EVALUATION OF ELECTRIC VEHICLE CHARGING INFRASTRUCTURE IN A DENSE URBAN ENVIRONMENT: A CASE STUDY OF THE CENTRAL SECTOR, CHISINAU

CZU: [629.33:621.333]:711.4(478-21)
DOI: https://doi.org/10.53486/tids2026.24

VICTORIA LOZAN
Associate Professor, Academy of Economic Studies of Moldova, Chisinau, Republic of Moldova
e-mail: lozan.victoria@ase.md
ORCID ID: 0000-0002-5869-8515

ION COSTIN
IT Engineer, Vocational School, Soroca, Republic of Moldova
ioncostyn1@gmail.com
ORCID ID: 0009-0008-4540-3256

Abstract: The accelerated transition to electric vehicles (EVs) is generating significant pressures on urban mobility infrastructure. The Republic of Moldova has seen a spectacular increase in the electric fleet: from 600 electric vehicles in 2020 to 9,849 units by the end of 2025, which represents a 16.4-fold multiplication in just five years (NCSE/PSA, 2025). In this context, this study analyzes the state of the charging infrastructure for electric vehicles in the Central Sector of Chisinau, the densest and most heavily trafficked sector of the capital. By combining the visual analysis of the PlugShare platform with official statistical data provided by the National Center for Sustainable Energy (NCSE) and the Public Services Agency (PSA), the study identifies the current distribution of charging points, the ratio between AC and DC stations, and the gaps in the existing infrastructure. The results indicate 37 visible charging locations in the Central Sector, with an AC:DC ratio of 62%:38%, an uneven concentration in the northern part of the sector and an almost total absence of infrastructure in the residential areas in the west. Public policy recommendations are proposed for the expansion of the network, aligned with the objectives of the 2030 Mobility Strategy.

Keywords: electric vehicles, EV charging infrastructure, sustainable urban mobility, topological analysis, the Central Sector of Chisinau, public policy.

JEL Classification: R41, R48, Q48, C61

INTRODUCTION

The exponential growth in the number of electric vehicles (EVs) globally represents one of the most profound transformations in the recent history of road transport. According to the latest report by the International Energy Agency (IEA, 2025), global electric car sales surpassed 17 million units in 2024, reaching a market share of over 20% of total new passenger car sales — an all-time record. The IEA estimated that in 2025 sales would exceed 20 million units, representing more than a quarter of all cars sold worldwide.

A determining factor in the adoption of electric vehicles is their low environmental impact. Pure electric vehicles do not produce direct emissions of CO_2 or pollutants (NO_x, fine particles PM2.5) at the point of use, contributing to improving air quality in dense urban areas such as the Central Sector of Chisinau. The same report, IEA (2025), estimates that the large-scale adoption of EVs will reduce oil consumption for road transport by over 6 million barrels per day by 2030. At the national level, the transition to electric mobility is an integral part of the Integrated National Plan for Energy and Climate, which envisages reducing greenhouse gas emissions by almost 70% compared to 1990 levels (NCSE,

2025). Thus, choosing an electric vehicle represents an assumed environmental responsibility, aligned with the commitments of the Republic of Moldova on the path to European integration.

This trend is also becoming more pronounced in the Republic of Moldova. According to data processed by the National Center for Sustainable Energy (NCSE, 2025), based on information provided by the Public Services Agency (PSA, 2025), at the end of 2025, 9,849 pure electric vehicles and 77,985 hybrid vehicles were registered in the Republic of Moldova, with the total electric and hybrid fleet reaching 87,834 units — 16.4 times more than in 2020, when only 600 pure electric vehicles were registered.

The rapid growth in demand is putting increasing pressure on the existing charging infrastructure. There are currently over 300 charging points nationwide, operated by 15 authorized operators, and the Ministry of Infrastructure and Regional Development has announced the installation of 150 fast charging stations by 2030, located every 60 km on national roads and TEN-T (Trans-European Transport Network) corridors (IPN, 2025). However, urban infrastructure, especially in dense sectors of the capital, remains insufficiently assessed and planned.

The Central Sector of Chisinau constitutes a particularly complex context: high population and traffic density, intense functional mix (residential, commercial, administrative, tourist), heritage buildings that limit technical interventions and an overused public space. The analysis of EV charging infrastructure in this sector has both academic and practical relevance, contributing to the substantiation of urban planning decisions.

