TO THE GRAND-DUCHY OF LUXEMBOURG
Ministry of the Environment, Climate and Biodiversity

Evaluation of the potential, modalities and opportunities of introducing a social car leasing scheme in Luxembourg

Final report

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FIER SUSTAINABLE MOBILITY

LUXMOBILITY

About this report

This report was prepared by FIER Sustainable Mobility and LuxMobility on commission for the Ministry of the Environment, Climate and Biodiversity of the Grand-Duchy of Luxembourg. Both organisations are active in the field of sustainable mobility and contribute to the development and implementation of transport and mobility policies.

The report reflects the analysis, assessments and professional judgement of the authors. The views and conclusions expressed are those of FIER Sustainable Mobility and LuxMobility alone and do not necessarily represent the official position, policies or opinions of the commissioning authority or other involved public institutions.

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Disclaimer on budgetary implications

It must be noted that, as this is a working document that is subject to change, the measures proposed in this document have not been included in the current budget. As indicated in the social climate plan, measures with an impact on public finances will be subject to multi-year budgeting. Any substantial change to existing aid or any new measure with an impact on public finances, whether annual or multi-year, will be subject to the ordinary budgetary procedure.

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LIST OF ABBREVIATIONS

Abbreviation	Full name
AFIR	Alternative Fuel Infrastructure Regulation (EU Regulation 2023/1804)
BEV	Battery Electric Vehicle
BiK	Benefits in Kind (tax advantages for EV drivers)
CAPEX	Capital Expenditures
CPO	Charging Point Operator
DG MOVE	Directorate-General for Mobility and Transport (European Commission)
DNSH	Do-No-Significant-Harm (EU sustainability principle)
EAFO	European Alternative Fuel Observatory
EC	European Commission
EU	European Union
EV	Electric Vehicle
FTE	Full-Time Equivalent (staff resource allocation)
GDPR	General Data Protection Regulation (EU data protection law)
GHG	Greenhouse gasses
I&W	Dutch Ministry of Infrastructure and Water Management
ICE	Internal Combustion Engine
IDACS	Program Support Action for standardizing EV charging data sharing
IDDRI	Institut du Développement Durable et des Relations Internationales (French think tank)
KPI	Key Performance Indicator
MCDA	Multiple-Criteria Decision Analysis
MECB	Ministry of the Environment, Climate, and Biodiversity (Luxembourg)
MECO,	Ministry of the Economy (Luxembourg)
MFIN	Ministry of Finance (Luxembourg)
MFSVA	Ministry of Family Affairs, Solidarity, Living Together and Reception of Refugees (Luxembourg)
MHDV	Medium and Heavy-Duty Vehicle
MITMA	Spanish Ministry of Transport, Mobility and Urban Agenda
MMTP	Luxembourg Ministry of Mobility and Public Works
NPF	National Policy Framework (under AFIR)
NECP	National Integrated Energy and Climate Plan
OPEX	Operating Expenses
PNEC	Plan National pour une Économie Circulaire (Luxembourg's circular economy plan)
RGTR	Régime Général des Transports Routiers
SNCA	Société Nationale de Circulation Automobile (Luxembourg's vehicle registration authority)
STATEC	Institut national de la statistique et des études économiques du Grand-Duché de Luxembourg
STF	Sustainable Transport Forum (EU platform)

Abbreviation	Full name
TCO	Total Cost of Ownership
ToR	Terms of Reference
WLTP	Worldwide harmonized Light vehicles Test Procedure
WP1	Work Package 1: Potential Assessment
WP2	Work Package 2: Modalities Design & Evaluation
ZE	Zero Emission

EXECUTIVE SUMMARY

This document presents the advisory report on the potential, design options, and implications of introducing a Social Car Leasing Scheme in Luxembourg.

A more detailed overview of the analysis, findings, and recommendations is available in the Extended Executive Summary (approximately seven pages), which can be consulted separately. The present document contains the full advisory content underpinning that summary.

Scope and focus

The report assesses whether and how a social car leasing scheme could contribute to more affordable, zero-emission mobility for vulnerable and low-income households in Luxembourg. It combines socio-economic analysis, market assessment, financial modelling, and policy evaluation to support evidence-based decision-making.

Key elements addressed

The report covers:

- The potential target groups and the scale of demand for social car leasing.
- The availability and suitability of battery electric vehicles, including new and used vehicles.
- The financial and affordability implications for households and public budgets.
- The policy, regulatory, and institutional context relevant to implementation.
- The expected environmental, social, and economic impacts, as well as key risks and trade-offs.

Purpose of the document

This report is intended to support strategic policy decisions by providing a structured analysis of options, assumptions, and consequences. It does not constitute an implementation manual, but rather an analytical and advisory basis for further policy development and decision-making.

1 INTRODUCTION AND POLICY CONTEXT

1.1 BACKGROUND

Luxembourg has set itself clear and ambitious climate goals. The Law of 15 December 2020 on Climate sets the national framework for reaching climate neutrality by 2050, with an interim goal of cutting greenhouse gas emissions by 55% by 2030 compared to 2005. These goals are set in the National Integrated Energy and Climate Plan (NECP) 2021-2030, which outlines how each sector will contribute to the transition. Transport is one of the most demanding areas: while the Transport sector realised the best progress in CO_2 emissions compared to other sectors (-57% compared to the baseline year 2005), it still is the major contributor to CO_2 with 59% of total CO2 emissions in 2024.

In line with Articles 4-8 of Regulation (EU) 2023/955, the proposed social car leasing scheme could form part of Luxembourg's national Social Climate Plan. This requires consistency with the updated NECP, public consultation with regional and social partners, and mechanisms to identify and monitor households affected by mobility poverty.

Mobility in Luxembourg is changing fast. Public transport has been free since March 2020, the tram network in Luxembourg City has expanded, and national strategies for car sharing and cycling are taking shape. Still, cars remain central to everyday life, especially outside the capital region. In rural and peri-urban areas, people often need a car to get to work, school, or to manage care responsibilities and other basic services. For many low-income households this dependence can lead to transport poverty, where travel costs take up a large share of income and limit access to opportunities.

1.2 THE SOCIAL DIMENSION OF THE TRANSITION

Electrifying the vehicle fleet is key to Luxembourg's path toward cleaner transport. Battery electric vehicles (BEVs) are becoming more common and affordable, yet they remain out of reach for many. Even with subsidies of up to € 6.000, the cost gap with cars powered by combustion engines is still too large for many households. As a result, the benefits of cleaner mobility are not shared equally: wealthier groups make the switch first, while others risk falling behind.

This challenge is recognised in Measure N°422 "Leasing social automobile" of the NECP. The measure calls for a study on how long-term social leasing of electric cars could make sustainable mobility accessible for households that cannot afford it through the market. The idea is not just about climate goals but also about fairness, making sure the transition to clean transport includes everyone.

Transport poverty often overlaps with other forms of vulnerability such as energy poverty or social isolation. It affects rural families with long commutes, single parents juggling

jobs and childcare, or workers with irregular hours who cannot rely on public transport. A social leasing scheme would not only cut emissions but could also reduce inequality and strengthen community cohesion.

1.3 Policy linkages

The idea of social leasing fits within several existing national strategies:

- National Integrated Energy and Climate Plan (NECP): provides the main framework for emissions reduction, including Measure N°422.
- National Mobility Plan 2035 (PNM 2035): promotes public transport, cycling and shared mobility, but acknowledges that cars remain essential for many rural and long-distance journeys.
- National Carsharing Strategy: supports shared use of vehicles. Social leasing would complement this by helping people for whom car-sharing is not practical.
- Social Climate Fund (EU Regulation 2023/955): offers a possible European funding source to help vulnerable households adapt to the green transition.

Together these policies create a consistent framework that connects environmental and social goals.

1.4 Objectives and scope of the study

This study was commissioned by the Ministry of the Environment, Climate and Biodiversity (MECB), working with the Ministries of Mobility and Public Works (MMTP), Family Affairs, Solidarity, Living Together and Reception of Refugees (MFSVA), Finance (MFIN), and the Economy (MECO). It provides the groundwork for developing a national social car leasing scheme.

The study aims to:

- Estimate the potential demand for a social BEV leasing scheme among vulnerable households.
- Define eligibility criteria using Luxembourg's social and economic indicators, such as mobility or energy poverty measures.
- Analyse the availability and cost of new and used electric models suitable for leasing.
- Review the relevant legal and financial frameworks in Luxembourg and the EU.
- Propose feasible operational and governance models, including links with car-sharing and public infrastructure.
- Assess the possible social, economic, and environmental effects, such as lower emissions, fuel savings, and reduced household costs.

1.5 Research approach and methodology

The research approach is based on the following key activities:

- Online and offline meetings and workshops with the client and relevant stakeholders.
- Expert interviews, field visits and specific stakeholder interviews
- Desk research and data analysis
- Project management and risk management / mitigation
- The approach for the research is organised in two different work packages which are related to the tasks, deliverables and deadlines:
- Work Package 1 (Potential Assessment): establishes the analytical foundation through socio-economic segmentation, market research, and initial financial analysis.
- Work Package 2 (Modalities Design and Evaluation): develops the practical design options, financial models, and implementation plan, with stakeholder involvement throughout the process.

Herewith a short description for both work packages.

1.5.1 Work Package 1: Potential Assessment

The focus of the research in WP1 was to establish a robust analytical baseline for Luxembourg's social BEV-leasing scheme. In this research data-driven analysis was combined with targeted stakeholder engagement with internal stakeholders from the ministries.

The tasks within work package 1 were related to the assessment on the potential households that would be eligible as also the assessment of the eligibility of battery electric vehicles (BEVs) that would fit in the scheme. Work package 1 was organised around 4 different tasks:

- Assessment of the potential and identification of eligible households
- Analysis of the local and EU market for BEVs (used and new)
- Assessment of existing policy and regulatory frameworks related to a social leasing scheme
- Initial financial analysis for assessing the potential scheme

Our research in task 1.1 was structured around five interlinked sub-tasks:

- map and validate relevant data sources
- segment vulnerable households' socio-economically and geographically
- analyse gender and mobility-poverty dimensions
- quantify trip-distance requirements

- map charging and car-sharing-access.

Task 1.2 was focussed on the following sub-tasks:

- Analysis on eventual used and new BEV vehicles for availability within social leasing
- Model analysis of an affordable pool of BEVs

Task 1.3 focused on a national and EU regulatory review and analysed best practices from other EU countries.

In task 1.4 the following sub-tasks were part of the initial financial analyses:

- Vehicle availability and cost analysis for eligible households
- Which financing structures and options could fit the scheme
- Charging and charging infrastructure affordability
- Total cost of ownership analysis to evaluate the possibility that the scheme offers a cheaper mobility solution than owning a used ICE vehicle

At each stage employed quantitative techniques alongside validation workshops with the core ministries and user-group representatives.

1.5.2 Work Package 2: Modalities Design & Evaluation

The research methodology in Work Package 2 (WP2) was focused on designing and evaluating modalities to ensure the social leasing scheme is both effective and sustainable. Building on the insights from Work Package 1 (WP1) the WP2 activities had the aim to translate these findings into practical plans in close cooperation with the relevant stakeholders. This work package engaged a wide range of stakeholders, including the government ministries, a car-sharing operator and leasing companies, to co-design solutions that align with Luxembourg's ambitions of reducing greenhouse gas emissions, enhancing social inclusion, and promoting electric mobility. By integrating existing research, our knowledge and stakeholder expertise, the activities from WP2 delivered a robust framework tailored to the needs of vulnerable households, setting the stage for successful implementation. The activities in work package 2 were mainly organised and accompanied with a set of online and offline workshops, individual stakeholder interviews and expert interviews.

For an initial list of sources, validation methods and stakeholder organisations which were included in the research in both work packages see Annex 4.

Both work packages generated the evidence base required for the preparation of Luxembourg's Social Climate Plan under Regulation (EU) 2023/955. The analytical structure aligns with Articles 4-8, ensuring that measures addressing Mobilitätsarmut (transport poverty) are data-driven, considered with feedback from relevant stakeholders

and traceable to the NECP and national climate goals. This establishes clear policy alignment and opens eligibility for EU co-financing.

The mixed-methods design, combining statistical modelling, spatial analysis, and qualitative validation, ensures representativeness and policy relevance. Each method supports quantifiable KPIs such as the number of potential beneficiary households, travel-distance profiles, and infrastructure access gaps.

1.6 TOWARDS A FAIR AND PRACTICAL TRANSITION

Luxembourg's success with free public transport shows how social policies can reinforce environmental goals. The proposed social car leasing scheme follows the same spirit: it connects climate ambition with fairness, helping to make the transition work for everyone. The study also ties into a broader European movement towards a just transition, where social and environmental policies go hand in hand.

This work does not assume social leasing is the only answer to transport poverty. It explores how social leasing could fit within a wider set of measures, including public transport, shared mobility, and active travel, that together build a cleaner and more accessible transport system. The goal is to design a scheme that is practical, financially sound, and genuinely helpful for the people who need it most.

The approach contributes to the EU's broader Just Transition agenda, complementing the Social Climate Fund and the Green Deal objectives by ensuring that vulnerable groups benefit directly from decarbonisation.

2 UNDERSTANDING THE TARGET GROUP

2.1 THE OBJECTIVE OF THE SOCIO-ECONOMIC AND GENDER SEGMENTATION ANALYSIS

Luxembourg, a high-income country of about 681.978 residents (Peltier & Klein, 2025), combines strong economic performance with growing social disparities. According to STATEC, in 2024, 18,1 % of the population and nearly 24 % of children live below the at-risk-of-poverty threshold, while the average standard of living stands at € 4.867. Even among workers, 12,9 % face poverty risks, especially part-time or low-skilled employees. Despite free public transport, transport poverty can persist, particularly in rural areas where limited access to services and long commuting distances increase household transport costs and reinforce social exclusion (Ametepe et al., 2025).

The objective of the socio-economic and gender segmentation analysis is to identify target low-income households and understand their mobility needs in Luxembourg through a detailed socio-economic and gender segmentation.

Using data from STATEC and the Fonds National de la Recherche (FNR), including the 'Rapport Travail et cohésion sociale', income surveys, social-office records, and microdata with geolocation, the project team developed a first exploratory approach to segment households according to income level, employment status, household size, dependency ratio, and geographic location. Gender and vulnerability factors such as single parenthood, age, education level, and employment status were also integrated.

The analysis intended to further include indicators of energy and transport poverty, examining the impact of transport costs in household budgets, access to public transport and car-sharing, and average travel times to workplaces and essential services.

Despite some limitations, including the lack of geolocated socio-economic microdata, the absence of a clear STATEC definition for vulnerable transport users, restricted access to updated LuxMobil and MMUST data, and the use of outdated or incomplete national data sources, the work successfully produced two main outputs.

A Segmentation Report was produced, comprising five cluster-profile charts (2.3.1), three case-study vignettes (2.3.2), two geospatial heat maps (2.3.3), and detailed data tables (2.4.6) summarizing household counts by segment. In addition, a Gender and Mobility-Poverty Analysis Brief was developed (2.5).

Together, these analyses provide the empirical foundation for defining eligibility criteria, establishing the link between socio-economic status, gender, transport poverty, and geographic accessibility in determining which households qualify for social car leasing.

2.2 "VULNERABLE HOUSEHOLD" DEFINITION

According to STATEC (Report on work and social cohesion 2023), a single-person household is considered at risk of poverty if they live on less than €2.382 per month, corresponding to 60 % of the median disposable income per adult equivalent (Ametepe et al., 2023). In 2024, around 18,1 % of the population live below the at-risk-of-poverty threshold, while the average standard of living stands at € 4.867 (Ametepe et al., 2025).

In 2025, income-based eligibility for national aid reflects similar limits. The gross monthly income ceiling for the Allocation de Vie Chère is €2.710 for a single-person household and €4.065 for a two-person household. For the Prime Énergie, the limits are €3.388 for a single-person household and €5.082 for a two-person household. Households receiving REVIS (Revenu d'Inclusion Sociale) automatically qualify for both aids (Fonds National de Solidarité, 2025).

According to STATEC, vulnerable households can therefore be defined primarily by income, as those below or near these thresholds. They often include young adults living alone, foreign residents, people with low education levels, the unemployed, and single-parent families. In Luxembourg, poverty risk is strongly shaped by employment status, education, gender, nationality, and family composition, making income a central and objective criterion for identifying vulnerability (Ametepe et al., 2024).

2.3 SOCIO-ECONOMIC & GEOGRAPHIC SEGMENTATION

2.3.1 DEMOGRAPHIC PROFILES WITH 5 CLUSTER-PROFILE CHARTS, SHOWING KEY HOUSEHOLD TYPES, BASED ON THE MECB'S CRITERIA TABLE

The household segmentation provides a structured framework to identify and prioritize groups most likely to benefit from Luxembourg's proposed social car leasing scheme. Developed jointly with the ministries, it builds on socio-economic and mobility indicators to target support where it is most needed, helping vulnerable groups overcome mobility poverty while ensuring efficient use of public resources and alignment with environmental and social policy goals.

This classification, developed in coordination with MECB and with input from MECO, MMTP, and MFSVA, establishes a clear and measurable framework for identifying potential beneficiaries. Each criterion can be applied individually or in combination to ensure that social car leasing targets households facing the greatest mobility and economic vulnerability in Luxembourg. The objective of this clustering is to reflect the ministries' perspective and provide a practical basis for prioritising between different vulnerable household types, so that support can be directed where it is most needed.

Cluster 1: Primary Target Group

Criteria for this group include eligibility for social aid or energy subsidies such as Prime Énergie; large family size with dependent children; daily commuting distance greater than

15 kilometres or annual travel exceeding 8.000 kilometres; and absence of a private car despite a clear mobility need. All members reside in Luxembourg. These households experience the strongest link between low income and limited transport access. The scheme should prioritise these households to ensure access to affordable and reliable mobility, enabling participation in employment, education, and essential services while avoiding incentives for additional or unnecessary car ownership.

Cluster 2: Secondary Target Group
These households rely on a single older or unreliable internal-combustion vehicle and have essential but moderate mobility needs. They typically live in rural or semi-rural areas with limited public transport coverage and may face difficulties accessing car-sharing services. Their employment situation often involves part-time or minimum-wage positions, which constrains their ability to afford the transition to zero-emission mobility. The scheme aims to support them in replacing their existing vehicle with a low-emission alternative. Where charging infrastructure is currently insufficient, this does not constitute an exclusion criterion; instead, it indicates a need for infrastructure deployment in line with AFIR and Luxembourg's national charging policy, ensuring that mobility needs are met.

Cluster 3: Social-Vulnerability Group
This cluster includes households living below the REVIS income threshold or earning less than 60 % of the median disposable income. Many are affected by energy poverty and include elderly persons, people with disabilities, single-parent or female-headed households, and caregivers. Additional considerations may include situations where access to nearby public charging is constrained, and residence in communes without car-sharing services. These factors combine to describe households with strong social vulnerability but limited capacity to adopt new mobility solutions without assistance.

Cluster 4: Affordability-Barrier Group
Households in this cluster are typically middle-income but financially constrained. They own old internal combustion engine vehicles (Euro 4 or older) and record annual mileage above 10.000 kilometres. They are not eligible for social aid but express willingness to switch to electric vehicles if up-front costs were lower. Their main constraint is economic rather than infrastructural, reflecting affordability barriers rather than lack of access.

Cluster 5: Infrastructure-Barrier Group
Criteria for this group include residence in peri-urban or rural communes; housing in apartment buildings without garages or private parking; no nearby car-sharing stations within 500 metres; and insufficient access to public transport for daily mobility needs.

The cluster analysis was carried out to translate the ministries' vulnerability criteria into concrete household profiles and to identify which groups should be prioritised in the design of the scheme. In summary, the analysis of household clusters offers useful

guidance for understanding different mobility and financial barriers. These clusters were defined based on inputs provided directly by the ministries. Within this framework, Cluster 1 and, to a lesser extent, Cluster 2 should be prioritised in the design of the scheme. These insights are not intended as targeting rules but rather as analytical steps that helped inform the later decision.

2.3.2 CASE-STUDY VIGNETTES ILLUSTRATING REAL-LIFE SITUATIONS AND MOBILITY CHALLENGES

To better illustrate the practical implications of the household segmentation, three case-study vignettes were developed. Each represents a typical household from a different cluster, highlighting real-life socio-economic conditions, daily mobility constraints, and the potential impact of access to a social car leasing solution.

Case study 1 represents Maria and Paulo, aged 38 and 41, who live in Ettelbruck with their four children between the ages of 4 and 13. Without a car, Maria commutes by train to her part-time job in Diekirch, while Paulo travels over 20 kilometres each way to his warehouse job in the south. The family relies heavily on relatives and friends for grocery shopping, medical appointments, and school-related transport. As they already benefit from Prime Énergie and family subsidies, access to an affordable electric vehicle through social leasing would significantly reduce their daily stress, improve access to work, health care, and education, and help them maintain predictable monthly costs.

Case study 2 describes Jean, a 55-year-old divorced man living in Hupperdange (Clervaux) with his 19-year-old daughter. He owns a 15-year-old diesel car that frequently breaks down. Public transport in his area is limited, with infrequent RGTR bus service and no nearby car-sharing options. His part-time gardening work requires early travel across the canton, often forcing him to borrow a neighbour's vehicle when his own fails. Jean earns slightly above the REVIS eligibility threshold, just enough to make ends meet. A leased electric vehicle would lower his repair expenses, increase reliability, and reduce financial and emotional strain for both him and his daughter.

Case study 3 focuses on Aline, age 33, a single mother of two children aged 6 and 8 living in Greiveldange. She works as a cleaner on split shifts at two locations and does not own a car. Because public transport does not run early or late enough for her work schedule, she often walks her children to school before heading to her first job. Aline receives housing support and falls just below the REVIS income threshold. Leasing a small electric car would give her a stable and time-efficient transport solution, helping her balance family and work commitments while avoiding unaffordable up-front costs.

These examples demonstrate how social leasing can provide tangible benefits across diverse situations, offering reliable mobility, reducing daily stress, and supporting financial stability for households facing different levels of vulnerability and transport dependence.

2.3.3 GEOGRAPHIC PROFILES VISUALIZING REGIONAL DISPARITIES.

Figure 1 and Figure 2 from STATEC highlight regional disparities in income levels and commuting patterns across Luxembourg. By mapping monthly salaries (STATEC, 2025) and the share of residents working outside their municipality (Ferro et al., 2021), the analysis reveals spatial inequalities that influence both economic opportunity and daily mobility demand.

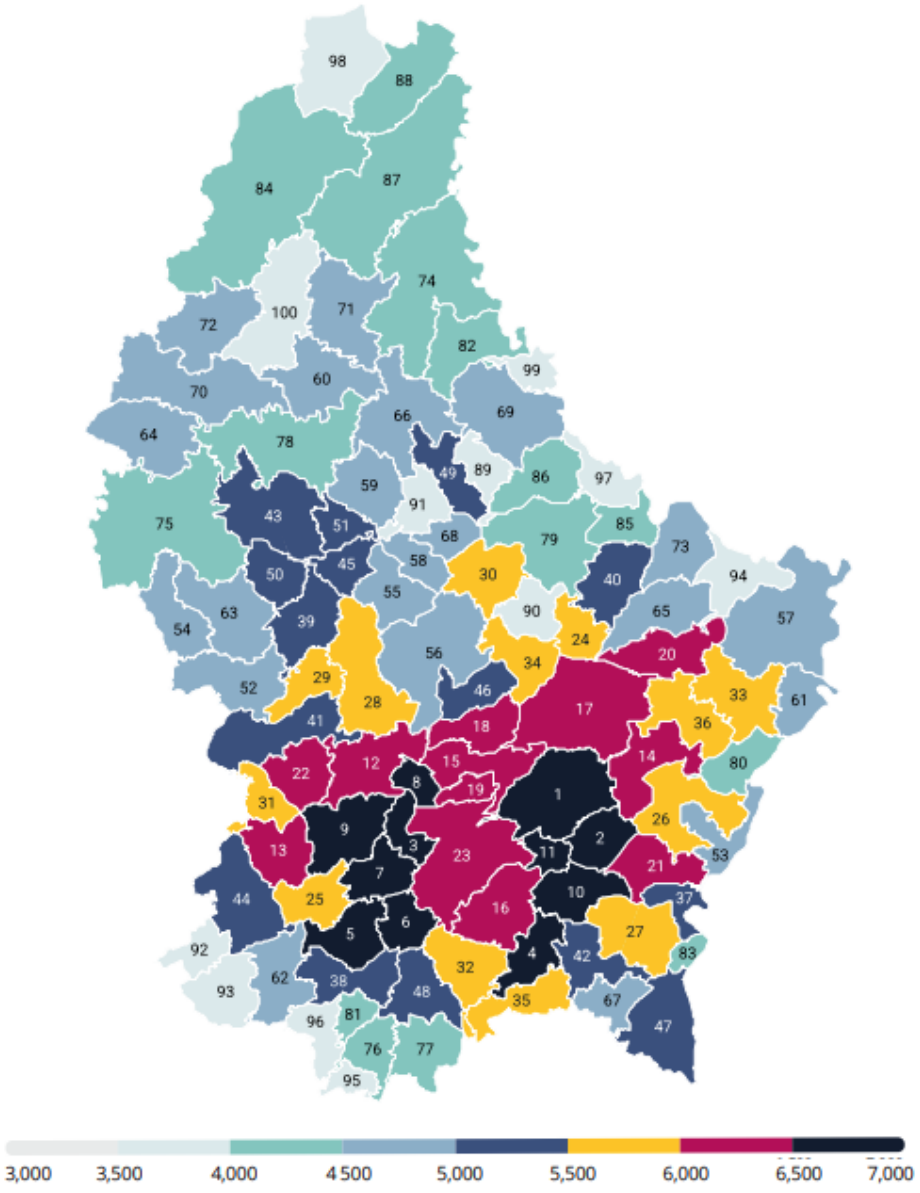

Figure 1 - Monthly average salaries by municipality in 2024 (Source: STATEC 2025, Luxembourg in figures)

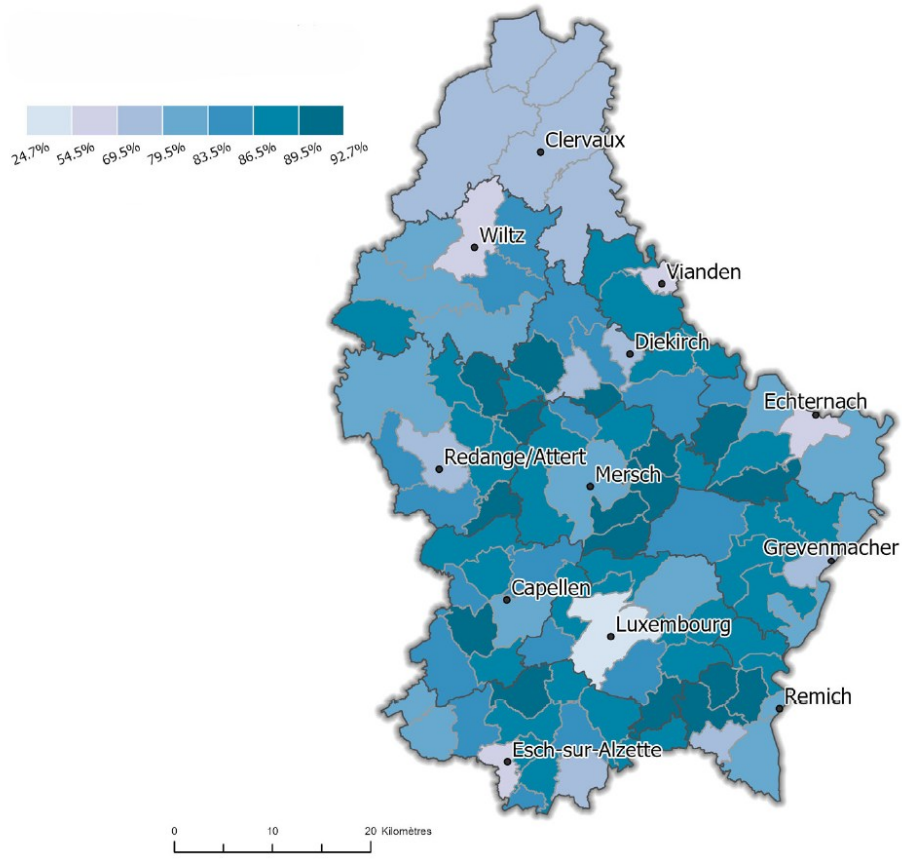

Figure 2 - Percentage of residents working outside their municipality of residence by municipality in 2021 (Source: Ferro et al., 2021, une polarisation croissante des déplacements domicile-travail au Luxembourg)

The data show that in most municipalities, particularly outside Luxembourg City, a large share of residents work in a different municipality from where they live. This pattern highlights the prevalence of inter-municipal commuting across the country but does not, on its own, indicate commute distance or direction. To draw conclusions about long-distance commuting or income-related mobility constraints, additional sources would need to be referenced. Combined with lower average salaries in these areas, this pattern underscores the importance of targeting mobility support measures, such as social car leasing, towards regions where income constraints and long-distance commuting reinforce mobility poverty.

When using income thresholds as the primary criterion, one can reasonably assume that the target group will predominantly include households living in remote or peri-urban areas and a high share of persons working outside their municipality of residence. In that sense, an income-based criterion already captures households with a high likelihood of transport poverty without the need to introduce additional location or commuting-based conditions. Most residents commute short distances on average, but in certain lower-

income regions long commuting is structurally common and materially relevant for transport poverty risk.

2.4 Household counts by segment detailing size, income, location, car ownership, and transport needs.

2.4.1 Household type counts by segment in numbers - Income level

According to STATEC, in 2024, 18,1 % of the population live below the at-risk-of-poverty threshold, while the average standard of living stands at € 4.867 (Ametepe et al., 2025). Given an average household size of 2,2 persons, this corresponds to roughly 55.287 households affected by income vulnerability. Data from the Fonds National de Solidarité (FNS) show that around 30.540 households received the Prime Énergie in 2024, while 10.680 households benefited from the Revenu d'Inclusion Sociale (REVIS) (FNS, 2025). These figures illustrate the scale of income-related vulnerability and the importance of targeted support measures for low-income households.

Taken together, the figures confirm that a substantial share of households faces income vulnerability at a scale large enough to justify targeted instruments such as subsidised social leasing.

2.4.2 Household type counts by segment in numbers - Family size

According to STATEC's 2021 census data, certain household types experience disproportionately high transport costs and lower per-capita income (STATEC, 2021). These include single-parent families, particularly single mothers with dependent children (19.414 households) and single fathers (5.826 households), as well as large households with five or more members (over 15.000 households) (Chauvel & Le Bihan). These groups represent a significant share of the population facing heightened vulnerability to both income and mobility poverty. Those groups (40.240 households) are more vulnerable to transport poverty and should be prioritized in social leasing schemes to improve access to affordable and reliable mobility (STATEC, 2025).

The numbers show that single-parent and large households form a sizeable and systematically more vulnerable segment where income constraints intersect with higher transport cost exposure, making them primary candidates for prioritisation in a social leasing scheme.

