30% EV Target By 2030 Highly Ambitious

Bangladesh has no alternative but to transition to electric vehicles (EVs) in both public transport and private mobility. However, achieving this requires a carefully designed roadmap based on a comprehensive techno-economic assessment. The country's targets must be aligned with the current state of the transport sector, evolving global trends, and technological advancements. Otherwise, unrealistic planning could hinder the successful transition to electric mobility.

Dr. Md. Ziaur Rahman Khan, Professor, Department of Electrical and Electronic Engineering, Bangladesh University of Engineering and Technology (BUET), shared these views in an interview with Mollah Amzad Hossain, Editor of Energy & Power.

The government has set a target of having 30% of the country's vehicles electrified by 2030. How do you view this goal?

If battery-powered rickshaws are included in the count, achieving 30% of the total number of vehicles is not difficult, as Bangladesh already has around 4.0 million battery-powered three-wheelers on the roads.

However, if we focus on mainstream transport—such as public transport and private passenger vehicles—the target becomes much more challenging. In my opinion, achieving a 30% transition in these categories within the next four years is highly unlikely.

The current national budget offers tax and duty incentives for EVs, charging stations and batteries as part of the country's green energy transition. What impact do you expect these measures to have?

These policy incentives will certainly help reduce electric vehicle prices. Lower prices will encourage more consumers to purchase EVs. At the same time, higher import duties on conventional internal combustion engine vehicles have already increased their prices, making EVs relatively more competitive.

The availability of quality EVs from Japan, in addition to Chinese brands, will also strengthen consumer confidence. While EVs are unlikely to have a significant impact on the heavy-truck segment in the near future, government incentives can play an important role in expanding the use of electric buses in public transport.

However, quality must remain the highest priority. Bangladesh should discourage the large-scale import of old reconditioned EVs because many of them come with batteries that have already lost a significant portion of their lifespan. Such vehicles could create reliability issues and undermine consumer confidence. Appropriate tariff measures should be considered to prevent low-quality used EVs from entering the market.

Several companies are preparing to assemble or manufacture EVs locally. Could local production make EVs more affordable?

Local manufacturing and assembly can certainly reduce costs, but quality cannot be compromised. We have seen examples where locally assembled vehicles became cheaper but failed to match the quality of internationally manufactured models. That experience should serve as a lesson.

Consumers are increasingly willing to adopt new technologies, but they will only continue to do so if product quality is maintained. Reliable after-sales service is equally important.

The government should therefore focus on developing skilled technicians and

Prof. Dr. Md. Ziaur Rahman Khan

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establishing a nationwide service network. At the same time, the expansion of service centers, EV sales, and charging infrastructure must progress together. During the initial stage, the government should play a leading role in developing a sustainable business model for the EV ecosystem.

Many believe that a nationwide charging infrastructure is critical for EV adoption. What is your assessment of solar-plus-battery charging stations?

At this stage, I would not recommend solar-plus-battery charging stations as the primary model, as the business case is not yet commercially attractive. However, solar-powered charging stations should certainly be encouraged to reduce pressure on the national electricity grid.

The Sustainable and Renewable Energy Development Authority (SREDA) has already established a committee to approve EV charging stations. Many investors have obtained approvals but have yet to install the facilities. Existing charging stations in Bogura, Dhaka, Rajshahi, and Narayanganj remain underutilized because the number of EVs is still very limited.

Before a large-scale EV rollout, Bangladesh should consider expanding the use of plug-in hybrid vehicles. They could serve as an effective transitional technology, helping familiarize consumers with electric mobility. The government has already introduced fiscal incentives for plug-in hybrids in the national budget, but these incentives should be further strengthened.

To build public confidence in new technologies, greater tax and duty incentives should be provided for high-quality plug-in hybrid and fully electric vehicles.