The objectives of the study include analyzing the current distribution of EV charging points in the Central Sector based on the PlugShare platform; identifying the typology of stations (AC vs. DC) and spatial coverage gaps; correlating infrastructure data with the evolution of the EV fleet at the national level; formulating public policy recommendations for expanding and optimizing the network.

LITERATURE REVIEW

The issue of EV charging infrastructure in urban areas has generated a consistent academic corpus, with a significant acceleration of publications after 2020. He *et al.* (2022) developed an optimization model for Hong Kong's public charging network that accounts for the spatial distribution of charging demand. The authors' findings indicate that demand-oriented deployment can reduce infrastructure costs compared with uniform distribution strategies.

Banegas and Mamkhezri (2023) reviewed 74 studies on geographic information systems (GIS) and highlighted the relevance of multi-criteria decision-making in complex spatial planning. Similarly, Kazempour *et al.* (2025) applied a GIS based on Analytic Hierarchy Process (AHP) to identify suitable locations for charging stations in Birmingham, considering accessibility and equity. Metais *et al.* (2022) distinguished three approaches to charging infrastructure planning: location-based, traffic-flow-based, and user-behavior-based. The authors argue that this classification highlights the various perspectives that can inform infrastructure planning, ranging from the spatial distribution of demand to traffic patterns and user behavior.

The purchase of electric vehicles is influenced by several barriers, including limited access to charging, high vehicle purchase costs, and concerns regarding range (Coffman *et al.*, 2017). In lower-income regions, limited public charging infrastructure can further hinder adoption, adding accessibility barriers to the existing challenges related to affordability (Pamidimukkala *et al.*, 2024).

The World Economic Forum (WEF, 2024) identifies a number of challenges to expanding charging infrastructure in densely built-up urban areas, including limited electricity distribution

capacity, restrictions on ownership and adequacy of parking spaces, and constraints on public investment. These factors provide a useful framework for examining the challenges associated with the development of charging infrastructure in Chisinau. Their relevance at the local level should be assessed in relation to the availability of suitable sites, the capacity of the electricity grid, the organization of parking spaces, and the spatial distribution of charging demand.

Knittel and Tanaka (2024) identify three major barriers to EV adoption: high purchase cost, anxiety about autonomy, and insufficient public charging infrastructure, emphasizing that the availability of public stations is especially essential for residents without access to private parking, such as those in apartment buildings.

At European level, the European Alternative Fuels Observatory reveals significant gaps in the density of charging networks between Western and Eastern Europe: Romania had 3,031 public charging points in Q1 2024, and Bulgaria had 2,218, compared to 130,828 in Germany and 127,530 in France (EAFO, 2024). Zhang and Iman (2023) propose a GIS model to assess the spatial potential of EV station locations, demonstrating that the optimal walking distance to a charging point is a maximum of 250 meters, a relevant threshold for the analysis of the Central Sector of Chisinau.

Regarding public policies, Buckberg and Peilert (2024) identify ten strategies for local governments in dense cities, highlighting the essential role of access to the public domain, updating building codes and public-private partnerships in the development of EV infrastructure. Correia Sinézio Martins et al. (2024) analyze the effectiveness of financial incentives on the adoption rate of EVs in Europe, demonstrating that direct subsidies and tax exemptions have a significant positive impact, but with a diminishing effect after the third year of implementation.

Zhan *et al.* (2025), analyzing a sample of 1.6 million electric vehicles in seven major Chinese cities, find that daytime DC fast charging generates peak grid loads concentrated in urban centers, an issue with direct implications for infrastructure planning in high-density areas such as the Central Sector of Chisinau. Finally, the IEA (2025) estimates that global public charging infrastructure needs to increase by about ninefold by 2030 to support projected EV sales under the current policy scenario.

METHODOLOGY

The research adopts a mixed methodological approach, combining the analysis of official statistical data with visual mapping of existing infrastructure and critical public policy analysis.

1. Statistical data sources. Data on the evolution of the electric and hybrid vehicle fleet in the Republic of Moldova come from the National Center for Sustainable Energy (NCSE, 2025), which processes information provided by the Public Services Agency (PSA, 2025) from the State Vehicle Registry. The data series covers the period 2018–2025 and includes annual and cumulative registrations, structured by propulsion type (pure electric vs. hybrid) and owner categories (individuals vs. legal entities). Data on the national charging infrastructure come from the press releases of the Ministry of Infrastructure and Regional Development (IPN, 2025).

