

Policy Brief

Policy Framework Analysis of New Energy Vehicle Policy 2025-2030

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Executive Summary

The New Energy Vehicle Policy 2025-2030 is an ambitious road map to transform the whole transportation sector from fossil fuel to electrification in Pakistan. It was designed by the Ministry of Industries and Production in order to curtail dangerous greenhouse gas emissions, reduce reliance on imported fossil fuels, as well as develop green technology. The policy sets key targets of 30% new EV sales in 2030 and 90% by 2040. It will use fiscal incentives, infrastructure development, and local manufacturing to promote the adoption of EVs and address environmental challenges. However, there are areas for improvement in data-driven planning, risk management, and integration with other energy policies. The successful implementation of the policy will require strong mechanisms of implementation, collaboration among stakeholders, and harmonization with global standards.

Policy recommendations

- Divide the policy into three stages: i) from 2025 to 2030, concentrate on developing EV infrastructure such as charging stations and battery swapping, and spreading awareness, ii) between 2030 and 2035, concentrate on local manufacturing and the expansion of EV adoption in rural and urban areas, and iii) by 2035 to 2040, concentrate on full-scale transition to affordable EVs for mass adoption.
- AI and machine learning will be used to predict EV trends, estimate infrastructure requirements, and evaluate economic viability. There will be granular data gathering to meet supply chain challenges, determine market demand, and link renewable energy integration with expansion of EVs.
- Introduce subsidy on purchasing, lower import tax, as well as tax exemption with a phased release of an economic feasibility plan for the host country and improving investment incentive schemes.
- Clear policies for the recycling and disposal of batteries must be established to address environmental concerns and minimize material waste, promoting a circular economy in the EV sector.
- Integrate NEV policy with renewable energy and national conservation strategies. Challenge issues of grid stability by optimizing surplus electricity for EVs charging, hence strengthening energy security and efficiency.

- Ensure coordination between the federal and provincial governments to establish a robust regulatory framework and strengthen institutional capacities for effective implementation, monitoring, and evaluation for long-term success.

Introduction

Electric Vehicles (EVs) offer a promising solution to some of Pakistan's most pressing challenges in the 21st century¹. The transportation sector in Pakistan is a major contributor to worsening environmental conditions, accounting for 43% of airborne emissions in Punjab alone. With the expected increase in Fossil Fuel Vehicles (FFVs), air pollution is projected to escalate further. Since EVs produce no direct emissions, their adoption can significantly reduce pollution levels.

Previously in 2019, Ministry of climate change of Pakistan introduced national electric vehicle policy which cover all the phase of electric vehicle includes – market development and public awareness, fuel import bill substitution, local adoption and export².

In 2020, Ministry of Industries and Production also created a draft of electric vehicles and new technology policy. Main objective of this draft policy was industrial growth, mitigation of the effect of climate change, employment generation and contribution to reduce the external deficit of the country³.

Now, Pakistan's government has unveiled an ambitious New Energy Vehicle (NEV) Policy for the years 2025-2030, designed to revolutionize the nation's transportation sector. Developed by the Engineering Development Board (EDB) under the Ministry of Industries and Production, the policy presents a detailed roadmap for embracing eco-friendly, low-emission vehicles and advancing green technology nationwide⁴.

The New Energy Vehicle Policy 2025-2030, drafted by the Federal Ministry of Industries and Production, presents a deliberate and ambitious outline to make the transition in road fleet from oil to electrification focusing on Pakistan's climate, energy, and economic securities.

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

² Ministry of Climate change. National Electric vehicle policy. 2019. Available at <https://mocc.gov.pk/SiteImage/Policy/EV%20Policy%20Final.pdf>

³ Ministry of industries and production. Electric vehicle & new technology policy 2020-2025 (draft). 2020. Available at <https://www.engineeringpakistan.com/wp-content/uploads/2020/08/EV-New-Tech-Policy-060420.pdf>

⁴ Ghulam Abbas. Govt all set to launch ambitious new vehicle policy. Profit. 11 Nov 2024. Available at <https://profit.pakistantoday.com.pk/2024/11/11/government-is-all-set-to-launches-ambitious-new-vehicle-policy/#:~:text=The%20key%20features%20and%20incentives,fuels%20and%20promote%20economic%20stability>.

Word Cloud of New EV policy

Word cloud summaries the main things associated with Pakistan's New EV Policy in which boldened words point out the significance of policy objectives. The entire policy revolves around governmental action that promotes new energy-vehicle adoption within the country with strategic roadmap; among its key thrusts includes development of advanced technology in its battery systems, domestic local cell supply in sufficient magnitude, and even assembling the entire product in-country. Charging infrastructure, in fact, includes a network of stations, and this development in its usage is crucial. In this respect, terms like incentives indicate reduced costs, reducing import duties and giving a certain amount of tax relief which could make EVs cheaper compared to others.

