TELANGANA ELECTRIC VEHICLE POLICY- DRAFT 27.09.2017

1. PREAMBLE

Global Automobile Industry is going through one of its most radical transformation since the Ford model T rolled out in 1908, as Electric Vehicles(EV) emerge as a promising alternate to ICE(Internal Combustion Engine) vehicles. Zero tailpipe emissions and innovation in battery technologies make EVs an economically viable and sustainable mobility solution and is fast finding global support from Policy makers and Industry leaders alike.

EV technology is breaking new grounds at frequent intervals as discussed below, showing promise of a price/performance parity with ICE vehicles by 2025 resulting and the dominant mobility solution

a) Battery cost dropping rapidly and may reach to half of its current level in less than 10 years

b) Electric Vehicle performance is expected to improve by 2 times from its current levels in 10 years

c) Charge time is decreasing from 5 hours to less than 1 hour thus reducing the Range anxiety

d) Energy cost per km for electric vehicles is 4-5 times less than gasoline equivalents

However, the initial ownership cost of Electric vehicles is currently on the higher side, prompting various countries to roll out policy and financial support to ensure a transition to electric vehicles, as given below

Norway- Electric Vehicles enjoy exemption from non-recurring vehicle taxes, including road tax, toll and parking fees. This scheme has resulted in EVs reaching a record market share of 48.4% in Sept 2017

China- Electric Vehicles are exempt from acquisition and excise taxes and are allowed total or partial waivers from license plate availability restrictions and offer financial incentives, thus explaining strong sales volumes (336 000 cars) and 40 % growth rate in 2016 compared to 2015.

Japan: A subsidy scheme introduced in 2016 grants progressively higher subsidies as the electric range of the model increases, with maximum subsidy equivalent to $7700. Electric Vehicle sales (typically with larger batteries and higher electric ranges) increased by almost 50% in 2016

The policy support has helped accelerate the demand for EVs. Over 2.1 M vehicles are estimated to have been sold globally so far and sales trends showing huge growth (from 0.3 M in 2014 to 0.78 M in 2016).

The global trend is also reflecting on the Indian Auto Sector roadmap for a sustainable mobility solution in view of the rising vehicle population on the roads and resulting pollution. Government of India(GOI) in its Automotive Mission Plan 2016 has laid a vision of 'safe, comfortable and efficient mobility with an eye on environmental protection and affordability through both public and personal transport options'.

2. CONCERNS WITH ICE VEHICLES- INDIA CONTEXT

a) Nearly 80% of India's crude requirement is imported, with the import bill at $64 B in 2015-16. The projected vehicle numbers in 2030 make the crude import dependence and spending even worse.

b) ICE vehicles, particularly diesel based cause air quality degradation that perpetuate climate change.

c) Diesel exhaust contain pollutants causing major health risks such as heart diseases, lung cancer etc

3. ELECTRIC VEHICLES IN INDIA

Electric vehicles in India has received little public interest despite being available for a significant period (REVA was launched in 2001), primarily due to the following issues

a) Inadequate charging infrastructure and high charging time with existing battery technologies

b) Absence of an Electric Vehicle portfolio across segments comparable with available ICE Vehicles

c) Maturity of current Battery technologies as well as the cost parity of EV's with ICE vehicles

4. NEED FOR EV POLICY

India currently has roughly 20 cars per 1000 persons, compared to 800 cars per 1000 persons in the United States, creating the growth opportunity but also posing challenges in terms of energy security, and environmental/infrastructure balance. The Indian Auto market size is projected anywhere between 9.8 M(@5.8 % growth) to 13.4 M(@7.5 % growth) cars alone in year 2026 (from 2.8 M in 2015-16).

As per a study report, India can save as much as $60 billion in energy costs by 2030 and one Gigatonne of carbon emissions between 2017 and 2030 by adopting more electric and shared vehicles. GOI launched its FAME scheme in 2015, outlining subsidies for EV adoption and bringing focus on four key areas of technology development, demand creation, pilot projects and charging infrastructure.