2.4.3 Household type counts by segment in numbers - Transport needs

According to STATEC, 259.000 residents are working in Luxembourg (STATEC, 2025). A complementary STATEC study shows that, travel-to-work patterns show a strong concentration of short commutes. Roughly a total of 129.456 people travel less than 20 km to work, while 26.365 commute medium distances of 20 to 50 km, and 677 travel more than 50 km. For roughly 47.182 individuals, the commuting distance was not specified. These figures highlight that most employed residents work relatively close to home,

though a notable minority face longer travel requirements that can increase transport costs and time burdens (Ferro et al., 2021).

The evidence indicates that most residents work near their place of living while a smaller but relevant segment faces longer commutes that raise both time and cost pressures. Most residents commute short distances on average, but in certain lower-income regions long commuting is structurally common and materially relevant for transport poverty risk.

2.4.4 Household type counts by segment in numbers - Area type

Luxembourg's 2024 demographic distribution from STATEC shows clear contrasts between urban, peri-urban, and rural areas. The urban zone, made up of 23 communes, is home to 384.714 residents and has a high population density of 853 inhabitants per km^2. The Agglo-Lux belt, comprising 30 communes surrounding the capital's agglomeration, hosts 136.893 people with a medium density of 229 inhabitants per km^2. The rural area, consisting of 47 communes, includes 150.443 residents living at a low density of 128 inhabitants per km^2 (Ferro et al., 2021).

Most of the population resides in urban areas, where density and infrastructure concentration shape daily mobility. In contrast, rural areas are sparsely populated, with longer travel distances and higher car dependency. For this study, attention is directed toward the rural area type, which represents 150.443 residents, or approximately 68.383 households, where transport accessibility challenges are most pronounced.

Taken together, the data confirm that while most residents live in dense urban zones with infrastructure nearby, rural households, about 68.000 in number, face structurally higher car dependency and more pronounced transport accessibility constraints.

2.4.5 Household type counts by segment in numbers - Car ownership

According to fleet data (2024) received from the SNCA there are 460.959 registered cars in Luxembourg. Of these 360.045 are held by private individuals and 100.914 by legal entities (SNCA 2025). According to STATEC around 86 percent of households own at least one car including company cars used for private purposes. The bulk of households fall into the one to two cars category. The precise split between one and two cars is not reported. Roughly 27.500 households own three or more cars. About one in seven households or around 35.000 households have no car access (STATEC, 2019).

The figures show that car ownership is the norm in Luxembourg and multi-car ownership is widespread, while a non-negligible minority of roughly one in seven households remains without access to a car.

2.4.6 HOUSEHOLD TYPE COUNTS BY SEGMENT IN NUMBERS - CONCLUSIONS

The following section quantifies the key household segments relevant for socio-economic and mobility vulnerability in Luxembourg using the most recent data from STATEC and FNS.

Table 1 - Count of households on different criteria

Segment	Variables	Household counts
Income level	Number of households having an income of less than € 2.382 (single-person household) per month (Ametepe, 2024)	54.428
	Number of households receiving social aid Prime Énergie (FNS, 2025)	30.540
	Number of people receiving allocation de vie chère (FNS, 2025)	15.286
	Number of households receiving REVIS (FNS, 2025)	10.680
Family size	Number of households vulnerable to transport poverty (STATEC, 2021) Single mothers with dependent children (19.414 households), and single fathers (5.826 households), as well as large households with 5 or more members (over 15.000 households).	40.240
Transport needs	Number of households affected by medium (Daily: 40-100km) and long (Daily: >100km) commuting distances (STATEC, 2025)	12.291
Area type	Number of households living in rural area type (Ferro et al., 2021)	68.383
Car ownership	Number of households owning 1 or 2 cars (STATEC, 2019)	187.744
	Number of households not owning a car (STATEC, 2019)	35.046

The figures give a clear indication of the potential size of the target group, but they do not allow attribution at individual household level. The data sets are separate and cannot be cross linked. For example, it is unknown which Prime Énergie recipients own a car or which single parent households live in rural areas or commute long distances. Therefore, the numbers frame the universe of potential beneficiaries but not the exact overlap of criteria across segments.

2.5 GENDER & MOBILITY-POVERTY ANALYSIS

According to European Institute for Gender Equality study of 2025, Luxembourg scores 63,9 points out of 100 in the Gender Equality Index, ranking 9th in the EU. The score has increased by 10,1 points since 2015 and by 4,6 points since 2020, indicating steady

improvement in gender equality over time, though historically it has performed below the EU average. However, in 2025, Luxembourg surpassed the EU average, with the scores showing that the distance from this benchmark is steadily reducing. Luxembourg demonstrates its best performance among EU domains in knowledge, achieving a high rank of 5th with a score of 61,9 points. This strong position is primarily driven by excellent results in the subdomain of attainment and participation, where it scores 84,7 points and ranks 5th in the EU. However, there is considerable room for improvement in the domain of money, where Luxembourg ranks 19th in the EU with a score of 73,7 points. This is largely attributed to its performance in financial resources (73,2 points, 22nd in the EU). On a positive note, the biggest improvement since 2020 has occurred in the domain of power, which has risen by 9,7 points. This growth is mainly due to advancements in the subdomains of economic power (+10,1 points) and social power (+9,5 points). (European Institute for Gender Equality, 2025).

According to STATEC, the female employment rate continued to rise, reaching 67,0% (compared to 66.8% in 2023). This development highlights a contrasting dynamic between genders, with continued growth in female employment alongside a decline in male employment. Calculated based on median gross hourly wages, the gender pay gap is in favour of women, as the gap reaches -11,2%, whereas elsewhere in Europe pay gaps generally favour men, with the notable exceptions of Malta and Bulgaria. The gap is mainly explained by their significantly higher median wages compared with those in other European countries, while men's median wages remain lower than those observed, for example, in Germany (Labor Market and Education Unit, 2025).

Survey data from the European Investment Bank show that 56 percent of women in Luxembourg consider giving up a car to be the hardest climate-related behavioural change (EIB Group, 2022). This is linked to safety concerns on public transport and to caregiving obligations. European evidence further shows that women undertake complex chained trip patterns more frequently than men and are about 25 percent more likely to trip-chain with the share rising to 39 percent in households with older children (SteerDot, 2022).

This combination of lower income higher caregiving responsibilities safety constraints and complex mobility patterns indicates that gender might be a structural driver of mobility poverty in Luxembourg. Eligibility rules should not assume access to reliable or safe public transport as a substitute for car use in rural or care-intensive settings and distance or usage thresholds may need to be relaxed for applicants with caregiving obligations. Taking these factors into account does not require separate eligibility criteria, but rather avoiding additional mobility-based filters that could disproportionately exclude care-intensive households.

Gender-linked income gaps, care obligations and mode constraints make women-led single-parent households a structurally high-risk group for mobility poverty and justify their explicit prioritisation beyond income alone.

At the same time, the available evidence also suggests that gender should not be treated as the only or automatically dominant vulnerability marker in Luxembourg. In particular, in chapter 2 and chapter 2.2. highlight that poverty risk is strongly influenced by family composition and that "particularly vulnerable" groups include young people living alone, people with a low level of education, the unemployed and single-parent families. This means that the scheme's targeting logic should remain multi-dimensional: gender-sensitive design is important because it helps explain specific mobility constraints (care-related trip patterns, safety constraints), but eligibility and prioritisation should ultimately be calibrated against the broader set of demographic and household-composition vulnerabilities identified in the segmentation work, rather than assuming that gender can be operationalised as a stand-alone proxy for transport poverty in Luxembourg.

2.6 Trip-Distance Analysis -Trip-Distance Profile Report

2.6.1 Travel distance by purpose and model share by distance category

According to the Plan National de Mobilité 2035 (PNM 2035), trips related to work and studies represent the largest share of daily mobility, accounting for 58% of all trips. The document further shows that mobility in Luxembourg is characterised by short distances: 54% of trips made by residents are shorter than 5 km, and 78% are shorter than 15 km. This applies in particular to commuting, as 69% of trips between home and place of study and 49% of home–work trips are under 5 km. Overall, the data underline that a significant share of daily travel by residents takes place over short distances and is strongly linked to commuting patterns (Luxembourg Government, 2025).

The distribution of trip lengths and the stable high share of individual motorised transport across distance bands confirm a strong dependence on private cars for daily mobility. This reliance is most pronounced for commutes beyond walking range and forms a structural backdrop when assessing the potential role of social car leasing as a mitigation instrument. The data also show that even for these short distances, private cars remain the dominant mode. This pattern suggests that a large share of car trips could, in principle, be shifted to active mobility or public transport, where conditions allow. At the same time, it highlights a broader structural reliance on individual motorised mobility that goes beyond trip length alone. In this sense, the results provide important behavioural context for the analysis of mobility-support measures, without indicating that short-distance travel patterns alone justify social car leasing.

2.6.2 AUTOMOBILE DEPENDENCE FOR COMMUTING TO AND FROM WORK

Luxembourg counted 259.000 employed residents in 2024 (Statec 2025b). According to STATEC, employed residents in Luxembourg show three distinct commuting profiles (Ferro et al., 2021).

A first group uses predominantly sustainable modes. About one third of their trips are by public transport and another third by walking or cycling. Only 36,3 percent rely on the car. This group is mainly foreign-born highly educated and urban and tends to live close to the workplace.

A second group reflects the national average. About 72,4 percent commute by car alongside some use of public transport and active modes. These are typically two to four person households in smaller towns with mixed mode choices.

A third group is predominantly car-based. Here 88,1 percent commute by private car while public transport and active modes are marginal. This group is mostly Luxembourg-born with a high share employed in public administration and typically travels longer distances. Despite more localised patterns their mobility remains heavily car dependent.

According to the 2021 population census (RP2021), daily mobility in Luxembourg continues to show a high level of car dependency. In 2021, 69 % of all employed residents used a car to commute to work, despite improvements in public transport and the introduction of free fares. Public transport accounted for 17,6 % of main commuting modes, while active mobility (walking and cycling) reached 12,7 %. Even for short trips below 5 km, almost half of workers relied on a car. These 2021 results underline that commuting patterns in Luxembourg remain structurally shaped by automobile use. Overall, the three profiles and the 2021 census data show that, despite contextual differences, commuting in Luxembourg remains strongly car dependent. Sustainable modes are concentrated in specific urban areas, while 69 percent of workers still travel by car, confirming a persistent structural reliance on motorised mobility (Ferro et al., 2021).

2.6.3 GEOGRAPHIC FACTORS INFLUENCING COMMUTING TO AND FROM WORK

The RP2021 typology, illustrated in the map below (figure 3), makes clear that commuting behaviour in Luxembourg follows a strong geographic pattern. In and around Luxembourg City, as well as close to major rail stations, residents have the best access to dense services and frequent public transport. These areas form the sustainable-mobility cluster and show the highest shares of walking, cycling and public transport.

Outside this core, most residents live in mid-density areas with more mixed conditions. Here, car use already dominates, even though public transport and active modes remain present. This group represents most of the population and reflects the typical commuting situation for many households.

The third group is found mainly in rural and peripheral municipalities, especially in the North or farther from main transport corridors. In these areas, distances are longer and public transport is considerably less competitive in terms of speed and flexibility. As a result, commuting is overwhelmingly car-based (Ferro et al., 2021).

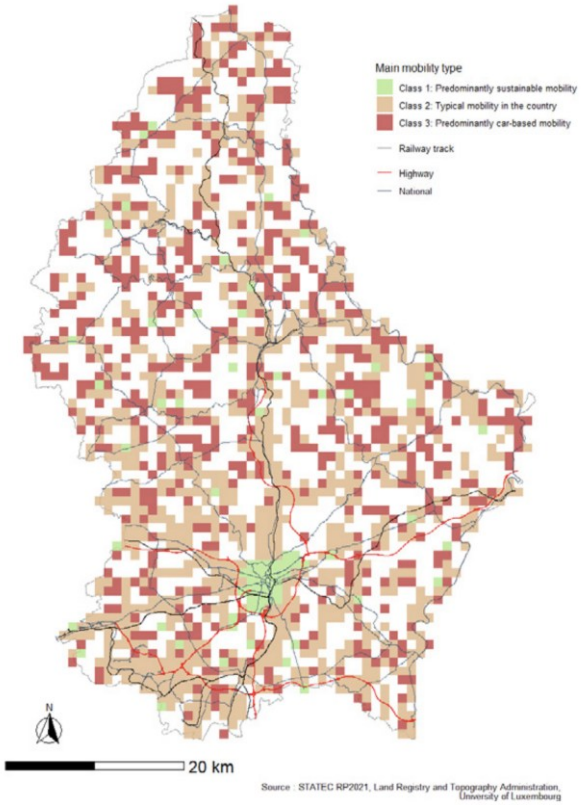

Figure 3 - Clustering of residential cells by main mode of transport to work to get to work. (Source: Statec, 2021)

In essence, the typology illustrates that where people live, strongly determines how they travel. Urban locations with dense networks support sustainable mobility, while rural and peripheral areas structurally favour car use because alternative modes are less practical or efficient.

2.6.4 Daily-distance (one way) distribution of households making short, medium, and long daily trips.

STATEC census data analysed by Ferro et al. show that commuting distances in Luxembourg are predominantly short. Based on declared one-way distances (N = 172.357 employed residents with valid responses and a known Luxembourg commune of work), 70% live within 20 km of their workplace, 86,9% within 30 km, and 94,4% within 40 km. Overall, the distribution indicates that daily commuting is dominated by short-distance trips (Ferro et al., 2021).

These averages reflect overall mobility patterns and do not describe the specific situations or constraints of different household groups. The results should therefore be seen as general context rather than as a direct indication of mobility needs for targeted support measures.

When describing mobility patterns based on average commuting and daytime travel statistics, it is important to note that these aggregates systematically under-represent non-standard users such as shift workers, split-shift workers, night-time employees, and care-duty households whose travel occurs outside the time windows and service conditions assumed in standard mobility planning and thus face structurally higher constraints that are not visible in headline indicators.

2.6.5 Vehicle-Range Requirement Matrix

Based on the analysis of the chapter 5. Vehicle market and eligible vehicles section, we conclude that the dominant mobility patterns in Luxembourg where most daily trips are short and medium distance. For many households, the technical capabilities of these BEVs are sufficient for typical work and daily mobility needs.

The combined price-range envelope of these BEVs matches observed mobility demand, indicating that technical suitability is not a barrier for most households in the relevant segment.

2.7 Car-sharing in Luxembourg

Public car sharing services operate in 36 communes across Luxembourg. Two operators are active. Carloh maintains 25 stations exclusively in Luxembourg City while Flex operates 81 stations in the capital and in other communes. The combined fleet comprises about 205 vehicles of which 45 belong to Carloh and about 160 to Flex. The fleet mix includes 93 medium sized cars 54 small cars and 10 larger vehicles such as SUVs and transporters. There are 48 electric vehicles in the fleet. Of these 31 are large vehicles and 17 are small vehicles, Flex is operated by CFL Mobility S.A., a subsidiary of the state-owned national railway company CFL, while Carloh is provided by Carsharing Luxembourg S.A., which is 97% owned by the City of Luxembourg. Recent public announcements highlight that Carloh will be integrated into the Flex system, which will consolidate car sharing availability under a single network. The integration of the Carloh cars into the Flex system will begin at the end of 2025 (Carloh, 2025; Flex, 2025).

The car sharing network is concentrated in a small set of urban communes. Luxembourg City alone accounts for 76 vehicles or about 38 percent of the fleet and offers the full range of vehicle types including most of the electric vehicles. Other communes with notable coverage include Esch sur Alzette, Hesperange, Bertrange, Mersch, and Mamer. Electric vehicles are mainly deployed in the capital and medium and large vehicles are also concentrated in urban centres. Several high population communes such as

Differdange, Dudelange and Pétange have comparatively weak coverage. Some active communes including Bettembourg have no electric vehicles at all. Large parts of rural northern and western Luxembourg and the Moselle corridor have no car sharing presence despite known exposure to transport poverty.

The distribution shows that car sharing coverage is urban and capital-centric with limited or no presence in the rural corridors most exposed to transport poverty, making it an insufficient substitute for private car access in those areas.

Car sharing in Luxembourg is designed as an occasional-use, station-based service concentrated in urban areas. The target group for social car leasing, however, requires reliable daily access in locations and time windows where car sharing is not present or not functional.

Social car leasing thus fulfils a structurally different mobility need and should be seen as complementary to, rather than a replacement for, the existing car sharing offer. It provides continuity, predictability and guaranteed availability, conditions that car sharing, by design, cannot systematically ensure outside dense urban environments. In this sense, both instruments serve distinct user groups and mobility purposes while jointly contributing to a more inclusive mobility ecosystem.

3 ELIGIBILITY CRITERIA FOR THE HOUSEHOLDS

3.1 INTRODUCTION

Several approaches can be used to define eligibility for a social car leasing scheme. One option is to align income ceilings with existing state instruments such as “Allocation de vie chère” and “Prime Énergie”. This lever maintains coherence with current social policy and avoids building a parallel system. A second lever is transport need. Because EU rules prohibit geographic targeting the need can be captured through neutral tests such as minimum home to work distance or a minimum annual mileage. This links access to demonstrable mobility demand rather than to where a household lives. These rules apply both when a Member State seeks EU funding and when it subsidises a measure from its national budget.

A further design option is to introduce a vulnerability factor that adjusts the income ceiling for households facing structural disadvantages. This would capture cases where income alone underestimates constraint such as single parent households’ older persons disability or recently arrived migrants. A fourth lever is sustainability targeting which would tie eligibility to the replacement of high emission or older vehicles to maximise climate impact per subsidised lease. Administrative feasibility sets the baseline conditions. Applicants must be resident recorded in the RNPP (A central administrative population register managed by the Luxembourg state) at their declared address for a defined minimum period and meet the income and transport tests. A rule excluding households that already own an electric vehicle ensures that the measure promotes first time access.

Taken together these levers can be combined or weighted differently depending on policy priorities. The following use cases illustrate how different target groups would be affected under alternative settings of this lever.

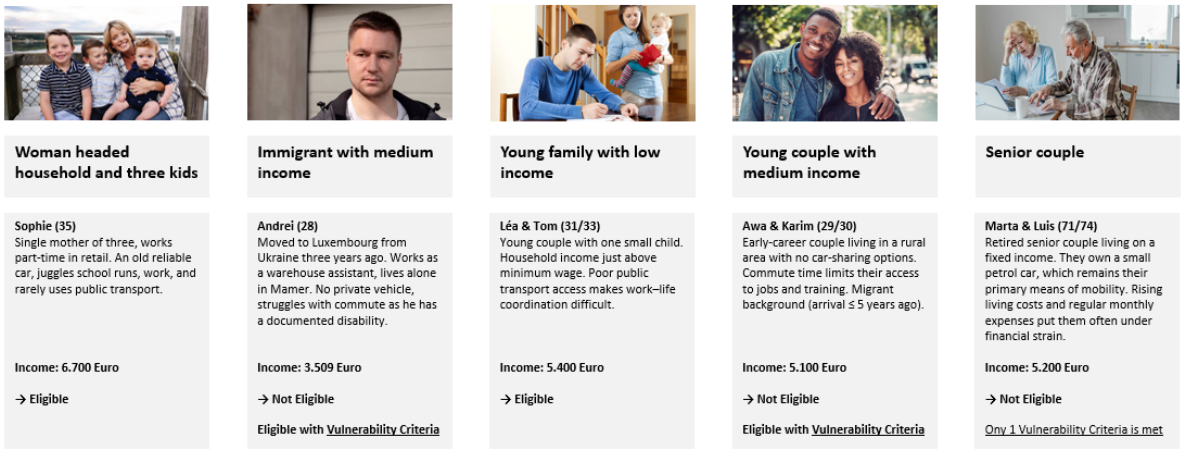

Figure 4 - Overview of selected household clusters (Source: LuxMobility)

The section shows that eligibility design is a choice between four levers, income, transport need, vulnerability adjustment, and vehicle replacement, and that administrative rules form the hard floor, while the vulnerability lever is the flexible dial that can either narrow or widen access depending on policy intent.

In a dedicated co-design workshop with key social actors such as Entente des offices sociaux, Office social Dudelange, FEDAS, Chambre des Salariés, Mouvement écologique and LISER, the project team presented the main research findings and worked with participants to translate them into concrete implications for the draft eligibility framework and scheme design. Stakeholders underlined that many vulnerable households cannot charge at home because they rent and do not control a private parking space, which makes affordable access to public charging, and, where feasible, a strong link to car-sharing, important complementary measures, provided these services are available close to where target households live. They noted that, for the target group, reliability and total monthly cost matter more than environmental arguments, and that while some hesitation towards BEVs exists, it does not appear to be a major barrier. The discussion also emphasised that vehicle size and range should reflect real household circumstances and caregiving-related trip needs. Finally, participants called for a scheme that is simple, transparent and non-stigmatising, with minimal administrative burden: overly demanding proof requirements can discourage precisely those most in need, and pricing should be structured to ensure genuine savings compared to current ICE costs, rather than creating a new financial burden. It was also highlighted that a new "guichet social unique" could be an ideal instrument for outreach, sensitisation, and managing applications for social car leasing. Comparative lessons from France and Sweden's social electric leasing models

3.1.1 Social Leasing in France

France's social electric leasing programme ("leasing social") is a demand-side support measure designed to improve access to battery-electric vehicles for modest-income households while contributing to national climate and air-quality objectives. The scheme was first launched in early 2024 and, following the rapid exhaustion of the initial budget, was renewed under a revised framework starting on 30 September 2025.

The programme allows eligible households to lease a new battery-electric passenger car under a long-term leasing contract (long-term lease or lease with purchase option) with a minimum duration of three years. Monthly lease payments are capped at €200 including VAT, excluding optional services, and participating leasing companies are required to offer at least one eligible model with a monthly rent of €140 or less, significantly lowering the upfront cost barrier to electric vehicle access.

In contrast to the 2024 edition, which was financed through a dedicated state budget envelope, the 2025 scheme is funded via France's Energy Savings Certificate (Certificats

d'Économies d'Énergie - CEE) mechanism, whereby obligated energy suppliers contribute to the subsidy. The public support provided through this mechanism amounts to up to €7.000 per vehicle, representing roughly one quarter of the vehicle's purchase price including VAT. Only new, fully electric vehicles (BEV) registered in France are eligible, subject to a maximum purchase price of €47.000 including VAT and compliance with a minimum environmental performance score defined by the French authorities.

Eligibility for the 2025 programme is restricted to adult applicants legally resident in France whose Revenu Fiscal de Référence per tax part does not exceed €16.300. In addition, applicants must demonstrate a clear mobility need, either by commuting more than 15 kilometres each way between home and workplace using a personal vehicle, or by driving more than 8.000 kilometres per year for professional purposes. Beneficiaries of the 2024 social leasing scheme are explicitly excluded from the 2025 programme, and the aid is not cumulative with the ecological bonus or other overlapping vehicle purchase subsidies.

The 2025 framework also introduces a territorial prioritisation element: at least 5.000 vehicles are reserved for residents or workers in low-emission zones (Zones à Faibles Émissions - ZFE) or municipalities where air-quality objectives justify reinforced support for clean vehicles.

3.1.2 Social Leasing in Sweden

Sweden's planned model, scheduled for introduction in 2026, is based on the current draft design and has not yet been finalised (European Commission, 2025). According to this draft, eligibility is shaped by geographic and social targeting. The core condition limits participation to households earning no more than eighty percent of the national median income. Beneficiaries must reside in one of the rural municipalities identified as having poor public transport coverage. The scheme provides an up to SEK 1,500 per month subsidy per eligible household (≈ €130) for 36 months, corresponding to up to about €4,700 over the full period. The support can be used to lease or purchase a new or used electric car. To prevent excessive subsidization, the total lease cost may not exceed around four thousand seven hundred kronor per month. Applicants must not already own a fully electric car and must use the vehicle primarily for daily commuting. The Swedish framework foresees an annual verification of continued eligibility and a gradual reduction of subsidy levels after 2028, signalling that the measure is transitional and subject to evaluation. Financing is shared between the national budget and the European Union's Social Climate Fund, linking the scheme to the broader European objective of a just energy transition.

3.1.3 Comparison France and Sweden

The comparison between France and Sweden highlights two distinct ways of operationalising "social eligibility" for cleaner mobility. France relies on a tightly specified

framework combining an income threshold (reference tax income per tax part), a demonstrated mobility need, and eligibility limited to new battery-electric vehicles that meet a minimum environmental score. The 2025 edition also adds a territorial prioritisation element by reserving a defined share of vehicles for applicants who live or work in low-emission zones (ZFE). Sweden, by contrast, centres eligibility on relative income (as a share of the national median) and residence in rural areas with limited public transport and delivers support as a household-level monthly subsidy for up to three years that can be used to lease or purchase a new or used battery-electric vehicle.

Both approaches include environmental safeguards by restricting support to zero-emission vehicles and conditioning access on additional requirements (e.g., vehicle performance criteria in France).

In terms of the impact on what households pay, the two instruments work differently. France is explicitly designed to bring lease offers below €200 per month (with at least one offer at €140 or less per participating lessor), meaning the benefit is directly translated into an affordability outcome at the point of sale. Sweden's draft model, as endorsed at EU level, provides up to SEK 1,300 per month per household (≈ €120) for up to 36 months; the reduction in monthly out-of-pocket cost therefore depends on the underlying lease or financing price that households face. On that basis, and purely in terms of predictable monthly affordability, the French model is likely to exert a stronger and more immediately visible downward effect on monthly costs, while the Swedish model offers broader flexibility (lease or purchase, new or used) but with a less certain final monthly price outcome.

3.2 THE ELIGIBILITY FRAMEWORK ADVISED TO THE MINISTRIES

As defined by STATEC and discussed in Chapter 2, around 18,1% of Luxembourg's population is at risk of poverty, corresponding to roughly 56.000 households.

Anchoring the eligibility design in the Prime Énergie income thresholds rather than in stricter instruments such as Allocation de vie chère is supported by both scale and relevance of the segment. The Prime Énergie income ceiling covers an estimated around 30.540 households, i.e., vulnerable households that actively applied for government support.

This level is wide enough to capture the population structurally most exposed to transport poverty, while not extending eligibility to the general middle-income group. Choosing this ceiling also helps ensure the indirect inclusion of profiles that repeatedly emerge in the socio-economic analysis in Chapter 2, such as single-parent households, large households, and households combining low income with high structural mobility need, without the need to explicitly enumerate each vulnerable group in the legal rules, which would add rigidity and exclusionary effects.

No additional criteria were applied beyond income. There is no distance test, no mileage proof, no current-car-ownership condition, no exclusion of existing EV owners, and no geographic targeting. This configuration follows directly from the identified constraints in the data and in the legal framework.

- First, vulnerability is not spatially uniform in Luxembourg. While northern and western municipal belts show elevated cumulative risk, EU state aid rules prohibit explicit location-based targeting.
- Second, transport need is multi-causal and difficult to document without increasing administrative burden. Requiring proof of distance, trip frequency, vehicle state, or impossibility of public transport would create exclusion by procedural friction, disproportionately affecting precisely the groups the measure is intended to reach.
- Third, excluding households with an existing car or EV would unintentionally penalise those who have already shouldered mobility or decarbonisation costs under constraint, and would bias access towards late adopters with fewer current burdens.

The selected configuration is also consistent with the financial logic of the scheme. The subsidised lease price point is as well as possible calibrated to be neither extremely low nor equivalent to full market leasing. However, it is necessary to evaluate and update over time to make the calibration more precise during implementation, including a pilot phase before a roll out during the SCF funding period.

The recommended approach creates a structural self-selection: households without a genuine mobility need have no incentive to participate, while households with latent need but binding liquidity constraints gain a viable entry point. This implicit screening reduces windfall gains and ensures that fiscal resources are directed towards functionally justified use rather than discretionary convenience.

This design choice is fully aligned with the outcomes of the stakeholder workshops, where representatives from the social sector explicitly confirmed that an income-anchored single-gate model best reflects the lived constraints of vulnerable households and avoids exclusion through auxiliary criteria.

Taken together, the adopted single-gate income rule meets all core requirements simultaneously: it reaches the empirically relevant vulnerable group at workable scale, it respects legal and administrative constraints, it avoids hidden screening barriers that depress take-up in exactly the risk segment, and it is aligned with the price architecture that already filters for real mobility need. On this basis the chosen configuration is the most targeted, feasible and proportionate option for a first-generation social car leasing scheme for Luxembourg.

We recommend positioning the programme primarily as a green mobility measure. While social eligibility rules determine access, public communication should focus on the environmental transition and the scheme's climate objectives to support broad acceptance and reinforce its policy rationale.

3.3 Operationalised eligibility criteria

The eligibility model is anchored in the Prime Énergie income thresholds to reach the documented vulnerable segment without extending support to middle-income groups. Income is used as a single gate, with no additional criteria on distance, mileage, car ownership or geography, reflecting legal limits, administrative feasibility and the need to avoid excluding households already under constraint. This configuration is consistent with the scheme's price logic and was validated by social-sector stakeholders as the fairest and most workable option for a first implementation in Luxembourg.

However, before implementation (2026) and during the timeline of the scheme (2027 - 2032) it is important to evaluate and adjust whenever necessary to calibrate and reach the results and objectives. These adjustments can be related to a change of subsidy per household or an adjustment on the eligibility criteria on income level or even additional criteria if necessary.

A household is eligible if its gross monthly income does not exceed the Prime Énergie income limits applicable to requests submitted after 01 May 2025. The ceiling increases with household size (FNS, 2025). For example, the ceiling is € 3.306 for a one-person household and rises to € 12.891 for a ten-person household.

	Prime énergie 2025					
Communauté	**Montant prime énergie**	**Limites de revenus bruts**	**Montant prime énergie réduite**	**Limites de revenus bruts**	**Limites de revenus bruts - prime énergie réduite**	
1 personne	600 €	3.305,50 €	300 €	3.437,72 €	3.437,73 €	3.462,71 €
2 personnes	750 €	4.958,25 €	375 €	5.156,58 €	5.156,59 €	5.187,82 €
3 personnes	900 €	5.949,90 €	450 €	6.187,90 €	6.187,91 €	6.225,39 €
4 personnes	1.050 €	6.941,56 €	525 €	7.219,22 €	7.219,23 €	7.262,96 €
5 personnes	1.200 €	7.933,21 €	600 €	8.250,54 €	8.250,55 €	8.300,53 €
6 personnes	1.200 €	8.924,86 €	600 €	9.281,85 €	9.281,86 €	9.331,84 €
7 personnes	1.200 €	9.916,51 €	600 €	10.313,17 €	10.313,18 €	10.363,16 €
8 personnes	1.200 €	10.908,16 €	600 €	11.344,49 €	11.344,50 €	11.394,48 €
9 personnes	1.200 €	11.899,81 €	600 €	12.375,81 €	12.375,82 €	12.425,80 €
10 personnes	1.200 €	12.891,46 €	600 €	13.407,12 €	13.407,13 €	13.457,11 €

Tableau valable à partir du **1.1.2025**

Figure 5 - Income ceiling Prime Énergie 2025 (Source: le Gouvernement du Grand-Duché de Luxembourg fonds national de solidarité)

3.4 Proposed general eligibility conditions (baseline alignment)

For the purpose of this evaluation, one workable baseline option is to align the social leasing eligibility framework with the general conditions already applied under the Prime Énergie scheme. This option is explored primarily for reasons of administrative simplicity, legal robustness and coherence with existing social support instruments.

