

Requesting country or countries:	Pakistan
Request title:	Deployment and scale-up of Electric vehicles in Pakistan
NDE	Mr. Hammad Shamimi, Director General (Environment&Climate Change), Ministry of Climate Change, Pakistan, Phone: +92 51 9245585, Fax: +92 51 9245731 email: hammadshamimi@hotmail.com
Request Applicant:	Mr. Hammad Shamimi, Director General (Environment&Climate Change), Ministry of Climate Change, Pakistan, Phone: +92 51 9245585, Fax: +92 51 9245731 email: hammadshamimi@hotmail.com

Climate objective:

- Adaptation to climate change
 Mitigation of climate change
 Combination of adaptation and mitigation of climate change

Geographical scope:

- Community level
 Sub-national
 National
 Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

In Pakistan transport sector is the leading factor in deteriorating the climatic conditions with a share of 43% in emissions from all sectors. With the anticipated rise in Fossil Fuel Vehicles (FFVs) based transportation sector, the problem of air pollution is only going to get worse. The transport sector consumes more than half of the oil consumed in Pakistan. The transport sector accounted for 19.84, 33.47 and 42.57 million tonnes of oil equivalent to GHG emissions in the inventory years of 1994, 2008 and 2012, respectively. Thus, managing emissions in this sector remains crucial for tackling climate change. Within the transport sector, road transport is dominant as it is responsible for carrying 91% of the national passenger traffic and 96% of the freight movement, while 9% of national passengers and 4% of the freight are transported through rail and aeroplanes.

As the population and the economy have grown, the numbers of vehicles have drastically increased in 1991-2, Pakistan had 2.096 million vehicles on the road, which increased to 13.24 million by 2013-14. The easy availability of credit through banks in the past few years and lack of a proper public transportation system has caused increase in the number of vehicles. In recent past significant number of motor vehicles were switched to CNG largely due to price differentials between oil and gas. The use of CNG in vehicles is less polluting than petrol or diesel as the Carbon mono-oxide (CO) content in CNG



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exhaust is 90% less than CO found in gasoline (petrol) exhausts. However, reliance upon CNG in vehicles is not expected to continue due to Pakistan's depleting natural gas resources.

On the other hand Electric Vehicles do not emit any pollutants so their introduction will limit emissions to a large extent. Rising trade deficit is one of the major factors 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. However, the capital cost of EVs is still high due to high battery costs.

Past and on-going efforts to address the problem (up to half a page):

The world is fast moving towards an electric mobility revolution despite of high capital cost incurred in deploying them. According to various forecasts the battery prices are falling rapidly, and it is expected that around 250 million EVs will be on road by 2030, excluding two and three wheelers¹.

It is important for Pakistan to tap into this EV market on priority. Not only will it solve the local 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.

Pakistan has set the targets to replace 30% of FFVs to EVs, 3000 CNG stations to be converted to EV charging stations and 100,000 cars and 500,000 bikes and rickshaws to be converted to EVs in next 4 years.

To achieve this target, Pakistan is going to launch National Electric Vehicle Policy. While the policy will introduce various supporting mechanisms with an intent to increase penetration of EV in Pakistan, it also wants to conduct a market assessment to identify various gaps and barriers basis which the policy be refined into a concrete roadmap of action plans and feasibility study on some of the priority action plans can be carried out. Considering that the upfront cost of EV is very high, Pakistan has requested CTCN to prepare a funding proposal to support the preparatory activities to deploy and scale up the EV in the country including market assessment, roadmap development, feasibility study of the selected action plan to prepare a business case for upscaling and capacity development purpose.

Specific technology² barriers (up to one page):

1. High upfront cost of up-taking Electric vehicles
2. Lack of awareness across the EV value chain
3. Lack of supporting policy
4. Lack of supporting infrastructure like charging station and RE share in the grid etc.

¹ <https://www.iea.org/gevo2019/>

² "any equipment, techniques, practical knowledge and skills needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)

Sectors:

Please indicate the main sectors related to the request:

- | | | | |
|---|---|---------------------------------------|---|
| <input type="checkbox"/> Coastal zones | <input type="checkbox"/> Early Warning and Environmental Assessment | <input type="checkbox"/> Human Health | <input checked="" type="checkbox"/> Infrastructure and Urban planning |
| <input type="checkbox"/> Marine and Fisheries | <input type="checkbox"/> Water | <input type="checkbox"/> Agriculture | <input type="checkbox"/> Carbon fixation |
| <input checked="" type="checkbox"/> Energy Efficiency | <input type="checkbox"/> Forestry | <input type="checkbox"/> Industry | <input checked="" type="checkbox"/> Renewable energy |
| <input checked="" type="checkbox"/> Transport | <input type="checkbox"/> Waste management | | |

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

- | | | | |
|--|---|---|--|
| <input type="checkbox"/> Communication and awareness | <input checked="" type="checkbox"/> Economics and financial decision-making | <input checked="" type="checkbox"/> Governance and planning | <input type="checkbox"/> Community based |
| <input type="checkbox"/> Disaster risk reduction | <input type="checkbox"/> Ecosystems and biodiversity | <input checked="" type="checkbox"/> Gender | |

Technical assistance requested (up to one page):

Within a clearly defined scope, the description of technical assistance should be structured into the following:

1. Overall objective

The overall objective of the TA is to develop financing proposal to support the market preparation and business planning for deployment and scale-up of Electric Vehicles (EV) in Pakistan. The project proposal will cover the market readiness assessment to uptake EV basis which the policy and the implementation roadmap will be refined with suitable business models and investment plans; detailed feasibility study for the selected interventions and capacity development of the relevant stakeholders.

