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Executive Summary

Electric vehicle (EV) imports in Nepal have increased significantly in recent years, primarily driven by the government's tax and loan financing incentives to boost the market share for EVs. While this effort remains pivotal in steering the country's decarbonization trajectory and improving air quality, ignoring the looming issue of EV battery waste management can undermine its overall success. This brief offers policy solutions to prepare Nepal for proper management of end-of-life (EOL) EV batteries by imposing mandates for collection sites and traceability responsibilities, expanding workforce, and leveraging key international partnerships.

Background

Once hindered by hours-long blackouts, in less than a decade Nepal has strengthened its power sector and accelerated vehicle electrification. EV adoption has soared in the country since 2021, when the government ramped up incentives by reducing customs and excise taxes as well as easing loans for EV purchases. Over the most recent

fiscal year (mid-July 2024–25), around 30,000 or 77% of Nepal's small passenger motor vehicle (PMV) imports were electric (Table 1). As well, over 3,100 or 71% of the total imports of large PMVs – including buses, minibuses, and microbuses – were electric in FY 2024–25. Although motorcycles, the dominant mode of passenger transportation in Nepal, remain largely ICE-operated, the number of electric motorcycle imports has also increased in recent years. Similar growth can be observed across goods transport vehicle imports in the country.

This rise in EVs will likely persist in the foreseeable future, given that EV adoption remains a significant part of the country's decarbonization strategy. Under the [Paris Agreement](#), Nepal aims to increase EV sales to 90% of all private passenger vehicle sales and 60% of all four-wheel public passenger vehicle sales by 2030. The growth in EVs can also help address the country's air pollution, which is the [biggest health risk factor](#) in the country.

However, these benefits of large-scale EV use may be compromised if Nepal fails to address the impending challenge surrounding EOL EV battery

Table 1: Vehicle imports in Nepal by type, 2019–25

Vehicle type	Jul. 2019–20	Jul. 2020–21	Jul. 2021–22	Jul. 2022–23	Jul. 2023–24	Jul. 2024–25
ICE passenger motor vehicles (<10)	31,667	18,064	19,649	3,222	5,908	8,964
Electric PMVs (<10)	1,585	4,499	9,129	11,513	23,872	30,083
Hybrid PMVs	-	13	25	48	36	214
ICE motorcycles (<3)	207,444	353,626	278,482	104,186	134,566	201,986
Electric motorcycles	1,349	2,333	5,462	11,184	9,894	13,986
Hybrid motorcycles	-	-	-	-	-	-
Large ICE PMV (>10)	1,423	618	863	698	1,026	1,245
Large electric PMVs	5	9	92	451	1,330	3,132
Large hybrid PMVs	-	15	72	2	1	1
ICE goods transport vehicles	8,560	13,876	11,783	3,006	3,883	3,212
Electric goods transport vehicles	-	559	859	289	961	2,295
Hybrid goods transport vehicles	-	-	-	-	-	2

Source: Nepal Department of Customs



management. The widely accepted threshold for an EV battery's EOL is under [70–80% of its original capacity](#), at which point it is no longer considered suitable for EV use.

EV batteries contain toxic metals that pose health and ecosystem risks when mishandled. The uptick in EVs hence raise important questions about the implications for the rise in EOL batteries in Nepal, including second life applications, recycling, and proper disposal. As Nepal continues to electrify its transportation sector, it must effectively manage EOL batteries to support a circular economy, safeguard public health, and curb environmental contamination.

Issue Analysis

EOL EV batteries are projected to [account for some 90%](#) of available battery feedstocks beginning 2035. Battery recycling sector in particular could help [mitigate EV price hikes](#) in case of supply shortages of lithium and nickel by 2030. Notably, China is [poised to maintain](#) its dominance in the EV battery recycling market until the end of this decade, which presents Nepal with a unique opportunity for collaboration as its neighbor. In Nepal, battery packs at the end of their EOL cycle in the next 15 years are projected to have a usable capacity of around 840 MWh (Figure 1). Efforts to repurpose EOL EV batteries for energy storage and mobile power solutions have also emerged, particularly in Europe. As well, several policy frameworks have been introduced in China, India, and across Europe to increase traceability and management of EV batteries.