Under this alignment option, households that already fulfil the general access conditions of Prime Énergie, as defined by the competent authorities, would in principle also satisfy the baseline eligibility conditions for social car leasing. In practice, this means that Prime Énergie beneficiaries would automatically meet these general conditions, without the need to duplicate verification procedures.

The relevant general conditions include, in particular, legal residence in Luxembourg, registration in the RNPP, effective residence at the declared address, a minimum uninterrupted residence period prior to application, and compliance with the applicable Prime Énergie household income ceiling. These conditions are not specific to social car leasing but stem directly from the Prime Énergie framework as set out on *guichet.lu* ("Who is concerned" and "Prerequisites").

3.4.1 Prime Énergie - excluded persons (reference framework)

In line with the Prime Énergie and Allocation de vie chère frameworks, certain categories of persons are excluded from eligibility under this baseline alignment option. These exclusions are referenced here for transparency and completeness, as they would apply indirectly if Prime Énergie conditions are used as a baseline.

The exclusions include, in particular:

- persons who have received state financial aid for higher education within the last 12 months;
- EU citizens enrolled as students without sufficient resources or health insurance;
- third-country nationals admitted as students, trainees, volunteers or au pairs;
- persons in pre-trial detention or serving a prison sentence, except in cases of semi-liberty.

These exclusions are not newly defined for social car leasing but derive directly from the Prime Énergie eligibility framework as published on guichet.lu (Allocation de vie chère - eligibility and prerequisites).

3.4.2 Income determination (baseline alignment with Prime Énergie)

For the purpose of this evaluation, and in line with the Prime Énergie framework, gross monthly household income is determined as the average of the two lowest gross monthly incomes received by members of the domestic community during the three-month reference period preceding the application (as defined on *guichet.lu* under the Prime Énergie / Allocation de vie chère income assessment rules). The gross monthly household income is calculated as the average of the two lowest gross monthly incomes received within the domestic community during the three-month reference period preceding the submission.

3.5 No additional criteria advised at this stage

Based on the assessment carried out in this study, and within the context of a possible first phase of a social car leasing scheme in Luxembourg, it would be advisable not to introduce additional eligibility conditions beyond the income-based framework described above. The analysis indicates that adding further criteria at this stage would be unlikely to improve targeting, while potentially increasing administrative complexity and the risk of excluding households that are already under financial or mobility-related pressure.

In particular, criteria such as travel distance, annual mileage, current vehicle ownership or geographic location do not consistently reflect the actual constraints households face in their daily mobility. Moreover, verifying such criteria would require additional data collection and checks, which could complicate implementation and reduce accessibility. For these reasons, and in line with considerations of legal robustness, administrative feasibility and proportionality, the assessment therefore suggests refraining from the introduction of additional conditions at this stage.

Accordingly, the following conditions are not advised as part of the baseline eligibility framework:

- no distance-to-work criterion;
- no mileage or usage requirement;
- no condition related to current car ownership;
- no exclusion of households already owning an electric vehicle;
- no geographic targeting.

At the same time, the assessment underlines the importance of establishing a structured framework for monitoring and evaluation before and during the roll-out of the scheme. Such a framework would allow the competent authorities to review outcomes and, where necessary, adjust eligibility parameters or subsidy levels over time in order to better align the scheme with its objectives.

4 VEHICLE MARKET AND ELIGIBLE VEHICLES

4.1 PURPOSE AND OVERVIEW

The purpose of this chapter is to define which types of battery electric vehicles (BEVs) could realistically be included in Luxembourg's social leasing scheme and to establish the technical, market, and policy principles guiding that selection. The chapter identifies the vehicle characteristics that best support the programme's dual objective: enabling affordable mobility for low-income households and accelerating the transition to zero-emission transport.

The analysis draws on data from national and European BEV markets, consultations with the automotive and leasing industries, and some first impressions from comparable initiatives such as the French and Swedish social leasing models. It also integrates feedback from Luxembourg stakeholders, including leasing companies, financial institutions, the House of Automobile, and regulatory authorities, gathered through targeted workshops and bilateral meetings (House of Automobile, Fedamo, Mobiz, Febiac, Ayvens, Axus Luxembourg, Leasys, etc.).

Luxembourg's car market has a number of structural characteristics that directly affect the feasibility of a social car leasing programme. The market is small and import-dependent, with most new vehicles supplied through corporate and cross-border leasing channels. As a result, the domestic used-car market is relatively limited in both depth and diversity.

The current battery-electric vehicle (BEV) fleet in Luxembourg is dominated by larger vehicle segments, mainly C- and D-segment models (see Figure 7), and consists predominantly of very young vehicles (see Figure 8). Only a small share of BEVs in the fleet is older than three years, as many vehicles are re-exported following lease termination.

By contrast, A- and B-segment BEVs, which are most relevant for lower-income target groups, account for only around one quarter of the existing BEV fleet. Their share is expected to increase over time as more affordable models enter the European market from 2026 onwards. Until then, the limited domestic availability of affordable used BEVs remains a structural constraint, underlining the need for targeted measures to secure adequate supply within Luxembourg.

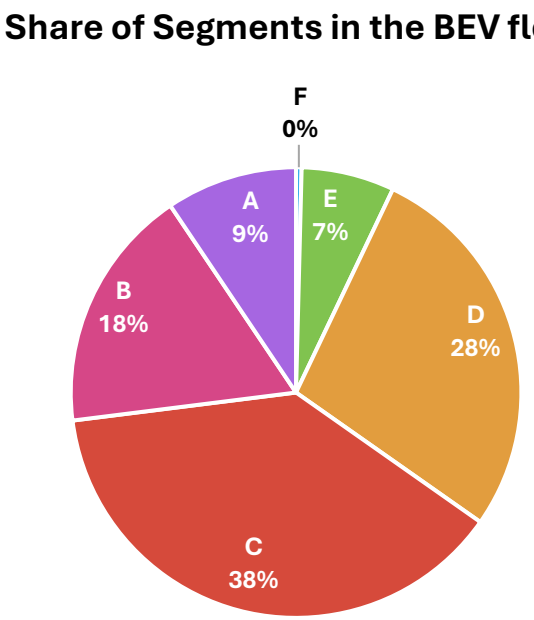

Figure 6 - Share of segments of the BEV fleet in Luxembourg. Source: Ministry of Transport, FIER (2025)

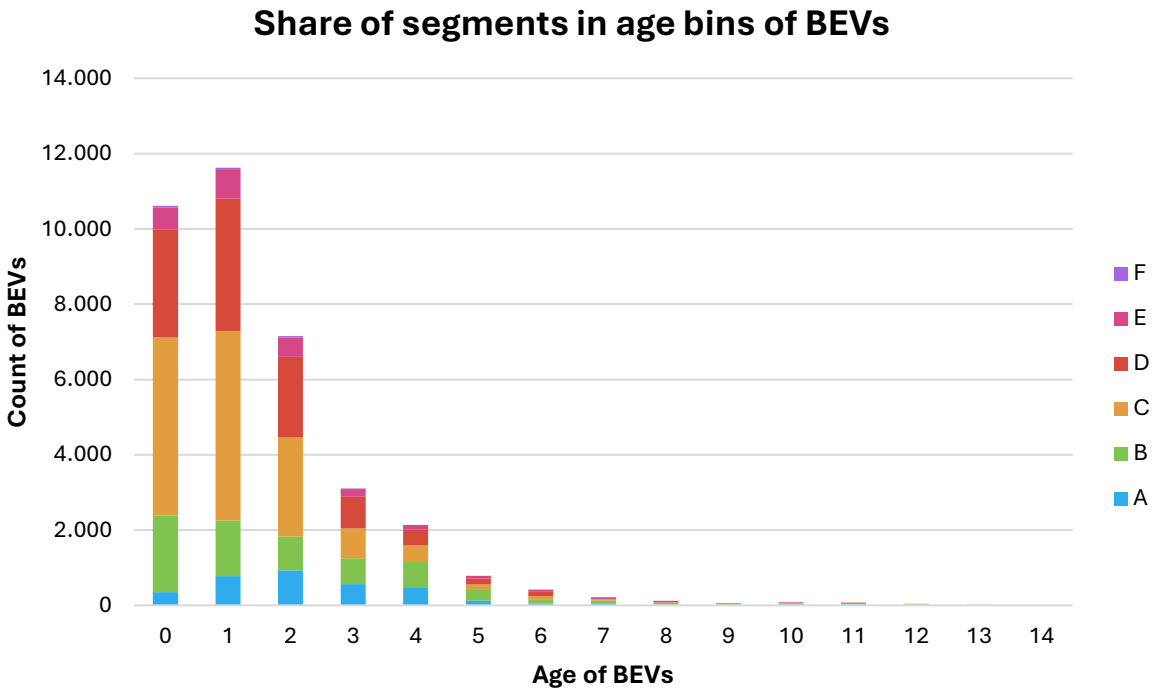

Figure 7 - Distribution of BEV segments by age groups. Source: EAFO, FIER (2025)

As of 2025, the national BEV fleet totals 38.609 M1 vehicles (passenger cars), growing at a rate of 11.000 to 13.000 new registrations per year. However, a large portion of the BEVs are expected to leave the country. Based on our analysis, there is a gap of 12.428 BEVs (28,5% of the current fleet) between the current fleet and cumulative registrations (new registrations 2019 – 2025: 50.602, source: Ministry of Transport, 2025).

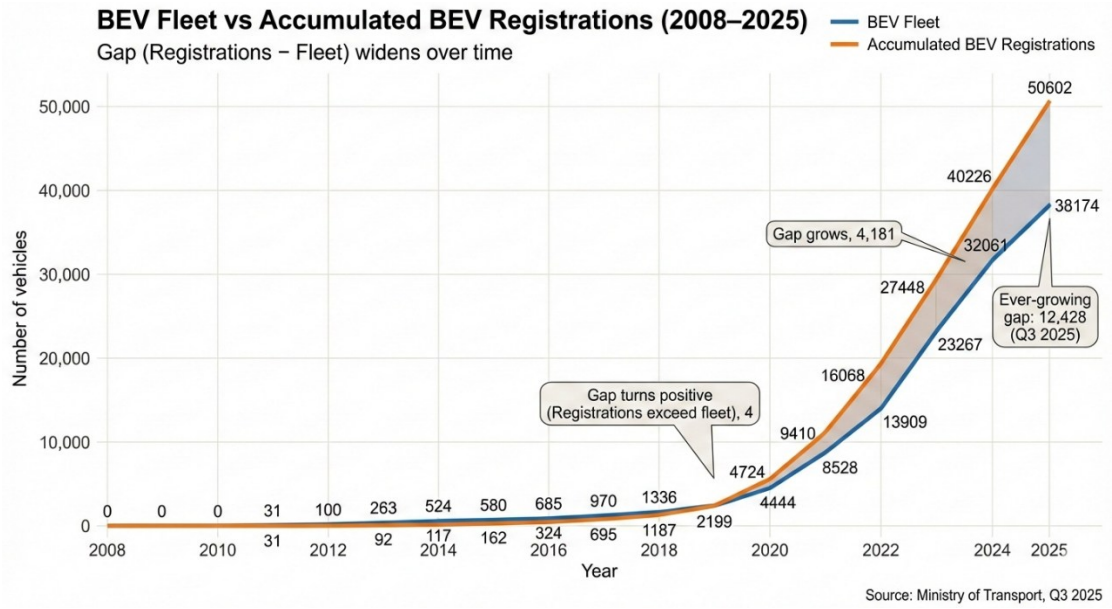

Figure 8 - Gap between BEV Fleet and Accumulated Registrations in Luxembourg.

This chapter sets the analytical and policy foundation for defining eligible vehicles in the social leasing scheme. The following sections examine:

- Principles for defining eligible vehicles: establishing affordability, efficiency, and functionality as guiding criteria;
- Specific criteria conditions: outlining detailed thresholds and exemptions;
- The role of used cars: assessing current and future potential for integrating second-hand BEVs;
- Vehicle availability and supply considerations: reviewing market capacity and supply strategies; and
- Policy recommendations: summarising key measures to ensure accessibility, cost-effectiveness, and long-term sustainability of the scheme.

Together, these elements provide a coherent framework for ensuring that vehicle selection under Luxembourg's social leasing programme is socially fair, economically viable, and consistent with national and European decarbonisation objectives.

4.2 PRINCIPLES FOR DEFINING ELIGIBLE VEHICLES

4.2.1 ISSUE IDENTIFICATION

Defining which BEV models qualify for a social leasing scheme is a central design issue. The choice must ensure affordability, efficiency, and usability for the target population while remaining transparent for market participants. Across Europe, vehicle segmentation systems (A, B, C segments) are inconsistently applied and interpreted differently by importers. The European Automobile Manufacturers Association (ACEA) defines in total 6 different segments for passenger cars. These segments are Small (A+B

segment), Lower medium (C-segment), Upper Medium (D-segment), Luxury (E+F segment), MPV and SUV. To avoid ambiguity in definitions, the scheme should instead rely on practical, market-based criteria that reflect real availability, cost and performance rather than formal segment categories.

Three guiding principles determine eligibility:

- Affordability: vehicles must fall within a realistic total cost range accessible to the programme's income groups, ensuring that mobility remains financially viable.
- Efficiency: models must demonstrate sound energy performance, expressed in Wh/km WLTP, to guarantee low running costs and climate impact.
- Functionality: vehicles must meet everyday mobility requirements, including sufficient real-world range and capacity for larger families when justified.

These criteria provide a simple, transparent framework that can evolve with the market and maintain alignment with social and environmental policy goals. The next paragraph we explain the details of the eligibility criteria we would like to recommend for eligibility of the vehicles within the social leasing scheme.

4.2.2 Recommended eligibility principles

The recommended eligibility principles translate the scheme's policy objectives, affordability, functional usability for everyday mobility, and low operating costs and risk for vulnerable households, into transparent, verifiable vehicle thresholds. The thresholds are derived from three practical considerations: (i) the binding constraint that the vehicle must fit within a maximum monthly costs for the eligible households (therefore buying price and residual value assumptions are decisive), (ii) the need to minimise running-cost exposure (therefore energy efficiency is prioritised as a direct driver of electricity expenditure), and (iii) minimum practicality requirements for households with limited charging options (therefore a baseline for DC charging capability and range is included). The criteria are designed to be technology- and brand-neutral, using EU-wide WLTP and type-approval parameters to ensure enforceability and to allow periodic updates as the market evolves.

The following criteria define which vehicles qualify under the social leasing scheme, ensuring affordability, functionality and efficiency.

- OEM scope: Open to any manufacturer to preserve competition and prevent distortions; compliance is ensured through EU safety and type-approval requirements rather than origin-based restrictions.
- Powertrain: BEV-only aligns the scheme with zero-emission objectives and avoids lock-in to transitional technologies that may not meet long-term climate targets.

- Energy efficiency & range: Efficiency thresholds are used as a proxy for predictable, low running costs; the minimum range ensures the vehicle remains usable across common trip needs without excessive reliance on costly fast charging.
- Charging performance: A minimum DC capability is included as a basic usability safeguard for households without guaranteed access to private AC charging, while recognising that the scheme's core charging principle remains overnight AC charging.
- Vehicle size / family suitability: Segment guidance balances cost containment with household needs; a conditional pathway for larger vehicles (e.g., ≥5-person households) avoids systematically excluding families while preventing a general shift to higher-cost segments.
- Affordability (buying price): The buying price threshold is not an end in itself, but a practical screen for whether vehicles can realistically meet the capped lease fee (see paragraph 8.6) once typical leasing cost drivers (depreciation/residual value, financing, insurance/maintenance) are applied; higher buying prices are therefore "unlikely to fit" rather than automatically excluded.
- Battery warranty: A minimum warranty requirement reduces the risk of unexpected costs and downtime and is set at standard market practice to avoid unduly restricting supply.

Table 2 - Vehicle eligibility criteria

Criterion	Policy rationale	Recommended threshold / condition
OEM scope	Ensure open, competitive market	No restriction on origin; any OEM meeting EU safety & type-approval standards
Powertrain	Support zero-emission mobility and align with SCF climate goals	BEV-only in total phase (2026–2032)
Energy efficiency & range	Guarantee operational economy and resilience of households to energy-price volatility	≤180 Wh/km (≤200 Wh/km and max. 150 kW) WLTP ≥250 km range WLTP
Charging performance	Ensure practicality for users without private parking	Minimum 40 kW DC charging capability
Vehicle size / family suitability	Address diverse household needs while keeping fleet cost-efficient	Considering A- and B-segments; possible C and D segment and 7-seaters for ≥5-person households, but no strict criteria on the segments.

Criterion	Policy rationale	Recommended threshold / condition
Affordability	Maximum buying price to ensure that vehicles in the scheme are affordable for eligible households	Vehicles exceeding € 38.000 buying price (€ 46.000 for 7-seaters) are not expected to fit in the capped monthly lease fee
Battery warranty	Reduce maintenance risk for vulnerable users	≥ 8 years / 160.000 km (standard market level)

4.2.3 Analytical approach

The snapshot below illustrates the analytical dashboard used to operationalise the recommended eligibility principles (price, efficiency/consumption, real-world range and battery warranty), and to test how many currently available BEV models would fall under different parameter settings. Applying these criteria yields a clear typology of eligible vehicles: predominantly small and compact BEVs (A–B segment and selected lower-priced C and D segment variants) with moderate battery sizes, comparatively low energy consumption, and standard market battery warranties (typically around 8 years / 160.000 km). This confirms that the criteria primarily capture the "affordable and efficient mass-market" end of the BEV supply, while systematically excluding heavier, higher-consumption and higher-priced vehicles that are unlikely to fit within a capped monthly lease fee.

In parallel, the resulting vehicle universe can be compared with the orientation of the Klimabonus, which similarly aims to steer demand toward efficient and affordable electrification (although the policy instrument and thresholds differ). The dashboard approach allows the Ministry to transparently assess how social leasing eligibility would align with, complement, or further target the vehicles supported under Klimabonus, without duplicating its logic one-to-one.

Overall, the criteria appear proportionate and workable. Under the current parameter settings shown in the dashboard, 38 BEV models fully meet the eligibility thresholds, while a further 76 models are close to meeting the combined conditions. The exact number varies as thresholds and weights are adjusted.

For internal analysis and sensitivity testing, the dashboard includes an MCDA-based weighting and ranking function. This tool was shared with the Ministry to support understanding of trade-offs and robustness, but it is not proposed as a formal eligibility mechanism. To preserve transparency and auditability, the scheme is therefore based on clear, standalone thresholds rather than a composite score.

The resulting list of eligible vehicles, together with the associated advisory considerations, is presented in the following section.

Vehicle_Make	Vehicle_Model	Vehicle_Model_Version	Price	Range	Consumption	Warranty	ChargeTime	Weighted Score
Leapmotor	T03		0,99455581	0,051546392	0,870967742	0,48	0,31372549	465959591
Citroen	e-C3		0,98308601	0,113402062	0,801075269	0,48	0,352941176	393871265
BYD	DOLPHIN SURF	43.2 kWh Boost	0,981236043	0,144329897	0,870967742	0,5	0,176470588	376977351
Hyundai	INSTER	Standard Range	0,983072796	0,113402062	0,908602151	0,48	0,137254902	372534321
Dongfeng	Box	42.3 kWh	0,982533663	0,113402062	0,887096774	0,5	0,37254902	372510311
Renault	5	E-Tech 40kWh 95hp	0,981236043	0,113402062	0,887096774	0,48	0,156862745	371534389
Hyundai	INSTER	Long Range	0,978580018	0,206185567	0,908602151	0,48	0,196078431	363174264
Fiat	Grande Panda		0,978593232	0,12371134	0,827956989	0,48	0,352941176	362734569
Citroen	e-C3	Aircross	0,974893297	0,082474227	0,747311828	0,48	0,352941176	328416679
Renault	5	E-Tech 40kWh 120hp	0,97330761	0,103092784	0,870967742	0,48	0,156862745	318672708
MG	MG4	Electric 51 kWh	0,961956737	0,206185567	0,822580645	0,425	0,529411765	260918681
MG	MG4	Electric 64 kWh	0,952706899	0,329896907	0,811827957	0,425	0,666666667	254420327
BYD	DOLPHIN	44.9 kWh Active	0,968021988	0,134020619	0,822580645	0,5	0,37254902	251538524
Renault	4	E-Tech 52kWh 150hp	0,960093556	0,237113402	0,844086022	0,48	0,254901961	247742608
Citroen	e-C4		0,954213301	0,175257732	0,860215054	0,48	0,392156863	242596545
Volkswagen	ID.3	Pure	0,968021988	0,257731959	0,870967742	0,48	0,470588235	230821998
Opel	Corsa Electric	51 kWh	0,946855716	0,237113402	0,908602151	0,48	0,411764706	224889483
BYD	DOLPHIN SURF	43.2 kWh Comfort	0,976743264	0,134020619	0,85483871	0,5	0,176470588	216382502
Citroen	e-C4 X	54 kWh	0,946417009	0,278350515	0,913978495	0,48	0,235294118	216296299
BYD	ATTO 2		0,96352921	0,092783505	0,741935484	0,5	0,196078431	209235607
Citroen	e-C4	54 kWh	0,948266977	0,257731959	0,892473118	0,48	0,235294118	208946781
MG	MG5	Electric Long Range	0,944514185	0,278350515	0,811827957	0	0,294117647	206856061

Figure 9 - Snapshot of the dashboard with the selection of cars (Source: National Society of Motor Vehicle Traffic, analysis by FIER).

4.2.4 FINDINGS AND RATIONALE

The assessment confirmed that BEVs in the Small (A- and B-segments) and selected Lower Medium (C and D segment) models, provide the best balance between affordability and practical usability[1]. WLTP ranges significantly below 250 km proved restrictive for daily mobility in rural communes, while models substantially exceeding € 38.000 exceed the scheme's affordability threshold. Upper efficiency limit of Klimabonus (≤180 Wh/km (≤200 Wh/km and max. 150 kW) WLTP) and minimum WLTP range of 250 km (≈ 200 km real) were identified as consistent with national subsidy criteria. To note, Klimabonus efficiency thresholds (current): €6.000 for BEVs with consumption ≤16 kWh/100 km; €3.000 for ≤18 kWh/100 km; and €3.000 for ≤20 kWh/100 km, provided the vehicle's maximum power is ≤150 kW. Therefore, as compared to eligible vehicle pool of the Klimabonus and our recommendation for social lease, we recommend including some less efficient vehicles that would receive the €3.000 Klimabonus, but overall, the focus would be on the models matching the requirement of the Klimabonus. A minimum DC-charging capacity of 40 kW is recommended to ensure usability for drivers without home charging access. Additionally, the battery warranty threshold 8 years / 160.000 km provides a baseline safeguard on battery quality and performance.

[1] In this context, "practical usability" refers to meeting everyday mobility needs without cost or operational barriers: the selected small and lower-medium BEVs combine adequate real-world driving range and minimum DC charging capability with low energy consumption, which keeps both charging frequency and running costs manageable. In addition, the battery warranty threshold (typically around 8 years / 160.000 km) provides a baseline safeguard on battery quality and performance, while long-distance travel remains feasible through public fast-charging networks, even if these vehicles are primarily optimised for daily use rather than frequent high-mileage motorway driving.

The market outlook confirms that sufficient vehicle supply exists to meet the conditions recommended in Table 2. According to the analysis of the expected rollout of new BEV models to the EU market (Figure 10), it was concluded that at least 29 new BEV models are expected to enter the European market by 2028, of which 23 will be available as early as 2026. All are projected to deliver a minimum range of 250 km WLTP, with an expected price ceiling of € 38.000. Luxury, sporty, and oversized models were excluded from the dataset, confirming a solid pipeline of compact and affordable BEVs suitable for the social leasing scheme.

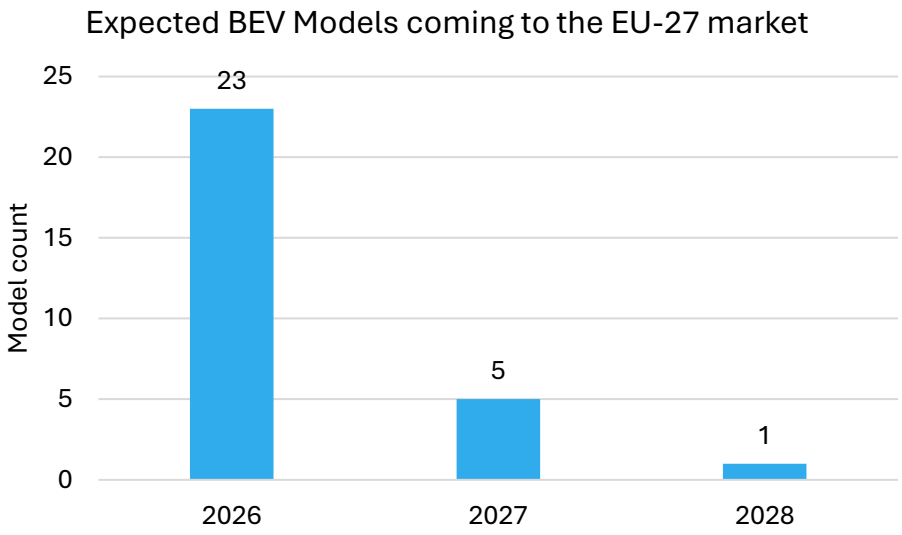

Figure 10 - Expected EU new BEV Models. Source: FIER (2025)

This growing supply base (Figure 10) supports the feasibility of defining eligibility through clear, evidence-based thresholds related to price, range and energy efficiency, rather than through fixed vehicle segment classifications. Figure 10 reflects currently announced BEV model launches. The apparent decline in later years mainly results from limited market transparency and the shorter public visibility of manufacturers' product pipelines, and should not be interpreted as an expectation of reduced innovation or supply.

On this basis, the eligibility framework does not need to rely on a predefined or periodically updated list of eligible vehicles. Instead, leasing providers can determine which current and newly introduced models comply with the applicable thresholds as they enter the market. The criteria themselves can remain stable over time and continue to function as an open framework. Only if future market developments lead to a very broad availability of low-cost BEVs would there be a policy choice to consider adjusting certain parameters, for example by raising technical requirements or tightening affordability constraints through the maximum lease amount rather than through list prices.

4.2.5 Model screening outcome

Applying the above criteria yielded a portfolio of 76 eligible BEV models priced between €18.900 and €38.000, with WLTP ranges from 265 to 480 km. The highest-scoring models, such as the, Leapmotor T03, BYD Dolphin Surf 43 kWh, Hyundai Inster Standard Range, Citroën e-C3 and Renault 5 E-Tech 40 kWh, demonstrate strong suitability in both affordability and range, while ensuring diversity across brands and segments. For the full list of vehicles see Annex 2.

4.3 Specific criteria conditions

4.3.1 Avoiding luxury and performance vehicles

Criteria based on vehicle characteristics such as motor power or vehicle weight may appear intuitive as a way to prevent the inclusion of luxury or high-performance vehicles in a social leasing scheme. However, within the context and scope of this study, introducing such criteria is not advised at this stage.

Applying explicit thresholds on power output or vehicle weight would increase administrative complexity and verification effort, while offering limited additional steering value within the lease price ranges considered. Based on current market observations, the BEV models that can realistically be offered within affordable monthly lease caps (see paragraph 8.6) are predominantly mainstream vehicles intended for everyday and family use, rather than luxury or performance-oriented models.

Instead of relying on detailed technical exclusions, the proposed framework places primary emphasis on the maximum monthly lease cost as the main control mechanism. This approach reflects standard leasing practice and provides a direct link between public support and household affordability, while indirectly limiting access to premium or high-specification vehicles.

While it cannot be fully excluded that individual vehicle configurations could, under certain conditions, be perceived as misaligned with the social intent of the scheme, this risk is considered manageable under a lease-based eligibility approach. Should implementation experience or future market developments indicate otherwise, the introduction of additional criteria could be reconsidered as part of a structured monitoring and adjustment process.

4.3.2 Efficiency conditions

For all vehicles, energy-efficiency performance the criteria of the official Klimabonus 2025 standards as defined in the ministerial order of 26 September 2024 are the baseline to fit them in the social lease scheme. Vehicles must demonstrate a WLTP combined energy consumption of no more than 160 Wh/km to receive the Klimabonus of € 6.000 and a WLTP between 160 Wh/km and 180 Wh/km to receive € 3.000 Klimabonus (or ≤200 Wh/km and max. 150 kW).

This requirement ensures consistency between Luxembourg's subsidy schemes and prevents market confusion about efficiency thresholds. It also reinforces the commitment to supporting vehicles that minimise both operational cost and carbon intensity, directly benefiting low-income drivers facing higher exposure to energy costs.

For family and seven-seater vehicles, no fixed efficiency limit is proposed. These models typically exceed 160 Wh/km WLTP because of higher mass and larger battery capacity. As in the Klimabonus scheme, they remain eligible if they respect the programme's price and quota caps, which function as an indirect constraint on excessive energy consumption.

4.3.3 Handling larger vehicles and special cases

Recognising the diverse composition of vulnerable households, the programme allows limited flexibility for families with specific mobility needs. Larger vehicles, such as seven-seaters or BEVs from an eventual MPV segment (C- and D-segment), may therefore qualify under controlled conditions. These exceptions apply only where household size and mobility requirements clearly justify the need for additional passenger capacity.

Such vehicles would be:

- subject to a higher monthly cost, reflecting their higher market price and energy consumption;
- allocated through a limited annual quota, restricted for example to households with five or more members;
- exempt from the strict efficiency thresholds applied to smaller vehicles, as their technical characteristics differ significantly.

The inclusion of larger family BEVs ensures that the scheme remains socially inclusive and does not disadvantage households with multiple dependants or special mobility needs. These vehicles would, however, still need to demonstrate basic practicality in range, safety, and warranty coverage, while remaining below an overall cost ceiling compatible with the scheme's objectives.

Based on current and announced market availability in Europe, a sufficient number of larger or seven-seater BEVs can be identified as potentially suitable under the proposed eligibility conditions (see Annex 3). Models such as the Ford e-Tourneo Courier or Citroën ë-Berlingo illustrate this segment, offering practical passenger capacity with WLTP ranges of roughly 250–350 km at prices typically in the €36.000–€43.000 range, depending on configuration.

These models represent a range of medium and large family vehicles available or expected on the EU market by 2026–2027. They typically offer seating for seven to nine passengers and ranges between 250 and 450 km WLTP, depending on battery

configuration. Many share common technical platforms and battery systems, which supports cost efficiency and availability through leasing companies.

The inclusion of such vehicle types should be carefully managed through predefined leasing caps, potentially supported by a higher monthly subsidy where justified. This approach ensures that support is targeted at households with genuine space and mobility needs, while preserving the financial sustainability and environmental integrity of the scheme.

4.4 THE ROLE OF USED CARS IN THE SCHEME

4.4.1 ISSUE IDENTIFICATION

A key question in the design of the scheme is whether used BEVs should be included from the start or only once the market has matured. Our analysis shows that Luxembourg currently has a very limited stock of used BEVs (see paragraph 4.1), which is further supported by stakeholder feedback, although leasing companies did mention that a lot of vehicles that are exported could be kept in the country with appropriate incentives. The local supply remains small and fragmented, residual value risk for lessors is high, and a large share of used BEVs is exported, reducing domestic availability.

Figure 11 demonstrates the young nature of the fleet, median age being 1,58.

