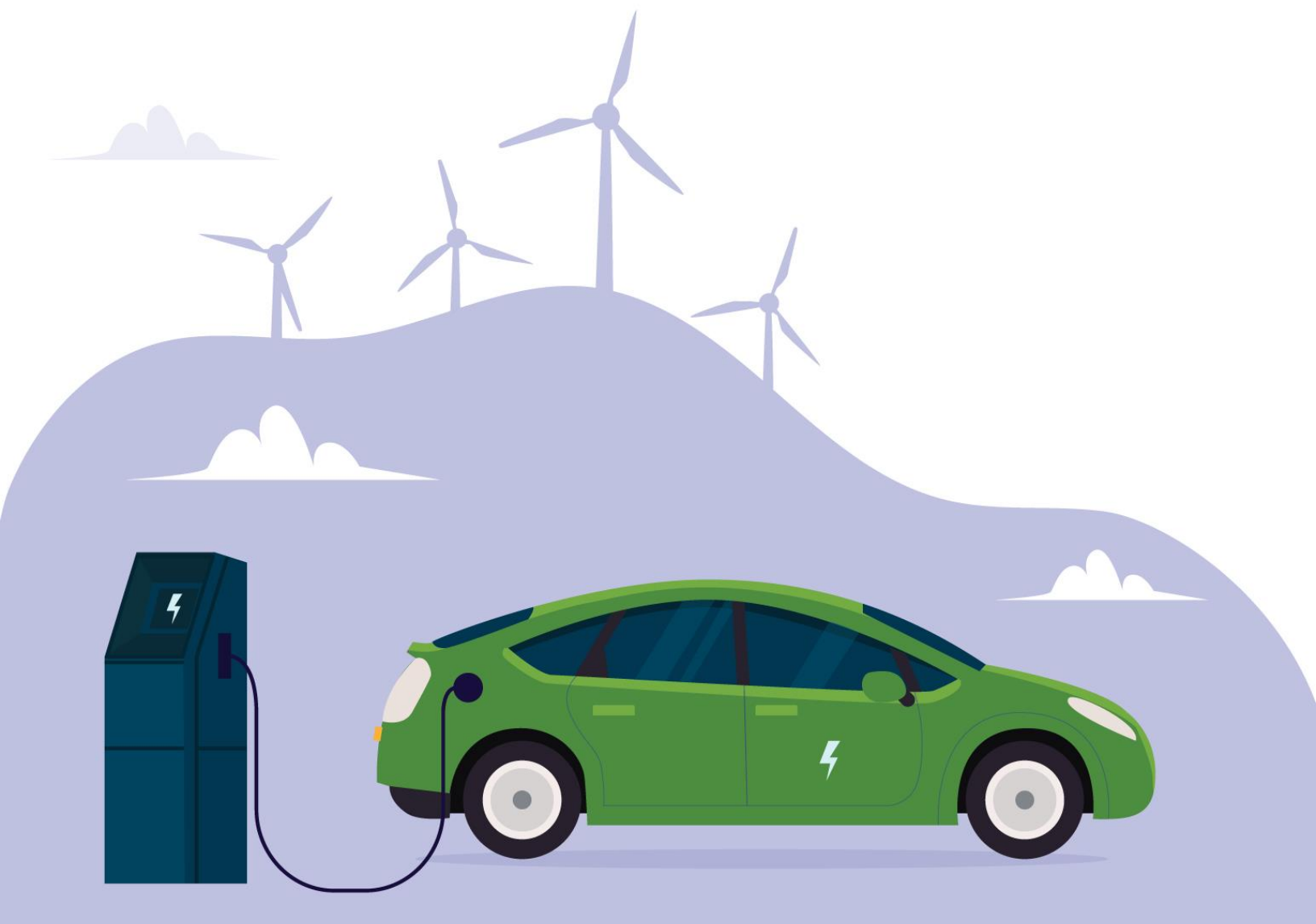




Ministry of Climate Change
Government of Pakistan

NATIONAL ELECTRIC VEHICLE POLICY



**GOVERNMENT OF PAKISTAN
MINISTRY OF CLIMATE CHANGE**

Islamabad, Pakistan

2019

NATIONAL ELECTRIC VEHICLE POLICY



Foreword

The world is at the forefront of a major change. Our existence as a society is under severe threat from the changing climatic conditions. Global warming is likely to be the greatest cause of extinction of various species during this century. According to the Intergovernmental Panel on Climate Change (IPCC) 1.5°C average rise may put 20-30% of species at risk of extinction. If the planet warms by more than 2°C most of the ecosystems will struggle.

Many countries around the world are enacting policies to fight climate change. Since transportation is one of the biggest cause of emissions, many countries in the West and near East are planning to introduce electric and alternate fuel-based transportation to drastically cut down emissions. In fact many countries are planning to ban all forms of fossil fuel based transportation in the future.