Electrifying public transport, in addition to private vehicles, would deliver broader social and environmental benefits. The government has already launched some initiatives through BRTC, but Bangladesh's public transport system is largely operated by the private sector. What steps should the government take to accelerate the transition?

Numerous operators dominate Bangladesh's public transport system, and it lacks proper regulation. Many buses currently operating in cities are not even roadworthy. Before introducing electric buses on a large scale, the government should designate dedicated EV bus routes where diesel- and CNG-powered buses are discouraged. Without designated EV-only routes, unhealthy competition and non-cooperation from existing diesel and CNG bus operators may undermine the efficiency and reliability of electric buses.

The transport sector itself also needs reform. Drivers must receive specialized training to operate electric buses efficiently; otherwise, the energy-efficiency benefits of EVs will not be fully realized. At the same time, the country needs to develop skilled technicians for maintenance and servicing.

The government has announced plans to introduce 100 electric buses and another 100 minibuses for women through BRTC. Similar attempts to improve public transport with modern buses, such as Volvo buses, have been made in the past but did not achieve the expected results. Instead of deploying all 200 vehicles at once, I would recommend introducing them in phases.

The initial fleet should operate on dedicated routes reserved exclusively for electric buses. Lessons learned from the first phase should be used to improve operations, driver training, maintenance capacity, and service quality before expanding the program. Over time, private transport operators should be encouraged to invest in electric buses.

Both BRTC and private operators should also develop their own charging infrastructure. Finally,

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Bangladesh must consider local road conditions. Many roads are regularly flooded during the monsoon, so detailed studies are needed to assess how waterlogging may affect EV operations before scaling up deployment.

Battery-powered rickshaws using lead-acid batteries have spread rapidly across the country, raising concerns about lead contamination of soil and water. What policy measures should the government take?

First, we need to distinguish between two types of vehicles. Battery kits fitted to traditional pedal rickshaws should be phased out gradually because they pose safety and traffic management problems. On the other hand, purpose-built battery-powered three-wheelers with proper engineering and design should be brought under the existing regulatory framework for three-wheelers.

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Although lithium batteries require a higher upfront investment, they are far more economical over their lifetime. A lead-acid battery typically lasts about one year, whereas a lithium battery can last at least five years. More importantly, replacing lead-acid batteries would significantly reduce soil and water pollution.

The solution is not to ban battery-powered rickshaws altogether. Rather, technically compliant electric three-wheelers should be registered, and drivers should receive formal training and licensing. Otherwise, these vehicles could become an even greater road safety challenge in the future.

Many argue that charging battery-powered rickshaws is placing additional pressure on the electricity distribution system, especially because many operators use residential electricity connections instead of commercial tariffs. What should be done?

One major problem is the lack of standards for battery chargers. Both lead-acid and lithium batteries need chargers. But Bangladesh lacks proper technical standards for these devices. As a result, many poor-quality chargers are in use. They waste energy and also harm the electricity network.

In my research, I found that simple technical improvements to charger design could increase energy efficiency by up to 20%, resulting in substantial electricity savings nationwide. Poor-quality chargers also shorten transformer life and contribute to feeder overloading.

Illegal electricity use for charging is primarily an enforcement issue for utilities. A prepaid charging system should be introduced to address electricity theft.

Current regulations already allow residential consumers to charge two or three electric three-wheelers from a household connection, while larger commercial charging facilities are expected to use approved electricity connections.

Some experts believe Bangladesh should announce a clear roadmap with a timeline for transitioning all vehicles to electric mobility. Do you agree?

Absolutely. Bangladesh must transition to electric mobility. However, one of our biggest challenges is the lack of policy consistency. Different policymakers often make different announcements, resulting in fragmented implementation.

The government should first undertake a comprehensive techno-economic study and then prepare a detailed national EV roadmap with realistic targets, timelines, and implementation strategies. Without such a roadmap, the country is likely to face significant challenges during implementation, thereby delaying the transition rather than accelerating it.