ARMENIA

E-mobility Country Profile

Background

Armenia is a small, landlocked country in the South Caucasus region with a population of around 3 million people. It is a lower-middle-income country with a developing economy. The Armenian economy has experienced strong growth in recent years, with GDP growth of 12.6% in 2022. This growth was driven by several factors, including the influx of migrants and businesses. Armenia's economy is dominated by the services sector, which accounts for over 50% of GDP. The IT sector is particularly important, and Armenia has become a regional hub for tech companies. The industrial sector, which accounts for around 20% of GDP, is also significant, with production of goods such as machinery, electronics, and textiles.[1]

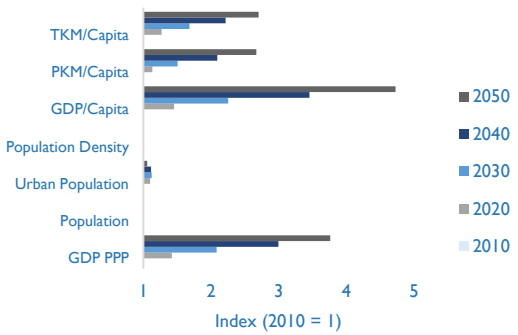
Armenia's poverty rate is around 25%, and the unemployment rate is around 18%. Income inequality is also high, with the richest 10% of the population earning over 40% of the country's income.[2] Despite these challenges, Armenia is a country with a lot of potential. It has a young and educated population, and the government is committed to economic reforms. The GDP per capita is projected to experience long-term growth at an annual average rate of 4%.[3]

This rapid urbanization and economic expansion are expected to drive growth in transportation activities. Forecasts indicate an average annual increase of 2.2% in passenger transport activity, measured in passenger-kilometres, and a 1.9% average annual growth rate for freight transport activity. [4]

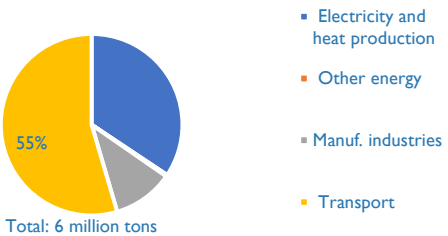
The transportation sector is one of the major contributors to air pollution and greenhouse gas (GHG) emissions in Armenia It is estimated that the transportation sector contributes 36% of the fuel combustion GHGs in the country. The IEA estimates that 100% of the transport GHG emissions are generated by the road sector. [5]

The transport sector is a significant source of Armenia's carbon emissions. Since 2000, the transport sector has been the fastest-growing source of carbon emissions in the energy sector despite large-scale efforts to convert vehicles to natural gas.[6] The transport sector has been growing at an annual

Socio-economic & Transport Indicators



2020 Fuel Combustion CO2: % By Sector



rate of 6.7%, five times higher than emissions from other fossil fuel-powered sectors. In the transport sector, road transport is a significant contributor to greenhouse gas emissions, accounting for 24.8% of emissions from the energy sector in 2017.[7] By 2030, transport emissions are expected to rise by 2.5 times compared to the levels recorded in 2010.[8] The challenge of curbing these emissions is exacerbated by the ongoing expansion of the vehicle fleet, primarily comprised of aged, inefficient, and fossil fuel-powered vehicles. These vehicles significantly contribute to air pollution, road crash fatalities, and GHG emissions.

In terms of ambient air pollution, the road transport sector is estimated to contribute 9% of the total burden of disease related to Particulate Matter 2.5 (PM2.5) — in Armenia. Road transport air pollution is also deemed to have significant contributions to the burden of disease related to ischemic heart disease (55%), and chronic obstructive pulmonary disease (8%) in the country.[9] In 2019, more than 3 thousand premature deaths were attributed to PM2.5 pollution in Armenia.[10,11]

E-mobility at a Glance

The penetration of electric vehicles in Armenia has recently been gaining some momentum. In 2018, only 12 electric cars were imported, but in 2022, the Ministry of Environment estimates that there were 7,181 electric car imports.[12] Recently, in October 2023, an electric bus was sent to Yerevan, which is prelude to the importation of 250 more electric buses in the city.[13] The city is up to discuss the support from the European Bank for Reconstruction and Development in the procurement of these buses.[14]

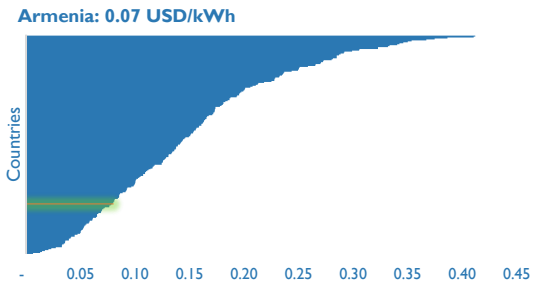
There are no official statistics regarding charging stations in Armenia. However, the government plans to expand the country's electric vehicle charging infrastructure. There are currently no regulations or targets for charging stations. However, some reports suggest the proposed development of database of charging stations Armenia's public EV charging network is estimated to have less than 30 stations, offering medium-speed charging capabilities.[15] Notably, approximately 90% of electric vehicles are charged at residential locations.[16]