The policy aims to boost sales, encourage a change in the use of electricity, and promote the country' shift towards cleaner sources. It addresses both private and public sectors, striving towards broad utilization to further the cause for environmental sustainability and growth of green technologies across the nation.



Figure 1: Word Cloud

Source: Author's Own Construct

The word cloud of the NEV policy 2025-2030, represents the frequency of 500 key terms. The primary themes are government, battery, charging, manufacturing, development, incentives, tax, standards, import, duty, electric, vehicles, 2025, 2030, sales, energy, local, infrastructure, supply, sustainable, adoption, electricity, 2040, emissions, 2050, 2060, institutions, mobility, wheelers, customs.

Topic Modelling

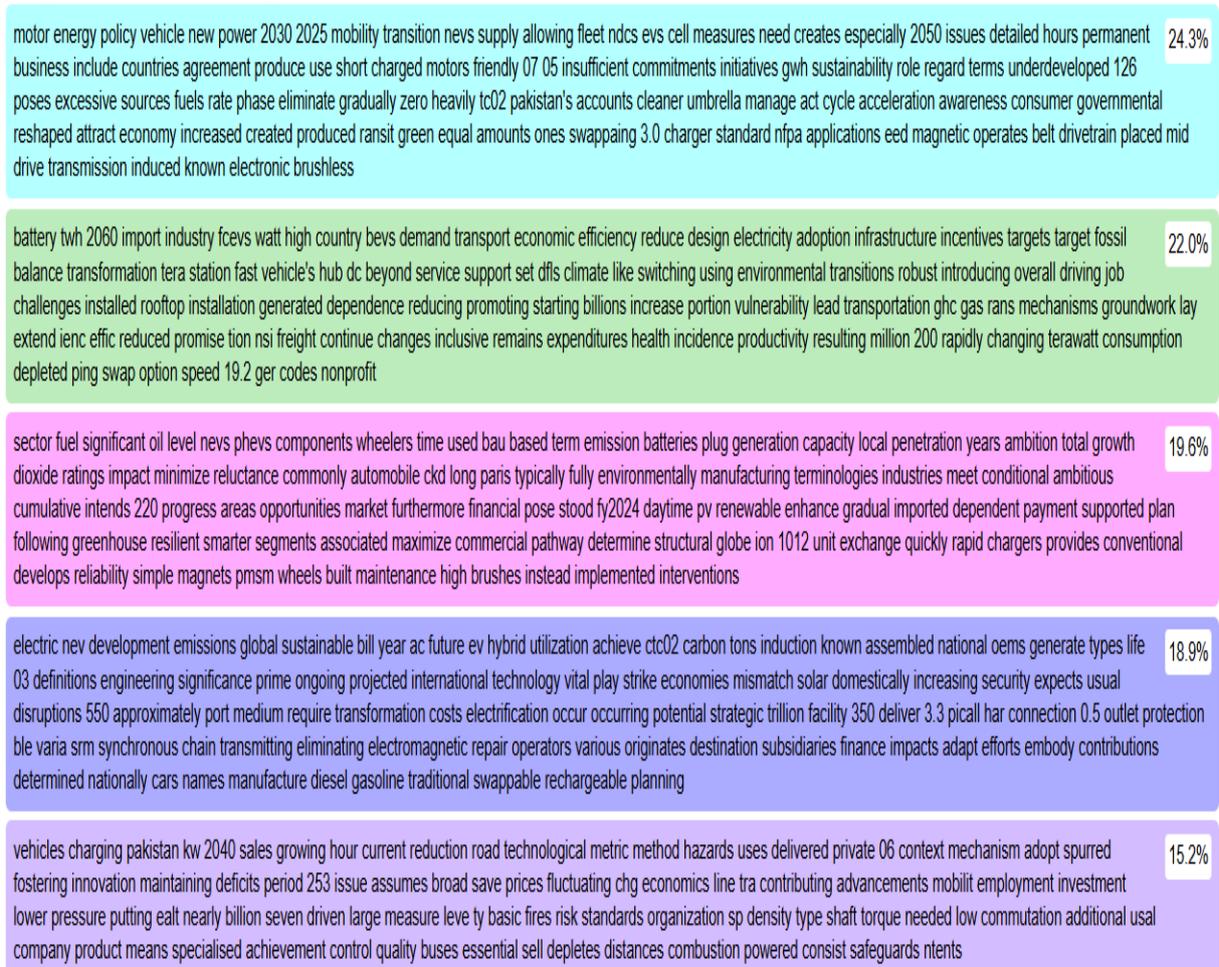


Figure 2: Topic Modelling in the above five key themes according to their relative percentage discussion in the policy document.

