investments in identified areas
- Support auto component cluster development programs in identified areas of development

- Establish shared training and testing facilities at these clusters for technology and skill development

#### **9.1.12 Harmonize AIS and BIS standards for safety critical auto components**

- Evaluate the need for dual standards – AIS for OE components and BIS for aftermarket components
- Reduce discrepancies between AIS and BIS for safety critical parts
- Create a roadmap for harmonization of AIS and BIS standards on safety critical parts over next 3 years, with eventual target of single standards

#### **9.1.13 Offer fiscal support for technology improvements in auto components sector**

- Lower import duties on capital goods, equipment and machinery for manufacture of new technology components
- Use the 'Technology acquisition fund' for development and acquisition of critical technologies and drive cluster level technology improvements
- Use 'Technology acquisition fund' for providing import duty exemption on auto component prototypes. Companies will have to declare at the beginning of every financial year the volume of prototypes planned to be imported. Duty exemption will be given only on the pre-declared volume.
- Define limits for overall imports of prototypes based on total value and volume
- Define a list of target technologies with corresponding components and equipment that will be eligible for import duty reduction

#### **9.1.14 Support readiness and fast track adoption of Bharat New Vehicle Safety Assessment Program**

- Upgrade facilities and develop expertise at NATRiP as per requirements for testing as per BNVSAP
- Mandate fleet purchases in identified public and private sector (taxis, rental cars etc.) to be of minimum BNVSAP rating

#### **9.1.15 Define a green mobility roadmap for India**

- Finalize a technology agnostic green mobility roadmap through evolution of emission regulations
- Define the long-term roadmap for incentives and infrastructure investments for green mobility

#### **9.1.16 Drive demand by expediting adoption of green mobility in the public domain**

- Mandate minimum share of green vehicles among new vehicles purchased by central and state government agencies and municipal corporations, including:
  - 25% of all vehicles from 2023 and 75% of all vehicles from 2030 procured by central and state government
  - 50% of all vehicles from 2023 and 100% of all vehicles from 2030 procured by municipal corporations in metros
- Use the Government e-Marketplace (GeM) portal to aggregate all green vehicle orders with standard specifications over three months and enable bulk procurement

#### **9.1.17 Plan an advanced and extensive green mobility infrastructure network**

- Conduct a detailed study on requirement of public infrastructure for green vehicles
- Based on the study, define a national plan for establishment of public infrastructure for green vehicles

#### **9.1.18 Strengthen the rollout of Faster Adoption and Manufacturing of Hybrid & Electric Vehicles (FAME) scheme**

- Fast track comprehensive implementation of FAME scheme and align with the overall Electric Vehicle (EV) vision of the country
- Continue incentives for public transport and restrict subsidies for private vehicles
- Introduce technical classification criteria for subsidies based on fuel consumption improvement, battery energy density, all electric range etc.

#### **9.1.19 Ensure upgradation of test facilities in alignment with technology roadmap**

- Establish an investment and upgradation plan of test facilities in India, aligned with overall industry roadmap
- Long-term outlook will enable autonomous research and testing agencies such as NATRiP and ARAI to plan and setup capabilities for development and testing at the right time