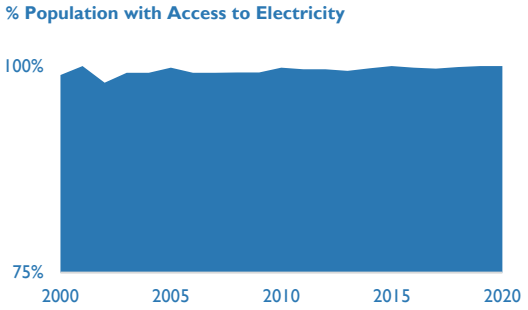
There are many challenges associated with electric vehicles. The obstacles include high upfront costs, inadequate charging infrastructure, absence of charging infrastructure development regulations (land ownership, connection to the grid, technical possibility to install a Direct Current (DC) charger, etc.), regulations on battery waste management (reuse and recycling of batteries), lack of awareness and knowledge among consumers and stakeholders, and limited availability of EV models. [17]

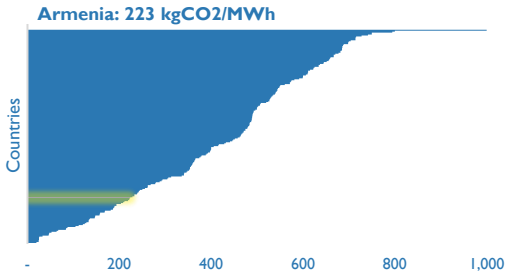
Armenia has a surplus of electricity generation capacity, with nuclear power accounting for around 14% of its capacity and a nuclear plant generating a significant portion of the country's electricity. About 60% of Armenia's electricity comes from zero-carbon sources, including hydro and nuclear power, making its grid one of the cleanest in the region. Further, Armenia aims to diversify its power generation mix to achieve up to 1,000 MW of solar photovoltaics capacity by 2040, making up 15% of total generation.[18]

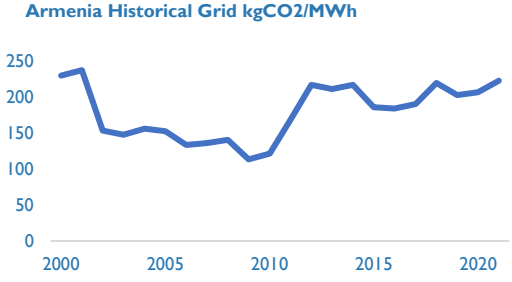
The average price of electricity in Armenia (2021) was estimated to be 0.07 USD/ kWh, the 49th cheapest country in the worlds in terms of electricity. Considering overall access to electricity, Armenia had reached full electrification since the turn of the century. [19]

In terms of the emissions impact of the electricity grid, the national average is estimated at 223 kgCO2 is emitted per MWh, which ranks at 48th place globally. The average grid emission factor has declined to around 113 kgCO2/MWh in 2010 and is now on pace to be back at the same levels as it was in 2000. [20] The grid is dominated by natural gas (44%), renewables (26%) and nuclear (26%).









Policy Measures: Highlights

Armenia's **Third Biennial Update Report** to the UNFCCC aims that electric vehicles could make up 25% of the total transport fleet by 2030.[21] This transition could result in an annual emissions reduction in 2030 of 252.1 thousand tCO2eq. The long-term emissions strategy aims to have an electric fleet of 200,000 to 400,000 electric vehicles by 2050.[22] However, in 2019, 145 electric vehicles, 523 motorcycles, and mopeds were imported in Armenia. Most of these vehicles were aged.[23]

In 2018, the Eurasian Economic Commission, encompassing Armenia, Belarus, Russia, Kazakhstan, and Kyrgyzstan, declared a shift to unified customs duties on **vehicle imports, including import tax and associated taxes**, effective from 2019 for vehicles imported into the Eurasian Economic Union.

On December 10, 2021, the National Assembly passed legislation titled "**Amendments to the Tax Code of the Republic of Armenia**."[24] This legislation extends the grace period for the exemption of value-added tax (VAT) on the import and (or) sale of electric vehicles falling under HS codes 8702 40 000, 8703 80 000, and 8711 60 of the EAEU until January 1, 2024.[25]

On March 17, 2022, a **'customs' privilege** law was introduced to import electric vehicles into the territory of the Republic of Armenia without payment of import customs duties, which is valid until 2023. [26]

The **National Energy Efficiency Action Plan** (NEEAP) promotes the use of vehicles powered by gas, biofuel, the replacement of old vehicles with new ones, and the development of public transportation in general and electric transportation in Yerevan.[27, 28] Armenia is encouraging the electrification of public transport in Yerevan. As a pilot project - Pilot introduction of 10 electric vehicles in municipal fleet by the end of 2020 was envisaged. However, there has been delays in the introduction. By 2025, 20% of public transport in Yerevan is targeted to be fuelled by electricity and hydrogen.