2. Mapping the infrastructure in the Central Sector. The distribution of charging stations in the Central Sector of Chisinau was analyzed based on the PlugShare platform (PlugShare, 2026) — the main EV station mapping platform officially recommended by NCSE for users in the Republic of Moldova. Visual analysis of the PlugShare map allows for the differentiation of stations by current type: green markers indicate AC stations (alternating current, slow/semi-fast charging), and orange markers indicate DC stations (direct current, fast charging). A systematic count of visible markers

within the perimeter of the Central Sector was carried out, with the structuring into four geographical sub-zones.

3. Methodological limitations. This study presents the inherent limitations of an analysis based on visual mapping of the PlugShare platform. No data is available on the exact power of each station, the operator or the real-time operational status. The PSA data does not allow for the disaggregation of registration statistics at the administrative sector level of the municipality, but only at the municipality/district level. The analysis does not include a field investigation of the identified stations. These limitations will be addressed in the subsequent stages of the research, by collecting primary data and by accessing the NERA database of authorized operators.

RESULTS AND DISCUSSION

1. EV fleet evolution in the Republic of Moldova

Official data (NCSE, 2025), (PSA, 2025) reveal a remarkable dynamic of electromobility in the Republic of Moldova. At the end of 2025, the national fleet included 9,849 pure electric vehicles (11.2% of the total registered energy-efficient vehicles) and 77,985 hybrid vehicles (88.8%). Compared to 2020, when there were only 600 electric vehicles and 13,168 hybrids (total 13,768 units), there is a 16.4-fold increase for the electric category and 5.9-fold for the hybrid one. The combined EV+hybrid share of the total national car fleet reached 9.8% at the end of 2025, compared to the 15% target set in the 2030 Mobility Strategy. Table 1 presents the annual values of electric and hybrid vehicle registrations in the Republic of Moldova for the period 2018–2025, officially confirmed by NCSE based on PSA data.

Table 1. Annual registrations of electric and hybrid vehicles in the Republic of Moldova, 2018–2025

Year	Registered EVs	Cumulative EVs	Registered hybrid cars	Cumulative hybrid cars	Annual total	Cumulative total	Total number of national cars	Share in national cars
2018	47	47	3,425	3,425	3,472	3,472	n/d	-
2019	255	302	5,133	8,558	5,388	8,860	n/d	-
2020	298	600	4,610	13,168	4,908	13,768	n/d	-
2021	487	1,087	7,105	20,273	7,592	21,360	716,905	2.98%
2022	911	1,998	5,268	25,541	6,179	27,539	745,969	3.7%
2023	1,140	3,138	7,610	33,151	8,750	36,289	788,505	4.6%
2024	2,646	5,784	18,332	51,483	20,978	57,267	839,802	6.8%
2025	4,065	9,849	26,502	77,985	30,567	87,834	892,770	9.8%

Source: *NCSE (2025), based on PSA data – State Vehicle Registry (PSA, 2025)*

2. Comparative analysis of electric vehicle operating costs

From an economic perspective, energy-efficient vehicles offer a significant cost advantage over vehicles with a thermal engine. In purely urban driving mode, specific to trips in the Chisinau municipality, an electric vehicle records an average consumption of 20 kWh/100 km. Taking into account the technical losses of the AC charging process (correction factor 1.15 kWh consumed on the meter per kWh stored in the battery), the real cost per kWh effectively stored is 4.09 MDL (3.56

MDL/kWh × 1.15), according to the regulated tariff for low voltage in the central-southern area of the country (NERA, 2026). Thus, the operating cost of an electric vehicle in urban mode is approximately 81.9 MDL/100 km (4.09 MDL × 20 kWh), compared to approximately 200–250 MDL/100 km for a gasoline engine vehicle in similar urban traffic conditions, which represents a 60–67% reduction in fuel costs. This is consistent with the general finding that electric cars have lower running costs than conventional cars (IEA, 2025). These estimates are valid under the conditions that owners charge their cars at home, using their own electrical infrastructure at the regulated low-voltage tariff. The comparison covers energy and fuel costs only and does not include purchase price, maintenance or battery replacement.