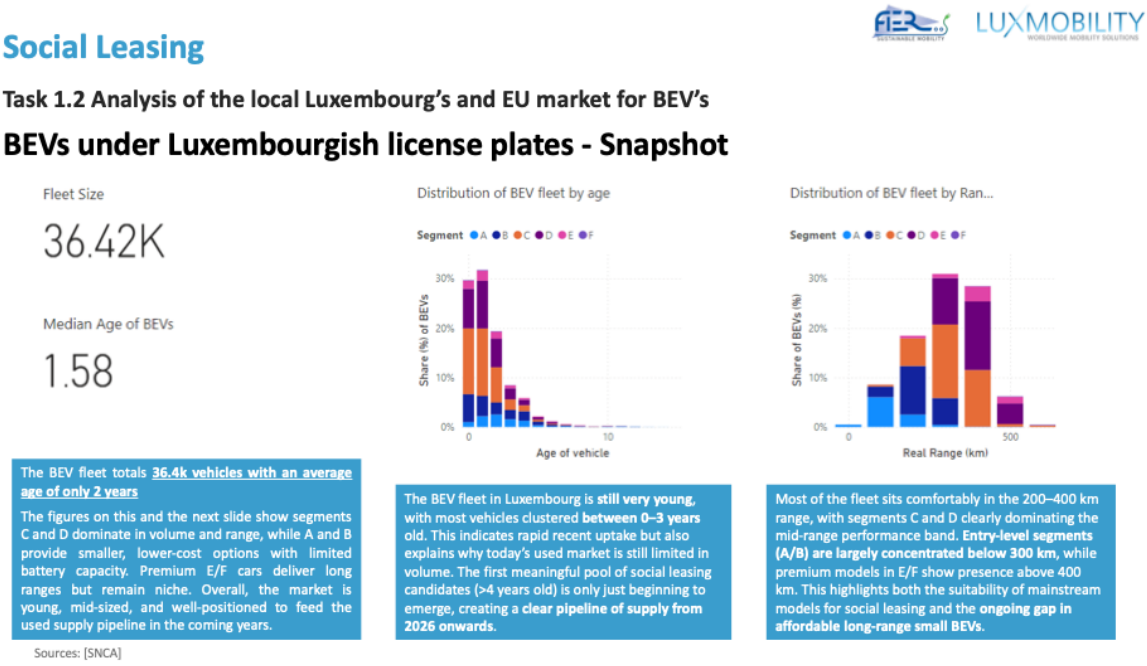

Figure 11 - Characteristics of the BEV fleet in Luxembourg

Figure 12 shows the used BEV listing in Luxembourg at the specific time of the analysis. This demonstrates the gap between second hand market supply and demand for the

social lease scheme, as mostly expensive and still young vehicles are available second hand.

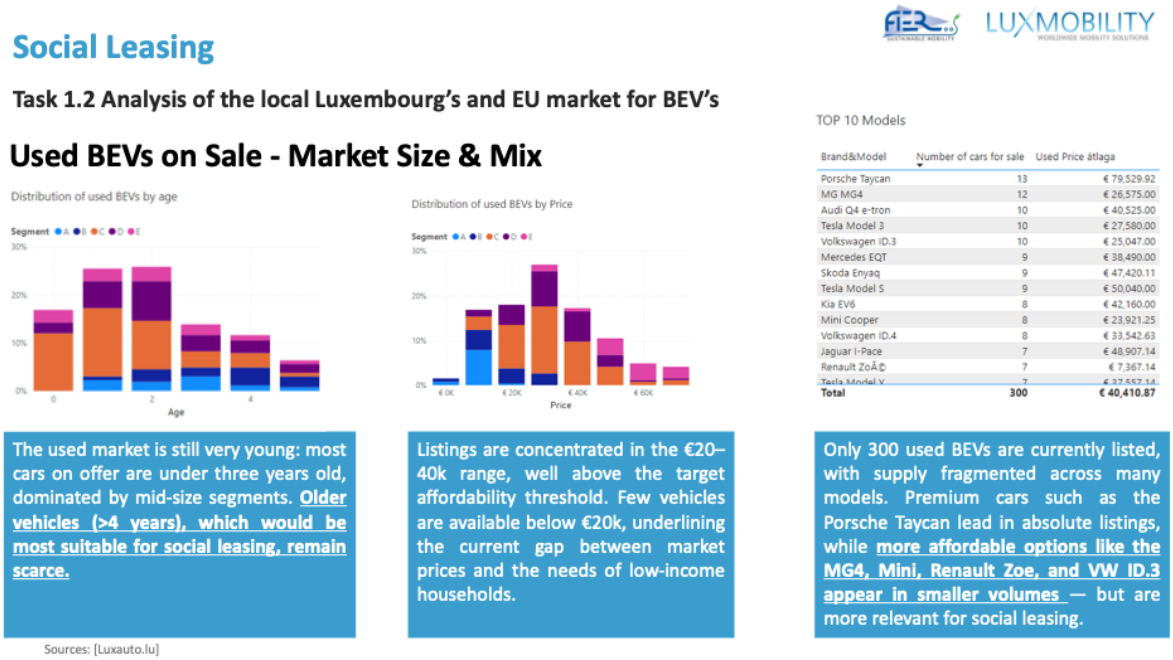

Figure 12 - Characteristic of used BEVs listed in Luxembourg

4.4.2 MARKET REVIEW AND ASSESSMENT

In order to give an advice whether to include used BEVs in the social leasing scheme as chance to keep them in Luxembourg a market review was done and assessment on the current status of used BEVs in Luxembourg. The analysis focused on three practical aspects: current availability, expected market growth, and financial feasibility.

The current market for used BEVs in Luxembourg is small and dominated by high-end models (upper medium and luxury segment). During our market analyses around 300 used BEVs were advertised in Luxembourg, with brands such as Porsche, Tesla and BMW making up most of the listings. More affordable models like the Renault Zoe, VW ID.3 and MG4 are present but in low numbers.

We expect that this situation will gradually change over the next few years. Administrative data show that about 2.400 BEVs in Luxembourg are four years and older, while 19.600 vehicles, deemed suitable for the social lease program, are between zero and three years old. As this younger group starts entering the used market after 2027, the possible available stock to be advertised as used BEV is expected to rise sharply. Even after accounting for the historical export share of around 17 percent, the domestic pool could reach roughly 14.600 vehicles by 2028. However, most of these are currently C- and D-segment models; smaller A and B-segment cars account for just over 20 percent. Stakeholders from the automotive sector in Luxembourg confirmed that many leased

BEVs are exported at the end of the term, limiting the potential for a stable used BEV market.

From a financial perspective, lessors and dealers report volatile residual values, losses on recent returns, and a general lack of market depth.

4.4.3 Findings and implications

The domestic supply of used BEVs is still too small and too expensive to support the first phase of social leasing. Affordable vehicles fitting in the eligibility criteria are scarce, and price volatility makes residual values difficult to predict. The situation will improve after 2027, when the growing stock of leased BEVs starts entering the used BEV market. At that point, the availability of suitable vehicles could increase substantially, provided that export flows are managed and risk-sharing instruments are in place.

Residual-value and default risks remain the main bottlenecks. Without guarantees, the cost of insuring these risks would undermine the affordability of the scheme.

4.4.4 Recommendation

We recommend that used BEVs will not be included in the first years of the scheme. During the initial two to four years, the focus should be on new BEVs that meet the established affordability, efficiency and functionality criteria. The inclusion of used BEVs can be reconsidered from 2028, once a larger and more diverse stock becomes available and risk-sharing mechanisms are operational.

This approach offers three advantages. First, it keeps the scheme simple and predictable, since new BEVs are easier to price and maintain than heterogeneous used stock. Second, new models more consistently meet the ≤ 180 kWh efficiency Klimabonus threshold. And third, new vehicles provide reliable warranty coverage and consistent range, which also helps prevent disappointment over limited range and protects the scheme's public image, reducing unexpected costs for vulnerable users.

4.4.5 Conditions for later inclusion

Used BEVs can only be introduced once conditions are fulfilled: a sufficient domestic stock of affordable A- and B-segment vehicles with verifiable battery health; a capped public guarantee covering default and residual-value risk; standardised battery certification and warranty coverage; and an operational system that caps or subsidises public charging costs for drivers without home charging.

4.4.6 Implementation outlook post-2027

When these conditions are met, used BEVs could enter the scheme under shorter lease terms, typically 24 to 36 months, with mileage caps linked to remaining battery warranty. The same price and monthly payment ceilings should apply as for new vehicles, combined with clear quality standards for battery health and reconditioning. Framework

agreements with leasing companies should define the residual-value curve, minimum warranty requirements and data-sharing obligations.

To discourage early export of used BEVs, a bonus–malus retention mechanism can be applied at de-registration. Vehicles that are de-registered for export within a defined minimum retention period (e.g., 36–60 months after first registration or receipt of public support) would trigger a time-declining malus (highest in the first year and tapering to zero thereafter). Conversely, the same mechanism can include a "retention bonus" (e.g., refund of a small deposit or a modest incentive) when the vehicle remains registered in Luxembourg beyond the retention period or is resold locally to a Luxembourg resident. This approach preserves flexibility for legitimate ownership changes while creating a clear financial signal against rapid outward leakage of subsidised BEVs. These are examples of mechanisms that could entail vehicle retention, but it was not scope of this study and therefore further details are not provided.

Leasing used BEVs is a desirable medium-term option, but it introduces additional challenges compared to new vehicles, notably lower transparency and higher operational complexity because each vehicle differs in age, mileage, battery condition, and residual value. As a result, the scope of this study was not to develop a detailed operational model for used-vehicle leasing, but rather to flag it as an implementation pathway requiring a dedicated ex-post evaluation once sufficient supply exists. That evaluation should assess whether used BEVs deliver net value for money for the public budget (i.e., that support primarily benefits eligible households rather than residual-value arbitrage by leasing companies) and whether scheme rules can remain simple and auditable. It should also consider market dynamics: as new BEV prices decline and specifications improve, used BEVs may not automatically be cheaper or more attractive for consumers or lessors while the Klimabonus remains in place—yet re-using "already-subsidised" vehicles could reduce the need for repeated purchase support, which is a key rationale to examine in parallel.

In summary, focusing the early phases on new BEVs minimises financial risk and protects lessees, while preparing the necessary instruments for a smooth expansion to used vehicles once the market matures.

4.5 Summary of Vehicle Availability and Supply Considerations

Luxembourg's passenger car market is characterised by a high dependence on imports and by the dominance of corporate leasing fleets. The national vehicle stock therefore follows European production cycles and pricing trends rather than domestic supply dynamics. As of 2025, the offer of small, affordable BEVs suitable for low-income households remains limited, but the pipeline to 2028 shows a strong expansion. At least 29 new BEV models are expected to reach the European market by 2028, with 23 arriving

already in 2026. All are projected to achieve a minimum range of 250 km WLTP, and most fall within a price bracket below € 38.000 once incentives are applied.

The medium-term fleet analysis confirms that around 19.600 BEVs in Luxembourg are currently less than three years old, representing the country's largest potential source of future supply. The segment mix is dominated by C- and D-segment vehicles, but the B-segment share of roughly 21% is crucial for the future affordability of social leasing. By 2028, the used BEV pool could reach approximately 14.400 vehicles, assuming current growth and export trends continue. This provides a strong basis for including second-hand BEVs in later phases of the programme, once depreciation and market maturity improve cost efficiency.

To ensure reliable and sufficient supply, three strategic measures are proposed:

- Secure early partnerships with leasing companies and OEMs. Coordination with major lessors, dealers, and manufacturers should begin well before the launch to guarantee sufficient allocation of A-, B-, and compact C-segment BEVs.
- Introduce used BEVs only after 2028. As concluded in the preceding section, used vehicles should enter the scheme once the domestic market reaches maturity, residual-value risks stabilise, and certification of battery condition becomes standardised. Until then, focusing on new BEVs ensures quality, warranty coverage, and lower maintenance risk for beneficiaries.
- Allow an open, performance-based eligibility list, for example based on a yearly updated version of the eligibility criteria table from paragraph 4.2.2. This allows natural market evolution and encourages competition among suppliers.

Preliminary affordability modelling suggests that several compact BEVs, such as the Renault 4 and 5, VW ID.3, Ford Puma, Citroën e-C3, Dacia Spring and new low-cost entrants from China based OEMs (e.g., BYD Dolphin, Leapmotor B10 and T03), could meet the affordability threshold once public support and guarantees are applied. These vehicles combine adequate range, strong warranty coverage, and sufficient production volumes for scaling. Also for the larger eligible households within the category of 7-seaters there are enough new BEV models available in the market that could be implemented in the scheme.

In summary, ensuring vehicle supply for social leasing requires proactive coordination with market actors, gradual inclusion of used vehicles after 2028, and flexible eligibility criteria based on price and performance. This approach secures accessibility for low-income households while maintaining administrative simplicity and long-term market compatibility.

4.6 ADVICE ON ELIGIBILITY OF BEVS IN THE SOCIAL LEASING SCHEME

Luxembourg should adopt an open-list approach anchored in transparent technical and price thresholds rather than brand-specific selection. Eligibility should be reassessed yearly in coordination with leasing partners and updated to reflect market evolution, new EU efficiency standards, and the availability of used BEVs. This approach guarantees inclusiveness, administrative simplicity, and alignment with the Social Climate Fund principle that all measures must primarily benefit vulnerable transport users while supporting lasting decarbonisation.

5 POLICY AND REGULATORY FRAMEWORKS

5.1 PURPOSE AND OVERVIEW

This chapter describes the regulatory and policy environment relevant for the design and implementation of Luxembourg's social leasing scheme. It places the scheme within the broader European policy framework, examines lessons from comparable international programmes, and outlines the national regulations that influence eligibility, contracting, financing, consumer protection and data governance. Together, these elements form the institutional basis for a socially targeted, legally compliant and operationally robust scheme.

5.2 STATUS AND TYPE OF INCLUSIVE BEV MEASURES IN EU COUNTRIES

Across Europe, Member States are experimenting with a range of measures intended to make the transition to zero-emission mobility more inclusive. The comparative table developed for this study illustrates the current landscape: only a small number of countries have active or near-active social BEV leasing schemes (notably France), while many others rely on adjacent instruments such as income-tiered grants, rural charging support or scrappage incentives targeted at low-income households.

Measure	France	Italy	Poland	Germany	Spain	Belgium	Austria	Sweden	Denmark
Subsidized Social Leasing	✓ Active	Pilot (2025)	Pilot	Planned (SCF)	Planned	—	—	—	—
Income-Tied Purchase Grants	✓ Active	✓ Active	✓ Active	Planned (SCF)	Planned (SCF)	Local pilot	Local pilot	Planned (SCF)	—
Tax Deductions for Low-Income	✓ Active	—	—	—	—	—	—	—	—
Public-Private Mobility Partnerships	—	—	✓Pilot	✓Planned	✓Planned	✓Planned	—	—	—
BEV Sharing for Low-Income Areas	—	—	—	—	—	✓Local	✓Local	—	—
Scrappage Schemes (Income-Tiered)	✓ Active	✓ Active	✓Planned	Planned (SCF)	✓Planned	✓Local pilot	✓Local pilot	✓ Active	—
Charging Infra in Low-Income Areas	✓ Active	✓Planned	✓Pilot	✓Planned	✓Planned	—	✓Rural	✓ Rural	✓Rural
Income-Scaled Home Charger Subsidies	✓ Active	✓Planned	—	—	✓Planned	—	✓General	—	✓General
E-Mobility Vouchers	—	—	✓Planned	—	✓Planned	—	—	—	—
Income-Tiered Loan Programs	—	—	✓Pilot	✓Planned	✓Planned	—	✓Planned	—	—

Table 3 - Overview of implemented and planned inclusive BEV measures in major EU-countries

Several patterns are relevant for Luxembourg:

- Subsidised social leasing is fully operational only in France; Italy and Poland have pilot-stage programmes; Germany (SCF) and Spain have planned but not yet activated schemes. Other Member States rely on alternative support instruments rather than leasing.
- Income-tiered purchase grants are the most common tool. France, Italy and Poland maintain active income-linked incentives, and several countries integrate these into their forthcoming SCF packages.

- Scrappage schemes linked to income thresholds are well established in France and Italy and planned in multiple Member States. These schemes often function as precursors to social leasing by lowering the upfront cost barrier and are frequently motivated by air-quality objectives in addition to social considerations.
- Charging support in low-income or rural areas varies. France and Sweden maintain active rural-charging initiatives, while several other countries have pilot or planned measures.
- Income-scaled home-charger subsidies are mainly present in France and Italy, whereas other countries provide general (non-income-specific) support.

This overview confirms that Europe is moving towards a more socially oriented EV policy mix, but approaches differ substantially. Luxembourg's design benefits from aligning with the more mature elements of these international models while staying consistent with domestic legal and administrative constraints.

5.3 Luxembourg's policy and regulatory environment

5.3.1 Leasing and financial regulation

Vehicle leasing in Luxembourg is subject to national consumer-credit and contract-law provisions. Financial-leasing offers fall under responsible-lending obligations, supervised by the CSSF. In conventional leasing, applicants are assessed through a creditworthiness check that verifies whether disposable income remains above a minimum threshold after including the lease payment. This mechanism would exclude many target households without additional public intervention.

To enable access, the social leasing scheme must therefore be paired with a public guarantee or risk-sharing instrument that permits simplified credit checks while complying with responsible-lending rules.

5.3.2 Consumer protection

Standard leasing contracts often include complex terms, strict penalties and non-transparent charges. For a social programme, enhanced consumer-protection requirements are essential, including:

- mandatory use of a standardised contract template;
- clear definitions of normal wear and tear;
- caps on early-termination costs in defined circumstances;
- access to an independent dispute-resolution mechanism.

These elements reduce uncertainty for vulnerable households and support responsible implementation.

5.3.3 TAXATION AND INCENTIVES

Luxembourg's existing incentive framework, Klimabonus, reduced BiK taxation for BEVs, and reduced registration fees, interacts directly with social leasing. Two aspects are relevant:

- owners (leasing companies) may claim the Klimabonus, but must either pass it through to the lessee or renounce it;
- double compensation must be avoided; the social leasing subsidy and Klimabonus must be coordinated to maintain proportionality and comply with state-aid rules. We recommend that the social lease subsidy and Klimabonus must be coordinated.

5.3.4 PUBLIC PROCUREMENT AND PARTICIPATION MODEL

If Luxembourg adopts an open-participation model for leasing companies, as recommended, there is no requirement for a classical public tender. Instead, leasing companies may accede to the scheme by signing a standard framework agreement that defines reporting duties, pricing rules, and compliance conditions. This model reduces administrative burden and creates a competitive environment among suppliers.

Robust governance is necessary to ensure compliance with SCF requirements and national standards. Key roles could include:

- MECB: programme ownership, SCF reporting.
- MMTP: alignment with national mobility policy.
- MECO: alignment with national charging infrastructure policy
- SNCA: vehicle registration and verification of technical eligibility.
- FNS: income-verification processes aligned with Prime Énergie thresholds.
- AEV: possibly for pairing the measure with the Klimabonus subsidy
- Leasing companies: delivery of contracts, reporting usage and defaults.

The monitoring framework should capture: number of active leases, socio-economic profile of beneficiaries, vehicle distribution, subsidy expenditure, charging-access patterns and mobility impacts. Annual reporting to the European Commission is required under the SCF.

5.4 DATA PROTECTION AND OPERATIONAL DATA USE

The scheme will involve the processing of personal, financial and mobility-related data. Under the GDPR:

- the State acts as data controller for eligibility verification and subsidy administration;
- leasing companies act as processors for contract, vehicle and insurance data;

- only strictly necessary data may be collected, such as mileage, charging behaviour (if relevant for support measures) and contract-status information.

Data-processing agreements must be established, with clear retention periods and limits on secondary use.

6 CHARGING INFRASTRUCTURE IN LUXEMBOURG

6.1 INTRODUCTION

One of the main topics for a successful introduction of electric mobility in a country is the roll out of a sufficient public and private charging infrastructure. This chapter describes the current situation of the public charging network in Luxembourg and the consequences for the eligible households when they start driving BEVs. Based on those consequences a first advice is given on how the ministries can support the eligible households to make it as easy as possible and with costs that fit within their financial situation.

6.2 CHARGING PRINCIPLE AND GOVERNMENTAL ACTION PLAN

The social leasing scheme should build on the principle that AC charging, preferably at home, is the standard and most affordable way to charge electric vehicles. Where home charging is not possible, publicly accessible AC charging close to the place of residence should be available, complemented by sufficient fast and ultra-fast charging for longer trips and operational flexibility.

In Luxembourg's National Policy Framework for Alternative Fuels Infrastructure (NPF, Feb 2023), the planning approach has increasingly shifted away from headline targets expressed purely as a number of charging points and instead emphasises the overall *publicly accessible charging capacity* (aggregated power output) and the balanced build-out of normal and high-power charging. The NPF reports that publicly accessible charging points increased from 1.099 (2020) to 2.330 (2023) and sets indicative objectives of 3.700 (2025) and 6.000 (2030), alongside aggregated publicly accessible power targets of 200.000 (2025) and 300.000 (2030. Within these indicative levels, normal-power public charging points (≤22 kW) are expected to grow to around 3.000 by 2025 and 5.000 by 2030. while high-power public charging points (>22 kW) are expected to reach around 700 by 2025 and 1.000 by 2030. with a particular increase in DC fast and ultra-fast charging.

The location policy described in the NPF (e.g., a split between Park&Ride hubs and municipal proximity charging based on the "charging point follows EV-driver" principle) relates specifically to the Chargy network and should not be interpreted as applying to all publicly accessible charging infrastructure deployed by other operators. Beyond national planning, municipalities and private actors can install publicly accessible AC and DC charging points and register them in Luxembourg's central registration system, supporting a diversified and demand-responsive roll-out. The announced "right to plug" regulation is expected to further improve access to home charging for residents in multi-apartment buildings, which is particularly relevant for the target group of social leasing.

6.3 CURRENT STATUS PUBLIC CHARGING INFRASTRUCTURE

This section gives an overview of the current status of the publicly available charging infrastructure in Luxembourg. Below a numerical overview of the charging points in Luxembourg based on the latest statistics from the European Alternative Fuels Observatory (EAFO).

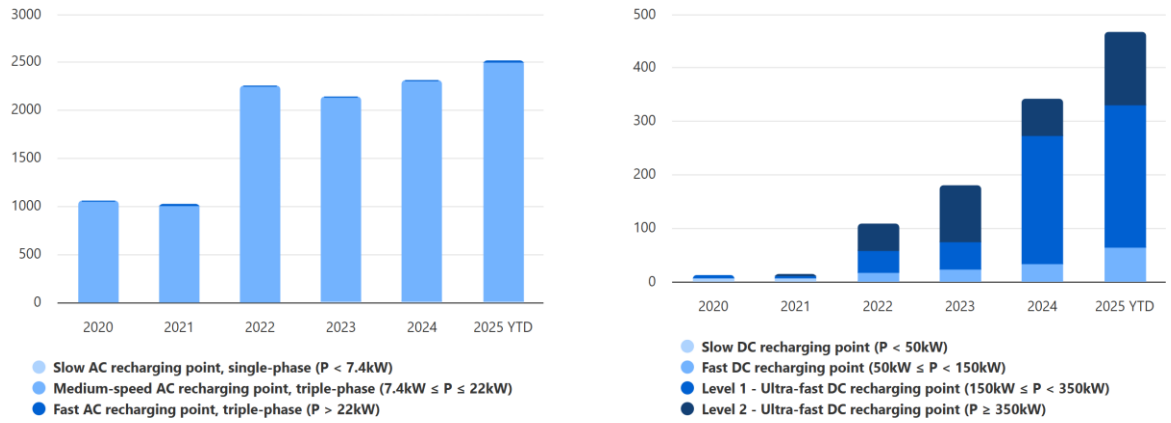

Figure 13 - Count of publicly available charging points in Luxembourg (AFIR categories) Source: EAFO (2025)

According to EAFO, there was for publicly available AC charging points a growth since 2022 from 2.251 to 2.495 charge points in 9/2025, but on the other hand the number of DC fast chargers showed an exponential growth in the same period (from 89 DC charging points in 2022 to 403 in 9/2025).

6.4 SPATIAL DISTRIBUTION OF THE CHARGING NETWORK IN LUXEMBOURG

This section reviews the spatial distribution including charging characteristics of the public charging network in Luxembourg with a focus on access type coverage and charging speed. The aim is to identify structural patterns and remaining gaps relevant for the feasibility and equity of EV use across communes.

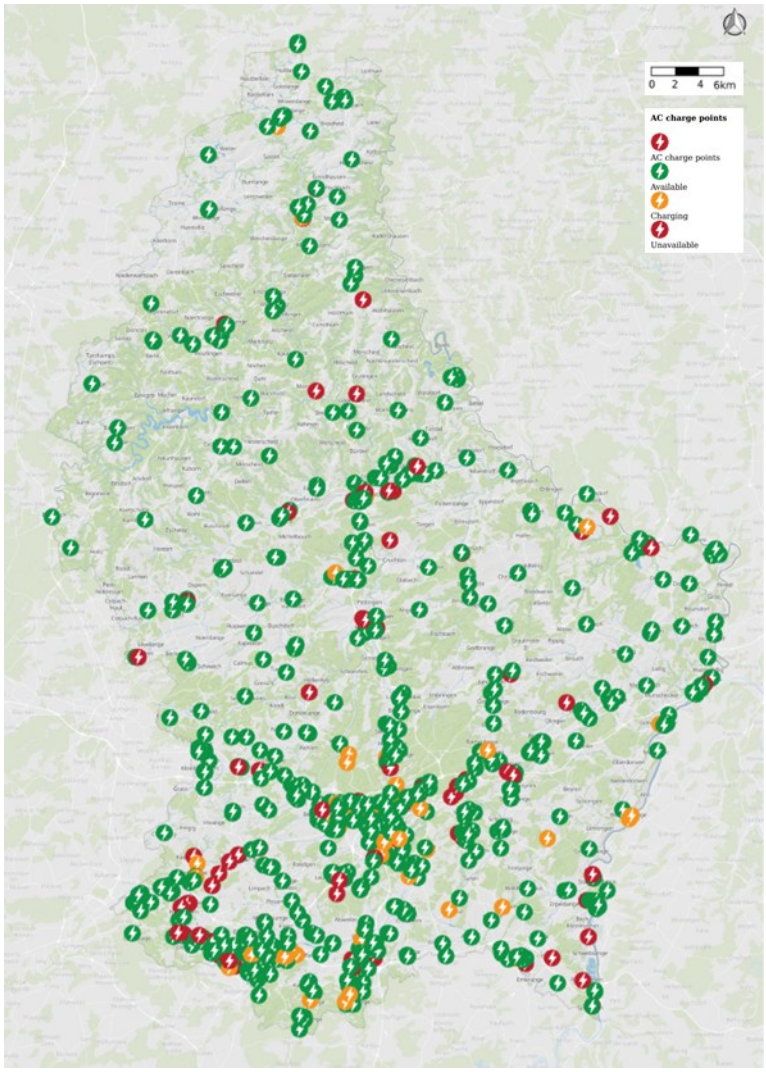

Figure 14 - Geographical spread of public charging stations

Public charging infrastructure is heavily concentrated in and around Luxembourg City with more than 200 stations (400 charging points as most of the stations have 2 charging points) located in the capital area. Most charging points are publicly accessible followed by semi public and private installations. AC three phase charging (11-22 kW) is the dominant technology.

Coverage of publicly available charging points is thinner in rural areas such as Vianden and Redange, which limits usability for EV drivers in those regions.

Public charging is mainly concentrated in the capital and thin in rural zones. The current status results in a trend that the EV drivers more and more need to charge their vehicles at DC fast chargers instead of that they have the possibility for overnight charging at home or very near to home at publicly available AC chargers.

For the identified eligible households this pattern, combined with their typical housing situation, is a key constraint. Many live in rented dwellings without the option to install

private charging, meaning EV use would rely almost entirely on the publicly available charging network. Sparse rural coverage, present strong barriers for exactly the households that a social car leasing scheme is meant to reach, particularly when public charging prices are comparatively high (see next paragraph).

The effectiveness of the social leasing scheme will depend on a rapid and targeted expansion of publicly available charging coverage, particularly in the rural areas where current access is limited.

A complementary programme is therefore required to ensure that eligible households can reliably and affordably charge their vehicles in practice, regardless of their housing situation. We recommend that this should include measures to guarantee publicly accessible AC (overnight) charging options for beneficiaries near their homes through coordinated planning (charging points follow EV).

6.5 CHARGING COSTS AND USER PROFILES

This paragraph analyses the differences of costs of charging between the different situations an eligible household for the social leasing scheme could be in. In order to analyse 3 different scenarios were defined for charging as example of these kind of different situations and compare these 3 scenarios with each other and with a scenario of an ICE driver that fuels petrol.*

In order to define the costs of charging and fuelling the vehicles the current average costs per kWh for electricity (ad hoc price) and for petrol is used within the different scenarios. Market data show that home charging in Luxembourg normally costs around € 0,25 per kWh (however, the actual fee is more complex and dependent on household's connection size, kW consumption and exceedance fee), public AC charging ad hoc prices typically range between € 0,45 and € 0,50 per kWh, while DC ad hoc fast charging prices generally range between € 0,50 and € 0,79 per kWh. So, the main difference in charging costs arise not between home and public AC charging, but between home / AC versus DC fast charging. For the petrol price € 1,26 plus VAT per litre was calculated.

The scenarios for the different calculations are defined as follows (all drive 15.000 km per year), but have a different scenario due to charging availability at home or close to home:

- Scenario 1- Baseline home owner: charging 90% at home and 10% public AC (5%) and DC (5%) at ad hoc rates (investment for a wall box at a 7 year amortization period, is included in the monthly costs)[2]
- Scenario 2 - Apartment driver: relies predominantly on AC close from home (70%) and DC (30%) at ad hoc rates

[2] Detailed assumptions and input parameters are provided in Annex 2.