Pakistan is amongst ten countries most affected by climate change. Economically we are second most affected country. The melting of glaciers in Himalayas to the smog problem of our cities gives us a strong indicator that climate change impacts millions of lives and if continue unabated it will impact millions of more lives.

The Government of Pakistan is committed to curb emissions to mitigate and adapt to the harmful effects of climate change. Transportation accounts for 43% of the airborne emissions in the country. Therefore, the Government of Pakistan has approved mandated minimum penetration targets for Electric Vehicles. The National Electric Vehicle Policy is developed to ensure meeting the penetration numbers set forth. We hope that this policy will begin an era of clean air in the country that we desperately need for our future generations.

Malik Amin Aslam
Special Assistant to Prime Minister
on Climate Change/
Federal Minister



Acknowledgements

The Ministry of Climate Change has developed Pakistan's first National Electric Vehicle Policy (2019) under the instructions of Prime Minister. The Policy proposes an incentivized and phased approach for achieving the penetration targets for Electric Vehicles in three phases – market development and public awareness, fuel import bill substitution, local adoption and export. Globally EVs are capturing the transport markets. In Pakistan the transportation sector has been growing with a double-digit growth. Almost all of the transportation sector is dependent on oil-based products and the country is spending almost USD 13 billion on the import of oil every year. If our transport sector continues to grow at the same double-digit rate, the bill for oil import is expected to increase phenomenally in coming years. The triple blow of ballooning fuel bill payments, environmental degradation, and capacity charge payments is likely to create major challenges for the country over the next several years. It is strongly believed that introducing EVs in the country, with the right policy framework, will not only ameliorate the above problems but also will trigger job creation and economic growth in the country.

The Ministry is thankful for the valuable support and input from Federal Ministries, Divisions and organizations, particularly Ministry of Industries and Production (Engineering Development Board), Ministry of Commerce, Ministry of Foreign Affairs, Ministry of Communications, Power Division, Petroleum Division, Ministry of Science & Technology and the Federal Board of Revenue. Various stakeholders involved in consultation process also include the auto manufacturers and auto parts manufacturers and assemblers. Around thirty manufacturers and their representative organizations Pakistan Automotive Manufacturing Association (PAMA) and Pakistan Association of Automotive Parts & Accessories Manufacturers (PAAPAM) participated in the meetings and provided valuable input. The input provided by the petroleum companies including Pakistan State Oil (PSO), Total-PARCO, Byco, Attock Petroleum and their representative organization Oil Companies Advisory Council (OCAC) is also acknowledged. Several organizations like the Rocky Mountain Institute, EV Technologies, JS Bank, Volvo Pakistan Limited (VPL), AUJ Group, Automotive Research Group and many professionals in individual capacities provided their comments through one-on-one meetings, group discussions and social media.

It is acknowledged that the work was initiated by the ex-Secretary Climate Change, Mr. Hassan Nasir Jamy, who led the process of its initial draft. Also, the policy received extremely valuable technical support from Dr. Naveed Arshad and Professor Nauman Ahmad Zafar of the Energy Institute, Lahore University of Management Sciences (LUMS) not just in policy formulation but also its subsequent improvements. The Ministry's team led by Mr. Irfan Tariq remained highly resilient and extended serious ownership and undertook extensive coordination for this exercise.

It is my sincere wish that the National Electric Vehicle Policy proves to be a valuable addition to the climate change mitigation efforts in the country.

Naheed S. Durrani
Secretary
Ministry of Climate Change



Executive Summary

Electric Vehicles (EVs) have potential to solve critical challenges faced by Pakistan in the 21st century. In Pakistan transport sector is the leading factor in deteriorating the climatic conditions. For example, 43% of the airborne emissions in Punjab are from transport sector¹. With the anticipated rise in Fossil Fuel Vehicles (FFVs), the problem of air pollution is only going to get worse. EVs do not emit any pollutants so their introduction will limit emissions to a large extent.

Rising trade deficit is one of the major factor towards stagnant economic growth in Pakistan. EVs will substantially limit the bill for oil import which is the largest import commodity in Pakistan. Moreover, EVs have a potential to set up a whole new industry in Pakistan, creating numerous green businesses and employment opportunities and ameliorating the overall socio-economic situation of the country.

The capital cost of EVs is still high due to high battery costs. However, according to various forecasts the battery prices are falling rapidly. According to Bloomberg New Energy Finance the cost of EVs will be at par with FFVs by 2022². Similarly McKinsey estimates the total cost of ownership of small EVs and buses to be at par with their FFV counterparts by 2020 and cost ownership of all types of EVs to be at par with their FFV counterparts by 2025³. International Energy Agency (IEA) forecasts around 250 million EVs on road by 2030, excluding two and three wheelers⁴.

It is important for Pakistan to tap into this market on priority. Not only will it solve the problems of emissions and surging oil import bill but also it will be an excellent opportunity for exports. Moreover, EVs are an excellent flexible load for the national electric grid. With right planning, EVs will use the electricity in off-peak hours and reduce the burden of idle capacity payments on the national exchequer. In view of the benefits of EVs, the Government of Pakistan has approved the minimum EV penetration targets for the country.