## 10 Review, Monitoring and Update of Auto Policy



**Figure 7: Review and update of the National Auto Policy**

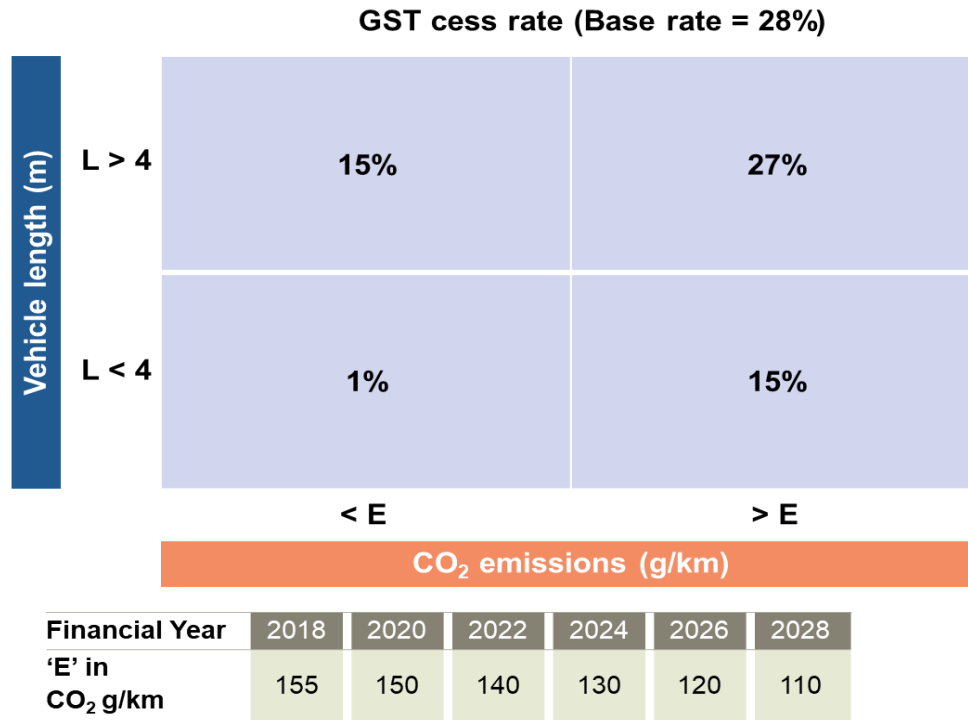
The National Auto Policy is aimed at prescribing policy guidelines and an enabling framework to achieve the envisaged growth objectives. The Automotive industry is expected to witness significant changes over the next decade. In this scenario, it is prudent to meticulously monitor the progress of the industry to evaluate the effectiveness of the policies and measures.

In addition to the continuous monitoring, the Department of Heavy Industries (DHI) will conduct an independent assessment and mid-term review of the Auto Policy in the year 2022. The mid-term review will involve the following steps:

- Detailed assessment of the progress of the industry against objectives. Additionally, an in-depth study will be conducted of the status and trends in the Indian and global automotive industries.
- Feedback from stakeholders across the value chain on the effectiveness of the policy measures and requirement of additional support
- Formulation of recommended course corrections based on analysis of consolidated feedback
- Presentation and alignment of proposed course corrections with stakeholders
- Implementation of policy amendments and additions applicable for the remaining policy tenure

# 11 Appendix

## 11.1 Proposed GST framework for passenger cars



**Figure 8: Illustrative GST framework based on length and CO<sub>2</sub> emissions**

In the proposed taxation framework, base GST rate for passenger cars will continue to be 28% and GST cess rates will depend on vehicle length and CO<sub>2</sub> emissions. Figure 8 shows illustrative GST rates based on these parameters. For example, in FY2019, a vehicle with length greater than 4 meters and CO<sub>2</sub> emissions less than 155 g/km will have a GST cess rate of 15% and total GST rate of 43%.

**Vehicle length:** Vehicles will be classified based on length into two categories, i.e. less than 4 meters and greater than 4 meters. This is a similar criterion used in current GST structure and is aimed at reducing vehicular congestion by applying lower tax rates on smaller cars.

**CO<sub>2</sub> emissions:** Introducing CO<sub>2</sub> emissions as a basis of vehicle classification will promote adoption of greener vehicles and align with the overall vision of reducing GHG emissions. 155 g/km will be used as the cut-off for categorizing vehicles currently. However, this cut off will gradually decrease yearly as illustrated in figure 8.

**GST cess rates:** Cess rates on vehicle categories are arrived at with the goal of promoting smaller and greener vehicle while minimizing the impact of changing the classification and rates on total GST revenue. Cars with length less than 4 meters and CO<sub>2</sub> emissions less than 155 g/km will be eligible for the lowest cess rate of 1%. Cars with length less than 4 meters but CO<sub>2</sub> emissions higher than 155 g/km will have a cess rate of 15%. Larger cars with length greater than 4 meters and CO<sub>2</sub> emissions less than 155 g/km will have a cess rate of 15%. The highest cess rate of 27% will be on cars with length greater than 4 meters and emissions higher than 155 g/km.

Promoting sales of smaller and greener cars is the goal of the proposed GST framework. The values used for creating slabs (4m and 155 g/km) and the cess rates will be reviewed and changed in order to meet the evolving environmental targets and changing market landscape.

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