However, the pace of adoption despite the government push failed to meet expectations, primarily due to lack of adequate charging infrastructure along with high price & low performance of EVs. While the Pace of EV and battery technologies developments forecast a price/ performance parity with ICE vehicles by 2025, availability of charging infrastructure remains a challenge and key to mass EV adoption.

5. ADVANTAGE TELANGANA FOR AN EV ECOSYTEM DEVELOPMENT

I. Telangana was judged as No. 1 state in Ease of Doing Business for 2016 in DIPP rankings. As per a recent report by ASSOCHAM, Telangana surpassed its southern peer states in attracting investments. These results are built upon radical industrial reforms initiated since formation of Telangana state in year 2014.

   A major highlight of this reform process is TSi-PASS, a path breaking industrial project approval system that provides time bound clearances (15 days for mega projects) based on self-certification. Investments worth 15.4 B USD from over 5000 units processed through TSi-Pass generating employment for 36600 people since Jan 2015 is a testimony to Industries confidence in the system.

II. Telangana State policy support goes beyond Ease of Doing Business and industrial infrastructure in form of preferential allotment to Made in Telangana products for government orders

III. Telangana has the desired social and urban infrastructure to translate into a strong demand and nurturing ground for EV technologies. Vehicle registrations in Telangana has for long registered double digit growth, making it one of major Automotive Market status within the country.

IV. Telangana has attracted significant investments from new and existing Automotive units since its formation and is home to Mahindra & Mahindra and MRF manufacturing base along with Hyundai and ZF global R&D centres. Many more marquee names are at various stages of setting up their operations in the state. A strong base of Tier I & II suppliers is also present to support the OEMs.

V. EV manufacturing has a large power electronics dependence, giving Telangana a strong supply chain advantage over other Automotive Hubs in India. Telangana holds the legacy of a strong Electric & Electronics(core, defence and aerospace) manufacturing base led by PSUs like ECIL & BHEL.

VI. Telangana has a strong knowledge sector presence with some of biggest global IT major and research establishment presence in the state. Good supply of knowledge workers from premier technical Institutes such as IIT and IIIT has well supported these knowledge based entities which can be further leveraged to support Research and Innovation initiatives for Electric Vehicles

VII. Telangana Industrial Infrastructure is unmatched with its vast Industrial land bank, 24*7 Power and water supply. Telangana holds a strong logistic advantage with its location on India's Map and excellent highway network, giving quick access to major automotive markets & supply chain bases.

VIII. Telangana has abundant native labour supply for all shop floor activities in an manufacturing environment. Besides Telangana is also known for its harmonious Industrial Relations environment.

6. Vision Statement

To establish Telangana as the benchmark state in India and a showcase model of International standards for Electric Vehicle adoption across segments (personal, shared and commercial), supported by a world class infrastructure and ecosystem.

7. Mission Statement:

The EV policy is targeted to achieve 100% migration to Electric Vehicles by 2030 in Telangana state in alignment with Government of India vision, supported by an enabling infrastructure and local manufacturing base for Electric Vehicles and related components

8. Objectives

1. To attract investments worth 3.0 B USD and create employment for 50000 persons by 2022 through EV manufacturing & charging infrastructure development.

2. Provide best in class ecosystem & infrastructure to make Telangana the EV Hub of India

3. Develop a proving ground for viable Business models through accelerated demand for EVS

4. Promote innovation in EVs and other emerging trends such as Autonomous/Connected Mobility

5. Make Telangana state the preferred destination for Electric Vehicle & component manufacturing

6. Creating of a pool of skilled workforce for the Industry

7. Create a conducive environment for Industry & Research institutions to focus on cutting edge research in EV technologies

9. Strategies

1. Clear Definition of incentives on Supply and Demand Side of an Electric Vehicle ecosystem
2. Support and clear roadmap for developing charging infrastructure in the state
3. Incentives related to various components of ownership cost of Electric Vehicles
4. Mandating Use of EVs at Institutional Level Starting with Government entities
5. Establishing a start-up ecosystem to nurture innovation in EV technology space
6. Support for Research & Innovation in Electric, Autonomous & Connected Mobility
7. Emphasis on skill development for EV design, development & manufacturing
8. Promote manufacturing of Battery cells and packs through special status/ incentives

10. Policy Measures

This policy builds upon the Telangana Industrial Policy framework 2014 that defined Auto Sector as one of the priority sectors. However, considering current shift in the Auto Sector towards Electric Vehicles, special status is accorded here to EV and EV component Industry. Both demand and supply side is assigned equal importance for policy support as demand is key to establishing an EV ecosystem.