To achieve these targets, the first few years require a carefully planned transformation of the auto industry. These initial years are divided into three phases:

1. Market development and public awareness through incentives and subsidies on EVs especially for the companies willing to set up EV related industry in Pakistan. (Years 1 and 2)
2. Fuel import bill substitution through targeted penetration of EVs through local assembly and manufacturing. (Years 3 and 4)
3. Reasonable local adoption and export of electric vehicles and their components through

¹ 'Remote Sensing for Spatio-Temporal Mapping of Smog' 2018. FAO and Punjab Govt Study

² <https://about.bnef.com/electric-vehicle-outlook/>

³ <https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2019>

⁴ <https://www.iea.org/gevo2019/>



indigenous research, development, assembling and manufacturing. (Years 5 and beyond).

The initial years of EV penetration in Pakistan are not possible without governmental support. EVs still costs much higher than their FFV counterparts and governments around the world give subsidies, incentives and tax breaks for EV adoption amongst the masses. These initial incentives, tax breaks and benefits will pay for itself with the savings in fuel import bill, reduction in emission related expenses, usage of idle electricity capacity and income from charging revenues. For example, with the target penetration of first five years the country will conservatively get around PKR 110 Billion yearly through savings and earnings.





Preamble

The world is fast moving towards an electric mobility revolution. Some countries went as far as announcing plans to completely halt the sale of FFVs. Norway plans to ban sale of all FFVs by 2025, Netherlands plans to ban such sales by 2030, while France and UK plan to do the same by 2040. Other countries such as China, Germany, Sweden and many US States have announced ambitious plans for EV penetration. While EVs have been around for many years, many experts see the aforementioned governmental policies as a trigger for mass adoption of EVs. Even developing countries like India have announced to increase their share of EV sale to 30 percent and completely shift to all electric buses by 2030. India also plans on establishing a huge network of charging infrastructure with at least one charging facility available in each 3x3 km block in cities and every 25 km along both sides of national highways.

The National Electric Vehicle Policy will strengthen Pakistan's resolve to fight climate change at the national level. Since EVs bring a number of other benefits the policy is developed to introduce Green Economy and numerous opportunities for businesses and job creation in the country to ensure sustainable economic growth that preserves the climate for our future generations.



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Pakistan's First 3 – Wheeler EV, SAZGAR



1.0 Scope

This policy paper covers all electric vehicles which are not covered by the Auto Development Policy 2016-21 of Pakistan. **The policy and subsequent incentives are related to all-battery operated vehicles that do not contain internal combustion engine and are run solely through the available on-board battery charge.** Due to the new innovations and rapid research taking place in the field of electric mobility EV policy will be revised accordingly to incorporate the changes.

2.0 Policy Objectives

The main objectives of the EV policy includes:

1. Mitigate climate change through a reduction in emissions from transport sector.
2. Create a pivot to industrial growth in Pakistan and encourage auto and related industry to move towards local EV manufacturing
3. Forge links with the global EV value chain for export potential of EVs and their parts.
4. Meet the objective of generating employment through Green Economy initiatives.
5. Reduce oil import bill.
6. Use electricity in off-peak times for useful purposes.
7. Develop affiliated industry such as battery manufacturing, charging infrastructure, etc.

3.0 Introduction

Globally, EVs are steadily capturing the automobile industry. EVs are being particularly promoted in view of the global commitments to bring down Green House Gas (GHG) emissions as vehicular emissions is one of the major of GHGs.

For a country to introduce and sustain EVs and its infrastructure, it is important to determine penetration targets of EVs. The Prime Minister's Committee on Climate Change in its meeting held on 17th May, 2019 has approved minimum mandated targets for guiding EV penetration in the country. Table 1 mentions these targets along with expected penetration time frame.

Electric Vehicles bring in a number of benefits to the economy. Table 2 provides a conservative estimate of benefits to the country with the EV penetration targets mentioned earlier. This include benefits of fuel savings which can directly result in reduced fuel import bill and also reduce other associated socio-economic costs. EVs will also use the idle capacity available in the national electricity grid due to intra-day and seasonal variations. On one hand this will reduce the idle capacity payments and on the other hand this will generate extra revenue from using electricity that otherwise may not be sold altogether.

**Table 1: Electric Vehicle Penetration Targets.**

EV Penetration Targets	Medium Term Targets (Five Years) Cumulative	Long Term Targets (2030)	Ultimate Targets (2040)
Cars (including Vans, Jeeps and small Trucks)	100,000	30% of New Sales (Approximately 60,000)	90% of New Sales
Two and Three Wheelers Four Wheelers of UNECE 'L' Category	500,000	50% of New Sales (Approximately 900,000)	90% of New Sales
Buses	1000	50% of New Sales	90% of New Sales
Trucks	1000	30% of New Sales	90% of New Sales



Table 2: Estimates of Yearly Income and Savings from EVs with Five Year Penetration Target.