- Scenario 3 - Rural driver: in need for (90%) DC charging and some AC public charging (10%) as in close distance from home there is no AC overnight charging possibility
- Scenario 4 - Petrol driver: benchmark for the energy costs for fuel in for an ICE vehicle in Luxembourg

See below a chart of calculations based on different scenarios for the eligible households:

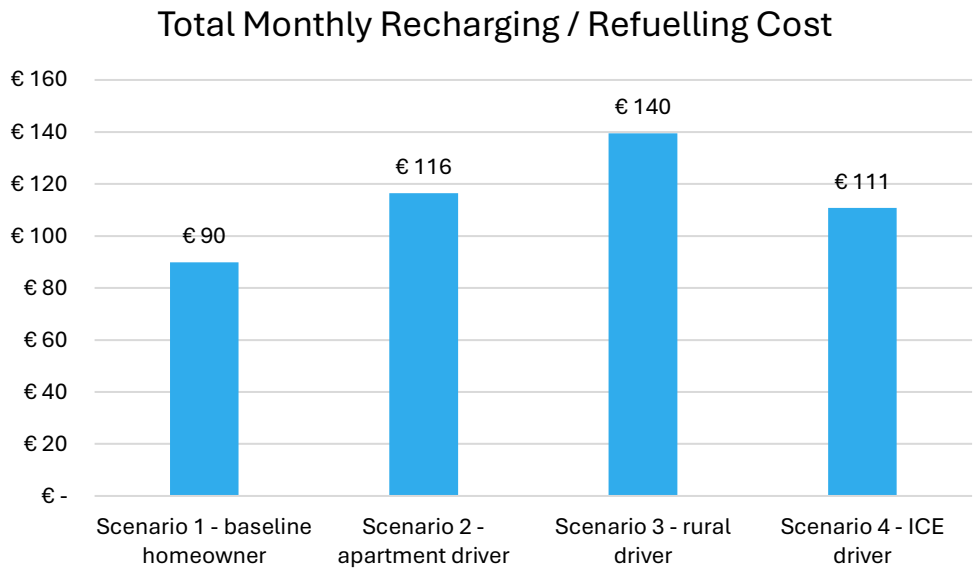

Figure 15 - Monthly cost for electricity compared to gasoline (15.000 km/year)

Based on these price differences and the monthly costs for the different scenarios can be concluded that home charging and AC overnight charging close from home both differ not much with the monthly costs of petrol for ICE drivers. Support in investing in a wall box for home charging and stimulating the municipalities to invest in AC chargers close from the EV drivers homes would be the best support for the eligible households. However, for eligible households that temporarily need to do DC fast charging (S3) the monthly costs of charging will be too high for them and will be much higher than driving an ICE vehicle (S3: € 140 per month versus S4: € 111). Without close-to-home overnight charging, EV uptake in the target group will remain limited; therefore, the scheme should primarily rely on ensuring access to affordable AC charging near the place of residence, consistent with the "charging point follows EV-driver" principle. In that context, a DC fast-charging voucher can be introduced only as a temporary safety net to avoid excluding households during the transition period in which neighbourhood AC charging coverage is still incomplete or where specific households face structural barriers to home charging (e.g., apartment living without "right to plug" solutions). The voucher is thus not a substitute for proximity AC charging, but an interim corrective instrument to ensure that

eligible households can use the vehicle affordably until adequate overnight charging access is in place.

6.6 POSSIBLE SUPPORT CHARGING COSTS

A detailed design of a compensation mechanism was not part of the current assignment, and further research would be needed to develop a complete operational model. Nevertheless, the contours of a possible Charging Support can be described. The temporary measure would target households without access to affordable AC charging at (or close to) home or work, who therefore depend more frequently on DC fast charging, where tariffs are typically higher and can vary substantially across charge point operators. A simple price comparison and transparency tool would already reduce information barriers and support cost-efficient charging behaviour; Klima-Agence is currently working on such a charging price comparison tool. As an order-of-magnitude indication, the additional charging-cost gap for a DC-dependent household compared to fuelling an equivalent ICE vehicle can be around €50 per month, depending on mileage, vehicle efficiency and the tariffs applied. Eligibility could be confirmed through a short declaration to be renewed annually or semi-annually.

Some possible implementation routes for such charging support:

- Voucher or e-credit system: a monthly charging allowance (e.g., QR code / app-based credit) that can be redeemed for charging sessions with participating mobility service providers or charge point operators, subject to market acceptance and interoperability.
- Direct crediting via selected providers: the State could transfer a defined monthly charging credit to one or a limited set of designated charging service provider accounts linked to the beneficiary (e.g., a mobility service provider account or “charging wallet”), which then automatically offsets part of the charging invoice. This approach can be technically simpler to administer than processing individual reimbursements, but it requires clear rules on interoperability, auditability (proof that funds are used for charging), and competition safeguards to avoid locking beneficiaries into a single operator and to ensure value for money.

These are not the only possibilities for such support, but analysing operational options in detail is not the scope of this assignment. The government is suggested to decide upon the preferred mechanism during the implementation phase, in consultation with relevant market actors.

Charging Support should be regarded as a temporary corrective measure to ensure fair access to electric mobility within the Social Leasing Scheme, while policy efforts continue to focus on making AC charging widely and affordably available.

Financing of wall boxes

For participants with access to private parking, the installation of a home charging wall box can significantly reduce running costs (see scenario 1 in the former paragraph). It should be noted that Luxembourg already provides support for private wall box installations through the Klimabonus (typically covering a substantial share of eligible costs) and that several municipalities offer additional top-ups, which in some cases can bring the combined support to a high share of total costs. Against this background, the social leasing scheme does not need to create a parallel subsidy, but could facilitate *access and pre-financing* for eligible households who still face liquidity constraints or administrative barriers.

In practice, the lease package could therefore optionally include (i) a standardised wall box offer and installer network, and/or (ii) bridging finance so that households do not need to pre-finance the full investment upfront while awaiting reimbursement through existing subsidy channels. Any such option should be designed to avoid double funding and to ensure that existing Klimabonus and municipal subsidies are applied first, with the lease mechanism only covering the remaining eligible balance or providing temporary pre-financing.

- Integrating wall box facilitation into the lease agreement can offer several advantages:
- it reduces upfront liquidity barriers, even where subsidies already exist;
- it promotes efficient home charging, reducing dependence on public infrastructure;
- it supports smart-charging features that can help balance grid demand; and
- it can further lower running costs for users, improving affordability over the lease term.

7 VEHICLE COST ANALYSIS

7.1 PURPOSE AND OVERVIEW

This chapter provides an overview of the cost differences between internal combustion engine vehicles (ICEs) and battery electric vehicles (BEVs) in the Luxembourg market in order to define a solid quantitative foundation for the social leasing scheme. The analysis focuses on eligible household types, in particular low income and above-average transport demand, and compares purchase prices, the effect of Klimabonus subsidies, residual values and resulting total cost of ownership (TCO) for both new and used vehicles. A separate element is the cost of charging compared with the cost of petrol for ICE vehicles, and how these cost differences could justify an additional support package for affordable BEV charging. The calculations are based on real registration data, representative online listings and official government information, assuming 15.000 km per year and a typical ownership period of three years.

7.2 PURCHASE PRICE COMPARISON

New car prices still favour ICEs in the lower segments when no subsidies are considered. In the A segment new BEVs are roughly 10 percent more expensive than comparable ICE models, in the B segment the difference is around 20 percent, while in the C segment new BEVs are already about 5 percent cheaper than new ICE cars. Applying the Klimabonus on BEVs changes this picture substantially. With a € 6.000 subsidy on new BEVs, these vehicles become around 30 percent cheaper than ICEs in the A segment, about 10 percent cheaper in the B segment and roughly 25 percent cheaper in the C segment. The subsidy therefore creates a relatively favourable position for new BEVs in all three segments. However, when the comparison shifts from new to used vehicles the situation is less advantageous for BEVs. The gap in acquisition price between new and used BEVs is small: around €2.000 in the A and B segments and roughly €7.000 in the C segment. Combined with the much higher subsidy for new BEVs than for used ones (€6.000 versus €1.500), this small price gap makes new BEVs more attractive than used BEVs and diverts demand away from the second hand market. As a result, the current subsidy design contributes to relatively low residual values for BEVs and weakens the business case for used electric vehicles.

7.3 RESIDUAL VALUES

Residual values across Europe are currently in a correction phase. During the Covid pandemic, supply chain problems and chip shortages limited new vehicle supply and pushed up second hand prices, with residual values peaking around 2022 and 2023. Since then, residual values have fallen back to or slightly below pre pandemic levels for all powertrains. Within this downward correction BEVs show the lowest residual values of all propulsion types. In the smaller segments the contrast with ICEs is strongest. For A

and B segment cars, typical three year residual values of ICEs are around 73 percent of the original price, compared with about 49 percent for BEVs. In the C segment the gap is smaller but still significant, with around 69 percent for ICEs versus 58 percent for BEVs. This means that affordable ICE vehicles retain their value exceptionally well, particularly in the used market that is most relevant for low income households, while BEVs still suffer from accelerated depreciation due to fast technology improvements and falling new prices. For the social leasing scheme this implies that new BEVs will have relatively high depreciation costs in the early years of the programme and that caution is needed when using residual values for pricing long term contracts.

7.4 TOTAL COST OF OWNERSHIP (TCO)

To understand what the price and residual value patterns mean for eligible households, a detailed TCO comparison was carried out for used and new ICE cars and BEVs in the A, B and C segments, assuming 15.000 km per year and three years of ownership. As a reference point, a typical used petrol car in the C segment was selected, reflecting the fact that most common ICE cars in Luxembourg are C segment models between 2 and 10 years old, such as the VW Golf and Skoda Octavia. For such a vehicle, depreciation is high in the first two years after first registration but then levels off. For a household buying the car between 3 and 10 years old and driving 15.000 km per year, the resulting monthly TCO stabilises at just above €300, as shown in the baseline illustration of a used ICE car in Figure 7.1. This includes depreciation, fuel, road tax, insurance and maintenance and represents the current default option for many low income households driving 15.000 km per year.

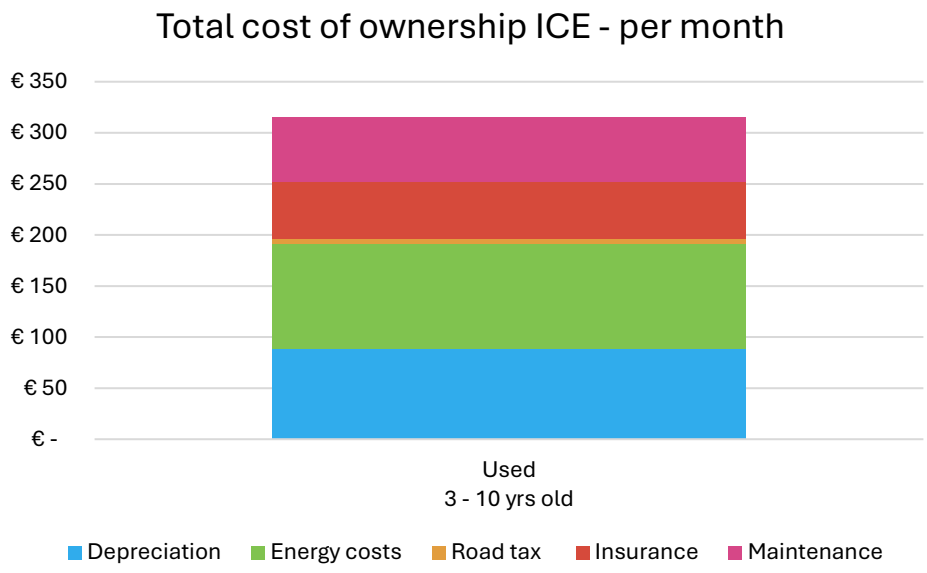

Figure 7.1 – Total cost of ownership ICE - per month

For new cars, TCO was calculated on the same mileage and three year ownership horizon. Energy costs were based on a petrol price of €1,51 per litre and, for BEVs, on a mix of 80% home AC charging at €0,25 per kWh and 20% public AC or DC charging at an average of €0,57 per kWh. Road tax, insurance and maintenance reflect Luxembourg conditions. The Klimabonus of €6.000 (in the examined vehicles) for new BEVs was translated into a monthly advantage of around 167 euro, which is visualised as the hatched negative bar in the TCO charts. In these calculations we only considered the optimal BEV case with the highest possible Klimabonus of € 6.000 as that leads to the best case scenario compared to ICE vehicles.

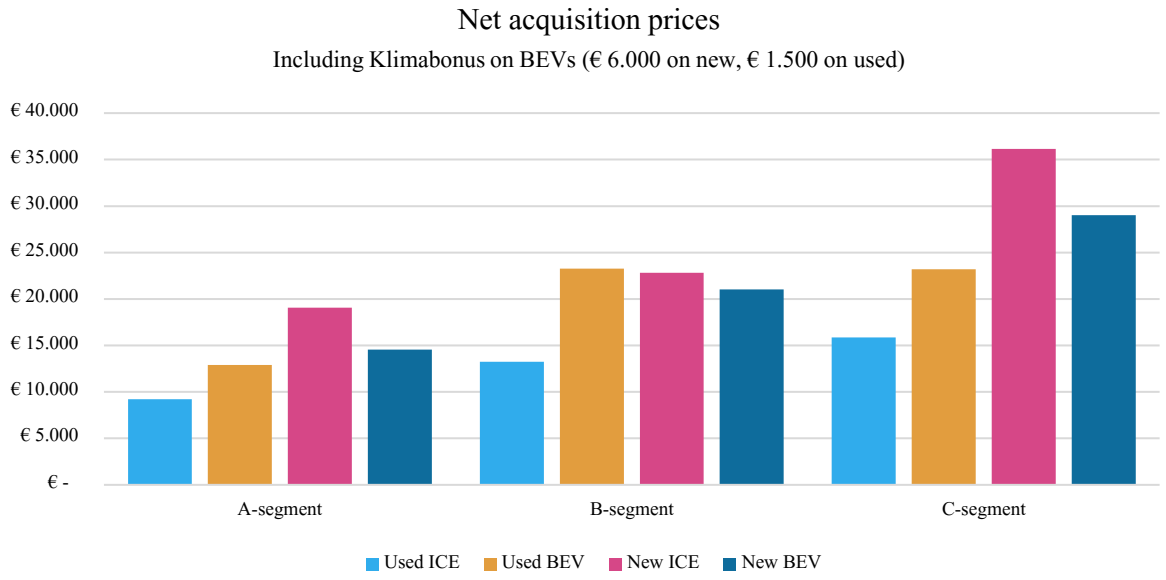

Figure 7.2 – Net acquisition prices - Including Klimabonus on BEVs (€ 6.000 on new, € 1.500 on used)

Figure 7.2 presents the net acquisition prices of used and new ICE and BEV cars by segment, and Figure 7.3 shows the corresponding TCO per month for new A, B and C segment ICE and BEV cars. These figures confirm that, within each segment, new BEVs can be cheaper to own than new ICE cars once subsidies are included, mainly because of lower energy, tax and maintenance costs, although both options remain clearly more expensive than the used ICE baseline.

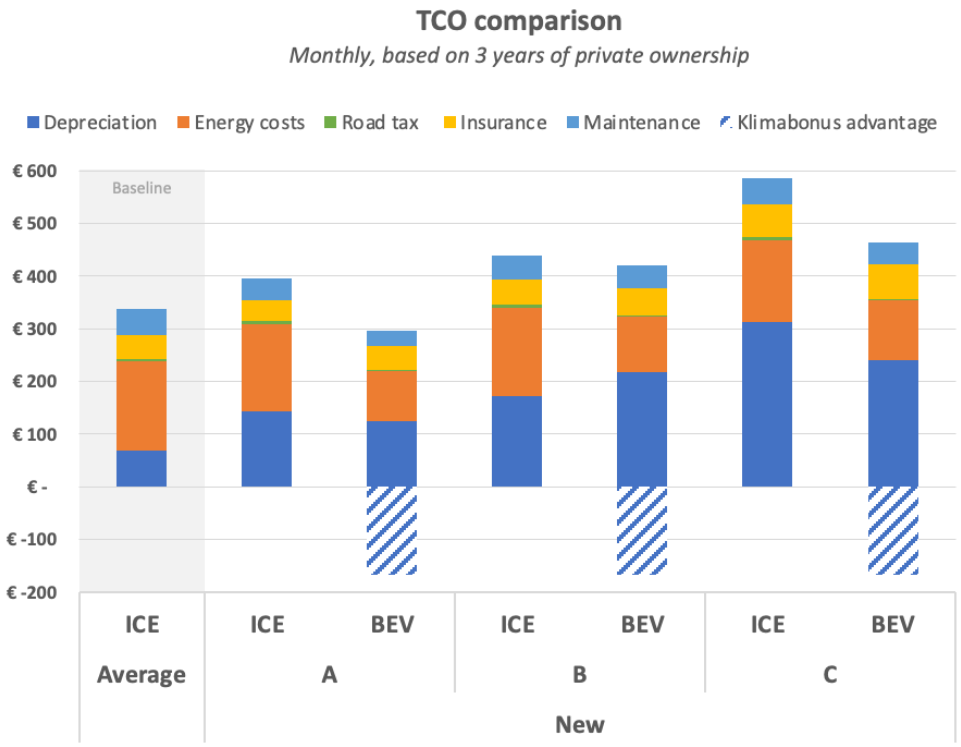

Figure 7.3 – TCO comparison - Monthly, based on 3 years of private ownership (ICE vs BEV, new cars only)

The analysis also looked specifically at used BEVs. For each segment, the acquisition cost of a typical three year old BEV was calculated and compared with the cost of a comparable new BEV. Depreciation over the next three years was combined with operating costs and with the differentiated Klimabonus - €6.000 on new BEVs and €1,500 on used BEVs, corresponding to about €167 and €42 per month respectively. The outcome is shown in Figure 7.4. In the A and B segments, new BEVs remain more attractive than used ones, because the higher subsidy on new vehicles almost offsets the additional depreciation and the relatively small price gap between new and used BEVs noted in Figure 7.2. Only in the C segment does a used BEV achieve a clear financial advantage compared with a new BEV, of around €70 per month over the three year horizon. If the subsidy difference between new and used BEVs were removed, used cars would become more attractive across all segments, but under current rules they play only a limited role in reducing TCO for the target group.

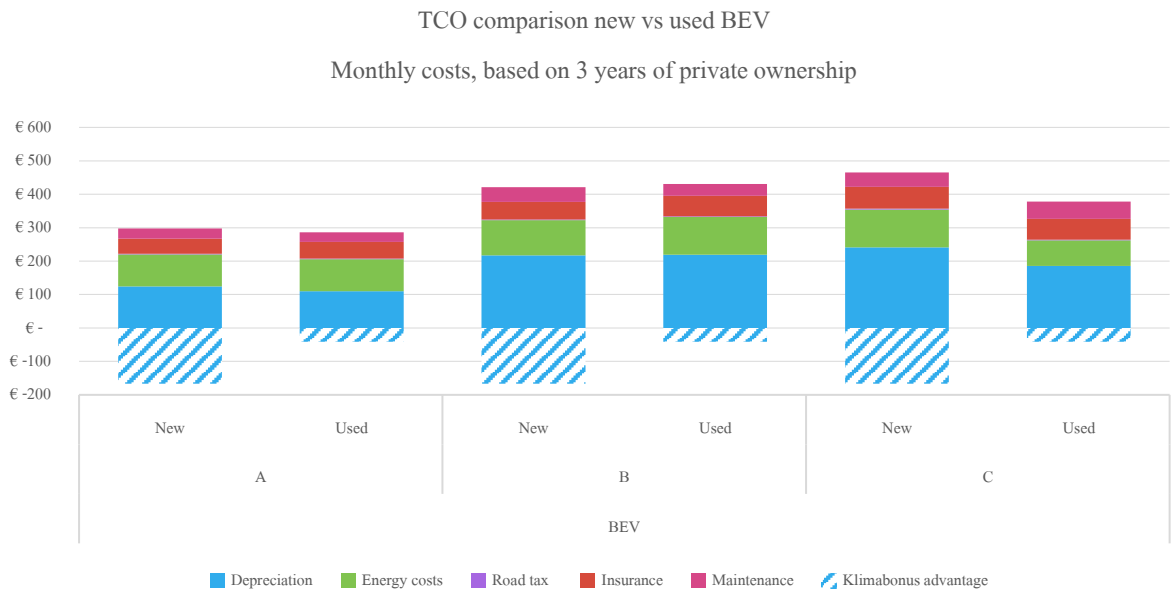

Figure 7.4 – TCO comparison - Monthly, based on 3 years of private ownership (new vs used BEV)

Figure 7.5 summarises the full comparison of monthly TCO across used ICE, new ICE, new BEV and used BEV configurations. It highlights three conclusions that are central for the design of the social leasing scheme. First, from the perspective of a low income household currently running an older C segment petrol car, both new ICE and new BEV ownership are financially out of reach without significant support, because the monthly TCO step from the used ICE baseline in Figure 7.1 to the new car scenarios in Figure 7.3 exceeds €100. Second, within the universe of new vehicles, BEVs are competitive or cheaper than ICEs in all segments once Klimabonus is considered, which justifies focusing the scheme on BEVs rather than on cleaner ICE models. Third, the current subsidy structure and residual value dynamics make new BEVs clearly more attractive than used BEVs in the A and B segments and only moderately less attractive in the C segment, which limits the usefulness of second hand BEVs for the early phases of social leasing and supports the recommendation to prioritise new vehicles at scheme launch.

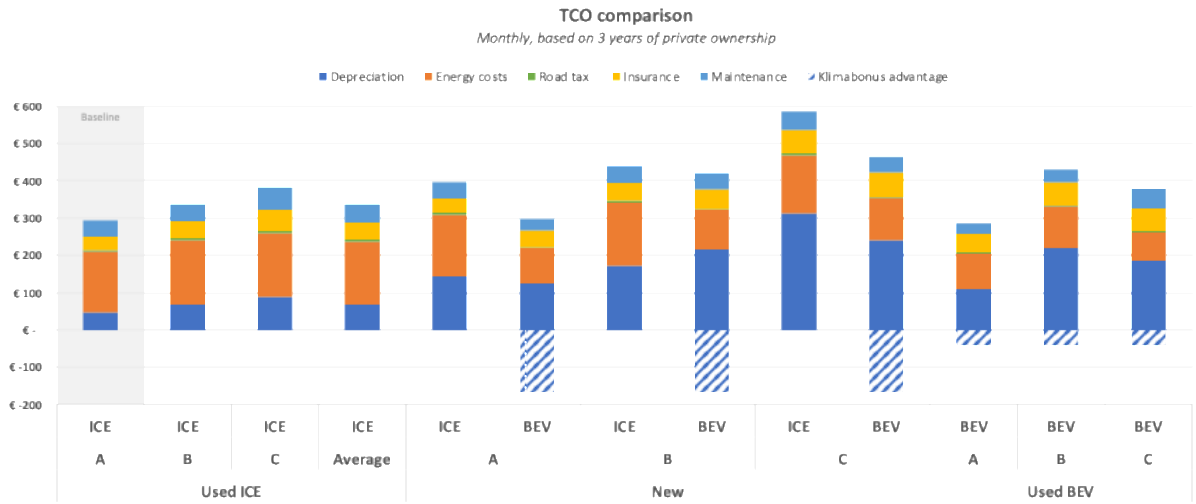

Figure 7.5 – TCO comparison - Monthly, based on 3 years of private ownership (full overview)

7.5 Future trends: ETS2 and RED II

Looking ahead, European and national carbon pricing will reinforce the operating cost advantage of BEVs over petrol and diesel cars. Luxembourg has applied a dedicated CO2 tax on transport and heating fuels since 2021, starting at €20 per tonne of CO2 and rising stepwise to €40 per tonne in 2025, with a further increase to €45 per tonne planned for 2026 in line with the national energy and climate plan. At current rates this national tax already adds roughly €0.11 to €0.13 per litre of petrol and diesel sold in Luxembourg, an amount that BEV drivers do not pay. From 2027/2028, the new EU ETS2 for buildings and road transport will introduce an additional carbon price on the fuels used by households and small consumers.

Market analysts suggest that ETS2 could add on the order of €0,15 to €0,25 per litre to fuel prices by the early 2030s, depending on the evolution of CO2 allowance prices and national mitigation policies. Combined with the existing national CO2 tax, this implies a structural increase in ICE operating costs over the lifetime of vehicles registered under the social leasing scheme. In parallel, the revised Renewable Energy Directive (RED III, building on RED II) requires member states to raise the share of renewables in final energy consumption and explicitly recognises that higher renewable penetration reduces exposure to fossil fuel price shocks. Provisions on crediting renewable electricity used in transport further support the decarbonisation of EV charging and can help keep electricity related CO2 costs contained over time. As BEV markets mature, further cost reductions from battery and vehicle production are expected, or at least a slowdown in price increases relative to ICEs. Taken together, a rising CO2 price on petrol and diesel, a gradually cleaner electricity mix and technology learning for BEVs are likely to widen the gap between ICE and BEV running costs in favour of BEVs, reinforcing the economic rationale for a social leasing scheme that locks in lower operating expenses for vulnerable households.

7.6 Conclusions and recommendations

The TCO analysis shows that the current mobility baseline for many low-income, long-distance commuters, typically a 3–10-year-old petrol car, clusters around a relatively stable monthly cost level (slightly above €300/month in the baseline case). Shifting from this baseline to new vehicle ownership (ICE or BEV) creates a material affordability step, largely driven by higher depreciation and financing requirements. This confirms that the role of the Social Leasing Scheme is not marginal cost optimisation, but to bridge a structural affordability gap for households that cannot absorb the monthly cost increase of replacing an older vehicle through private ownership.

Within the universe of new vehicles, BEVs are consistently cost-competitive or cheaper than comparable ICE vehicles once Klimabonus is included, due to lower energy, road tax and maintenance costs. This supports a clear TCO-based recommendation to prioritise BEVs (rather than "cleaner ICE") in the scheme design. The TCO results also clarify the position of used BEVs: under the current differentiated Klimabonus (€6.000 new vs €1,500 used), used BEVs are not systematically cheaper than new BEVs in the A- and B-segments over a three-year horizon, because the higher subsidy on new vehicles narrows the new–used price advantage. Used BEVs show a clearer monthly advantage primarily in the C-segment, where the price gap is larger and depreciation dynamics differ. Accordingly, the TCO evidence supports launching the scheme with a focus on new BEVs (especially A/B segments and selected cost-efficient C-segment variants), while treating the inclusion of used BEVs as a later-phase option subject to a dedicated evaluation once supply and pricing conditions are clearer and the interaction with Klimabonus is reassessed.

Finally, the TCO chapter provides two cross-cutting recommendations for the overall report: (i) subsidy calibration should be explicitly linked to the TCO "step" between the baseline used-ICE situation and the targeted social lease fee (i.e., the subsidy should be justified as the amount needed to close that gap under transparent assumptions), and (ii) scenario testing should be maintained over time because ETS2 and rising carbon costs are expected to increase ICE operating costs, widening the relative advantage of BEVs and potentially reducing the required subsidy level for future cohorts.

8 LEASING MODELS

8.1 PURPOSE AND OVERVIEW

This chapter explains the main types of leasing and financing models that could be used in Luxembourg's social car leasing scheme. It looks at how direct purchase subsidies, financial leasing, and operational leasing differ in terms of cost, risk, and implementation. The analysis shows that the full operational lease is the most suitable model for combining social and environmental goals in the Luxembourg context.

8.2 COMPARING THE MAIN MODELS

There are three main forms of vehicle ownership or use relevant to social leasing: purchase with a purchase subsidy, financial lease, and operational lease. Each structure differs in ownership, financing, risk allocation, and the moment when subsidies are granted.

8.2.1 PURCHASE WITH A PURCHASE SUBSIDY

In this model, the buyer becomes the full owner of the vehicle immediately. For lower-income households, this is only feasible if the car is financed through a consumer loan, which typically comes with high interest rates. The total ownership cost therefore remains high. The (perceived) residual-value risk lies entirely with the buyer: if the car depreciates faster than expected, this loss cannot be shared.

The subsidy is usually paid at the start of the purchase, such as under the Klimabonus or Swedish scheme, making the transaction simple but also risky, since cars may be sold before the minimum ownership period ends. While this structure lowers the entry threshold, the owner remains responsible for high loan repayments, which can be difficult for low-income households to manage. Once the vehicle is sold, recovering the subsidy is difficult or impossible.

At the same time, full ownership can provide long-term planning security for households, as the vehicle can be kept and used beyond an initial contract period. Over a longer ownership horizon, maintenance costs may be lower compared to leasing. However, the owner remains fully responsible for loan repayments, maintenance and insurance, which can be difficult to manage for low-income households.

8.2.2 FINANCIAL LEASE

Financial leasing is structured around a long-term credit contract in which the vehicle itself serves as collateral. The lessee uses the car but does not own it until the loan is fully repaid. In the event of non-payment, the bank or financing company may reclaim the car, potentially facing a loss if the residual value is lower than forecast. The rest-value risk therefore lies mainly with the user but partly with the financing institution. Financial leases typically include a significant final payment to transfer ownership, and the overall

cost during and after the contract is higher than in an operational lease. The subsidy is typically granted at the beginning of the contract to reduce the financed amount or monthly payments. Because ownership is delayed, the lessee cannot sell or modify the car during the lease period, which restricts flexibility. Maintenance and insurance are generally borne by the user, and monthly costs are higher than under a full operational lease because interest and principal repayment are included.

8.2.3 Operational lease (social private lease)

Under an operational lease, ownership remains entirely with the leasing company throughout the contract. The user pays a fixed monthly fee that covers the right to use the car, as well as maintenance and insurance. The residual value risk lies fully with the leasing company, which recovers this cost by reselling or re-leasing the vehicle after the contract ends. In standard operational lease contracts in Luxembourg, an upfront down payment is often required as a mechanism to reduce risk for the leasing company. However, this measure would exclude many low-income households who lack savings. Therefore, in the context of social leasing, down payments should not be permitted. The subsidy should be applied as a monthly deduction on the lessee's invoice (full pass-through), while the State can reimburse the leasing company through a periodic settlement cycle (e.g. yearly) with ex-post controls and annual reconciliation. This preserves leverage and enables structured annual reviews with participating companies on fleet condition, damage rates and defaults. This approach also creates an opportunity for annual dialogue between the government and participating companies on fleet condition, damage rates, and payment defaults. The operational lease model offers predictable costs for users and allows public authorities to monitor compliance closely, making it particularly suited for social leasing.

8.3 Key differences between ownership models

The three models differ fundamentally in ownership, financial exposure, and the way risks and responsibilities are distributed:

Feature	Purchase with purchase subsidy	Financial lease	Operational lease (social private lease)
Ownership	Immediate transfer to the buyer.	Ownership transferred after full payment.	Remains with leasing company throughout.
Financing	Requires full upfront payment or a high-interest loan.	Based on long-term loan with monthly payments and final buyout.	Fixed monthly usage fee including maintenance and insurance.
Residual value risk	Fully with the buyer.	Fully with the buyer.	Fully with the leasing company.

Flexibility	Low—owner must sell vehicle to exit.	Moderate—contract can be terminated but usually costly.	High—can include flexible termination clauses and reallocation options.
Subsidy use	One-off subsidy at purchase moment.	Applied at contract start to reduce financed value.	Can be distributed over time to maintain affordability and control.
Suitability for low-income users	Limited, due to high capital requirement.	Moderate, but constrained by credit checks.	High, predictable, and low risk when combined with state support.

8.4 RECOMMENDED MODEL: FULL OPERATIONAL LEASE

Among the three models reviewed, the full operational lease clearly stands out as the most appropriate solution for Luxembourg's social leasing scheme. Both the financial analysis and extensive stakeholder consultation point in the same direction: this model offers the best balance between affordability, risk management, and administrative control.

The main advantages from operational lease are low risks, simplicity and low threshold for the eligible households. Another advantage related to this is the fact that total costs for the lessee under a full operational lease are lower than those of a financial lease and far below the total cost of buying a vehicle as payments are only related to the contract length of the lease. After the contract ends the lessee has to hand over the vehicle to the lease company, meaning that a full operational lease does not include the cost of acquiring the vehicle itself; the lessee only pays for depreciation, financing, and services during the lease period. For a social leasing scheme, this allows eligible households to access an electric vehicle for an affordable and predictable monthly fee, without savings or an upfront payment. It is to be recommended that the eligible households will have the opportunity to buy the BEV from the lease company after the period of operational lease for a reasonable price related to the residual value at that moment. That gives the lessee the opportunity to own the vehicle if they are able via a loan or with a direct payment on a much lower level than if they have to buy a new vehicle.