10.1 Demand Side Incentives: GOI launched FAME scheme in 2015 to accelerate EV adoption but could not entice desired response from targeted users, attributing to lack of adequate charging infrastructure and resulting range anxiety. A recent NITI AYOOG report identified shared mobility as the initial driver of EV adoption and charging infrastructure development. The demand side policy support is targeted at accelerating EV adoption through shared mobility, complemented by a strong charging infrastructure.

Following roadmap is defined to ensure an accelerated adoption across segment and usage categories

a) Road tax exemption for all electric vehicles till 2025, expected year of price parity with ICE vehicles

b) Simulate demand for EVs through areas of quick adoption such as Taxi services, Public Transport and Institutional transportation

c) Establish an adequate network of charging/swapping infrastructure to cater to the EVs on the road

d) Preferential Allotment will be made to Make in Telangana Vehicles for Government Orders

10.1.1 EV in Shared Mobility

a) Battery operated shuttle services at all Hyderabad Metro Stations for last mile connectivity

b) A time bound mandate for all auto rickshaws within GHMC to switch to EV, followed by other cities

c) Encourage cab operators/ aggregators to switch to full EV fleet in phased manner.

d) Permission for corporate ownership of e-auto rickshaws/e-Ricks to enable entrepreneurship and create jobs for the economically backward segments.

e) Extension of transport department retro fitment rule for existing vehicles to cover Electric kits for passenger vehicles, Auto Rickshaws and e-Rickshaws

f) Permission for ARAI certified E-rickshaws in fringe areas at the periphery of GHMC limits in predefined zones and routes. Similar permission will be granted in other cities across the state

10.1.2 EV in Public/Institutional Transport

a) Telangana State Transport corporation to set a target of 100% electric buses by 2030 for intra-city, intercity and interstate transport (key milestones – 25% by 2022, 50% by 2025 and 100% by 2030)

b) Airport flight shuttles and PUSHPAK buses to be transitioned to EV on priority

c) Government vehicles (owned and contractual)to switch to all electric by 2025, in phased manner.

d) Contract carriage permits for private operators with EV fleet operations

e) Tourist places (national parks, ecological sites) in the state to switch to all EVs by 2025 for transportation in and around their premises.

10.1.3 EV in Corporate Transport, Hospitals and Educational Institutes

a) Corporate offices with annual turnover of Rs 100+ Crore operating within GHMC limits to compulsorily migrate 25% of their employee commuting fleet to EVs by 2022 and 100% by 2030. The same rule will be extended to corporate entities operating in other cities in the state.

b) Allow use of CSR funds for electrification of employee commuting fleets

c) Encourage educational institutions & hospitals for a 25% switch by 2022(100% by 2030) of their Buses/ Derivatives/Passenger vehicles fleet to Electric Vehicles

10.1.4 EV in Freight Transport, Logistics & Delivery Services and other applications

a) Encourage all freight and logistics firms to use Electric Vehicles in a phased manner

b) Intra-city goods delivery services (sub 2T category) to switch to EVs only by 2030 in a phased manner

c) Encourage all app based and e-commerce delivery services to migrate 25% of their vehicles fleet to EVs by 2022 and 100% by 2030

d) Use of Battery operated Application vehicles will be encouraged in government departments such as Municipal Corporations, Postal Services etc. across Telangana State.