If owners use public charging stations, the operating costs are significantly higher than charging at home. According to the tariffs charged by EV Point, the main operator of public charging stations in the Republic of Moldova, in the Central Region (Chisinau), the tariff for standard AC charging (up to 22 kW) is 7.44 MDL/kWh, and for fast DC charging (50–150 kW) 9.48 MDL/kWh (EV Point, 2026). Applying the technical loss factor specific to each type of charging (1.15 for AC and 1.08 for DC), the real cost per kWh effectively stored in the battery becomes 8.56 MDL and 10.24 MDL, respectively. In pure urban driving mode (20 kWh/100 km), this corresponds to a cost of approximately 171 MDL/100 km for AC charging and 205 MDL/100 km for DC charging — two to two and a half times more than home charging (81.9 MDL/100 km). This cost difference highlights the importance of access to private charging infrastructure and, implicitly, the need to expand the public network in dense residential areas, where apartment dwellers do not have this option.

The cost difference between home and public charging is also confirmed in the international literature. Knittel and Tanaka (2024), in a study on barriers to electric vehicle adoption and public policy responses, cite estimates that charging at public stations can be 5–10 times more expensive than charging at home, significantly diminishing the economic advantage of EVs over internal combustion engines for users without access to private charging infrastructure. This finding is relevant in the context of the Republic of Moldova, where the calculated difference between the cost of home charging (81.9 MDL/100 km) and that at public DC charging stations (205 MDL/100 km) represents a 2.5-fold ratio, confirming the trend identified in the international literature and underlining the importance of expanding the public network in dense residential areas, where access to private charging is limited.

3. Charging infrastructure in the Central Sector of Chisinau municipality

The analysis of the charging infrastructure in the Central Sector of Chisinau municipality, carried out through the mapping of the PlugShare platform (March 2026), identified 37 charging locations, totaling 53 stations (with an AC:DC ratio of 62%:38%) — an average of 1.4 stations per location, which indicates a concentration of infrastructure in isolated points, rather than a uniform spatial distribution. The charging points are distributed in four geographical sub-areas, represented in Figure 1. The density of charging infrastructure in the sector is 1.56 stations/km².

In terms of demand, Chisinau municipality concentrates approximately 70% of the national fleet of pure electric vehicles, namely approximately 6,894 units out of the total of 9,849 registered at the end of 2025 (PSA, 2025). Applying the proportion of the population of the Central Sector to the total of Chisinau city (110,300 / 567,000 = 19.5%, according to the 2024 Census (NBS, 2025) and the Central Sector Prefecture data), a fleet of approximately 1,341 electric vehicles in the sector is estimated. This methodological estimate, in the absence of disaggregated data by sector from the State Register of Vehicles, leads to a ratio of approximately 25 electric vehicles per charging station

— 1.7 times above the upper limit of the European standard of 10–15 EVs per charging point (EAFO, 2024).

The topological representation of the charging network, presented in Figure 1 and modeled as a tree G = (V, E) with 21 aggregate nodes (some nodes include charging stations located 0.1-0.4 km apart) and 20 edges, reveals an uneven spatial distribution of the infrastructure across the four areas of the Central Sector. The northern area, represented by the node "North Intersection" (bd. Mihai Viteazul), concentrates 9 stations (5 DC + 4 AC) grouped in a cluster of locations with distances of 0.1–0.4 km between them, constituting the best-covered perimeter of the sector. The central area is dominated by the "Atrium" hub (10 stations: 3 DC + 7 AC) and the "UNIC" node (2 AC), which has the maximum degree of connectivity in the network (degree 4), being intersected by four edges — which positions it as a critical transit node of the charging infrastructure. The southern area, represented by "Shopping Moldova" (4 AC) and adjacent nodes, ensures average coverage, with a preponderance of slow AC stations, suitable for long-term parking.