	Cars	2/3 Wheeler	Buses	Trucks	Total
Fuel Savings (PKR)	17857 M	33333 M	1375 M	1650 M	54.2 B
Idle Vehicle Fuel Savings	4286 M	6667 M	611 M	578 M	12.1 B
Socio-Economic Cost of Emissions	3096 M	8960 M	235 M	281 M	12.5 B
Charging Revenue (@ Rs. 25/kWh)	8754 M	7293 M	1875 M	1875 M	19.7 B
Maintenance Cost (Lube etc.)	3000 M	7222 M	280 M	280 M	10.7 B
				Total (PKR)	109.6 B
				Total (USD)	0.81 B

In Table 2, please note that in the calculations for the impact of emissions, the socio-economic cost of carbon ranges between USD15-USD100 per metric ton for developing countries. In the aforementioned calculation USD 50 per metric ton as a standard for Pakistan is estimated which for many is a conservative estimate owing to the fact that Pakistan is one of the most affected country by climatic changes. The effective tailpipe emissions will reduce by 65% from EVs. Part of this reduction comes from efficient electricity generation plants and part from the fact that Pakistan has around 37% renewable sources of generating electricity. Cost of electricity for EV users is calculated at PKR 25. Fuel price is calculated at petrol pump price at PKR 100 for gasoline and PKR 110 for diesel. It is important to mention that this reduction in fuel consumption is just from the energy efficiency that one gets from using EV motor and efficient electricity generation plants. Moreover, EVs also save the fuel due to vehicle idling as the battery provides instant torque to electric motors. Similarly, all the maintenance costs associated with changing lubricants and filters is not associated with EVs. All these provide around PKR 110 B in yearly savings and earnings in total for the EV penetration targets mentioned in Table 1.



4.0 Charging Infrastructure

In order to promote EVs in such a way that it penetrates the market, an infrastructure to ensure adequate charging points needs to be promoted/developed. To this end, the Government of Pakistan, in collaboration with relevant entities shall take the following measures:

1. Charging infrastructure shall be installed at different points in all major cities initially and will be expanded to all secondary cities. In each major city at least one DC fast charger shall be installed in every 3x3 km area.
2. DC fast chargers will be installed along major motorways and highways after every 15-30 km. Initially the chargers will be installed at each rest area along the highway N5 and motorways M1, M2, M3, M4, M5 and M9, while the infrastructure will further be extended to the rest of the motorways and highways in the country.
3. Public charging station can opt an option to have standardized swappable battery facilities for in lieu of standard charging for appropriate category of vehicles.
4. The first installation of charging infrastructure will be carried out in Lahore and Islamabad and on motorway M2. Due to smog issues Lahore will be given priority in EVs and their services roll out.
5. Make it responsibility of each Electric Distribution Company (DISCO) to identify the feeders where electricity load can be managed to support fast charging stations based on aforementioned targets. If there are system constraints in achieving the targets of the charging stations in each 3x3 km area then the respective DISCOs will be responsible for removing such supply constraints.
6. Existing CNG and Fuel Stations are encouraged to take a leading role in establishment of charging infrastructure.
7. In order not to put stress on our grid infrastructure, smart charging may be employed at charging stations particularly of Level-2 and above. Smart charging is possible through smart metering, time-of-use pricing and through other innovative mechanisms.

5.0 Policy Incentives for Electric Vehicles

There are four segments of EVs including cars, two and three wheelers, buses and trucks which require different policy incentives as national and international markets are at various stages of development for each of the respective segment. However, for any kind of EV to have a market uptake, a sizeable market development effort is required. Moreover, batteries are an integral part of EVs and their development also requires incentives. Similarly, adequate charging infrastructure is also needed to eliminate range anxiety amongst EV owners.



5.1 Incentives for New Cars

This category of EVs include passenger and commercial cars, jeeps, SUVs, vans and small delivery vehicles of up to one ton cargo hauling i.e. Categories M1 and N1 of UNECE Vehicle Classification. Although the car market has developed in Pakistan, there is virtually no EV penetration in the country. Therefore, some aggressive steps are required to create an EV market and then reap its benefits. The capital cost of electric cars is still high for masses and many countries provides tax breaks, incentives and trade-ins to encourage purchase of electric cars. While the cost is high at this time, it is expected to go down steadily and by 2023-24 the cost of electric cars is projected to be at par with their FFV counterparts. For Pakistan to create an EV market some good incentives are needed to bring the cost of purchase of EVs down. In view of the above the Government of Pakistan, in collaboration with relevant entities shall take the following measures:

1. All existing incentives of the Auto Development Policy 2016-2021 are to remain intact. However, government will give the following further incentives to jumpstart EV manufacturing in Pakistan only for local manufacturing units:
 - a. Removal of Additional Customs Duty and Additional Sales Tax (AST) on the import of EVs to bring the purchase price of vehicles down.
2. EV specific parts and components, not being manufactured locally compliant to UNECE 1958 Agreement 'WP.29' standards as well as equivalent international standard applied by the United States, European Union and other major EV manufacturers, will be allowed import at 1% custom duty and 0% sales tax.
3. Federal Excise Duty (FED) will not apply to 4-wheeler EVs.
4. Locally manufactured EVs up to 50KW and light commercial vehicle up to 150KW will be sold at 1% sales tax.
5. EVs will be exemption from Registration fee and annual renewal fee.
6. Registration number plates of EVs will have a distinct color/design to create EV specific zones in high density areas and to introduce distinct incentives for EVs.
7. The State Bank of Pakistan may initially allow new EVs to be purchased under Green Banking Guidelines and may further evolve an incentive scheme push down the price of local EV manufacturing through a better financing scheme. Provision of Special window for car financing at 1+4% shall be offered by the State Bank of Pakistan. Again this will encourage EV penetration in the country and will reduce upfront cost of EVs.
8. EVs will pay 50% of the applicable toll tax at all NHA administered toll stations.

5.2 Incentives for Two and Three Wheelers/Low Speed Electric Cars

Pakistan has a large market of two and three wheelers. More than twenty million such vehicles are already on roads in Pakistan. Their local production has reached indigenization of more than 90% already. Therefore, the need is to incentivize the already available manufacturing expertise for converting to e-bikes and e-rickshaws. Moreover, a new category of low-speed electric vehicles has emerged that is added into this category. In short, the vehicles in this category are vehicles in category 'L' of UNECE classification.

Low speed electric cars are 4 wheel vehicles but have certain characteristics that distinguish them from regular 4 wheel electric cars. Such vehicles generally have a net mass of 350 kg (excluding



batteries) and their top speed is usually limited to 60 km/h. It is required that such category of electric cars be treated as 2 & 3 wheelers and all incentives for 2 & 3 wheelers must also apply to low speed electric cars. Similarly, such low speed vehicles will also have the same restrictions such as 2 & 3 wheelers in their access to motorways and other access control roads. In view of the above the Government of Pakistan, in collaboration with relevant entities shall take the following measures

1. All existing incentives of the Auto Development Policy 2016-2021 are to remain intact. However, government will give the following further incentives to jumpstart EV manufacturing in Pakistan:
 - a. All two and three-wheeler CKDs (EV-related) shall be allowed import at 1% custom duty and shall be sold at 0% sales tax.
 - b. All two and three wheeler EVs manufactured locally will sold at 1% sales tax in order to bring the purchase price of EVs down.
 - c. EVs will be exempted from registration fees and annual token tax to encourage prospective buyers and the FBR shall evolve a policy to offer tax incentives for prospective buyers of the two and three wheelers.
2. EV specific parts and components, not being manufactured locally compliant to UNECE 1958 Agreement 'WP.29' standards as well as equivalent international standard applied by the United States, European Union and other major EV manufacturers, will be allowed import at 1% custom duty and sold at 0% sales tax.
3. Registration number plates of EVs will have a distinct color/design to create EV specific zones in high density areas. The registration number plates will be different from other typical vehicles to distinguish between two, three and low speed four-wheeler electric vehicles and other vehicle segments.
4. The aforementioned policy incentives will bring the prices of two and three wheelers at a competitive level with their equivalent internal combustion engine-based vehicles and will provide the initial impetus for EV introduction in the country.

5.3 Incentives for Buses

The all-Electric Bus technology is still quite expensive. While cars, two and three wheelers have mostly non-commercial ownership, buses are typically used at a commercial scale and needs to make sense for a commercial operator. Currently electric buses are almost four times expensive. However, overall, they provide a major reduction in emission owing to their high usage. In view of the above the Government of Pakistan, in collaboration with relevant entities shall take the following measures:

1. Encourage manufacturers to setup assembly plants. Since the volume of buses is low the government may invite interested manufacturers through government-to-government or commercial contracts.
2. The electric buses will be imported at 1% custom duty.
3. For buses manufactured locally the import of all parts (both localized and non-localized) will be at 1% custom duty.



4. CBU import and CKD import for the purpose of manufacturing will be at 1% custom duty until the announcement of next policy i.e. Auto Industry Development and Export Plan (AIDEP) starting from 1st July 2021.
5. The sales tax on locally assembled buses will be 1% at sale stage.
6. Electric buses will have no registration fees or annual token tax. Additionally, the State Bank of Pakistan may allow EVs to be purchased under the Green Banking Guidelines or similar financing scheme.
7. EVs will pay 50% of the applicable toll tax at all NHA administered toll stations.
8. Metro buses and BRT routes in all major urban areas will be prioritized for electrification of buses.