10.1.5 EV for personal mobility

a) Exemption of registration charges on personal vehicles purchased till 2025

b) Interest Free loans up to 50% of the cost to all state government employees for purchase of EVs

c) Only Electric vehicles will be allowed in high traffic density areas, Heritage zones, IT SEZs and similar EV Zones in Hyderabad by 2025. Same will be applied to other cities in Telangana State.

d) Free Parking in public parking places and Toll exemption on State Highways for EVs till 2025

10.2 Support for Charging Infrastructure

a) Adequate policy support will be provided for the development of charging/swapping infrastructure

b) Government of Telangana will work with GOI for the development of common standards for batteries and charging infrastructure to ensure interoperability wherever possible.

c) Government will set up first 100 fast charging stations in GHMC and other cities in a phased manner.

d) Charging points for personal vehicles of Government employees would be provided at Government office parking lots, starting with Hyderabad, followed by other cities in the state.

e) A viable business model will be developed for Private players to set up ARAI compliant EV charging stations/ infrastructure at public places such as airports, railway/ metro stations, parking lots, bus depots, markets and malls.

f) Electricity distribution companies will bring in amendments to their policies to enable setting up of private charging station and allow re-sale of power

g) A separate category of Power tariff will be created for EV Charging, both public and private. Duty exemption on power tariff will be extended to public charging stations for a duration of 5 years

h) Land belonging to Government Agencies within Hyderabad and other cities will be offered to private players on long term lease at subsidized rates and 2 year moratorium period on rental payment for setting up charging/swapping stations, through a transparent bidding process.

i) Provision for charging spots will be made mandatory in all commercial buildings such as hotels, shopping malls and technology parks.

j) Amendment to building and construction laws will be made to ensure charging infrastructure is integrated at the planning stage itself for all new constructions.

k) All existing apartment associations with 200+ families will be encouraged to provide charging points in parking lots and will be supported by capital subsidy of up to 25%, capped at 5 lakh

l) Existing Residential Townships with 1000+ families will be encouraged to develop charging stations , supported by capital subsidy of up to 25%, capped at 10 lakh for each station with 4 fast chargers

m) 75% of SGST paid on the fast charging equipment / machinery procured by any entity for setting up private/public/institutional charging stations will be reimbursed.

n) Supply of Renewable energy will be ensured on preferential basis at special tariffs for EV charging stations with zero connection cost and wheeling charges

o) A battery disposal infrastructure model will be created to facilitate deployment of used EV batteries

p) Charging/ swapping station will be provided at every 50 kms within state boundaries on highway to cities like Bengaluru, Mumbai and Chennai, followed by other national/state highways

q) HMR stations and TSRTC Bus depots(across state) will provide reserved parking and free charging stations for two wheelers in their parking zones to encourage EVs for last mile commute.

10.3 Supply Side Incentives: Local manufacturing and R&D is key to reaching price/performance parity between Electric and ICE Vehicles. In cognizance of this fact, support will be extended to the EV industry through policy interventions and Incentives with focus on research, innovation and skilling

The Government will provide benefits/incentives, depending upon the scale of investment as per the categories defined in MSMED act 2006 and Telangana Industrial Policy framework 2014. Investments beyond 200 Crores will be treated as Mega Projects and will be offered tailor made benefits

10.3.1 Infrastructure Support:

EV Cluster: A mega Automotive Park with global standard infrastructure is currently at planning stage and the development work is expected to commence by mid 2018. A designated EV cluster spread over 1500-2000 acres catering to EV/EV component manufacturing for two wheelers, Cars, Buses & Trucks will be integrated with the Automotive Park plan. The EV cluster will have common facilities specific to the requirements of EV units, as given below

i. Shared facilities to meet staffing and training requirements

ii. A common facility for Design, prototyping and testing available to all units in the cluster

iii. An Automotive Suppliers Park(ASP) to improve the logistics competitiveness for the units

iv. Common infrastructure such as Drainage/ ETP/ STP & utilities such as Power, Gas &Water

v. A State-of-art Business environment with facilities such as Convention & exhibition centres

vi. A Logistics Hub to provide with multimodal transport for for safe and efficient handling of cargo

vii. Built-Up Space with ready factory sheds will be developed to be used mainly by MSME units.

a) **Automotive Electronics Cluster:** Electronics constitute a major chunk of an EV with battery at the core of the product. An Automotive Electronics Cluster will be developed within the proposed Electronics city near Hyderabad where Special status and incentives will be accorded to units manufacturing electronic components including batteries cells/Packs for Electric Vehicles.