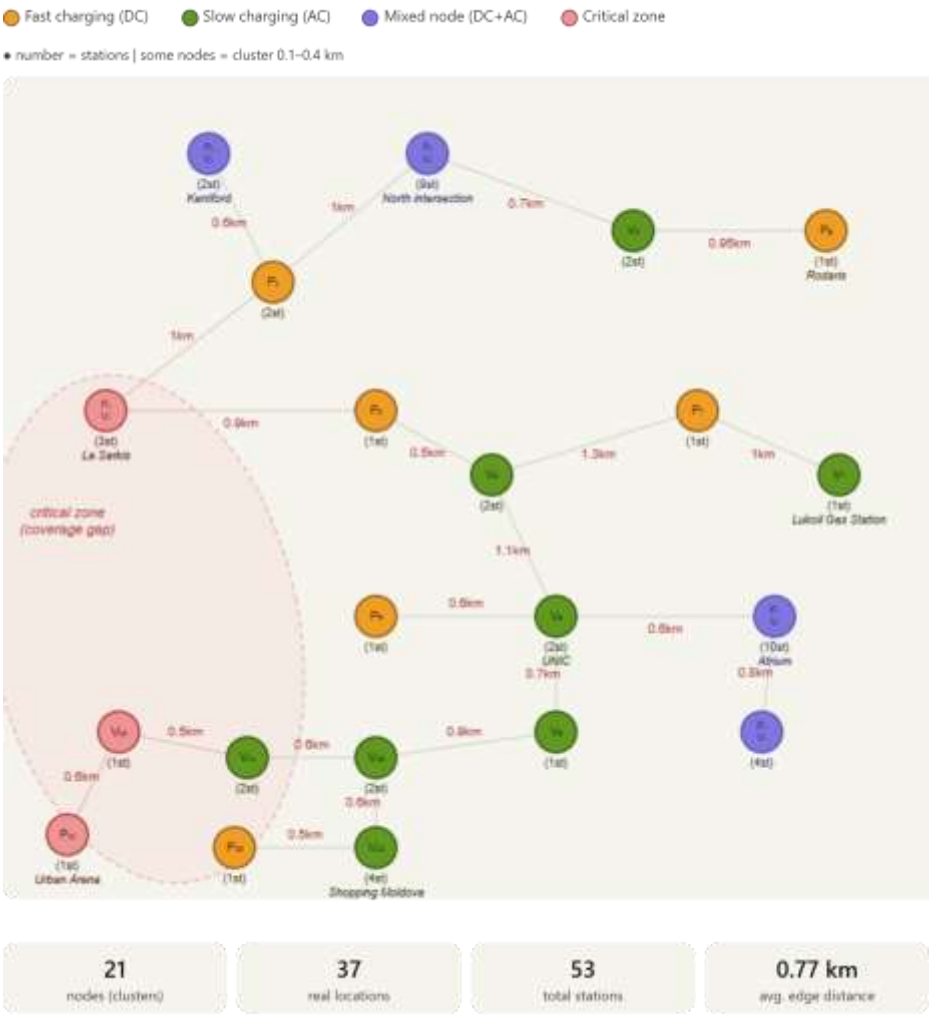


Figure 1. Tree representation of the EV charging infrastructure in the Central Sector of Chisinau municipality.

Source: *Made by the authors based on the PlugShare platform (March 2026)*

The western area of the sector, in the vicinity of Valea Morilor Park, constitutes the critical region of the network. It has a single active node, La Sarkis (113A Alexei Mateevici Street), with 3 stations (2 DC + 1 AC), generating a density of approximately 0.38 stations/km² in this area, 4.1 times

below the sector average of 1.56 stations/km². The maximum distance between adjacent nodes in this area reaches 1.3 km, significantly exceeding the 500 m threshold recommended as the maximum walking distance from a charging point (He *et al.*, 2022). The presence of a single AC station in the residential area is insufficient, given that the apartment blocks in this area do not offer the possibility of installing private chargers, making users completely dependent on the public infrastructure.

To address this deficit, it is recommended to prioritize the installation of at least two new stations in the western area of the Central Sector, in the vicinity of Valea Morilor Park — a dense residential area with insufficient public charging infrastructure. Each new station should be equipped with at least one fast DC port and two AC ports, to meet both the demand for fast charging in transit and the needs of residential users without access to private charging. This intervention would ensure pedestrian coverage within a radius of 500 m for residents of the western area and would reduce the weighted average distance per electric vehicle in the deficit area by approximately 18–39%, depending on the number of newly created locations.