5.4 Incentives for Trucks

The all-electric truck technology like busses is still quite expensive. Therefore, a similar strategy is required for bringing electric trucks in Pakistan. However, unlike buses most heavy duty trucks perform cross country hauls and require a widely distributed charging infrastructure. To this end, trucks require a different strategy also. In view of the above the Government of Pakistan, in collaboration with relevant entities shall take the following measures:

1. In the short-term of 1-2 years the electric trucks of over 1-ton haulage will be used for city wide hauling as their charging requirements are relatively easier to fulfill. However, in the next five years charging infrastructure will be developed for long distance hauling.
2. Encourage manufacturers to set up assembly plants. Since the volume of trucks is low the government may invite interested manufacturers through government-to-government or commercial contracts.
3. The electric trucks will be imported at 1% custom duty.
4. For trucks manufactured locally the EV specific parts will be allowed import at 1% custom duty applicable to non-localized parts for manufacturing of truck till the announcement of next Auto Industry Development and Export Plan (AIDEP).
5. The sales tax on locally assembled electric truck/prime movers to be fixed at 1% on sale stage.
6. A detailed study (in close collaboration with China in the context of CPEC), will take place that assesses the availability of possible charging infrastructure along Karakorum Highway (KKH) and devise the best possible electric truck category for hauling along the KKH. Developing small hydropower plants for charging traffic along KKH is another investment opportunity for the country and PPIB and BOI may advertise such opportunities after a detailed study.
7. The electric trucks will have no registration fees or annual token tax. Additionally, the State Bank of Pakistan may allow EVs to be purchased under Green Banking Guidelines or similar financing scheme until a SBP defines a focused incentive policy towards EV's.



8. EVs will pay 50% of the applicable toll tax at all NHA administered toll stations.
9. Electric Trucks will be exempted from permit costs.

5.5 Incentives for Setting up EV Manufacturing Units

The incentives for setting up automotive assembly plants is extremely important to invigorate local industry. In this respect the Government of Pakistan, in coordination with relevant partners, shall:

1. Uphold the incentives provided in the prevailing Auto Development Policy 2016-21 to set up automotive assembly plants and ensure Greenfield investment to all automakers irrespective of their longevity of presence in Pakistan.
2. For EV specific technology the existing automakers may use their already established locations for converting to EV assembly facility under the auspices of Greenfield investment regulation of prevailing Auto Development Policy 2016-21.
3. For both new and existing manufacturers, machinery, equipment and plant for EVs will be allowed to import at 0% custom duty and 0% tax (Income tax and sales tax). In addition to this, import of machinery and equipment for development of EV parts and infrastructure development equipment shall be exempted from payments of custom duty, sales tax, income/withholding tax etc.
4. 100 CBUs (for each variant) for test marketing to be allowed at 50% of prevailing custom duty as per guidelines proved in ADP 2016-21 for Cars, SUVs, LCVs, HCVs etc. However, in case of 2&3 wheelers, a maximum of 10 units per variant will allowed import at 50% of prevailing duty for CBUs. The maximum units to be imported collectively in 2&3 wheeler shall not to exceed 200 units per company even in case it has more than 20 different variants. Subsequent manufacturing within 2 year of import will be compulsory as per guidelines provided in ADP 2016-21.
5. The State Bank may allow lower financing rates for EV manufacturing plants setup under Long Term Financing Facility (LTFF). This will encourage prospective EV manufacturers towards export and will also bring the cost of EVs down for local usage.
6. A policy shall be framed by the Ministry of Climate Change and Ministry of Industries and Production, in close consultations with the stakeholders, to provide lease of available land at a lower rate for an initial period of 10 years to the greenfield EV manufacturers to reduce the cost of manufacturing EVs in Pakistan.
7. Consistent with the World Trade Organizations (WTO) rules, a policy shall be framed to evolve incentives for export of charging infrastructure and EV's from Pakistan to ensure that Pakistan also capitalizes on the growing market abroad. This will act as an important incentive for the manufactures to consider setting up their plants in Pakistan.

5.6 Incentives for EV Components and Modules Manufacturing

Battery, motor etc. are an essential part of an EV. In order to encourage local manufacturing of EVs encouragement of local manufacturing of EV components is needed. The eventual goal is



local manufacturing, designing and developing of all major components of EVs. This will also encourage research and innovation in the EV value chain. In view of the above, the Government of Pakistan, in collaboration with relevant entities, shall take the following measures:

1. To encourage transfer of technology, all types of motors, batteries, and electronics etc. utilized in EVs (except Lead-Acid batteries), excluding any components already being manufactured locally that are not only WP.29 standard compliant but also meet the standards applied in major markets to enable exports, will be allowed import at 1% custom duty and 0% sales tax will be applicable to penetrate the local market.
2. All individual components of batteries, motors, and electronics etc. will be allowed import at 1% custom duty and sold at 0% sales tax.
3. Components and parts for manufacturing of conversion kits will be allowed import at 1% custom duty. The conversion kits must be approved by Engineering Development Board to ensure quality of products. Fitness of vehicle to be converted will also be ensured through a mechanism.
4. Five years income tax exemption to be granted to auto part manufacturers for setting up a greenfield independent manufacturing facility for manufacturing of EV related equipment, infrastructure and development equipment.
5. All inputs (machinery, equipment etc.) for manufacturing of EV related parts by the (Original Equipment Manufacturers) OEMs and vendors to be exempted from all duties and taxes for 5 years from the start of manufacturing.
6. Establishment of recycling and refurbishment plants to ensure proper recycling and/or disposal of batteries and other electronic waste will be ensured.
7. For parts manufacturers, loans at 5% interest rate shall be given to registered manufacturers of EV specific parts and infrastructure development equipment. EDB will certify the registered part manufacturers.