b) **Land: -** Allotment of land will be carried out across three categories: -

I. Plots in Integrated Automotive Parks & EV Clusters developed by TSIIC for purchase or on lease with common facilities including ETP, internal infrastructure and other common facilities

II. Individual Plots on Stand Alone Basis outside the Industrial Parks developed by TSIIC

III. Land for Development of Automotive Park / EV Cluster developed through privately owned or PPP modes of investments

c) **Industrial Water: -** Government has earmarked 10% water from all existing and new irrigation sources for industrial utilization. Water will be provided at subsidised rates to Mega Projects

d) **Industrial Power:** 24*7 Power supply is a norm for Industrial units operating in Telangana State. Furthermore, Power Tariff Subsidy and duty exemption will be extended to EV units in the state.

EV units will be allowed to avail renewable energy under open access system from within the state after paying cost component to DISCOMs as fixed by ERC (up to 1/3rd of their power requirements).

e) **Support Infrastructure: -** Support infrastructure like roads, power and water will be provided at door step of the industry for standalone units through Infrastructure assistance under IIDF (including exemption from paying various charges to local bodies and government agencies)

f) **Environmental Infrastructure:** - In the Auto Parks / EV Clusters, Government will facilitate the development of a Common Effluent Treatment Plant (CETP)/Sewage Treatment Plant (STP) in PPP mode by engaging experienced firms. Units in that Park will use the CETP/STP on pay-per-use basis.

10.3.2 Research & Development: Considering that the EV technologies is fast evolving, the need for Research & Development is key to accelerate the parity point of price/ performance with ICE vehicles. It will also help develop solutions as per local operating conditions and local supply chain considerations.

a) **Smart Mobility Technologies Cluster (SMT):** Tech start-ups are the new breeding ground for ground breaking innovation and Telangana supports them through T-Hub, India's biggest Incubation centre. T-Hub has launched a start-up incubation programme named Smart Mobility Technologies cluster, to promote innovation in advance mobility space, particularly EVs.

SMT Cluster will form a mentor board in partnership with EV, shared mobility and Energy firms to help start-ups translate their ideas into viable business model. An Incubation fund with Industry support will be created to provide financial support to Start-ups in EV space. State government will work with PSU banks to develop a mechanism to provide collateral free loans to start-ups.

b) **Mobility Engineering Cluster:** A Mobility Engineering Cluster (on the lines of the MCity at Univ. of Michigan, US) will be developed with Industry partnership. This facility with its state of the art infrastructure is envisaged to establish a global benchmark in design, development and validation for EVs and autonomous/ connected mobility. The services of this facility will be available to EV makers across India, with preferential access to partnering OEMs and units based out of Telangana.

c) **Centre of Excellences:** State Government will partner with premier Technical Institutes and research establishments across the state to establishing Centre of Excellences for conducting market focused research on Battery Technologies, battery management, motors and controllers. State Government will seek Industry participation and leverage GOI EV policy to provide grant to these centres. NFTDC is running once such COE on motors and controllers, under GOI FAME scheme.

d) **EV Research Hub:** A dedicated facility with special incentives will be developed to house EV R&D centres by domestic and global EV Majors. Hyderabad's strength in Technology domain will be leveraged to provide quality manpower for such centres. This hub is also expected to attract global R&D activities on other emerging mobility trends such as connected and autonomous vehicles

e) **Telangana EV Innovation Fund:** An Innovation fund will be created by the government to offer financial support to EV OEMS, ancillaries and Start-ups for research and innovation in Battery technologies. Yearly awards will be instituted to recognise breakthrough work in Battery Technologies in separate categories for OEM's, ancillaries and start-ups.

f) **EV Testing Facility:** One of the major costs for the industry is the testing of components and vehicles for compliance to global standards. Telangana State will pursue with the GOI to bring a National Automotive Testing and R&D Infrastructure Project (NATRIP) for Electric Vehicles to the state

g) **T-Works Automotive Prototyping centre:** Recognised as India's largest Prototyping Center, T-WORKS will have a dedicated wing for prototyping of Electric Vehicle components/assembly. Industry partnership in the same will be invited from EV OEMs and large component manufacturers. The facility will serve start-ups and MSME units in the EV space at subsidised rates.