The **Armenia-EU Comprehensive and Enhanced Partnership Agreement** (CEPA), sanctioned by the Prime Minister's decree on June 1, 2019, anticipates aligning with the directive to promote the utilization of energy-efficient transport by 2026. The introduction of new legislative and sub-legislative regulations is planned. The Ministry of Territorial Administration and Infrastructure of the Republic of Armenia (RoA) is coordinating the process, with the significant involvement of the RoA's Ministry of Environment. The Directive mandates that contracting authorities and certain operators, during usage, consider environmental impacts, including energy consumption and emissions of CO2 equivalent and other pollutants.

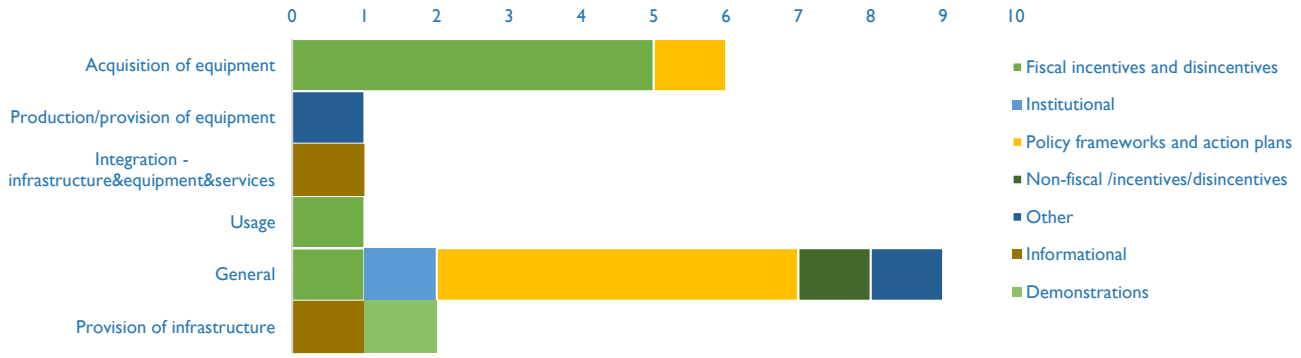
On the electricity side, the **National Development Strategy and National Security Strategy** calls for the development of renewable energy resources. Incentives and feed-in tariffs are already in place. Moreover, the Energy Law prioritizes the use of alternative energy sources and the promotion of energy efficiency.

There are also several international initiatives that focus on supporting e-mobility transition in Armenia. Since January 2022, the Green Climate Foundation (GCF) has initiated a grant program titled 'Technical Advisory Assistance for Enhancing Electric Vehicle Mobility Opportunities in Armenia.[29] This program encompasses four key components: 1) Assisting the Ministry in formulating policies to encourage electric vehicle adoption and legislative regulation. 2) Creating a plan for the establishment of electric vehicle charging stations and related infrastructure 3) Providing methodological consultations to the private sector for the development and implementation of innovative financial instruments and market models and 4) Launching an awareness campaign aimed at promoting electric vehicles within the country.

Additionally, with funding from the Global Environmental Fund, the state institution 'Office for the Implementation of Environmental Programs,' operating under the Ministry of the Environment, has been transitioning to electric vehicles in Armenia since 2021.[30] This initiative, known as the 'Strengthening Demonstration and Promotion of Electric Vehicles Program,' includes strategic planning for low-carbon vehicle mobility and institutional system reform. The program also entails the development of an electric mobility strategy."

Snapshot of E-mobility Policy Measures

Distribution of Policy Measures



Pillar	Stage	Category	Type of Policy Measure
EVs and EV components	**Acquisition of equipment**	Fiscal incentives and disincentives	Value-added tax waiver or reduction for EV and components
			Custom tariff waiver/ reduction for EV and components
			Low cost credit lines for ev purchase and infrastructure
			Equity subsidy for procurement of Evs
			EV procurement - rail
		Policy frameworks and action plans	Public fleet electrification target
	Production/provision of equipment	Other	Total EV fleet target
	Usage	Fiscal incentives and disincentives	Parking charges reduction for EV
General	**General**	Fiscal incentives and disincentives	General Subsidy (No information)
		Institutional	National ev platform / Outreach program for stakeholder coordination
		Policy frameworks and action plans	EV included in NDC
			EV included in LTS
			General pronouncement of support - RE
			Dedicated National EV Policy/Roadmap/Strategy
			Transport energy efficiency targets
		Non-fiscal /incentives/disincentives	Promote information and public education campaigns
		Other	Enabling local governments
Infrastructure	**Provision of infrastructure**	Informational	Guidelines (general) - charging infrastructure
		Demonstrations	Pilot Projects in EV Infrastructure
Services	**Integration - infrastructure&equipment&services**	Informational	Development of database of charging stations

Note: The graph and the tables above are mainly representative of the policy measures that had been collected, collated and categorized by the authors. The authors make no claims about the completeness of the list, nor the accuracy of the categorization.

Endnotes

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