Source: Author's Own Construct

The infrastructural development that emphasizes on logistic and technical enablers for EV charging stations, and battery swapping constitutes 24.3% and the policy measures covering financial incentives, tax and import duty exemptions covers 22% of the discussion. Environmental concerns, goals, and targets of emission reduction, adoption of renewables covers 19.6% of discussion, whereas the share of technological discussion covers 18.9% having key themes technological innovations,

lithium batteries, and manufacturing industries. The socio-economic discussion covers social benefits, employment, job creation, sustainable, education, and public awareness amounting to 15.2% of the total content.

A robust policy framework under multi-criteria demands economic impacts, environmental benefits, technological adoption, sustainable goals, and social equity by examining the content, context, and process of the public policy. The rationale behind employing policy analysis framework is that it helps to establish a clarity in understanding the structure of complex policy issues, providing insights of policy implications, and offers a decision support between alternate trade-offs to policymakers. The New Energy Vehicle Policy (NEV) 2025-2030 will be vital to address Pakistan's economic challenges and decisive to Pakistan's commitment according to the Paris agreement and National Determined Contribution (NDC's) to lower the emissions locally by 15% to combat climate change. Transport sector contributes to 200 million metric tons which is 43% of Pakistan's carbon emission share. Policy's aim shows strong persistence to revolutionise the transport sector by establishing eco-friendly EV infrastructure and endorsing sustainable solutions and to curtail fuel imports and improve balance of payments.

Policy Content

Policy content examines what policy implicates i.e. goals, targets, scope, and objectives by assessing policy coherence with broader goals.

Policy sets the key milestone to achieve sales of new electric vehicles up to the 30%, 90%, and 100% by 2030, 2040, and 2060 respectively aiming zero emissions in road transport by innovating diverse types of technologies from 2-wheelers to 4-wheelers road fleet. This electrification transition in road transport sector will significantly reduce the oil import bills by 64 billion dollars by 2060. The policy claims the sustainable economic and environment trajectory by the adoption of local renewable energy resources, domestic battery manufacturing industry, and development of charging setups initially on motorways and highways. The inclusion of life cycle management, recycle innovations, and job creation programs adds significance towards sustainable practices.

Policy scope shows broad spectrum to decarbonise the road transport with inclusive approach aligning with global quality standards. The policy highlights ample value and

supply chain developments, incorporating institutional support for harmonized implementation between federation and its units to markets, manufactures, infrastructures, and environment by adoption of detailed and diverse strategies of financial incentives, tax exemptions, subsidies, and low import duties.

Policy objectives are ambitious but with vague strategies and no risk mitigation plan, ignoring uncertainties. 30% target of new NEV's by 2030 sounds similar as set in AREP-2019, to increase renewable energy share up to 25% and 30% by 2025 and 2030 respectively. The data-driven practices in policymaking and AI/ML based predictive models can be helpful to forecast the feasibility of infrastructural development and the set policy targets and objectives lacking in a data driven approach. Similarly, the emission reduction target over 10 years is subject to the adoption renewable which is again a mismatch and requires a data based predictive analysis keeping in view Pakistan's national priorities. In a nutshell, to attain the set policy targets and objectives, there should be sufficient, reliable, and quality data for resource allocation and prioritisation.

Policy shows overreliance on fiscal incentives without clear implementation roadmap and actionable strategies which may cause resource leakages instead of high resource efficiency. Solid state and sodium-ion batteries can be used as an alternate to lithium-ion batteries technologies. Furthermore, policy overlooks the existing renewable energy, national energy conservation, electricity, and transport policies and inadequately addresses the recycling strategies between rural and urban areas. The policy should encourage implementation mechanisms, technological advancements, research and development, policy sinking, and realistic timelines according to Pakistan's challenges.

Policy Context

Policy Context analyses the economic, environment, social, technological, and institutional settings in which the policy operates keeping in view the public sentiments, market trends, and international practices.

Pakistan is facing severe climate threats and air pollution in the form of smog in all major cities raising alarms for stakeholders to devise the plan or policy to address the grim situation. The air pollution directly relates with human security, risks public health, burdens the health budget, and reduces the national productivity. The policy aligns

with the SDGs such as Goal 7 which is the provision of affordable, clean, and green energy. The policy also contributes to Goal 9 to enhance and innovate EV industrial infrastructure and market, Goal 11 tries to promote smart cities and sustainable communities, and to adopt climate resilient actions. Policy recognizes the challenges of grid instability (energy crisis), high temperatures and floods (climate catastrophe), and reliance on fossil fuels (balance of payment issues). The excess amount of electricity in the system i.e. 253TWh generation capacity opens the window for adoption of electric vehicles under the NEV policy measures. This optimization in EV use will decline the threats of energy security, attract foreign investments, create new inclusive job market, and enhance the social upliftment.