Projecting the EV fleet evolution at the 35% annual growth rate recorded in 2025 (NCSE, 2025), the estimated number of electric vehicles in the Central Sector would reach approximately 2,444 units by the end of 2027, compared to 1,341 estimated in 2025. In the absence of any expansion of the current network of 53 stations, the EV ratio per station would increase from 25 to approximately 46, three times above the upper limit of the European standard of 10–15 EVs per charging point (EAFO, 2024). To maintain the ratio within the limits of the European standard, the charging network in the Central Sector would require between 163 and 244 functional stations by 2027, compared to the existing 53, which implies the installation of 110–191 new stations within two years. Even in the more conservative scenario of a standard of 20 EVs per station, acceptable for the context of a city in transition, a minimum of 122 stations would be needed, representing a doubling of the current capacity. These estimates underline the urgency of the planned interventions and the need to develop a Municipal Electric Mobility Plan that anticipates demand, not reacts to the deficit.

PUBLIC POLICY RECOMMENDATIONS

The results of this study substantiate the following recommendations addressed to municipal authorities and decision-makers in the Republic of Moldova:

- Develop a Municipal Electric Mobility Plan for Chisinau municipality, using the topological mapping methodology and supply-demand analysis demonstrated in this study, extended to all five sectors of the capital. The plan should establish sectoral targets for charging infrastructure density, correlated with the spatial distribution of the EV fleet and the growth rate of registrations (35% annually in 2025 (NCSE, 2025)) for the horizon 2027–2030.
- Prioritizing public investments in dense residential areas without access to private charging, especially in the western area of the Central Sector (near Valea Morilor Park), where the density of charging infrastructure is 4.1 times below the sector average. Prioritizing the installation of a minimum of two new stations, each equipped with at least one fast DC port and two AC ports, would reduce the weighted average distance per EV by 18–39% in the deficit area.
- Establish a public-private co-financing mechanism for the installation of charging stations in the parking lots of apartment buildings, combining municipal funds with European sources available through the Connecting Europe Facility (CEF), Regulation (EU) 2021/1153 (Council of the European Union & European Parliament, 2021) and with contributions from owners. The cost difference between home charging (81.9 MDL/100 km) and that at public DC stations (205 MDL/100 km), 2.5 times higher, economically justifies subsidizing access to residential

charging. This position is also supported by the international literature. Knittel and Tanaka (2024) demonstrate that subsidizing charging infrastructure is more than twice as cost-effective as subsidizing the purchase of EVs, providing solid academic support for prioritizing investments in the public network over purchase incentives.

- Alignment of the regulatory framework with Regulation (EU) 2023/1804 (European Parliament & Council of the European Union, 2023) on alternative fuels infrastructure, which requires EU accession states to ensure a minimum number of charging points in urban areas. The current ratio of 25 EVs per station in the Central Sector (1.7 times above the European standard of 10–15 EVs per point) indicates the need for legislative and investment-related intervention to align with European regulations.
- Implementing a real-time monitoring system for charging station usage, by requiring authorized operators to transmit usage data to a public platform managed by NERA. The availability of this data would allow for the periodic updating of planning models and the early identification of overloaded stations, especially in the context of the forecasted growth of the EV fleet.
- Mandatory inclusion of preparation infrastructure for EV charging in building regulations for new buildings and in major renovation permits, in line with practices already implemented in Western European cities (Buckberg & Peilert, 2024). Installing the necessary electrical infrastructure during the construction phase reduces costs compared to post-construction interventions by 75–80%, according to comparative data in the specialized literature (Vidangos, 2020).

CONCLUSIONS

This study demonstrates that the EV charging infrastructure in the Central Sector of Chisinau presents characteristics of uneven spatial distribution, with concentration in commercial areas and major deficiencies in the western residential area. The 37 charging locations identified through mapping of the PlugShare platform, totaling 53 stations, generate a ratio of 25 electric vehicles per station, 1.7 times above the upper limit of the European standard of 10–15 EVs per charging point, compared to a national fleet that has increased 16.4 times in five years, from 600 to 9,849 pure electric vehicles.

The comparative analysis of operating costs highlights a significant economic advantage of home charging (81.9 MDL/100 km) compared to public DC stations (205 MDL/100 km), a 2.5-fold difference also confirmed in the international literature (Knittel & Tanaka, 2024). This reality generates a structural inequity: EV owners with access to private parking spaces benefit from the reduced costs of residential charging, while apartment building residents, without this option, are exclusively dependent on the more expensive public infrastructure. The expansion of the public charging network in dense residential areas is therefore not an inferior alternative, but the only affordable solution for a significant category of users, whose adoption of EVs is directly conditioned by the availability and proximity of public stations.