A second advantage lies in the distribution of risk. In this model, the financial and technical risks that typically discourage low-income households from buying new (electric) vehicles, such as maintenance, insurance claims, or depreciation, are almost entirely transferred to the leasing company. By making full insurance coverage (including all-risk and own-damage protection) mandatory and including scheduled maintenance in the monthly fee, the scheme ensures that lessees are shielded from unexpected expenses. Routine maintenance is expected to be carried out by certified dealers, guaranteeing vehicle safety and compliance with warranty requirements as organised by the lease companies.

Third, the model gives the government a powerful regulatory lever. Because the leasing companies retain ownership and receive subsidies over time rather than upfront, the government can set clear conditions for participation and continuously monitor compliance, it is recommended that this monitoring process will be implemented by a competent authority that is already fit for such a process, such as AEV. This makes it possible to influence contract standards, environmental performance, vehicle retention within Luxembourg, and consumer protection measures, goals that are much harder to achieve under other ownership models.

While financial leasing offers the theoretical benefit of transferring ownership to the household at the end of the contract, its drawbacks are substantial. The higher total costs and the large final (balloon) payment create a financial barrier for most target households. In addition, ownership transfer shifts the residual-value risk to the lessee, which is undesirable in a program meant to support vulnerable users. Several stakeholders have also noted that avoiding ownership risks can actually encourage participation, as households feel more confident leasing without the (perceived) risk for coping with – for example – high battery degradation.

Finally, the operational lease model prevents two key problems associated with purchase-based schemes. First, it eliminates the need for large, one-off subsidies, which are difficult to recover if vehicles are sold prematurely. Second, it ensures that cars remain under control of professional operators who can reallocate them within the programme once a lease ends. This supports long-term vehicle use within Luxembourg and maximises the social and environmental return on public funds.

An additional advantage of the operational lease model is that it allows, under certain conditions, the possibility for the lessee to purchase the vehicle at the end of the lease term. Although current regulations do not permit a buyout price to be fixed in advance for operational leases, it is common practice for leasing companies to offer an end-of-term purchase option once the contract expires. Typically, this price should be between € 1.000 and € 2.500 below the market price that would apply in a showroom, since administrative and marketing costs are lower when selling directly to the lessee. In particular, if the lease term is extended to around six years, the residual value of the vehicle is expected to fall to about 40 percent of its original price, making the buyout financially achievable for households. A full operational lease with a six-year term therefore provides a realistic and legally compliant pathway for eligible households to eventually acquire their leased vehicle, ensuring both continuity and affordability in the longer term.

For these reasons, the full operational lease represents not only the most practical but also the most sustainable framework for Luxembourg's social leasing program. It

minimises financial risks, ensures high transparency, and aligns both market and policy objectives in a coherent, durable system.

8.5 Mechanism for leasing company participation

This section sets out the recommended approach for involving leasing companies in a future Social Leasing Scheme in Luxembourg. It focuses on the participation model, the rationale for open access, and the core safeguards needed to protect public interests, while leaving operational procedures and detailed workflows to the implementation document.

8.5.1 Open participation model

Based on consultations with sector stakeholders and a review of international experience, the study advises the use of an open participation model for leasing companies. Rather than pre-selecting a limited number of operators through a tender procedure, all leasing companies established in Luxembourg, or authorised to operate there, should in principle be able to participate, provided that they meet a defined set of minimum eligibility and quality requirements.

An open model supports competition and diversity of offers, as leasing companies are encouraged to develop affordable and attractive products across different vehicle segments. It also allows eligible households to choose between multiple providers and vehicle options that best match their needs. Importantly, this approach enables the scheme to evolve with market developments: newly introduced BEV models can become available as soon as they meet the eligibility thresholds, without requiring model-by-model approval or prior price validation by the State.

Input from stakeholders, including representatives of the House of Automobile, indicated that an open participation model is preferable to a restrictive tender-based approach. In particular, it was noted that excluding smaller or brand-specific leasing companies would be difficult to justify in the Luxembourg context and could unnecessarily limit market participation. Broad access was therefore seen as important to avoid distortions and to preserve offer diversity across brands and operators. Broad participation therefore helps avoid market distortion and supports a level playing field among leasing companies of different sizes.

8.5.2 Core participation conditions and public safeguards

While participation is open in principle, it is advised that access to the scheme be conditional on a standard framework agreement and a limited set of objective participation conditions. These conditions are intended to ensure compliance with public funding rules, protect beneficiaries, and limit delivery and financial risks for the State.

At a conceptual level, participating leasing companies would be expected to:

- be legally established in Luxembourg or authorised to provide leasing services there under the applicable EU or national regime;
- comply with relevant prudential, consumer protection and data-protection requirements;
- demonstrate sufficient financial and operational capacity to deliver and manage social lease contracts over time;
- apply transparent pricing that ensures full pass-through of the public subsidy to the household, avoiding overcompensation at the level of individual contracts;
- comply with audit, reporting and control requirements applicable to nationally or EU-co-financed schemes, including traceability of public funds.

With respect to State aid considerations, the proposed scheme is designed as aid of a social character granted to individual consumers, consistent with Article 107(2)(a) TFEU. The role of leasing companies is limited to that of delivery partners, with public support required to be fully reflected in reduced lease prices for households. Any ancillary payments to leasing companies, such as compensation for administrative tasks, would need to comply with the applicable de minimis framework. Detailed legal structuring and verification mechanisms are addressed separately in the implementation documentation.

8.5.3 Risks for participating leasing companies

Participation in a social leasing scheme involves specific risks for leasing companies, which should be recognised in the scheme design. These risks include, in particular, higher probabilities of early termination, greater credit risk compared to standard private leasing, and additional administrative requirements linked to eligibility checks and reporting.

The scheme design mitigates these risks through several structural choices discussed elsewhere in this report. These include the use of a public guarantee or risk-sharing mechanism, clearly defined early-termination rules, and a contract structure that allows vehicles to be reallocated within the scheme. By addressing risk at scheme level rather than at the level of individual contracts, the framework aims to make participation commercially viable without undermining responsible lending principles.

8.5.4 Early termination and continuity at scheme level

From a programme perspective, early termination is an expected occurrence, for example due to changes in household circumstances or payment difficulties. To protect public funds while keeping the scheme workable, a clear distinction should be maintained between the private lease contract and the public support provided through the scheme.

At scheme level, the guiding principles are that public subsidies apply only while an eligible social lease is active, and that vehicles should, where feasible, be prioritised for continued use within the scheme after early termination. Returned vehicles can be reallocated to another eligible household or, where appropriate, exit the scheme without further public support. The detailed operational handling of early termination, reallocation and settlement is addressed in the implementation document and aligned with the financial and risk-sharing framework described in Sections 8.9 and 8.10.

8.5.5 End-of-lease options

While leasing primarily serves to lower upfront barriers and shift residual-value risk away from low-income households, consultations indicate that some households value the possibility of ownership over time. The scheme can therefore allow, but not require, an option for households to purchase the vehicle at the end of the lease period.

Any such purchase option should be market-based, transparent and clearly separated from the social leasing subsidy, which would end upon transfer of ownership. The availability and conditions of buy-out options should be designed so as not to undermine affordability, consumer protection or the cost-efficiency of the scheme, with further detail to be specified in the implementation documentation.

Overall, an open participation model combined with clear but limited safeguards allows Luxembourg to balance inclusiveness, competition and public oversight. This approach supports flexibility and innovation in the leasing market, while ensuring that public resources are used transparently and in line with the social objectives of the scheme.

8.6 Focusing on the monthly lease fee

In the lease model, affordability is anchored in a clear, predictable monthly cost for eligible households. This is achieved through a uniform structure in which each contract receives a fixed public subsidy of € 100 per month and leasing companies must offer a gross monthly lease price no higher than €350. Each eligible contract receives a fixed public subsidy of €100 per month for the full six-year lease term, and leasing companies must offer a gross lease price to the beneficiary that does not exceed €250 per month. From the lessee's perspective the arrangement is straightforward: for any vehicle admitted to the scheme, the household will pay a maximum of €250 per month, with the state covering € 100, irrespective of the specific BEV model involved.

This €100 subsidy is a modelling assumption and not a policy position. It serves to illustrate how a predictable, uniform contribution could support affordability within a mixed fleet of small and compact BEVs. The underlying TCO of these smaller BEVs is already broadly comparable to that of older ICE vehicles; when leased, however, the TCO becomes slightly higher due to administrative and operational costs borne by leasing

companies. A public contribution is therefore required mainly to make the offer sufficiently attractive for eligible households and to stimulate uptake.

The precise subsidy level required to achieve the desired participation rate was outside the scope of this study. Establishing a more targeted amount would require further analysis, such as survey-based research among the target group, and remains both a policy and political choice—balancing budgetary commitment with the ambition to generate a strong, visible shift towards zero-emission vehicles in lower-income segments.

To keep the scheme targeted and fiscally sustainable, this monthly-fee focus is combined with hard technical and price filters on the vehicle side. Only BEVs with a price up to € 38.000 and WLTP efficiency within the Klima-Bonus range (max. 180 Wh/km) are eligible. These criteria ensure that high-end or inefficient EVs are automatically excluded, even if a leasing company could theoretically structure a low monthly payment by shifting risk or cross-subsidising. At the same time, the uniform € 100/month subsidy and the € 250/month lessee cap leave space for market dynamics: manufacturers and leasing companies can compete on vehicle price, residual value and discounts to bring models under the cap, but the public contribution per vehicle does not escalate with price or segment.

This design keeps the monthly lease fee as the key social filter, households only see and decide on an all-in monthly payment, while the state's financial exposure is controlled through simple, transparent rules on subsidy size and vehicle eligibility. It also gives the government a clear negotiation lever with lessors and importers: any model that can be offered at or below € 350/month to the target group, within the € 38.000 price and WLTP efficiency limits and with a fixed € 100/month subsidy, can enter the scheme; those that cannot must either be discounted further by the market or remain outside the social leasing offer.

8.7 Price setting

A central design feature of the updated Luxembourg Social Leasing Scheme is that affordability is expressed in terms of the monthly lease fee, not in terms of catalogue price, segment or detailed socio-economic segmentation. For the target group, the decisive variable is the amount they must transfer each month, and the model reflects this by combining a fixed public top-up of € 100 per month with a hard lessee price cap of € 250 per month on the gross lease charged by the lessor. As long as a vehicle can be offered to an eligible household at or below € 250/month and meets the technical and price criteria, it can enter the scheme; if it cannot, it is automatically excluded.

From an economic perspective, the vehicle's purchase price is only one factor behind the monthly lease rate. Depreciation, residual values after three and six years, manufacturer

or importer discounts, and fleet-level incentives can all materially change the final lease price. International experience confirms this: in France, relatively high list-price vehicles have been offered at surprisingly low monthly rates when strong residuals and manufacturer-backed programmes support the leasing offer, while some ostensibly "cheap" models have yielded unattractive leases because of weak resale values or constrained supply. These dynamics show why purchase price alone is a poor proxy for affordability for low-income households and why the scheme's main filter is the achievable monthly lease, not the sticker price.

The below example calculation provides and overview of the cost components. Costs, particularly depreciation costs are calculated after reducing the capital costs with the Klimabonus purchase subsidy.

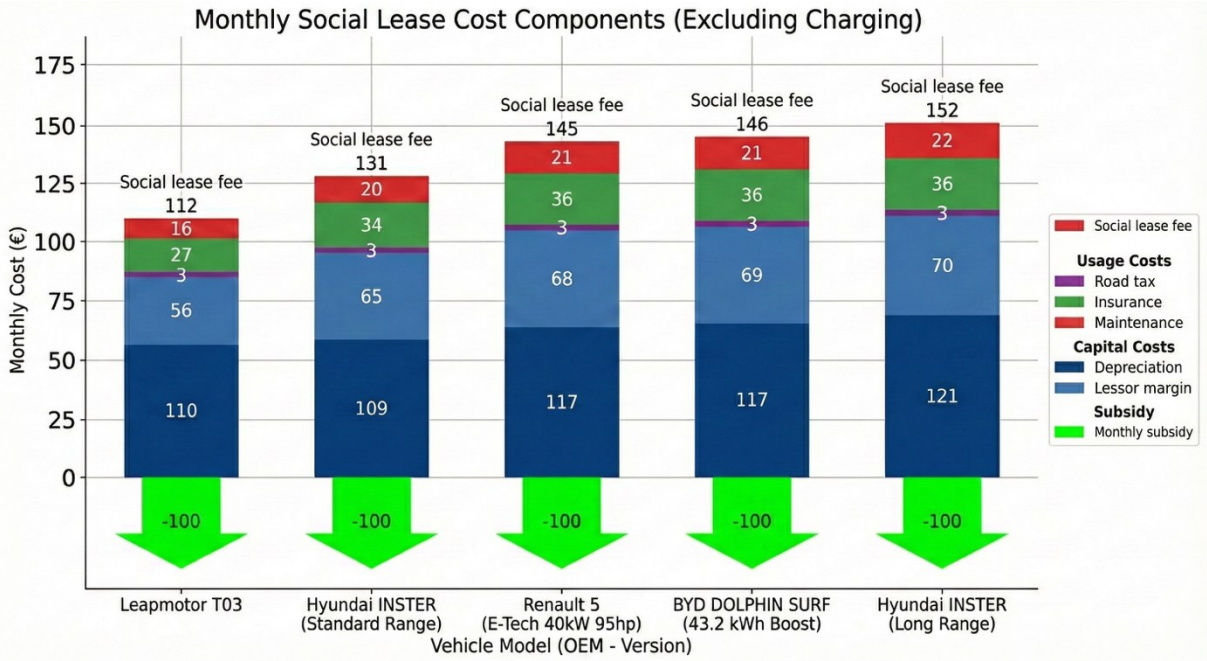

Figure 16 - Example calculations of the breakdown of social lease costs to components for 5 BEV models.[3]

In the model, this monthly-fee focus is operationalised through simple, transparent rules. Every eligible contract receives a uniform €100/month social lease subsidy for the full six-year term. Leasing companies are free to build their own TCO and pricing calculations, but to qualify for the subsidy they must offer the beneficiary a gross lease price of no more than €250/month. The precise lessee payment level (e.g. whether a particular model ends up at €180, €210 or €240/month) is the outcome of market competition, discounting and residual value assumptions, not a parameter in the public finance model. For budgeting purposes, the state's exposure is fixed at €100/month per active contract, the lessee price cap functions as an affordability safeguard and compliance check rather than as a

[3] Component costs are estimated as per the theoretical TCO and lease model of FIER. Leasing cost and TCO calculations and inherently unique to all leasing companies and mostly confidential information. Yet, such calculations the study conducted to estimate a fair lease price.

driver of public cost. In the table below an indicative list of BEV's that probably could fit within the scheme with an operational lease term for the lessee of not more than €250 per month. This is an indication based on our research, not a full list and not exact lease terms. For a full list of analysed vehicles see the technical annex.

To prevent implicit subsidisation of premium or inefficient vehicles, the monthly-fee rule is combined with hard technical and price filters. Only battery electric vehicles with a price up to € 38.000 and WLTP efficiency within the Klimabonus range (max. 180 Wh/km) are eligible. High-end models are therefore excluded even if a lessor could, in theory, engineer a low monthly payment by pushing risk into the residual or cross-subsidising from other business. Conversely, if a manufacturer or importer is willing to offer substantial discounts and can demonstrate robust residual values, smaller and mid-range models can be brought under the € 250 cap and qualify for the € 100/month subsidy. This preserves market-based flexibility while keeping the programme firmly aligned with its social and climate objectives.

This structure brings several policy and operational advantages. First, it guarantees that only genuinely affordable offers reach the target population, because any vehicle whose sustainable economic lease rate (after the € 100 subsidy) remains above € 250/month is simply ineligible. Second, it naturally screens out premium and luxury models without the need for a detailed official "white list" of models: vehicles enter or exit the scheme automatically as their achievable monthly price falls within or outside the cap. Third, it delegates the commercial optimisation problem to the market. Leasing companies and importers decide which BEV models they can profitably offer within these boundaries, considering their own TCO, risk appetite and expectations about residual values. The government does not need to micromanage model selection; it only needs to enforce the price, efficiency and monthly-fee rules.

Finally, the monthly-cap logic is consistent with the scheme's Total Cost of Ownership (TCO) analysis. For many low-income households currently running older petrol cars, the combination of fuel, maintenance and unexpected repairs generates a total monthly outlay that is comparable to or higher than a capped social EV lease. By limiting beneficiary contributions to a predictable ceiling and applying a uniform € 100/month subsidy, the scheme helps ensure that the overall cost of mobility remains stable or decreases for participants, while shifting them onto zero-emission vehicles. At the same time, because the public contribution is fixed per contract, the state retains a clear view of its long-term budget exposure and can use the model to test how changes in vehicle prices, residual values or lessor margins would affect the number of affordable leases that can be supported within the SCF and national funding envelopes.

8.8 INSURANCE CONSIDERATIONS

In Luxembourg, the insurance premium for own-damage (all-risk) coverage is partly linked to the rated motor power of the vehicle. For most smaller and mid-sized battery-electric vehicles relevant to the social leasing scheme, motor power typically falls in the range of approximately 60 to 100 kW (roughly 80 to 135 horsepower). Within this range, insurance premiums can generally be expected to remain moderate, which supports the overall affordability objectives of the scheme.

A comprehensive all-risk insurance policy is an essential component of a social leasing programme. For many participants, the scheme would represent a transition from older, low-value internal combustion engine (ICE) vehicles to newer and higher-value battery-electric vehicles (BEVs). To ensure acceptance and build confidence among users, insurance coverage should fully protect lessees against financial shocks resulting from accidents or damage, including incidents for which the driver is at fault.

Under a full operational lease structure, the leasing company remains the legal owner of the vehicle. Insurance coverage should therefore include both third-party liability and own-damage protection. In the cost models used in this study, insurance costs are assumed to cover both components, ensuring that monthly lease payments reflect a fully insured vehicle and that users are not exposed to unexpected repair or replacement costs. Presenting comprehensive insurance as an integral part of the lease helps ensure predictable monthly expenses and reduces barriers to participation.

An additional consideration relates to the bonus–malus system applied in the private insurance market. Many potential participants have an existing driving history, which reflects their past claims experience. Within a social leasing framework, insurance is likely to be arranged through fleet-based contracts applying an averaged premium across participants. While this simplifies administration and enhances inclusivity, it also requires attention to continuity of insurance history.

To address this, leasing companies could be encouraged to ensure that participants' no-claims history is properly recorded during the lease period and can be transferred back to the private insurance market once the social lease ends. This helps prevent gaps in insurance records and allows drivers to retain the benefits of responsible driving behaviour over time, even though individual bonus–malus differentiation is not applied within the scheme itself.

Taken together, the insurance component of a social leasing scheme should be designed to provide full all-risk coverage, predictable and stable monthly costs, and continuity of insurance history. These elements contribute to user confidence, operational simplicity and the overall attractiveness of the scheme for both households and leasing companies.

8.9 CREATING ACCEPTABLE RISK FOR LEASING COMPANIES

Under a full operational lease structure, leasing companies carry significant financial risk. Vehicle depreciation is strongest in the early years of the contract, while margins are typically realised only towards the end of the lease term. Early termination or payment default therefore has a disproportionate impact on the lessor's financial position. For this reason, operational leasing contracts are usually strict in terms of termination conditions, and credit assessments play a central role in risk management.

In Luxembourg, leasing companies generally rely on banks or financial intermediaries to conduct credit checks. These assessments are based on legally defined affordability thresholds, requiring that an applicant's disposable income remains above a minimum level after accounting for lease payments. While this approach protects lenders and consumers, it effectively excludes many low-income households from leasing, even in cases where switching to an electric vehicle could reduce overall mobility-related expenses.

To make social leasing accessible to vulnerable households, the study explores the use of a shared-risk mechanism that lowers this entry barrier while preserving responsible lending principles. Drawing on experience from France, one possible approach would be a phased risk-sharing arrangement, whereby the leasing company retains initial exposure to non-payment, followed by a limited period of public coverage through a guarantee mechanism, after which the contract would be terminated and the vehicle recovered. The specific timing and parameters of such a mechanism are illustrative and would require further refinement at implementation stage.

While credit-insurance products corresponding to Class 15 exist within the Luxembourg insurance framework, they are rarely used in practice and are generally not cost-effective for small-scale leasing schemes. A public risk-sharing mechanism is therefore considered a more proportionate instrument in the context of social leasing.

Within such a framework, leasing companies could apply a simplified credit assessment focusing on disposable income, household composition and mobility needs, rather than relying exclusively on standard credit scores. This approach has been suggested by actors from the leasing and financial services sector as a way to better reflect the real affordability of a social leasing arrangement, without lowering responsible lending standards. In addition, the assessment could take into account that replacing an internal combustion engine (ICE) vehicle with a leased electric vehicle may reduce household expenditure on fuel and maintenance, thereby improving monthly cash flow.

At the same time, responsible lending principles would remain fully applicable. Applicants facing structural financial distress, such as ongoing debt recovery procedures or severe over-indebtedness, would remain excluded. The role of any public guarantee

mechanism would be limited to absorbing ordinary credit risk, not structural or systemic financial risk.

From the perspective of the lessee, such a model is intended to reduce perceived financial risk. In cases of sustained payment difficulties, the combination of early termination and vehicle recovery would limit long-term personal financial exposure compared to conventional leasing arrangements, thereby lowering barriers to participation.

Overall, the analysis indicates that acceptable risk conditions for leasing companies could be created through a combination of a public default-risk mechanism, flexible termination rules and efficient vehicle reallocation. Together, these instruments form a coherent conceptual framework to support inclusion while protecting operators from undue financial exposure.

It should be noted that a full legal and financial structuring of such a mechanism falls outside the scope of this study and would need to be developed in detail prior to implementation.

8.10 Lease duration and contract structure

This section sets out the economic logic underpinning the recommended lease duration and contract structure for the social leasing scheme. It explains why a longer period of vehicle ownership is advised for leasing companies, how this can be combined with shorter contractual commitments for households, and which incentives are needed to avoid premature disposal of publicly supported vehicles.

8.10.1 Ownership duration and cost efficiency

A core economic principle underlying the proposed design is that longer periods of ownership reduce average monthly costs. On this basis, the study advises that leasing companies retain supported vehicles for an ownership period of around six years. Fixed and upfront costs, in particular depreciation, are spread over more months, making vehicle use more cost-efficient over time.

Vehicles depreciate most strongly in the first years after first registration. Short ownership cycles therefore concentrate depreciation into a brief period and result in high average monthly costs. Extending the period of use beyond three years spreads these costs over a longer time and reduces how often new vehicles, and associated purchase incentives (such as the Klimabonus), are required.

Figure 18 illustrates this normal depreciation pattern. For a vehicle with a new price of €30.000 and indicative residual values of around 65% after three years and 42% after six years, depreciation over the first three years amounts to approximately €10.500. Over the second three-year period, additional depreciation is about €6.900. The difference of

€3.600 over three years corresponds to roughly €100 per month, reflecting the fact that depreciation slows down over time.

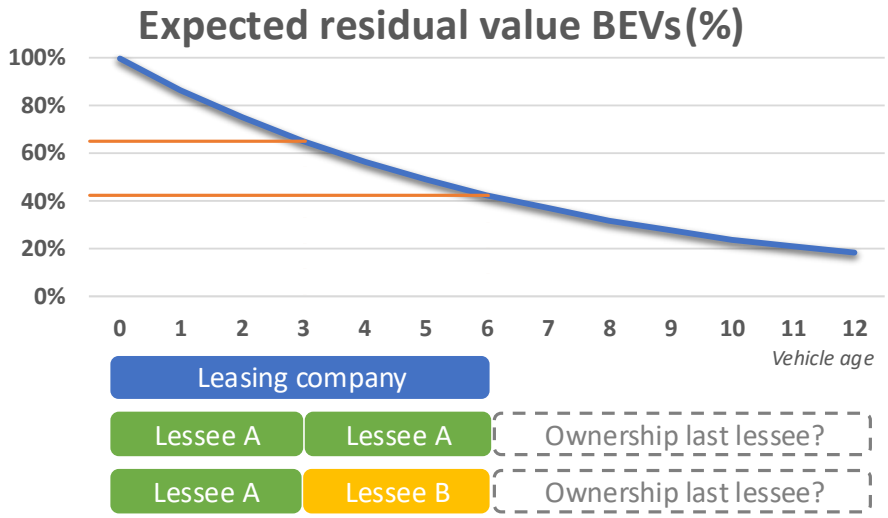

Figure 17 – Expected residual value curve and contract visualisation (by FIER)

The second three-year period may involve slightly higher uncertainty for leasing companies, for example in relation to residual value or maintenance. In practice, these risks can be managed through standard risk-management tools already used in operational leasing, such as conservative residual-value assumptions, manufacturer buy-back or support arrangements, and scheme-level risk-sharing mechanisms. Taken together, these factors do not outweigh the benefit of lower depreciation, which in normal circumstances results in lower monthly leasing rates when the lease terms are related to a longer timeline.

It is important not to distort this comparison by subtracting the Klimabonus from depreciation in the first three years only. The purchase incentive does not alter the economic depreciation of the vehicle and should be considered over the full period during which the vehicle is used within the scheme.

In Luxembourg, three-year leasing cycles are common, particularly in the business market, which accounts for a large share of new vehicle registrations. Applying this practice unchanged in a publicly supported scheme would lead to significantly higher public expenditure, especially on the Klimabonus, than necessary. Encouraging longer vehicle use therefore improves cost efficiency without reducing functionality or reliability.

From a risk perspective, a six-year ownership period is also workable under current market conditions. Most new BEVs offered through leasing come with manufacturer warranties on the battery and drivetrain of seven to eight years, typically with mileage limits of around 150.000 km. This means that the technically most critical components

remain under warranty for most or all of the proposed ownership period, limiting maintenance and reliability risk for leasing companies.

8.10.2 Contract horizon for households (3+3 structure)

Against this background, the recommended structure distinguishes between ownership duration and household commitment. For leasing companies, a period of ownership of around six years is advised. For households, a shorter commitment remains important. A three-year contract period lowers the barrier to entry and provides a clear moment to reassess affordability and eligibility. In practice, this can be combined in a 3+3 structure, where vehicles remain available within the social lease framework for up to six years, while households commit for three years at a time, consistent with the depreciation profile illustrated in Figure 18.

To remain attractive for households, lease prices in years 4–6 should therefore be lower than in the initial period, both for households continuing with the same vehicle and for those entering the scheme with a vehicle that is already three years old.

Eligibility checks should be limited to predefined moments, in particular at the end of the first 36-month term. If a household is no longer eligible at that point, the social leasing subsidy ends at the contract boundary and the vehicle can either be taken over by the household at market-based conditions, be re-leased to another eligible household, or exit the scheme. Early termination due to non-payment leads to a similar operational outcome and is addressed under the general early-termination and risk-sharing framework.

8.10.3 Incentives to avoid premature disposal

Under a six-year ownership logic, premature disposal of supported vehicles should not generate a financial advantage for leasing companies. Rather than introducing rigid prohibitions, this can be addressed through a simple financial settlement mechanism.

If a supported vehicle is disposed of before 36 months, the accumulated social leasing subsidy should be reimbursed. If disposal occurs between month 36 and month 72, the accumulated social leasing subsidy should likewise be reimbursed, while the existing rules governing the Klimabonus remain unchanged and are not altered within the social leasing scheme. With a monthly social leasing subsidy of €100, this implies reimbursement of €3.600 after three years, rising to €7.200 after six years.

This approach creates a clear financial incentive to prioritise continued use within the scheme, either through contract extension with the same household or re-leasing to another eligible household, without requiring complex enforcement mechanisms. As vehicles age, export becomes less attractive due to lower residual values and higher relative transaction costs, further supporting domestic use. Detailed operational arrangements are further addressed in the implementation document.

8.11 Contract provisions

Clear and fair contract provisions are essential for the credibility and long-term success of the social leasing scheme. In standard private leasing contracts, unpleasant surprises often hide in the fine print: high penalties for early termination, repair costs that seem excessive, or fees for minor wear and tear that users see as normal. Such practices must be prevented in a social leasing context, particularly given the financial vulnerability of the target group.

8.11.1 Early termination (in connection to 7.5.4)

Ordinary leasing contracts typically impose strict penalties when a user ends the contract early. In the social leasing model, these penalties should be limited or eliminated when early termination results from unavoidable circumstances, such as loss of employment, relocation, or family and health reasons. As discussed in the risk-mitigation framework, the state could compensate leasing companies for part of their costs when these cases arise. This mechanism avoids financial harm for both users and companies and supports flexibility in the programme.

8.11.2 Wear and tear

Wear-and-tear costs are a frequent source of disagreement between users and leasing companies. To avoid disputes, the social leasing framework should set clear, standardised definitions of what counts as normal use versus excessive damage. Minor issues—such as small scratches, dents, or light interior wear—should be considered normal usage and not penalised. Leasing companies must apply these rules uniformly, using government-approved guidelines, and communicate them clearly to lessees before signing. An independent arbitration service could review cases where disagreements arise.

8.11.3 Insurance and accident coverage

Because the scheme relies on full operational leasing, the insurance package should include full coverage—third-party liability, own-damage, and passenger injury. This structure removes unexpected financial exposure for users and ensures predictable monthly costs. It also shields leasing companies from major financial losses due to accidents, as the insurance absorbs these risks.

8.11.4 Mileage and usage

Each contract should specify a transparent mileage allowance and the cost for exceeding it. For instance, a baseline of 10.000 km per year could be used, with additional kilometres charged at a fair and pre-agreed rate. These provisions prevent hidden fees and make it easier for users to compare offers between leasing companies.

8.11.5 Transparency and communication

Given the programme's social character, transparency is crucial. All costs, conditions, and possible penalties must be communicated in simple, accessible language. Leasing companies should use a standard contract template approved by the government and indicating which part of the monthly invoices is paid by the government, and lessees should receive a short, clear summary of their key rights and obligations. This will strengthen trust and improve understanding among participants.

8.11.6 Dispute resolution and oversight

An independent ombuds or mediation service should be available for users to challenge unclear or unfair charges. Regular audits of participating leasing companies will help ensure compliance with fair-practice rules and identify patterns of overcharging or poor communication. These audits can also provide insights for continuous improvement of the scheme.

In summary, robust and transparent contract provisions are a core element of a fair social leasing system. They prevent exploitation, protect lessees from financial surprises, and maintain the commercial viability of the participating leasing companies. Establishing these safeguards from the start will be key to the credibility, trust, and long-term success of Luxembourg's social leasing programme.

8.12 Leasing Model Conclusion

This chapter compares purchase-based models, financial leasing and operational leasing as potential foundations for a Social Car Leasing Scheme in Luxembourg. The analysis shows that purchase subsidies and financial leasing do not adequately address the needs of low-income households, as they leave users exposed to loan burdens, residual-value risk and standard creditworthiness constraints, while offering limited long-term control over public support.

A full operational lease emerges as the most suitable model. It translates total cost advantages into a predictable monthly payment, bundles maintenance and insurance, and shifts financial and technical risks away from households. Applying public support over time rather than upfront strengthens affordability, reduces misuse risk and enables continuous public oversight.

The chapter recommends an open participation model for leasing companies, subject to clear minimum conditions on transparency, consumer protection and full pass-through of subsidies. Affordability is best anchored in a simple monthly-fee framework, combining a fixed public contribution with a hard cap on the beneficiary's payment, complemented by technical and price filters to exclude unsuitable vehicles.