2. Anticipated groups of activities to be performed by the technical assistance

The anticipated group of activities and sub activities are as following:

I. **Assessment of the market readiness to uptake Electric Vehicles in Pakistan.**

- a. Assess and identify the relevant stakeholders in EV value chain ranging from automobile manufacturers, part suppliers and the consumers.
- b. Conduct the baseline analysis of the transportation sector in Pakistan in consultation with the stakeholders identified in the EV value chain. The outcome of this assessment will be the gaps on uptaking Electric Vehicles which will be fed to



policy refining and roadmap development for the implementation of EV in Pakistan.

II. Conduct policy review to recommend on the implementation roadmap for deployment and upscaling of the Electric vehicles and supporting charging infrastructure on the basis of local context and avoid shift and improve framework.

- a. Consolidate and review transport plans and policies to recommend/develop the action plans under EV implementation roadmap. The action plans will be categorized under short, mid and long term strategies.
- b. Recommend suitable business models and investment plans to implement the action plans based on blended approach of integrating international experiences and local context gathered based on market assessment.
- c. Review the institutional arrangements and capacity gaps to implement the roadmap

III. Conduct detailed feasibility study on selected action plans to develop business case on procuring and deploying electric vehicles and charging infrastructure

The action plan(s) for detailed feasibility study will be selected based on their assessed investment size and horizon that can be accommodated in the preparatory fund support.

- a. Conduct detailed technical and financial feasibility analysis of selected action plan(s) with scalable business model. The feasibility will be carried out for the EV as well as the supporting charging infrastructure.
- b. Develop technical specifications to support the tendering and procurement of the electric vehicles and charging infrastructure.

IV. Conduct capacity building and awareness of relevant stakeholders from government and EV value chain

- a. Brief factsheets on the basics of EV and its impact will be developed for general public awareness
- b. The experiences from business case will be archived in form of reference manual for the relevant stakeholders
- c. Conduct experience sharing and capacity building workshop focussing on the possible solutions to overcome the barriers in EV deployment like cost optimization of the EV vehicles, battery management, grid integration of EV vehicle etc.

3. Anticipated products to be delivered by the technical assistance.

- i. Report on market assessment and gap analysis on EV in Pakistan
- ii. Report on implementation roadmap with business models and investment plans
- iii. Feasibility study, tender specification documents and report on business case
- iv. EV factsheets and workshop reports

Expected timeframe:

The duration of CTCN technical assistance is 12 months.

Anticipated gender and other co-benefits from the technical assistance:

Transportation networks are one of the most important elements of a country's infrastructure, and they are key to reducing poverty and promoting equality. In low-income countries, gender differences in mobility needs are very pronounced, requiring gender sensitive policy responses.

In many countries, women are highly under-represented in decision-making with majority of the transport sector being managed and operated by men. A disruptive market change to cleaner and more efficient transport technologies (Electric Vehicles) presents an opportunity to address this unequal distribution by increasing women's participation in the transport sector and provide socio-economic opportunities in new businesses and business models as drivers, charging solution providers, fleet operators etc. This transition will also contribute to reducing the negative public health implications from vehicles for women and children, which are more vulnerable to the impact of air pollution than men.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	Ministry of Climate Change, Pakistan
Request Applicant	Ministry of Climate Change, Pakistan
Specify EV types, models and other options that will be introduced	Ministries of Industries and Production
Support the incentives for developing infrastructure for charging and battery replacement.	Ministry of Commerce
Academic research and development	Engineering Development Board
Link the EV targets plans to the national plans and priorities	Ministry of Planning, Development & Reforms
Fiscal policy to support EV like tax	Federal Board of Revenue and the Ministry of Finance
R&D and manufacturing of EV	Ministry of Energy (Power Division)
Address the range-anxiety problem and develop a detailed EV charging infrastructure plan. Implement plans identifying future charging locations across the country.	Ministry of Communications



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Engage and facilitate various international stakeholders in the EV value chain to obtain related technologies from various partner countries.	Ministry of Foreign Affairs
Provincial regulations on EV	Provincial Governments/ Metropolitan Corporations/ Development Authorities
Financial support	Banking Sector
Specification for smart metering and charging	National Transmission and Dispatch Company (NTDC)
Smart metering, charging and grid integration at LV levels	Distribution Companies (DISCOs) and K-Electric
Policy on EV tariffs	NEPRA
Testing and Standardization on EV specifications and components	Pakistan Standards and Quality Control Authority

Alignment with national priorities (up to 2000 characters including spaces):

Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.

Reference document (please include date of document)	Extract (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	The NDC emphasize that a sizeable potential exists in achieving fuel efficiency in the transport sector.
Technology Needs Assessment	Transport sector prioritized under TNA with an emphasis on road transportation as the major contributor of GHG emission. Though the electric vehicles are not mentioned but the technologies like Hybrid vehicles are shortlisted as priority technologies in TNA

Development of the request (up to 2000 characters including spaces):

NDE Pakistan has developed the request for CTCN

Background documents and other information relevant for the request:

- Pakistan Intended Nationally Determined Contributions (INDC)
- Technology Needs Assessment Report
- Automotive Development Policy (2016-2021)

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound

technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms³. The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name: Ministry of Climate Change, Government of Pakistan

Date:

Signature:

Monitoring and impact of the assistance:

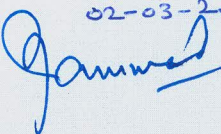
By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

Name: Hammad Shamimi

Date: 02-03-2020

Signature: 

³ Please see:

https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf



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THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

The CTCN is available to answer all questions and provide guidance on the application process.