The study contributes to the literature by applying an integrated analytical framework, topological modeling of the network as a G = (V, E) tree and comparative analysis of operating costs, to the specific context of an Eastern European city with post-socialist characteristics, demonstrating the relevance of this issue for the Republic of Moldova and the need to move from ad-hoc infrastructure development to systematic, data-driven planning. Achieving the objective of the 2030 Mobility Strategy, a 15% share of electric and hybrid vehicles in the national car fleet, compared to

9.8% at the end of 2025, is conditional on the substantial and planned expansion of the urban charging network, supported by co-financing mechanisms and the alignment of the regulatory framework with Regulation (EU) 2023/1804.

Future research should extend the analysis to the municipality level, integrate field data on the technical characteristics of the stations, installed power and utilization, and model alternative network expansion scenarios based on different EV fleet growth rates, applying the M/M/c model for optimal infrastructure sizing over the 2027–2030 horizon.

REFERENCES

Banegas, J., Mamkhezri, J. (2023). A systematic review of geographic information systems based methods and criteria used for electric vehicle charging station site selection. *Environmental Science and Pollution Research*, Vol. 30, pp. 68054–68083. Available at: https://doi.org/10.1007/s11356-023-27383-6, [Accessed at: March 17, 2026]

Buckberg, E., Peilert, L. (2024). *Urban EV Charging for All: 10 Strategies for City Governments.* Salata Institute for Climate and Sustainability, Harvard University; MIT Center for Energy and Environmental Policy Research. Available at: https://salatainstitute.harvard.edu/urban-ev-charging-for-all-10-strategies-for-city-governments/ , [Accessed at: March 24, 2026]

Central Sector Prefecture. (n.d.). *Brief history*. Available at: https://chisinaucentru.md/scurt-istoric/ [Accessed at: March 24, 2026]

Coffman, M., Bernstein, P., Wee, S. (2017). Electric Vehicles Revisited: A Review of Factors That Affect Adoption. *Transport Reviews*, Vol. 37, pp. 79–93. Available at: https://doi.org/10.1080/01441647.2016.1217282, [Accessed at: March 19, 2026].

Council of the European Union & European Parliament. (2021). *Regulation (EU) 2021/1153 of the European Parliament and of the Council establishing the Connecting Europe Facility*. Official Journal of the EU, L 249. Available at: https://eur-lex.europa.eu/legal-content/RO/TXT/?uri=CELEX:32021R1153 [Accessed at: April 20, 2026].

Correia Sinézio Martins, E., Lépine, J., Corbett, J. (2024). Assessing the effectiveness of financial incentives on electric vehicle adoption in Europe: Multi-period difference-in-difference approach. *Transportation Research Part A: Policy and Practice*, Vol. 189. 104217. Available at: https://www.sciencedirect.com/science/article/pii/S0965856424002659, [Accessed at: March 24, 2026]

European Alternative Fuels Observatory – EAFO. (2024). *EAFO Analysis: Trends in EV Charging Infrastructure Across Europe.* European Alternative Fuels Observatory, European Commission. Available at: https://alternative-fuels-observatory.ec.europa.eu/general-information/news/eafo-analysis-trends-ev-charging-infrastructure-across-europe, [Accessed at: March 23, 2026]

European Parliament & Council of the European Union. (2023). *Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure and repealing Directive 2014/94/EU*. Official Journal of the European Union, L 234, 1–47. Available at: https://eur-lex.europa.eu/eli/reg/2023/1804/oj?locale=ro [Accessed at: April 20, 2026].

EV Point. (2026). *Tariffs for charging electric cars in Moldova*. Available at: https://evpoint.md/ro/tarife [Accessed at: April 19, 2026]

He, S.Y., Kuo, Y.-H., Sun, K.K. (2022). The spatial planning of public electric vehicle charging infrastructure in a high-density city using a contextualised location-allocation model. *Transportation Research Part A: Policy and Practice*, Vol. 160, June 2022, pp. 21-44. Available at: https://doi.org/10.1016/j.tra.2022.02.012, [Accessed at: March 15, 2026]

Independent Press National – IPN. (2025). 150 fast charging stations for electric cars will be installed in the country by 2030. Press releases from the Ministry of Infrastructure and Regional Development, August 6, 2025. Available at: https://ipn.md/en/150-fast-charging-stations-for-electric-cars-will-be-installed-in-the-country-by-2030/ [Accessed at: March 25, 2026]