To ensure commercial viability, a scheme-level risk-sharing approach is advised, alongside reallocation mechanisms that prioritise continued use of vehicles within the

programme. A 3+3 structure is recommended, with vehicles retained for around six years to lower average costs, while households commit for three years at a time with eligibility reassessed at defined moments.

Together, these elements form a coherent and implementable basis for Luxembourg's social leasing scheme.

9 COMPLEMENTARY AND SUPPORTING MEASURES

9.1 PURPOSE AND OVERVIEW

This chapter outlines a set of complementary measures that can enhance the effectiveness and fairness of the social leasing scheme. These measures aim to close policy gaps, address practical challenges such as charging access, and ensure that the benefits of the scheme reach the intended groups while supporting broader climate and circular economy goals.

9.2 SCRAPPAGE SCHEME

The introduction of a scrappage scheme, either as a mandatory condition within the Social Leasing Scheme or as an additional incentive, has been considered but is not recommended. Experience from other European countries such as France, Sweden and Romania shows that such measures are administratively demanding while delivering only limited environmental results.

In the context of Luxembourg, the potential impact of a scrappage requirement would be even smaller. The national vehicle fleet is relatively young, and many households eligible for the Social Leasing Scheme either do not own a car or own internal combustion engine (ICE) vehicles that are still in reasonable technical condition. Introducing scrappage as a condition would therefore add administrative complexity and risk excluding parts of the target group, without materially increasing the environmental effectiveness of the scheme.

It is recognised that, in some cases, households replacing an ICE vehicle with a leased BEV could choose to retain or resell the former vehicle rather than scrapping it, for example for secondary household use. However, monitoring or enforcing scrappage or resale behaviour would be difficult in practice and would require intrusive checks that are disproportionate to the expected benefits. Moreover, resale or export of replaced vehicles is not in itself environmentally inefficient, as it allows continued use of existing assets and avoids premature vehicle destruction.

A separate or voluntary scrappage incentive would likewise contribute little to the programme's objectives. Vehicles replaced through social leasing are unlikely to be scrapped in significant numbers; they will more typically be resold or exported, which represents a more proportionate and economically efficient outcome under current market conditions.

For these reasons, neither a mandatory nor a complementary scrappage scheme is advised as part of the proposed Scheme. Any broader concerns about rebound effects or secondary vehicle use are better addressed through monitoring at scheme level rather than through individual scrappage obligations.

9.3 ASSESSMENT OF CAR-SHARING AS A POSSIBLE ALTERNATIVE OR COMPLEMENTARY SOLUTION TO SOCIAL LEASING

Car-sharing is often mentioned as an innovative and sustainable alternative to private car ownership. To assess whether such services could play a role within or alongside the Social Leasing Scheme, both international research and discussions with Luxembourg's main car-sharing operator were considered. The findings show that car-sharing within Luxembourg and social leasing address distinctly different user groups, income levels and mobility needs.

Across Europe, studies show that car-sharing primarily attracts middle- and higher-income households living in urban areas. Users are generally between 30 and 50 years old, well-educated and without children. They tend to live in neighbourhoods with good public transport, where the car is a convenient but non-essential supplement to daily mobility. In France, for instance, 58% of station-based car-sharing users hold a master's degree compared with only 10% in the general population, while in the Netherlands most car-sharing members live in highly urbanised municipalities.

The Luxembourg situation mirrors this pattern. According to discussions with the country's main operator, the majority of FLEX users live in or near city centres and use a shared car one to three times per week, mostly for shopping, leisure or weekend trips rather than daily commuting.

The socio-economic profile of these users stands in contrast to that of the households targeted by the Social Leasing Scheme. Whereas car-sharing members generally have multiple mobility options and choose flexibility over ownership, the social leasing target group consists of lower-income households that depend on a car for essential travel such as work and care. They typically live in peripheral or rural areas where public transport is limited and shared mobility options are scarce. For them, car-sharing's pay-per-use model would quickly become unaffordable for regular commuting.

Indicative cost scenarios confirm that car-sharing is financially unsuited for frequent users. Based on current tariffs of car sharing in Luxembourg, occasional use (about two hours per trip) results in monthly costs between €155 and €325, comparable to the total cost of owning an internal-combustion vehicle. For longer daily use, such as eight-hour commuting days, monthly expenses rise to between €390 and €780, several times the expected cost of an electric vehicle under the social leasing scheme.

Table 4 - Cost for different car sharing scenario's

Car sharing use scenario	Appr. monthly cost
2 h per day, 3 days per week	€ 180
2 h per day, 5 days per week	€ 290
8 h per day, 3 days per week	€ 330

8 h per day, 5 days per week	€ 550

Table 5 - Calculated cost for car-sharing as alternative to lease

These cost levels align with the conclusions shared by the operator: car-sharing is not designed for daily commuting but for short-term, high-turnover use. Its business model relies on high vehicle utilisation by multiple users over the course of a day, not on individual long-term use.

Geographical distribution further limits its relevance for the social leasing target group. Research from Luxembourg and neighbouring countries shows that car-sharing vehicles are concentrated near public transport hubs and in middle- to higher-income neighbourhoods, while low-income areas remain underrepresented. The operator confirmed that most stations are located in municipalities such as Strassen, Bertrange and Mamer, whereas poorer districts and rural areas are largely uncovered. This spatial imbalance is particularly problematic given that transport poverty in Luxembourg is most pronounced in the periphery and smaller towns, precisely where social leasing is intended to improve access to mobility.

The possibility of allowing social lease vehicles to be made peer-to-peer or community based available for car-sharing was also discussed. In theory, this approach could improve vehicle utilisation and generate wider social value by providing access to additional users. It could help connect individual and shared mobility models, for instance by allowing unused vehicles to serve other drivers during the day. However, the practical and legal implications are considerable and complex for this first stage. Insurance coverage, liability, data protection, cleaning standards and digital access systems would all require a dedicated operator platform comparable to those of professional car-sharing providers. Managing these aspects on a small scale would create disproportionate complexity relative to the potential benefits. For that reason, it is not recommended to integrate such shared use within the first phase of implementation. However as the advantages of peer-to-peer and community sharing are relative big (such as more people driving electric, more results for the government with the scheme as basis), the concept may be revisited once the scheme has matured and if appropriate solutions become available.

Overall, car-sharing serves a valuable function in promoting sustainable urban mobility but operates in a fundamentally different market from social leasing. The former caters to voluntary non-owners seeking flexibility and convenience; the latter enables vulnerable households to maintain access to essential mobility. Despite their shared goals of affordability and reduced car dependence, the two mechanisms address opposite ends of the mobility spectrum. Car-sharing may therefore complement but cannot replace or substantially overlap with social leasing in tackling transport poverty in Luxembourg.

9.4 Outreach and support services

Effective communication and practical support are essential to ensure that eligible households understand the scheme, trust it, and feel confident to participate. Consultations show that many low-income households may hesitate to adopt an electric vehicle, may be cautious about entering long-term contracts, and may fear financial exposure through insurance costs or potential damage charges. Clear messaging is therefore crucial.

Communication should emphasise that the scheme is government-designed and supervised, that it includes safeguards for vulnerable households, and that the subsidised monthly lease fee is lower than the cost of keeping an older petrol car. Households must also be reassured that vehicles are fully insured and that a government-backed safety net prevents unexpected financial burdens if their circumstances change. A clear, neutral programme name—avoiding the term "social"—can further enhance acceptance.

Municipalities, social offices and the Guichet Social Unique form the frontline for outreach, helping households understand conditions and navigate the application process. The Klima-Agence can support education on charging, efficient driving and daily cost management. Together, these actors create a trusted and accessible interface for the scheme.

9.5 Alignment in the sector

Successful implementation relies on coordinated action across both the mobility sector and the social support network. In the leasing domain, Mobiz represents the leasing companies and is a key partner for aligning credit-risk procedures, contract conditions, guarantees and operational feasibility. For the dealer side, Fedamo—representing the network of car dealers and repair shops—and the House of Automobile (HoA) provide essential input on vehicle availability, consumer behaviour and communication at showroom level. Workshop discussions highlighted shared concerns around residual value risks, the limited used-BEV market, credit acceptance for low-income households and the need for clear rules on insurance, maintenance and early termination.

The social sector is equally important for reaching and supporting the target group. Social offices and, once operational, the Guichet Social Unique act as trusted contact points and help applicants navigate eligibility checks and documentation requirements. Their involvement lowers administrative barriers and improves accessibility for vulnerable households. The Klima-Agence supports users with guidance on charging, energy use and efficient driving, reinforcing both the practical and environmental dimensions of the scheme.

Bringing these actors together through a structured coordination framework—covering leasing companies, dealers, social services and Klima-Agence—will ensure consistent communication, a realistic operational design and a smooth roll-out across all communes.

10 FINANCIAL MODELLING OF THE SCHEME

10.1 MODEL STRUCTURE AND KEY ASSUMPTIONS

The financial model simulates the proposed Social Battery Electric Vehicle (BEV) Leasing Scheme for Luxembourg and links the design choices in this report to an indicative budget envelope. It combines three elements:

- the structure of the scheme (lease duration, subsidy per vehicle, vehicle caps)
- the expected number of participating households
- the available funding from the EU Social Climate Fund (SCF) and national co-financing.

The model is calibrated to Luxembourg's context (small market, high incomes, strong existing subsidies) and draws on lessons from the French leasing électrique while adapting them to a more targeted scheme.

This section describes a scenarios, with the following considerations.

- Programme timeline and scale. The scheme is assumed to start in 2026 and to admit new participants up to and including 2032, in line with the SCF period. It is advised to start the scheme with a smaller cohort, to test and possibly adjust the parameters.
- The scenario assumes an initial cohort of 500 vehicles in 2026. If this is not feasible, a pilot can be held in 2027, and after evaluation the first 'normal' cohort in the same year might be possible. In total, about 9.500 leases are supported. This represents a substantial but still partial coverage of the estimated 30.000 low-income households that could in principle be eligible. The intake path is therefore a policy choice that balances ambition with the available budget.
- Structure of the leasing subsidy. Each eligible lease receives a fixed public contribution of € 100 per month for the full 72-month support period. This equates to € 7.200 per vehicle in social leasing subsidy. The subsidy is paid to the leasing company and is independent of vehicle model or household profile, provided all eligibility criteria are met.
- Affordability cap for lessees. In parallel, the scheme applies a € 250 per month gross price cap for the lessee for standard vehicles. Leasing companies remain free to set commercial prices, but a contract can only qualify for the social scheme if the lessee's monthly payment does not exceed € 250, and the vehicle receives the fixed (€100) subsidy per month . In the model, the public budget only tracks the subsidy. The price cap acts as an affordability and compliance safeguard rather than as a separate budget driver.
- Integration of the Klimabonus. The national purchase subsidy (Klimabonus) is assumed to continue and to apply to social lease vehicles under the same rules

as for other BEVs (up to € 6.000 for new vehicles that meet the price and WLTP criteria, with lower amounts where relevant). In the model, this is treated as a reduction of the effective purchase price for lessors and as a separate national budget line. Based on the expected vehicle mix, the average Klimabonus per vehicle under the main scenario is about € 5.100, so that the combined direct public support per vehicle (leasing subsidy plus Klimabonus) is around € 12.300.

- Funding sources and envelope. Luxembourg's SCF allocation for 2026–2032 is around € 55 million. EU rules require at least 25 % national co-financing, so the combined indicative envelope for the leasing subsidy is about € 69,2 million (approximately € 55,4 million from the SCF and € 13,8 million from national funds). This envelope is used as the funding constraint for the social leasing subsidy component. SCF disbursements are assumed to be back-loaded, with no SCF funding in 2027 and higher amounts from 2028 onwards. The model therefore includes years in which national funds must temporarily pre-finance part of the subsidy, which is later offset as SCF revenues increase.

Under these assumptions, the parameters of the scenario (lease duration, subsidy per vehicle and vehicle volumes) are calibrated so that the total social leasing subsidy of about € 68,4 million over 2026–2032 fits within the combined SCF plus national co-financing envelope, while the Klimabonus remains funded from a separate national budget line. It is of course for the Luxembourg Government to decide what share of its SCF allocation is directed to this measure, but the SCF envelope provides a logical upper boundary for planning the scheme.

10.2 Scenario analysis results

The scenario analysis explores the scheme's main design parameters and provides guidance for future political decisions.

The scenario reflects the scheme design presented in the previous chapters:

- six-year support period (72 months)
- € 100 per month public subsidy per vehicle
- € 250 per month price cap for lessees
- vehicle list-price ceiling of € 38.000 and the Klimabonus WLTP efficiency criteria
- intake of 500 vehicles in 2026, then 1.500 vehicles per year from 2027 to 2032
- Klimabonus applied as today but ring-fenced in a separate national budget.

Under these assumptions:

- Total number of vehicles: 9.500
- Social leasing subsidy average per vehicle: € 7.200

- Total social leasing subsidy that can be funded partially via the FSC: about € 68,4 million (including the national co-financing)
- Average Klimabonus per vehicle: about € 5.100
- Total Klimabonus budget for the supported fleet: about € 48,6 million
- Total direct public support (FSC + national co-funding + Klimabonus): about € 117,0 million.

The interaction with the SCF envelope can be summarised as follows. For the leasing subsidy component, the combination of SCF resources and national co-funding over 2026–2032 is sufficient to finance all € 68,4 million of social leasing support. Some years (notably 2027) require temporary national pre-financing, but this is compensated by higher SCF inflows in later years as ETS-based revenues increase. By the end of 2032, the model shows a small positive buffer on the social leasing budget line.

For the Klimabonus, the model confirms that the existing purchase subsidy cannot be integrated into the SCF envelope at current levels. The approximate € 48,6 million required for the 9.500 social lease vehicles must be planned as a separate national expenditure, in line with current practice for Klimabonus.

From a policy perspective, the scenario shows that:

- a six-year support horizon at € 100 per month is compatible with Luxembourg's SCF allocation and the 25 % co-financing requirement for the social leasing part of the scheme, and
- the continuation of the Klimabonus for social lease vehicles remains a significant, but clearly defined, additional national commitment.

10.3 Total Cost of Ownership of the whole program

The preceding section focused on the direct subsidies per vehicle: the social leasing support and the Klimabonus. For budget planning, these have to be embedded in a broader programme-level total cost of ownership (TCO) that also reflects:

1. administrative and implementation costs
2. targeted charging support for households without access to low-cost AC charging
3. the cost of a public default and guarantee fund for higher-risk lessees.

This section summarises these additional cost components and shows how they relate to the described scenario.

10.3.1 Direct subsidies as the core of programme TCO

Under the scenario (six-year support, €100 per month, 9.500 vehicles), the direct public subsidies amount to around €117,0 million over 2026–2032. This is the central financial commitment:

- the social leasing part is intended to be covered by the SCF plus national co-financing
- the Klimabonus remains a separate national budget item.

The additional TCO components described below are placed on top of these amounts.

10.3.2 Administrative, implementation and evaluation costs

To operate the scheme, Luxembourg will need a dedicated administrative and implementation structure, possibly the AEV and the Guichet Social Unique. This includes:

- programme management and coordination between ministries
- IT systems for applications, contract tracking and data reporting
- communication and outreach to eligible households
- processing of contracts and payments
- monitoring, evaluation and periodic adjustments.

International experience suggests that such costs often represent between 5 % and 10 % of direct subsidy spending. As a working assumption, this report uses a central estimate of 8 % of direct subsidies for Luxembourg's social leasing scheme. Applied to the € 117,0 million of direct support, this implies:

- administrative and implementation costs of about €9,0–9,5 million over 2026–2032,
- or roughly €1.000 per vehicle over the full six-year support horizon.

For planning purposes, a range of €7,0–12,0 million can be retained for sensitivity analysis.

10.3.3 Charging support (wallboxes and public-charging vouchers)

As chapter 6 showed, households without access to low-cost AC charging at or near home or work face higher energy costs, especially if they rely on public DC fast charging. Without corrective measures, some eligible households could still face relatively high monthly mobility costs, even with a subsidised lease.

For the calculated scenario, the following modelling assumptions are applied as a pragmatic central case:

- one third of social lease households currently lack adequate low-cost AC charging,
- these households receive an average of € 30 per month in charging support,
- since this support should be a temporary measure, an average period of 2 years is calculated.

Applied to 9.500 vehicles, this implies:

- 9.500 × 1/3 × € 30 per month × 24 months
  ≈ €2,3 million over 2026–2032.

A more generous variant (for example € 50 per month) would increase this to around €3,8 million, while a shorter or more targeted measure (for example the first three years only) would reduce it proportionally.

In TCO terms, charging support would therefore add roughly €2–4 million to the programme, depending on final design and targeting. It could be:

- financed purely from national resources, explicitly framed as closing the "charging cost gap" for vulnerable households, or
- partly integrated into the SCF plan, provided it meets the eligibility criteria for social-climate measures, in which case it would again compete with vehicle subsidies within the SCF envelope.

10.3.4 Default-risk and guarantee fund

As outlined conceptually in Section 8.9, the scheme foresees a risk-sharing mechanism to enable leasing company participation while safeguarding responsible lending. This section addresses the financial assumptions only. A full legal, accounting and State aid assessment is outside the scope of this study and would be required prior to implementation.

Budgetary assumptions

For modelling purposes, a central default-risk assumption of 3–4% of direct subsidy expenditure is applied, with an upper sensitivity below 5%. This is not an empirical forecast, but a prudent budgetary working assumption for a first-generation scheme.

The assumption is informed by:

- portfolio-level benchmarks in comparable non-prime leasing contexts, where defaults typically remain in the low single digits;
- the risk-mitigating features embedded in the scheme design (pre-screening, early intervention, contract termination and vehicle recovery);
- the limited scope and duration of public exposure.

Structuring options
Two main instruments can be considered:

- **Funded reserve**: public resources are set aside ex ante to cover expected losses. This provides transparency and a clearly capped exposure, and integrates straightforwardly into programme budgeting, including EU co-financing.
- **State guarantee**: losses are covered ex post without a pre-funded reserve. This reduces upfront allocation but creates contingent liabilities and more complex accounting implications.

For modelling purposes, a capped funded reserve is assumed, as it provides a conservative and transparent basis for estimating public expenditure. The final instrument choice remains a policy decision.

Legal considerations
Risk-sharing mechanisms may have State aid implications depending on design and risk allocation. While a full qualification is beyond this study, similar instruments exist in social housing, SME finance and EU-level programmes such as InvestEU and the Social Climate Fund. Any implementation would require confirmation of legal basis, accounting treatment and State aid compliance.

Budgetary impact and monitoring
Under the assumed parameters, the expected cost of the mechanism remains limited relative to total programme expenditure and does not materially affect overall affordability.

Given the uncertainty inherent in a first deployment phase, default rates and drawdowns should be actively monitored, with the option to recalibrate reserve levels or risk-sharing parameters in subsequent phases.

10.3.5 Implications for budget planning and alignment with the main scenario

Bringing these elements together, an indicative programme-level TCO for the main scenario (9.500 vehicles, € 100 per month for six years) can be summarised as:

- Direct subsidies: about €68,4 million
- Administration, implementation, monitoring and evaluation: around €9,0 million (range roughly €7,0–12,0 million)
- Charging support for households without AC charging: around €3,0 million (range roughly €2,0–4,0 million)
- Default-risk and guarantee fund: around €4,0–5,0 million (range roughly €3,0–6,0 million).

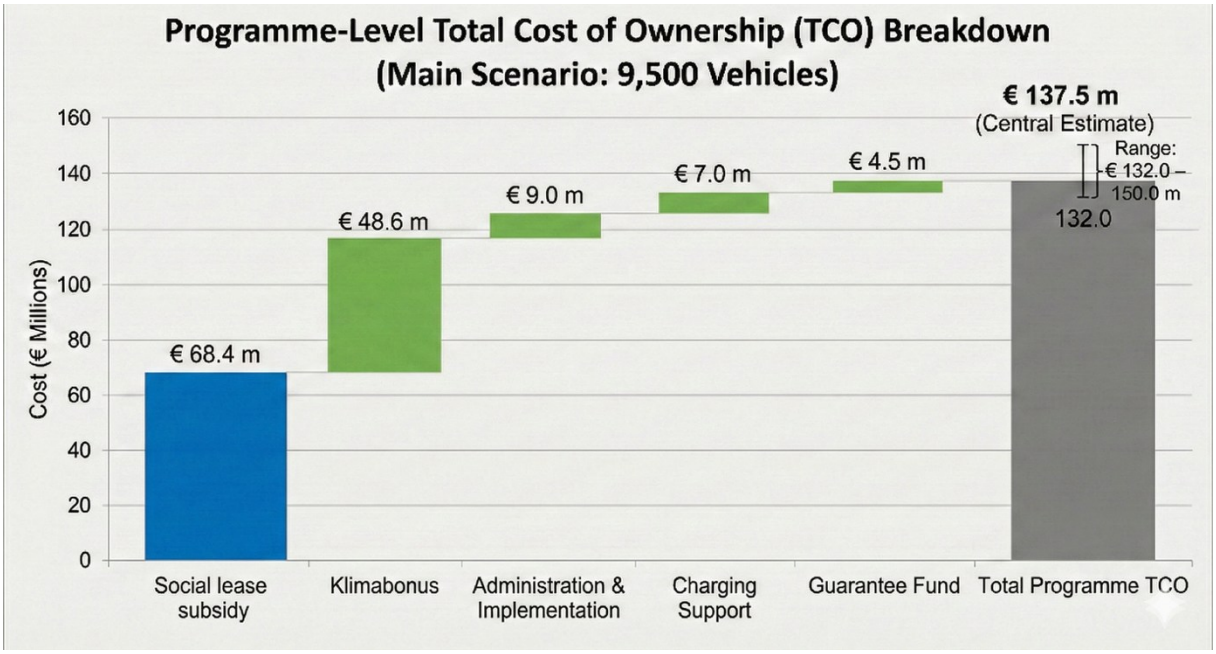

Figure 18 - Programme TCO Waterfall

In central values, total programme costs are estimated at €137,0–141,0 million, with a broader range of €132,0–150,0 million depending on final design choices and implementation efficiency.

Per vehicle, programme-level components (administration, charging support, guarantee) add approximately €2.000–3.000 on top of the direct subsidy envelope of around €12.300 per vehicle.

For budget planning, two approaches can be considered:

1. Separate national funding for programme-level costs
The SCF plus 25 % national co-financing are used exclusively for the social leasing subsidy. Klimabonus, charging support, administration and the guarantee fund are financed from separate national budget lines. Under this approach, the planned volume of 9.500 vehicles remains unchanged.

2. Partial integration into the SCF envelope
If programme-level costs are partly financed from the SCF, the room for vehicle subsidies decreases unless additional national co-funding is provided. The estimated €20,0–25,0 million in additional costs represents roughly 18–20 % of the direct subsidy envelope. Without extra funding, this would require either a reduction in supported vehicles (e.g. from 9.500 to around 7.500–8.000) and/or a reduction in per-vehicle support (e.g. shorter duration or lower monthly subsidy).

The choice is political. The TCO framework clarifies the order of magnitude and trade-offs, enabling decision-makers to determine whether to safeguard vehicle volumes

through separate national funding or absorb programme costs within the SCF envelope, implying a smaller or less generous scheme unless additional funding is mobilised.

11 EXPECTED ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

11.1 PURPOSE AND STRUCTURE OF THE CHAPTER

This chapter quantifies and discusses the expected environmental, social and economic impacts of the proposed Luxembourg Social Leasing Scheme for battery-electric vehicles (BEVs). It translates the technical and financial design choices into expected CO_2 and air-pollutant reductions, household-level affordability gains and wider macro-economic and distributional effects.

All quantified impacts are assessed primarily for the rollout scenario as defined in the financial modelling chapter. The scenario framework is aligned with:

- the vehicle eligibility criteria and efficiency conditions (Chapter 8),
- the household targeting and TCO analysis for representative low-income, high-mileage households (Chapter 7), and
- the main financial rollout of 9.500 vehicles over 2026–2032 (Chapter 10).

The chapter is structured as follows. Section 11.2 sets out the scenario framework and technical assumptions (annual mileage, comparison ICE vehicle, emission factors). Section 11.3 quantifies climate and air-quality benefits. Section 11.4 examines household affordability and access to mobility, and Section 11.5 discusses wider economic effects on the automotive and service ecosystem and distributional aspects.

11.2 SCENARIO FRAMEWORK AND KEY ASSUMPTIONS

11.2.1 VEHICLE ROLLOUT AND SCENARIOS

All impact calculations use the calculated scenario rollout as reference. Because the scheme is modelled with six-year contracts, no vehicles leave the scheme during 2026–2032. The active stock of social lease BEVs by 2032 around 9.500 vehicles.

The model computes (i) newly added social lease BEVs per year; (ii) cumulative stock per year; and (iii) the share of the national BEV fleet represented by the social lease stock. Under reasonable projections for Luxembourg's BEV fleet growth, the social lease stock corresponds to a modest but non-negligible share of national BEVs (on the order of a few percent), with the scheme's main significance lying in its equity and demonstration role rather than its absolute market share.

11.2.2 USAGE AND TECHNICAL ASSUMPTIONS

To quantify environmental impacts, the following assumptions are used (consistent with previous TCO work and eligible vehicle characteristics):

- Annual mileage per social lease vehicle: 15.000 km per year. This reflects a typical low-income working household with substantial commuting and family travel. ICE comparison vehicle: a representative used petrol/diesel compact car currently driven by the target group, with average fuel consumption 6,5 litres/100 km, and a well-to-wheel CO_2 factor of 2,3 kg CO_2 per litre of fuel, an average NO_x emission factor of 0,10 g/km, representing a mix of older Euro-5 and newer Euro-6 vehicles in real-world use.
- BEV energy consumption: an average 16 kWh/100 km for the eligible small and compact BEVs (consistent with the WLTP efficiency requirement). For sensitivity analysis, a less efficient counterfactual portfolio with 19 kWh/100 km is considered.
- Electricity CO_2 intensity: a central Luxembourg grid intensity of 0,22 kg CO_2/kWh in 2026, declining linearly to 0,18 kg CO_2/kWh in 2032, reflecting continued decarbonisation. For many calculations a simple yearly value is used; for summary results an average intensity of roughly 0,20–0,21 kg CO_2/kWh over the period is appropriate.
- Scope of emissions: all results are presented on a tank-to-wheel (ICE) and plug-to-wheel (BEV) basis. Upstream emissions from fuel production, vehicle and battery manufacturing are not included unless explicitly stated.

Under these assumptions, indicative annual emissions per vehicle are:

- ICE_CO_2_per_vehicle ≈ 15.000 km/year × 6,5 l/100 km ÷ 100 × 2,3 kg CO_2/litre

≈ 975 l/year × 2,3 ≈ 2,2–2,3 t CO_2/year

- BEV_CO_2_per_vehicle (efficient portfolio) ≈ 15.000 km/year × 16 kWh/100 km ÷ 100 × ≈0,20–0,21 kg CO_2/kWh

≈ 2.400 kWh/year × 0,20–0,21 ≈ 0,5 t CO_2/year.

The annual CO_2 saving per vehicle is therefore on the order of 1,7–1,8 t CO_2 per year, increasing slightly over time as electricity decarbonises. In this study, BEV emissions are calculated on a plug-to-wheel basis, using the Luxembourg grid emission factor (approximately 0,20–0,21 kg CO_2/kWh). Under the European Commission's avoided-emissions methodology (e.g. NGEU/JRC), BEVs are treated as having zero tailpipe emissions (0 g CO_2/km). Applying that methodology would therefore result in higher reported CO_2 savings than those presented in this report.

11.3 Environmental impacts

11.3.1 CO_2 emission reductions

For each year and scenario, emissions are calculated as:

- ICE case (without scheme, per vehicle):

$$ICE_{CO} = \frac{mileage}{fuel\ cons.}\ x\ \frac{(\frac{l}{100}km)}{100} x\ CO\ factor(\frac{kg}{l})$$

- BEV case (with scheme, per vehicle):

$$BEV_{CO} = mileage\ x\ \frac{elec.cons.(\frac{kWh}{100}km)}{100}\ x\ CO\ factor\ (\frac{kg}{kWh})$$

- Annual saving per vehicle:

$$CO\ saving\ per\ vehicle = ICE_{CO} - BEV_{CO}$$

Cumulatively over 2026–2032 the indicative CO_2 savings correspond to around 60–65 kt CO_2 avoided in the scenario.

As a benchmark, this is equivalent to several percent of a single year of current road-transport CO_2 emissions in Luxembourg, or roughly the annual emissions of 5 000–10 000 average households, depending on the comparator used. While modest at the national scale, these reductions are concentrated in a relatively small, socio-economically vulnerable segment of the population and therefore carry a strong equity and signalling value.

11.3.2 NO_x AND AIR-QUALITY IMPROVEMENTS

Using the same mileage and vehicle counts, and an average NO_x factor of 0,10 g/km for ICE cars, the avoided NO_x emissions per vehicle are:

For 15 000 km/year, this is:

- NO_x saving per vehicle ≈ 15 000 km × 0,10 g/km = 1.500 g/year = 0,0015 t/year.

Multiplying by the active stock in the scenario yields annual avoided NO_x emissions in the low tens of tonnes over the period and around 10–15 t/year by 2032. The cumulative reduction over 2026–2032 is on the order of 40–60 t of NO_x.

These reductions are particularly relevant because they are spatially concentrated where social lease users live and commute: dense urban neighbourhoods, peri-urban corridors and cross-border commuting routes. While this report does not attempt a full monetisation of health benefits, the reduction of NO_x emissions in these locations will contribute to improved local air quality, fewer breaches of local air standards and incremental health gains, especially for children, older people and those with respiratory conditions.

11.3.3 Effect of efficiency requirements

To illustrate the importance of the scheme's efficiency criteria, a simple comparison is made between two stylised BEV portfolios:

- Portfolio A (efficient): average electricity consumption 16 kWh/100 km, consistent with the eligibility requirement.
- Portfolio B (less efficient): counterfactual portfolio without the efficiency requirement, at 19 kWh/100 km.

The difference in electricity consumption is 3 kWh/100 km. For 15.000 km/year, this yields:

Extra electricity use per vehicle in Portfolio B:

- 15.000 km × 3 kWh/100 km ÷ 100 = 450 kWh/year.

With an average grid intensity of ≈ 0,20–0,21 kg CO_2/kWh, this corresponds to:

- Extra CO_2 per vehicle ≈ 450 kWh × 0,20–0,21 ≈ 90–100 kg CO_2/year.

For the stock of 9.500 vehicles in 2032, the difference would be on the order of 0,9–1,0 kt CO_2 per year. Cumulatively over 2026–2032, the efficiency requirement thus contributes roughly 3–4 kt CO_2 of additional savings, equivalent to around 5–7 % of total scheme impact. In other words, maintaining a strict efficiency filter materially increases the climate benefit of the same budget and vehicle count.

At the same time, more efficient BEVs consume less electricity, which reduces household running costs and exposure to future electricity price volatility. For the example above, 450 kWh/year at, say, €0,25/kWh corresponds to around €110/year per household, or more than €650 over a six-year lease, purely from the efficiency difference. The efficiency requirement therefore reinforces both the environmental and affordability objectives of the scheme.