The policy is unable to assess the supply chain bottlenecks and the willingness of domestic industry and market to increase EV production. Although, the policy has emphasised on financial subsidies and incentives but it requires a full-scale transparent economic feasibility to evaluate the future impacts of projected fiscal incentives in line with Pakistan's economic constraints.

Policy Process

This includes the evaluation of the steps in policy development process (problem identification, design alternatives, options formulation, adoption strategies, implementation mechanism, and evaluation methods) considering stakeholders input, decision-maker influence, institutional roles, and governance structure.

The inclusivity of policy cycle stages ensure the success of a policy. The draft of the policy shows that participatory approach has adopted in development process. It includes the integration of all relevant stakeholders such as government, industrials, manufacturers, energy suppliers, banks, regulators, consumer rights and public advocacy groups to address the needs and challenges in context of Pakistan. The draft presents policy measures such as financial incentives, subsidies, tax exemptions, import duty relaxations, and public private partnerships to accelerate EV markets in Pakistan. After the successful implementation, the evaluation of KPI's such as number of EV users, emission rates, and savings of oil import bills after 5 years will decide the success of this policy. The policy needs to structure a robust monitoring and evaluation framework that can track and evaluate the progress on the ongoing projects. Although, the policy sounds inclusive, there is no clear line of action about such policy

interventions based on stakeholders' input and feedback in the implementation process as it is a pre-requisite of responsive policymaking. Several AI models such as agent-based modelling, neural networks, and Long-Short Term Memory networks can predict the adoption rate of EV's based on historical data of consumer behaviour, market trends, socio-economic dynamics, and policy options.

Conclusion

The NEV policy 2025-2030 is a comprehensive document with a robust context that provides a strategic roadmap and a way-forward to encounter Pakistan's climate, energy, and economic securities. The policy should be split in three phases; initial from 2025-2030 which focuses on EV infrastructure development, fosters EV adoption, and upgrades public awareness. Second phase should be from 2030-2035 which would extend EV adoption by including local manufactures. In the last phase, 2035-2040, a full-scale transition should advocate towards affordable rates for public. The key factors to attain policy targets with successful implementation would include a firm legal support, solid institutional capacity building, workable regulatory framework based on stakeholder's support, data-driven predictions, public-private partnership, effective governance, adherence to international standards, public awareness and educational campaigns.

Policy recommendations

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- AI and machine learning will be used to predict EV trends, estimate infrastructure requirements, and evaluate economic viability. There will be granular data gathering to meet supply chain challenges, determine market demand, and link renewable energy integration with expansion of EVs.
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Action Matrix

Action Area	Pathways to Solution	How to Implement Each Solution	Actor Responsible	Timelines
Phase-wise Implementation	Develop EV infrastructure, public awareness, local manufacturing, and full adoption.	Build charging stations and battery swapping facilities, educate public, incentivize local production, and make EVs affordable.	Ministry of Industries, EDB, Private Sector	2025-2040 (Phased)
Data-Driven Decision Making	Use AI/ML models for forecasting and infrastructure planning.	Develop predictive analytics systems, collect and analyse supply chain and energy data.	EDB, Research Institutions	2025-2030
Incentive Mechanisms	Introduce subsidies, reduced import duties, and tax exemptions.	Design fiscal policies with transparent economic feasibility frameworks	Ministry of Finance, FBR, EDB	2025-2035
Recycling Strategy	Establish policies for battery recycling and safe disposal.	Create regulations, recycling facilities, and promote circular economy practices.	Ministry of Environment, Industry Stakeholders	2025-2035
Energy Goals Alignment	Integrate renewable energy and ensure grid stability for EV charging.	Update renewable energy policies and optimize electricity generation for EV use.	Ministry of Energy, NEPRA	2025-2030

Institutional and Legal Capacity	Develop regulatory frameworks and ensure government coordination.	Establish clear governance structures, build institutional capacity, and align national and provincial policies.	Ministry of Industries, Provincial Governments	2025-2035
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About the Authors

Dr Aneel Salman holds the distinguished OGDCL-IPRI Chair-Economic Security at the Islamabad Policy Research Institute (IPRI) in Pakistan. As a leading international economist, Dr Salman specialises in Monetary Resilience, Macroeconomics, Behavioural Economics, Transnational Trade Dynamics, Strategy-driven Policy Formulation, and the multifaceted challenges of Climate Change. His high-impact research has been widely recognised and adopted, influencing strategic planning and policymaking across various sectors and organisations in Pakistan. Beyond his academic prowess, Dr Salman is a Master Trainer, having imparted his expertise to bureaucrats, Law Enforcement Agencies (LEAs), military personnel, diplomats, and other key stakeholders furthering the cause of informed economic decision-making and resilience.

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