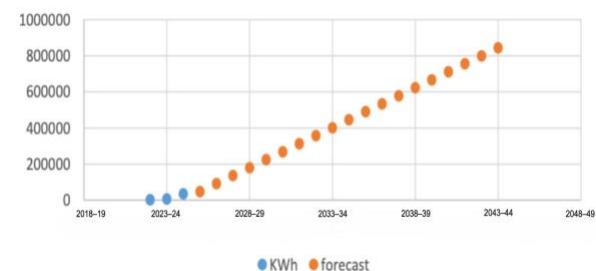
However, EV battery management initiatives in Nepal are scarce and fragmented, while policy to support such efforts remains absent. Earlier this year, Nepal's Department of Transport Management drafted a directive to

mandate EV import standards, including [a requirement](#) to establish battery management centers, but the proposal is yet to move forward. This inaction alludes to a larger problem of political and economic instability in the country, exacerbated by the [dissolution of the House of Representatives](#) following anti-corruption protests earlier this year. This unstable political and economic landscape poses additional barriers to effective policy implementation.

Nepal has not yet faced a major EV battery management problem, as the lifespan of such batteries is [projected to average eight years](#) and most EVs in Nepal are relatively new. But this absence of collection systems, traceability requirements, and skilled workforce for battery waste management amid continued growth in EV adoption may leave the country unprepared to properly handle battery volumes once they start reaching EOL.

Policy Recommendations

Figure 1. Nepal's EOL battery capacity forecast, 2023–49



Source: Nepal Ministry of Physical Infrastructure and Transport (years adjusted to AD)

Considering the need for policy implementation in a vulnerable political and economic landscape, Nepal should immediately impose battery management requirements on importers with penalties for noncompliance. The government should also embed traceability requirements within current recordkeeping methods,



strengthen existing workforce skills, and leverage international partnerships for support.

1. **Battery collection mandates:** The government should mandate importers to establish EV battery intake sites that conduct battery condition assessments to determine potential for recycling and second life applications. EOL batteries should be transferred only to licensed recyclers and repurposing companies. These sites should be required to provide disclosures on all collections, state of health assessments, and transfers.

2. **Defining traceability responsibilities:** The government should require EV importers to ensure each battery unit is assigned with a unique identification number to enable accountability beyond the warranty period. Most EVs from China – which dominate Nepal’s EV market – already have battery IDs. EVs from other countries should receive similar identification at the ports of entry. These IDs should be listed in the customs import declaration forms.

3. **Partnerships and collaborations:** Nepal’s relationship with China and India as their neighbor places the country in a strategic position to pursue collaborations for battery management. The government should cement partnerships with both countries to conduct research and development for best battery management practices, and also support the cross-border flow of recycled materials into established facilities. As well, Nepal should seek partnerships with international organizations and private sectors to help build consistent battery management practices and framework.

4. **Workforce expansion:** The auto services industry in Nepal mainly comprises local shops with mechanics skilled in repairing conventional ICE vehicles. The government should

organize programs to train these workers to service EVs and safely handle batteries. Efforts to expand services for existing industry members is crucial in ensuring the availability of EV service centers across the country, as well as prepare the industry for the ongoing transition to electric modes of transport. Increasing the availability of skilled EV technicians throughout Nepal will also advance an equitable transition and remain vital in addressing EV battery waste management beyond major cities.

Further reading

- [EV Battery Supply Chain Sustainability](#). (2024). International Energy Agency.
- [Electric Vehicle Batteries](#). (2025). *Global EV Outlook 2025*, International Energy Agency.
- [The Comprehensive Management of After-Life Battery Pack Management](#). (2025). Nepal Ministry of Physical Infrastructure and Transport’s National Road Safety Council.

Authorship

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