11.4 Social impacts

11.4.1 Household cost reduction

The TCO analysis in Chapter 7 indicates that many target households currently operate older used ICE vehicles with:

- relatively high fuel consumption,
- volatile fuel expenditure, and
- above-average maintenance and repair costs.

A representative low-income, high-distance commuter household can easily face a monthly mobility TCO of €400 – €450 (fuel, insurance, maintenance and typical

unexpected repairs) for such a vehicle. Under the social leasing scheme, the same household can access a reliable BEV with:

- a capped lease fee (≤ €250/month),
- much lower and more predictable energy costs, and
- reduced maintenance risk.

Assuming:

- a typical social lease BEV out-of-pocket cost (lease + charging – any charging support) in the range of €230 – €280/month, and
- a reference ICE TCO in the range of €380 – €450/month,

the average monthly saving for participating households comes out at approximately €120 – €180 per month. A central estimate of €150/month is used for aggregate calculations, i.e. € 1.800 per year per household.

Applying this to the active stock:

- in early years (around 2.000 vehicles), aggregate annual savings are around €3 – 4 million;
- by 2030 (≈ 6.500 vehicles active), annual savings increase to about €11 – 12 million;
- by 2032 (≈ 9.500 vehicles active), annual savings reach roughly €17 million per year.

Cumulatively over 2026–2032, participating households realise on the order of €60 – 65 million in total cash savings, in addition to the value of more reliable mobility. For a typical household in the lowest income decile, € 150/month corresponds to around 7–10 % of net household income, making the scheme a significant improvement in day-to-day financial resilience.

11.4.2 Access to E-mobility

By design, the scheme provides 9.500 social lease BEVs, each attached to a low-income or otherwise vulnerable household that would struggle to access a modern BEV through the commercial market. In practice this means:

- 9.500 households gaining reliable access to a car for commuting, shopping, care tasks and family life;
- a large proportion of these households located in peri-urban and cross-border commuting corridors, where public transport is less frequent and where old, unreliable ICE cars are currently used out of necessity;

- each social lease BEV electrifying approximately 15.000 km/year of travel that would otherwise be either constrained, shifted to older ICE vehicles or not undertaken.

Qualitatively, this translates into:

- improved access to jobs, especially for shift workers, cross-border commuters and workers in logistics, care and services;
- better access to education and training, particularly for households in areas with limited public transport;
- greater time reliability and safety, compared with reliance on an ageing vehicle or thin public-transport schedules;
- reduced stress and anxiety about unexpected repair bills or sudden vehicle breakdown that could threaten employment.

The scheme's design – capped monthly payment, availability of family-sized BEVs in the eligible model range, and flexibility around contract extension or termination in hardship situations – also reduces the perceived risk of entering into a lease. Unlike conventional private leasing or credit-based car purchase, households know their maximum exposure ex ante, benefit from a state-backed guarantee framework in case of default and have clear avenues for early termination or reallocation if life circumstances change.

11.5 Economic impacts

11.5.1 Effects on the automotive and service sector

The scheme will channel a substantial volume of predictable spending into the Luxembourg automotive and service ecosystem. Over six years, a typical social lease BEV might generate on the order of € 16.000 – € 20.000 in gross lease payments (depending on the actual monthly lease level) plus electricity and maintenance expenditures. For 9 500 vehicles, this equates to a gross economic flow of roughly €150–200 million over 2026–2032, part of which is financed by households and part by public subsidy.

A reasonable working assumption is that 50–70 % of this flow remains in the domestic economy, through:

- lease margins, fees and interest retained by Luxembourg-based leasing companies and banks,
- maintenance, tyres and repairs carried out by local garages and dealers, and
- charging revenues accruing to local energy suppliers and charge-point operators.

Under this assumption, local value added could be on the order of € 80 – 130 million over the life of the programme. Applying literature-based employment multipliers (e.g. 5 – 8 full-time equivalent jobs per € 1 millions of sectoral output) suggests that the scheme

could support, on a cumulative basis, 400 – 1.000 job-years in Luxembourg over 2026–2032, corresponding to roughly 60 – 150 FTE jobs on average during the active years. These figures are indicative only and should be interpreted as an order-of-magnitude estimate rather than a precise forecast, but they illustrate that the scheme also acts as a sectoral stabiliser and transformer.

Qualitative economic benefits include:

- acceleration of the used BEV market, as social lease vehicles gradually enter second-hand channels after the support period;
- upskilling of local garages and technicians in EV diagnostics, battery health assessment and high-voltage safety;
- improved utilisation of charging infrastructure, especially in residential and peri-urban areas;
- reinforcement of Luxembourg's reputation as an early mover in Social Climate Fund implementation, which may attract further innovation and investment in mobility and energy services.

11.5.2 Distributional and macro aspects

From a macro-economic perspective, the scheme is small relative to the total vehicle market and transport sector, but its distributional profile is highly progressive:

- On the cost side, public funds (SCF + national co-financing + additional national TCO components) are targeted at a clearly defined low-income group.
- On the benefit side, households in the first income deciles receive significant cash savings and improved mobility, while leasing companies, garages and energy providers gain stable, medium-term revenue streams.

Some secondary macro effects include:

- a gradual reduction in fuel-tax receipts as participating households drive fewer ICE kilometres;
- a shift in spending from imported fossil fuels to more localised spending on electricity, maintenance and services;
- a modest contribution to energy-system efficiency (BEVs are more energy-efficient than ICE vehicles), reducing overall demand for primary energy.

While the absolute environmental impact of the scheme is modest in national terms, its combination of emissions reduction, targeted affordability gains and local value creation makes it a strategically important instrument within Luxembourg's broader Social Climate Fund implementation. It directly addresses equity concerns in the transition to zero-emission mobility and provides a replicable, data-rich pilot for future expansions or complementary policies.

12 OPPORTUNITIES AND THREATS OF THE ADVISED SCHEME

The advised Social Leasing Scheme is designed to enable eligible low-income households to access battery electric vehicles (BEVs) through a full operational lease, anchored in a predictable monthly payment and combined with clear vehicle eligibility criteria. In the core design presented in this report, affordability is operationalised through (i) a fixed public contribution per eligible contract and (ii) a hard cap on the gross monthly lease payment borne by the household, with eligibility further constrained by a vehicle price ceiling and efficiency criteria aligned with the national Klimabonus. The financial model uses a six-year support horizon and treats the Social Climate Fund (SCF) envelope as the main boundary condition for planning volumes and public expenditure.

12.1 OPPORTUNITIES OF THE ADVISED SCHEME

The advised scheme creates several structural opportunities across social inclusion, climate objectives and market development.

Improved access to cleaner and more reliable mobility for eligible households

A first-order opportunity is that a group of eligible households can replace older and more polluting internal combustion engine (ICE) vehicles with BEVs, improving local air quality and reducing CO_2 emissions in a part of the fleet that is typically older and less efficient. This is particularly relevant for low-income, high-distance commuters, for whom the "default option" often remains a used ICE vehicle with relatively stable, but still substantial, monthly total cost of ownership.

Reducing transport poverty and enabling social participation

The scheme can reduce transport poverty by offering eligible households access to a car that supports commuting, access to services, and participation in social and economic life. By shifting from ownership barriers (down payments, credit constraints and repair uncertainty) to an all-in monthly fee, the scheme can reduce financial and behavioural barriers that currently exclude vulnerable households from the ongoing electrification of road transport.

Opening a new market segment for leasing companies and related service providers

A key opportunity is that the scheme creates access for leasing companies to a new customer segment that is largely excluded today due to standard credit assessment practices. The report highlights that in Luxembourg, credit checks require a legally defined disposable-income threshold after lease payments; this mechanism protects consumers and lenders but excludes many low-income households from leasing. A structured public risk-sharing approach (including a guaranteed mechanism) can make this segment bankable, thereby enabling leasing companies and their partner networks (banks, dealers, service chains) to develop a socially adapted leasing offer.

Sufficient current and future supply of suitable new BEVs

The scheme benefits from a strong and widening supply base of eligible new BEVs. Based on the market outlook used in this report, at least 29 new BEV models are expected to enter the European market by 2028 (23 as early as 2026), with projected minimum ranges and price ceilings consistent with the scheme's recommended vehicle thresholds. In the screening exercise, the applied criteria yield a portfolio of 76 eligible BEV models priced between roughly €18.900 and €38.000, supporting the feasibility of implementation without reliance on a narrow set of models.

Local economic value creation and sectoral transformation effects

Beyond direct household benefits, the scheme provides an opportunity for domestic value creation through leasing activity, maintenance and repair services, and charging revenues. The report estimates that a substantial share of the financial flows can remain in the domestic economy and that the scheme can support job-years in leasing, automotive services and charging-related activities. Qualitative benefits include skills development in garages (EV diagnostics, high-voltage safety), improved utilisation of charging infrastructure, and reinforcement of Luxembourg's profile as an early mover in the implementation of SCF measures.

Acceleration of a future used-BEV market and retention of publicly supported vehicles

By deploying new BEVs into the fleet through social leasing, the scheme can contribute to a larger used-BEV stock later in the decade, once vehicles exit first leasing cycles. This can help address the current situation where the used BEV market is small and dominated by higher-end vehicles, with affordable models available only in limited numbers. In addition, if the programme includes enforceable retention and reallocation rules, it can help keep publicly supported BEVs in Luxembourg for longer, increasing the environmental and social return on public expenditure.

Catalysing practical charging solutions for the target group

The scheme can act as a catalyst for targeted charging solutions, especially for households without private charging. The report identifies that expanding and prioritising affordable AC "overnight" charging close to the place of residence ("charging point follows EV driver") is central to successful uptake and affordability for the target group. The scheme can therefore strengthen coordination incentives between mobility policy and charging deployment policy (including municipalities and charge point operators).

12.2 THREATS OF THE ADVISED SCHEME

The advised scheme also faces a set of threats and implementation risks. These do not invalidate the scheme, but they require explicit design choices and governance mechanisms.

Risk of excess demand and perceived unfairness in the early phase
It can happen that too many households apply, especially in the first year(s). If demand exceeds available vehicles or budget capacity, the scheme may create waiting lists, frustration, or reputational risk unless allocation rules are transparent and administratively robust.

Risk of insufficient uptake if affordability or usability constraints remain binding
The inverse risk is that uptake may be too weak if the remaining monthly cost is still perceived as high, if households mistrust leasing, or if charging access is not practical. The report explicitly anticipates uncertainty in uptake and includes scenario analysis to illustrate that subsidy levels or other design parameters may need adjustment if participation is below expectations.

Charging access and charging-cost risk for households without home or nearby AC charging
Charging infrastructure is currently concentrated around Luxembourg City, with thinner coverage in rural areas—exactly where car-dependence can be high. For eligible households (often renters without private charging), this can translate into reliance on public charging and, in some cases, a high dependence on DC fast charging. The report shows that DC-dependent profiles can face monthly charging costs that exceed the fuel cost of an ICE benchmark, which threatens affordability and could limit uptake in rural or charging-constrained contexts. This creates a material delivery risk unless AC charging close to home is expanded and/or transitional mitigation (e.g., temporary DC support) is implemented.

Insurance cost volatility and affordability pressure
All-risk EV insurance may be expensive due to repair complexity and high-value components. The report notes illustrative order-of-magnitude insurance costs and emphasises the need for market sounding and appropriate pooling arrangements to preserve predictable monthly costs for beneficiaries. If insurance costs are not controlled through scheme-compatible procurement and pooling, monthly lease prices may rise above affordability targets, undermining uptake.

Credit barrier, payment default risk and the need for an operational guarantee mechanism
Leasing companies face concentrated financial risk in operational leasing, particularly if contracts end early or if payment defaults occur. Standard credit checks exclude many of the intended beneficiaries. The report therefore proposes a structured risk-sharing approach in which the lessor bears initial non-payment risk and a public guarantee fund covers a limited subsequent period before contract termination and vehicle recovery. Without such a mechanism (or a functionally equivalent instrument), leasing companies may not participate at scale or may price risk into monthly payments, reducing programme feasibility.

Residual value uncertainty and its impact on lease pricing

Residual values for BEVs are described as being in a correction phase across Europe, with BEVs showing lower residual values than ICE vehicles, particularly in smaller segments. This increases depreciation costs and creates uncertainty for longer-term pricing, which can translate into higher monthly lease rates or reduced lessor participation unless residual-value risk is conservatively managed.

Leakage risk through early disposal/export and loss of public value

There is a structural incentive to dispose of vehicles after the first 36 months, including export, if cross-border prices are attractive. Without explicit retention, reallocation-first rules and proportionate clawback/bonus–malus mechanisms, publicly supported vehicles could leave the domestic fleet prematurely, reducing environmental impact and weakening the scheme's long-term social benefit. The report therefore stresses that "second-life leasing in Luxembourg" must be treated as a policy objective with enforceable mechanisms, not as an automatic market outcome.

Operational complexity and administrative capacity risk

The scheme requires clear operational responsibilities (eligibility checks, allocation, monitoring, early termination handling, reallocation processes, and auditing of subsidy flows). The report indicates that a structured waiting list and re-matching process should be managed by the scheme administrator, and that lessors should be subject to reallocation-first obligations. If governance and administrative capacity are insufficient, the scheme risks delays, inconsistent treatment, or higher operational costs.

Used-BEV feasibility risk if introduced too early

The current used BEV market is still limited and skewed toward higher-end models; residual value volatility and lack of market depth remain bottlenecks. The report therefore recommends not including used BEVs in the first years, and reconsidering inclusion only after 2028 once a larger and more diverse stock is available and risk-sharing mechanisms are operational. Introducing used BEVs earlier than recommended could increase pricing volatility, maintenance uncertainty, and reputational risk.

13 CONCLUSIONS

This study has examined whether and under which conditions a social car leasing scheme could be a viable policy instrument in Luxembourg. The analysis brings together socio-economic evidence, market analysis and financial modelling to formulate a set of clear policy recommendations. These recommendations are intended to support informed decision-making on the introduction of a social leasing scheme, while leaving room for political choice and phased implementation.

13.1 KEY CONCLUSIONS

The analysis indicates that a social car leasing scheme focused on battery-electric vehicles can be a credible and relevant addition to Luxembourg's mobility and climate policy mix, provided that it is designed around simplicity, affordability and proportionality. Anchoring access primarily in income, and aligning this where possible with existing social instruments, allows the scheme to reach households most exposed to transport poverty while avoiding complex or exclusionary eligibility rules.

From a design perspective, the central conclusion is that a full operational lease ("social lease") is the appropriate instrument to bridge the gap between total cost of ownership and actual affordability for low-income households. While battery-electric vehicles increasingly approach internal combustion engine vehicles in terms of total cost of ownership, their high upfront purchase price continues to make ownership inaccessible for the target group. A social operational lease, combined with targeted public support, overcomes this barrier by translating cost advantages into a predictable and affordable monthly payment.

Within this framework, vehicle eligibility should be steered through selection criteria that combine affordability, energy efficiency and practical usability, rather than through fixed market segments or detailed technical thresholds. Sufficient supply of suitable vehicles is expected as more affordable BEV models enter the European market from 2026 onwards. An operational-lease model allows these vehicles to be integrated without continuous administrative updates, while ensuring that monthly costs remain aligned with the financial capacity of the target group.

13.2 CORE RECOMMENDATIONS

Based on the findings of this study, the following recommendations are central to a first-generation social leasing scheme in Luxembourg:

- Apply a simple income-based access criterion, aligned with existing social support frameworks, and avoid additional eligibility conditions related to distance travelled, vehicle ownership or geographic location.

- Introduce a full operational leasing model ("social lease") as the core instrument, combined with vehicle selection criteria that prioritise affordability, energy efficiency and practical suitability for household needs.
- Allow open participation by leasing companies, subject to clear minimum requirements on transparency, reporting and compliance, in order to promote competition, diversity of offers and market responsiveness.
- Ensure sufficient and affordable charging access for participating households, in particular for those without access to private home charging, through a combination of public charging solutions, targeted support measures and coordination with existing charging programmes, as set out in the dedicated charging chapter.
- Plan for phased implementation and monitoring, starting with a pilot phase to validate assumptions on uptake, costs and risks, and enabling adjustment prior to scale-up during the Social Climate Fund programming period. The practical rollout and governance of this phase are further detailed in the accompanying implementation document.

13.3 What this enables

Taken together, these recommendations outline a scheme that is deliberately pragmatic. It does not attempt to address all dimensions of transport poverty simultaneously, nor does it rely on complex screening mechanisms or intrusive controls. Instead, it provides a focused pathway to enable low-income households with genuine mobility needs to access reliable, zero-emission vehicles at predictable monthly costs.

By combining a social operational lease with targeted public support and an adaptive framework, Luxembourg can create an instrument that supports social inclusion, accelerates fleet electrification and remains compatible with budgetary control and administrative capacity. The proposed approach also allows for learning over time, ensuring that the scheme can evolve alongside vehicle markets, charging infrastructure and European climate policy.

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ANNEX

Annex 1 - List of external stakeholders involved within the process of the research

- Arval
- Ayvens
- BGL BNP Paribas
- Chambre des salariés
- Confederation
- Entente des offices sociaux
- Fedamo
- FEDAS
- House of Automobile
- Klima Agence
- LISER
- Mobiz
- Mouvement écologique
- Spuerkeess

Annex 2 - CHARGING AND REFUELLING SCENARIOS

Electric Vehicle Charging Scenarios Overview

This report provides detailed descriptions and key assumptions for eight electric vehicle charging scenarios (P0–P7). Each scenario reflects a different user profile, combining factors such as annual mileage, energy efficiency, charging mix (home vs. public AC/DC), contracted capacity, energy costs, and typical charging session characteristics.

Scenario 1: Baseline Homeowner

Baseline homeowner driving about 15k km per year. Mostly home AC charging with some public AC/DC and uses smart charging to save costs.

- **Annual mileage**: 15 000 km
- **Efficiency**: 16 kWh/100 km
- **Annual energy need**: 1 600 kWh
- **Charging mix**: Home 90 %, Public AC 10 %, Public DC 0%
- **Contracted capacity**: 7 kW
- **Home energy price**: € 0,21 per kWh + Fixed network fee of €19,27 per month
- **Smart charging savings**: 10 %
- **Home charger CAPEX**: € 1 200 (amortised over 7 years)
- **Annual OPEX**: € 25
- **Typical AC session**: 30 kWh @ 11 kW
- **Typical DC session**: 40 kWh @ 50 kW

Scenario 2: No Home Charging

Apartment driver without home charging. Relies predominantly on public AC (70 %) and DC (30 %) at ad-hoc rates.

- **Annual mileage**: 15 000 km
- **Efficiency**: 16 kWh/100 km
- **Annual energy need**: 2 400 kWh
- **Charging mix**: Home 0 %, Public AC 70 %, Public DC 30 %
- **Charging fees**: Adhoc AC Medium: € 0,47 per kWh + VAT | Adhoc DC Fast: € 0,7 per kWh + VAT
- **Contracted capacity**: –
- **Home energy price**: –
- **Smart charging savings**: 0 %
- **Home charger CAPEX**: –
- **Annual OPEX**: –
- **Typical AC session**: 30 kWh @ 11 kW
- **Typical DC session**: 40 kWh @ 50 kW

Scenario 3: Rural Driver

Rural resident charging only publicly; high public charging share (10% AC, 90% DC).

- **Annual mileage**: 15 000 km
- **Efficiency**: 16 kWh/100 km
- **Annual energy need**: 2 400 kWh
- **Charging mix**: Home 0%, Public AC 10 %, Public DC 90%
- **Charging fees**: MSP AC Fast: € 0,52 per kWh + VAT | MSP DC Fast: € 0,66 per kWh + VAT
- **Contracted capacity**: N.A.
- **Home energy price**: N.A.
- **Smart charging savings**: 10%
- **Home charger CAPEX**: N.A.
- **Annual OPEX**: N.A.
- **Typical AC session**: 25 kWh @ 3.7 kW
- **Typical DC session**: 40 kWh @ 50 kW

Scenario 4: ICE Driver

- **Annual mileage**: 15 000 km
- **Efficiency**: 6 liter/100 km
- **Petrol 95 oct. (euros/l)**: € 1,26 + VAT (17%)

Annex 3 - List of BEV models expected to meet eligibility criteria (€6.000 Klimabonus)

Source: EV Database, OEM documentation & FIER Own Analysis

OEM	Vehicle Model	Vehicle Model Version	Battery Capacity Useable	Range WLTP (km)	Battery Warranty Period (yrs)	Battery Warranty Mileage (km)
BYD	ATTO 2		45,1	312	8	200000
BYD	DOLPHIN	60.4 kWh	60,5	427	8	200000
BYD	DOLPHIN SURF	43.2 kWh Boost	43,2	322	8	200000
BYD	DOLPHIN SURF	43.2 kWh Comfort	43,2	310	8	200000
Citroen	ë-C4		46,3	354	8	160000
Citroen	ë-C4	54 kWh	50,8	418	8	160000
Citroen	ë-C4 X		46,3	352	8	160000
Citroen	ë-C4 X	54 kWh	50,8	427	8	160000
CUPRA	Born	170 kW - 59 kWh	59	427	8	160000
CUPRA	Born	150 kW - 59 kWh	59	428	8	160000
Fiat	500e	Cabrio 42 kWh	37,3	310	8	160000
Fiat	500e	Hatchback 42 kWh	37,3	331	8	160000
Fiat	500e	3+1 42 kWh	37,3	314	8	160000
Fiat	600e		50,8	409	8	160000
firefly	firefly		41,2	330	8	160000
Ford	Puma Gen-E		43,6	376	8	160000
Hyundai	INSTER	Standard Range	39	327	8	160000
Hyundai	INSTER	Long Range	46	370	8	160000
Hyundai	Kona Electric	48 kWh	48,4	377	8	160000
Jeep	Avenger Electric		50,8	404	8	160000
Kia	EV3	Standard Range	55	436	7	150000
Kia	EV4	Hatchback 58.3 kWh	55	435	7	150000
Lancia	Ypsilon	54 kWh	50,8	426	8	160000
MG	MG4	Electric 64 kWh	61,7	450	7	150000

OEM	Vehicle Model	Vehicle Model Version	Battery Capacity Useable	Range WLTP (km)	Battery Warranty Period (yrs)	Battery Warranty Mileage (km)
Mini	Aceman	E	38,5	310	8	160000
Mini	Cooper	E	36,6	305	8	160000
Mini	Cooper	SE	49,2	402	8	160000
Nissan	LEAF	Standard Range 52 kWh	52	445	8	160000
Omoda	E5		58,9	430		
Opel	Astra Electric		50,8	418	8	160000
Opel	Corsa Electric	50 kWh	46,3	357	8	160000
Opel	Corsa Electric	54 kWh	50,8	429	8	160000
Opel	Frontera Electric	54 kWh	53,5	408	8	160000
Opel	Mokka Electric		50,8	403	8	160000
Peugeot	e-2008	54 kWh	50,8	406	8	160000
Peugeot	e-208	50 kWh	46,3	363	8	160000
Peugeot	e-208	54 kWh	50,8	433	8	160000
Peugeot	e-308	58 kWh	55,4	450	8	160000
Renault	4	E-Tech 40kWh 120hp	40	322	8	160000
Renault	4	E-Tech 52kWh 150hp	52	409	8	160000
Renault	5	E-Tech 40kWh 95hp	40	310	8	160000
Renault	5	E-Tech 40kWh 120hp	40	312	8	160000
Renault	5	E-Tech 52kWh 150hp	52	412	8	160000
Renault	Megane	E-Tech EV60 130hp	60	480		
Renault	Megane	E-Tech EV60 220hp	60	468		
Skoda	Elroq	50	52	377	8	160000
Skoda	Elroq	60	59	429	8	160000
Suzuki	e VITARA	49 kWh 2WD	47,8	344		
Suzuki	e VITARA	61 kWh 2WD	59,8	426		
Toyota	C-HR+	57.7 kWh	54	456	10	300000
Toyota	Urban Cruiser	48.8 kWh	47,8	344	10	300000

OEM	Vehicle Model	Vehicle Model Version	Battery Capacity Useable	Range WLTP (km)	Battery Warranty Period (yrs)	Battery Warranty Mileage (km)
Toyota	Urban Cruiser	61.1 kWh	59,8	426	10	300000
Volkswagen	ID.3	Pro	59	434	8	160000
Volkswagen	ID.3	Pure	52	388	8	160000

Annex 4 - List of BEV models expected to meet eligibility criteria (€3.000 Klimabonus)

Source: EV Database, OEM documentation & FIER Own Analysis

OEM	Vehicle Model	Vehicle Model Version	Battery Capacity Useable	Range WLTP (km)	Battery Warranty Period (yrs)	Battery Warranty Mileage (km)
Abarth	500e	Hatchback	37,8	265	8	160000
Citroen	ë-Berlingo	M 50 kWh	50	345	8	160000
Citroen	ë-C3	Comfort Range 44 kWh	43,8	326	8	160000
Citroen	ë-C3 Aircross	Extended Range 54 kWh	53,5	400	8	160000
Fiat	Grande Panda		43,8	322	8	160000
Ford	e-Tourneo Courier		43,6	296		
Geely	EX5		60,2	430	8	
GWM	ORA 03	48 kWh	45,4	310	8	160000
GWM	ORA 03	63 kWh	59,3	420	8	160000
GWM	ORA 03	GT	59,3	400	8	160000
Jaecoo	5 EV		58,9	399	8	160000
Leapmotor	B10	56.2 kWh	55	361	8	160000
Leapmotor	B10	67.1 kWh	65	435	8	160000
Leapmotor	T03		36	265	8	160000
Lynk&Co	02		65	445		
MG	MG4	Electric 51 kWh	50,8	350	7	150000
MG	MGS5	EV 49 kWh	47,1	340	7	150000
Smart	#1	Pure+	62	420	8	200000
Smart	#3	Pro	47	325	8	200000
Suzuki	e VITARA	61 kWh	59,8	395		
TOGG	T10F	Standard Range RWD	50	335		
Volvo	EX30	Single Motor	49	337	8	160000

Annex 5 - List of BEV models with social lease fee indication

Source: EV Database, OEM documentation & FIER Own Analysis

OEM	Vehicle model	Vehicle model version	Indication Monthly Social Lease Fee (capped)
Leapmotor	T03		113
Hyundai	INSTER	Standard Range	131
Renault	5	E-Tech 40kWh 95hp	145
BYD	DOLPHIN SURF	43.2 kWh Boost	146
Hyundai	INSTER	Long Range	152
BYD	DOLPHIN SURF	43.2 kWh Comfort	170
Fiat	Grande Panda		197
Opel	Corsa Electric	50 kWh	201
Renault	4	E-Tech 40kWh 120hp	207
firefly	firefly		214
Volkswagen	ID.3	Pure	215
Toyota	Urban Cruiser	48.8 kWh	215
Opel	Corsa Electric	54 kWh	215
Citroen	ë-C3 Aircross	Comfort Range 44 kWh	217
GWM	ORA 03	48 kWh	224
Renault	5	E-Tech 52kWh 150hp	229
Opel	Frontera Electric	54 kWh	231
Leapmotor	B10	56.2 kWh	238
BYD	ATTO 2		238
Citroen	ë-C4		241
CUPRA	Born	150 kW - 59 kWh	242
Suzuki	e VITARA	49 kWh 2WD	243
Renault	4	E-Tech 52kWh 150hp	248
Citroen	ë-C4 X		250
Opel	Frontera Electric	44 kWh	201
Peugeot	e-208	50 kWh	250
Mini	Cooper	E	250
Fiat	600e		250
Citroen	ë-C3 Aircross	Extended Range 54 kWh	250
Fiat	500e	Hatchback 42 kWh	250
Peugeot	e-208	54 kWh	250
Lancia	Ypsilon	54 kWh	250
Skoda	Elroq	50	250
Opel	Mokka Electric		250
Citroen	ë-C4	54 kWh	250
Fiat	500e	3+1 42 kWh	250

OEM	Vehicle model	Vehicle model version	Indication Monthly Social Lease Fee (capped)
BYD	DOLPHIN	60.4 kWh	250
Jaecoo	5 EV		250
Citroen	ë-C4 X	54 kWh	250
Mini	Aceman	E	250
CUPRA	Born	170 kW - 59 kWh	250
Jeep	Avenger Electric		250
Leapmotor	B10	67.1 kWh	250
Suzuki	e VITARA	61 kWh 2WD	250
Ford	Puma Gen-E		250
MG	MG4	Electric 64 kWh	250
Toyota	Urban Cruiser	61.1 kWh	250
MG	MG4	Electric 51 kWh	250
Fiat	500e	Cabrio 42 kWh	250
Kia	EV3	Standard Range	250
GWM	ORA 03	63 kWh	250
Volkswagen	ID.3	Pro	250
Renault	Megane	E-Tech EV60 130hp	250
Peugeot	e-2008	54 kWh	250
Mini	Cooper	SE	250
Peugeot	e-308	58 kWh	250
Hyundai	Kona Electric	48 kWh	250
Nissan	LEAF	Standard Range 52 kWh	250
Omoda	E5		250
MG	MGS5	EV 49 kWh	250
Kia	EV4	Hatchback 58.3 kWh	250
Lynk&Co	``		250
TOGG	T10F	Standard Range RWD	250
Skoda	Elroq	60	250
Renault	Megane	E-Tech EV60 220hp	250
Toyota	C-HR+	57.7 kWh	250
Opel	Astra Electric		250
Volvo	EX30	Single Motor	250
Smart	#3	Pro	250
Ford	e-Tourneo Courier		250
Geely	EX5		250
Abarth	500e	Hatchback	250
Citroen	ë-Berlingo	M 50 kWh	250
Suzuki	e VITARA	61 kWh 4WD AllGrip	250
Smart	#1	Pure+	250
GWM	ORA 03	GT	250

Annex 6 - List of 7 seater BEV models expected to meet eligibility criteria

Source: EV Database, OEM documentation & FIER Own Analysis

OEM	Vehicle Model	Vehicle Model Version	Battery (kWh)	WLTP Range (km)	Battery Warranty Period
Citroën	ë-Berlingo M	50 kWh	50,0	345	8 years / 160.000 km
Citroën	ë-Berlingo XL	50 kWh	50,0	339	8 years / 160.000 km
Ford	e-Tourneo Courier	Standard	43,6	296	8 years / 160.000 km
Kia	PV5 Passenger	71.2 kWh (MY26)	71,2	416	7 years / 150.000 km
Kia	PV5 Passenger	51.5 kWh (MY26)	51,5	288	7 years / 150.000 km
Nissan	Townstar EV Passenger	Standard	45,0	285	8 years / 160.000 km
Nissan	Townstar EV Passenger L2	Long Wheelbase	45,0	265	8 years / 160.000 km
Opel	Combo Electric M	50 kWh	50,0	345	8 years / 160.000 km
Opel	Combo Electric XL	50 kWh	50,0	339	8 years / 160.000 km
Peugeot	e-5008	73 kWh	73,0	502	8 years / 160.000 km
Peugeot	e-Rifter M	50 kWh	50,0	345	8 years / 160.000 km
Peugeot	e-Rifter XL	50 kWh	50,0	334	8 years / 160.000 km
Toyota	Proace City Verso L1	50 kWh	50,0	345	10 years / 200.000 km
Toyota	Proace City Verso L2	50 kWh	50,0	343	10 years / 200.000 km

Annex 7 - LIST OF TABLES

Annex 8 - List of figures