10.3.3 SKILLING: Availability of quality manpower in good supply is key to supporting any Industrial operation. State will identify nature and quantum of skillset required by the institute to develop and execute training programmes on EV design, development & manufacturing through various channels

a) **TASK:** Telangana Government has set up a body called TASK (Telangana Academy of Skill and Knowledge) on lines of the National Skill Development Corporation (NSDC), a not-for-profit company under the Companies Act, 2013. A dedicated Skill development Centre for EV/EV component manufacturing on PPP model will be set up under the aegis of TASK and with support from EV Industry. TASK will also develop digital certificate courses for EV technologies for continued skill enhancement in view of evolving EV technologies.

b) Finishing Courses: Short term (4-6 months) finishing course post completion of graduate Engineering courses will be introduced in select Engineering Colleges and Premier Technical Institutes in collaboration with Global Tech Universities. These courses will be designed in consultation with EV Industry and will include short internship module at partnering OEMs

c) **PG Courses on EVs:** 2-year PG course on EV Technology with scholarship assistance will be initiated in partnership with premier institutes such as IIT Hyderabad and IIIT Hyderabad and in consultation with EV industry. NIT Warangal is already running one such master's programme.

10.3.4 Battery Cell Manufacturing and Assembly Promotion: Batteries and related components make up substantial part of EV. Manufacture and assembly of Advance* batteries will be encouraged in the State by means of special status and incentives. Preferential allotment will be made to units involved in Advance Battery products and related electronics in the Automotive Electronics Park.

*Lithium ion and other battery chemistries with energy density higher than the Li-ion battery

10.3.5 Charging/swapping Equipment Manufacturing Promotion: Development of a charging network is dependent on quality supply of charging/swapping equipment & machinery. Local manufacturing of Charging/Swapping equipment will be encouraged by means of policy support and incentives.

10.4 OTHER POLICY INTERVENTIONS

a) **Single-Window System:** Telangana implemented TSi-PASS in 2015, an Industrial Project approval system based on self-certification. It also protects Investors interest with Right to Single Window Clearance and provision for penal action on the officers who delay the applications.

An escort officer will be appointed at Commissioner of Industries and TSIIC office to ensure fast-tracked clearance and grievance redressal for applications received from EV vehicle/component manufacturers. Escalation at various levels and regular monitoring will be done on a time bound basis to ensure quick turnaround time for any application pertaining to EV Manufacturing.

b) **Exit Mechanism:** Considering the high volatility and the risk associated with maturing of EV Technologies, Government of Telangana in consultation with Government of India will put in place a mechanism for reasonable exit strategy for the EV enterprises.

c) **Labour Environment**: Subject to applicable laws as far as possible, the Government will consider giving permission to the Electric Vehicle and components industry for 24x7 (three shifts) operations, employment of women in night shifts, flexibility in employment conditions including working hours for women and shorter/ longer shift timings and hiring of contract workers. The EV industry will be declared a 'Public Utility' under the Industrial Disputes Act, 1947 in order to prevent flash strikes

d) **Technical Committee to certify/define an EV enterprise:** A Technical Committee will be constituted with a mandate to certify/define Vehicle/ components Manufacturers including EV lithium ion battery units claiming incentives and concessions under Telangana Electric Vehicle Policy.

e) **Steering Committee for EV Charging Infrastructure:** A steering Committee will be constituted with a mandate of time bound implementation of charging station network in Hyderabad City followed by other cities/smart cities within Telangana State

f) **Telangana State EV Advisory council:** A "State Electric Vehicle Advisory Council" shall be constituted with support from SIAM, ACMA, SMEV, CII, FICCI and other industry associations. This council and will have distinguished members from Industry, Academia and Research who will review the progress of EV policy initiatives on both demand and supply side. The council will advise the Government on remedial measures needed to address any concern as well as course corrections at policy level. This Consultative Committee shall also facilitate coordination with Government of India in areas requiring support for effective development of EV ecosystem in the state