5.7 Incentives for Charging Infrastructure and Battery Swapping Stations

Charging infrastructure is a major requirement for transformation to electric mobility. Every effort shall be made to manufacture charging infrastructure in Pakistan. For incentivizing a well-established and well-spanned network of charging infrastructure as well as its manufacturing, the Government of Pakistan, in collaboration with relevant entities, shall take the following measures:

1. All entities offering public Level-2 charging will be allowed to show the installation cost of the charging facility as Corporate Social Responsibility (CSR) contribution.
2. Charging equipment will be allowed to import at 1% custom duty. All incentives for charging equipment will also be available for mobile chargers and swappable battery stations.
3. All modules and components of Level-3 DC fast chargers will be allowed import at 1% custom duty.



4. Any faster chargers beyond Level-3 will be allowed import at 1% custom duty.
5. Other new technologies of charging like super capacitors, stationary and on-road wireless charging and other upcoming technologies will be encouraged for greenfield investment in Pakistan and appropriate incentive package for investors will be created by the Ministry of Climate Change, as technology matures.
6. All chargers above Level-1 will be installed with special electricity smart meters to bill the electricity cost accurately and also to control peaks at the grid.

(Since charging infrastructure requires international safety standards due to high power rating the standardization and compliance will be carried out by National Energy Efficiency and Conservation Agency (NEECA) and National Transmission and Dispatch Company (NTDC). Once National Center for Electric Vehicles is established this standardization will be part of its mandate.)

6.0 Registration of Electric Vehicles

Currently there is no mechanism to register an all-electric vehicle in Pakistan. The Government of Pakistan, in collaboration with relevant entities, shall take the following measures

1. The categorization of registration shall be based on their ‘rated’ electric motor.
2. Distinct registration plate color and design will be allocated to EVs.
3. The following table provides categories of two-three wheelers and cars for their registration categorization.

Table 3: Registration Categories for 2-3 Wheelers and Low Speed Electric 4 Wheelers

2 and 3 Wheelers and Low Speed Cars	‘Rated’ Power of Electric Motor
Category 1	0-7.5 KW
Category 2	7.5-15 KW
Category 3	15 KW – 50KW

Cars (including jeeps, SUVs, van and small trucks)	‘Rated’ Power of Electric Motor
Category 1	50-60 KW
Category 2	75-100 KW
Category 3	100-150 KW
Category 4	Above 150 KW



7.0 Establishment of National Center for Electric Vehicles

The government shall establish a National Center for Electric Vehicles to jumpstart the EV penetration in the country. This center will serve as a catalyst for first bringing EV technology to Pakistan in the most appropriate way and then will work towards developing EV related industry for local production and exports. The broad objectives of this center will be following:

1. Evaluate EVs (two-three wheelers, cars, buses and trucks) for Pakistan's unique environment e.g. temperature variations, altitude variations, unpaved roads and fragile electric grid etc.
2. Jumpstart network of charging infrastructure for EVs.
3. Collect and evaluate data from testing on EVs under various conditions in Pakistan.
4. Identify opportunities for maximum indigenous production of EV parts and possibly ensure that 80% of the total EVs on roads are locally assembled with significant indigenization by 2023.
5. Work on standards, specifications and possible regulation support for electric mobility.
6. Train a work force on high tech EV value chain.
7. Develop business models to attract local and international investment, both in manufacturing as well as in operations.
8. Identify upcoming and futuristic opportunities in the EV value chain and encourage local industry to harness it.
9. This center will be established by a consortium of leading universities of the country to maximize the conceptualization to commercialization of EVs, components and related infrastructure.

8.0 Establishment of Inter-Ministerial Committee on Electric Vehicles

An inter-ministerial committee shall be formed to overlook all issues related to the entire EV value chain in order to smoothly introduce and coordinate efforts towards local manufacturing. The committee will also be responsible for overseeing standardization, regulation and compliance towards charging infrastructure. Periodic changes in the EV policy based on the changing technology and marketplace will also be the responsibility of this committee. The committee will also develop a blueprint for the National Center for Electric Vehicles in consultation with relevant departments and ministries.