International Energy Agency – IEA (2025). Global EV Outlook 2025: Expanding sales in diverse markets. *International Energy Agency*, Paris. Available at: https://www.iea.org/reports/global-ev-outlook-2025 [Accessed at: March 15, 2026]

Kazempour, M., Sabboubeh, H., Pirouz Moftakhari, K., Najafi, R., Fusco, G. (2025). GIS-based geospatial analysis for identifying optimal locations of residential on-street electric vehicle charging points in Birmingham, UK. *Sustainable Cities and Society*, Vol. 120, 105988. Available at: https://doi.org/10.1016/j.scs.2024.105988, [Accessed at: March 17, 2026]

Knittel, C.R., & Tanaka, S. (2024). *Challenges to Expanding EV Adoption and Policy Responses* (MIT CEEPR Working Paper 2024-16). Center for Energy and Environmental Policy Research, MIT. Available at: https://ceepr.mit.edu/wp-content/uploads/2024/10/MIT-CEEPR-WP-2024-16.pdf [Accessed at: April 17, 2026]

Metais, M.O., Jouini, O., Perez, Y., Berrada, J., Suomalainen, E. (2022). Too much or not enough? Planning electric vehicle charging infrastructure: A review of modeling options. *Renewable and Sustainable Energy Reviews*, Vol. 153, 111719. Available at: https://doi.org/10.1016/j.rser.2021.111719, [Accessed at: March 18, 2026]

National Bureau of Statistics - NBS. (2025). *Final results of the 2024 Population and Housing Census: geographical distribution of the population*. Available at: https://statistica.gov.md/index.php/ro/rezultatele-finale-ale-recensamantului-populatiei-si-locuintelor-2024-distributi-10121_61877.html [Accessed at: April 20, 2026]

National Center for Sustainable Energy – NCSE. (2025). *Data on the evolution of electric and hybrid vehicles in the Republic of Moldova at the end of 2025*. Chișinău: NCSE/PSA. Available at: https://cned.gov.md/ro/content/transport-electric-si-hibrid [Accessed at: March 17, 2026]

National Energy Regulatory Agency - NERA. (2026). *Current tariffs — Electricity* (Decision No. 222 of 31.03.2026). Available at: https://anre.md/energie-electrica-3-290 [Accessed at: April 5, 2026]

Pamidimukkala, A., Kermanshachi, S., Rosenberger, J.M., Hladik, G. (2024). Barriers and motivators to the adoption of electric vehicles: A global review. *Green Energy and Intelligent Transportation*, Vol. 3(2), 100153. Available at: https://doi.org/10.1016/j.geits.2024.100153, [Accessed at: March 20, 2026].

PlugShare. (2026). Map of EV charging stations – Chisinau, Central Sector. Available at: https://www.plugshare.com/ [Accesat: martie 2026]

Public Services Agency – PSA. (2025). *Statistical data on the composition of the State Register of Vehicles by type of means of transport and administrative-territorial profile*. Available at: https://www.asp.gov.md/ro/date-deschise/date-statistice/rst_tip_raion, [Accessed at: March 17, 2026]

Vidangos, N. (2020). These New Building Codes Could Finally Ensure New Houses are Ready for Charging Electric Vehicles. *blog post, Alliance to Save Energy*. Available at: https://www.ase.org/blog/these-new-building-codes-could-finally-ensure-new-houses-are-ready-charging-electric-vehicles [Accessed at: April 19, 2026]

World Economic Forum (2024). Scaling Investment in EV Charging Infrastructure: A Policy Roadmap for Cities. Available at: https://www3.weforum.org/docs/WEF_Scaling_Investment_in_EV_Charging_Infrastructure_2024.pdf [Accessed at: March 22, 2026]

Zhan, W., Liao, Y., Deng, J., Wang, Z., Yeh, S. (2025). Large-scale empirical study of electric vehicle usage patterns and charging infrastructure needs. *npj Sustainable Mobility and Transport*. Vol. 2, 9. Available at: https://doi.org/10.1038/s44333-024-00023-3, [Accessed at: March 25, 2026]

Zhang, Y., Iman, K. (2023). Using Geospatial Analysis to Assist with Clean Vehicle Infrastructure. In: *GIS and Spatial Analysis*. IntechOpen. Available at: https://doi.org/10.5772/intechopen.110864, [Accessed at: March 23, 2026]