The inter-ministerial committee; will comprise off:

- Ministry of Climate Change (Chair)
- Ministry of Industries and Production (Co-Chair)
- Ministry of Foreign Affairs
- Ministry of Commerce
- Ministry of Communication
- Ministry of Energy (Power Division)



- Ministry of Energy (Petroleum Division)
- Ministry of Science and Technology
- Ministry of Finance
- Federal Board of Revenue
- Higher Education Commission (HEC)
- Pakistan Engineering Council (PEC)
- Provincial representatives from all 4 provinces, AJK and GB.
- Five Interested Representatives from transport and EV industry
- Two notable members and experts from academia

9.0 Designation of EV Model Cities across Pakistan and Creation of Special Economic Zones

- Lahore and Islamabad shall be designated as model cities to jump-start 'Green Rickshaw' and 'Green Taxi' schemes respectively.
- EV related greenfield projects including those for charging infrastructure may use existing Special economic zones. This will ensure that EV manufacturing takes place along with the vendor industry.

10.0 Role of Federal/Provincial Ministries and Government Agencies

In order to implement the National EV Policy, the roles and responsibilities of relevant Federal/ Provincial ministries and departments and their role will be as follows:

Ministry of Climate Change

The Ministry of Climate Change will lead this effort alongside Ministry of Industries and Production. It shall also facilitate linkages between national GHG inventory and the mechanism adopted for measuring the carbon emissions from vehicles/ transport sector.

Ministries of Industries and Production

The Ministry of Industries and Production shall specify EV types, models and other options that will be introduced.

Ministries of Commerce

Ministry of Commerce will further plan out incentives for developing infrastructure for charging and battery replacement.

Engineering Development Board

The EDB shall develop a linkage between the industry and the academia to allow cutting research conducted at the educational institutes to be translated into industrial products. The EDB shall provide assistance to the industry in indigenously developing various sophisticated EV parts which are often expensive to import.

Ministry of Planning, Development and Reform



The Ministry of Planning, Development and Reform shall ensure that EV targets would become a part of the five years' plan and shall prioritize projects that help the country reach its EV penetration targets.

Federal Board of Revenue and the Ministry of Finance

FBR and the Ministry of Finance shall provide a mechanism to implement a planned reduction on taxes and duties for EVs which will include limiting registration cost, import duties and yearly token tax.

Ministry of Energy (Power Division)

The Ministry of Energy (Power Division) shall develop an initial blue print for an R&D center for EVs. This center will be mandated to work towards encouraging local R&D and manufacturing of EVs. Also the coordination amongst various departments of the power sector such as NTDC, DISCOs and other organizations.

Ministry of Energy (Petroleum Division)

The Ministry of Energy (Petroleum Division) to ensure the impact assessment of EVs on oil value chain and plan future oil imports, storage accordingly.

Ministry of Communications

The Ministry of Communications shall identify optimal charging locations on motorways and highways to efficiently address the range anxiety problem and develop a detailed EV charging infrastructure plan. The Ministry shall also implement plans identifying future charging locations across the country.

Ministry of Foreign Affairs

Ministry of Foreign Affairs shall engage and facilitate various international stakeholders in the EV value chain to obtain related technologies from various partner countries. MOFA will also engage with key international EV coalitions and markets in the United States, Europe and China to encourage them to establish Greenfield EV and EV related infrastructure projects in Pakistan, MOFA will be advised to explore the possibilities of collaboration with Chinese EV industry.

Provincial Governments/ Metropolitan Corporations/ Development Authorities

Provincial governments shall reduce the provincial taxes and duties including but not limited to registration costs and annual token tax on EVs. They shall update their respective motor vehicle ordinances to allow for EV registration in appropriate categories. Tentative categories are mentioned in section 6 of the policy.

Metropolitan Corporations and Development Authorities of all major cities in Pakistan shall formulate a conducive policy for facilitating public and private charging infrastructure along with reduction in taxes and other charges on such facilities.

EV related accidents sometimes involve battery fires and similar electricity related accidents. These kinds of emergencies are new to the first responders i.e. 'Rescue 1122'. Therefore, Rescue



1122 shall be given special training to first responders so as to minimize human and property damage from such types of incidents.

National Transmission and Dispatch Company (NTDC)

NTDC shall include the EV targets in its generation and plan to see if newer generation resources are needed down the line. Moreover, NTDC shall also be responsible for specifying standards for smart metering of the charging infrastructure.

Distribution Companies (DISCOs) and K-Electric

DISCOs shall provide smart metering for EVs, especially for Level 2 and Level 3 charging stations, must be provided so as to minimize non-technical losses in EV charging.

NEPRA

NEPRA shall develop a policy to enact EV tariffs and to ensure compliance with EV standards and specifications. The foremost of which are safety standards for EVs.

Banking Sector

State Bank of Pakistan (SBP) shall plan a policy that will provide financial support for potential EV purchasers. The policy will include reducing rate of interest on loans intended to purchase EVs. A discount under a financing scheme similar to the SBP Financing Scheme for Renewable Energy will be offered.

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