French Observatory of Access Conditions to the Ecological Transition

2024 Edition

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DO ALL HOUSEHOLDS HAVE ACCESS TO THE ECOLOGICAL TRANSITION?

The ecological transition can only happen if all households have access to solutions – public transport, electric vehicles, home insulation, heating upgrades, etc. The issue of access to transition solutions is therefore crucial for climate policies. Special attention needs to be given to low- and middle-income households, as the necessary investments may not be sustainable for them.

WHERE DO WE STAND TODAY?

Following initial research conducted in 2023, our objective is to monitor the **evolution of access conditions to the transition for households** through an annual observatory, the first edition of which is presented here.

The 2024 Observatory focuses on **deep energy retrofits of housing and on mobility, and assesses the necessary – but not sufficient – conditions for households to engage in the ecological transition.**

For each topic – retrofitting and mobility – the first section assesses **the economic capacity of households to make the necessary investments for the transition,** in deep energy retrofitting of their homes and in electric vehicles. This section attempts to provide answers to the following questions: How much do retrofit or mobility investments cost for households? How much aid can they obtain? What are the out-of-pocket costs for households? Do they have access to solutions to finance them? How does their housing and mobility budget evolve after the investment?

Over and above the capacity of households to make investments, other conditions are required to enable them to access the transition: the **availability of infrastructure** (district heating networks, cycle paths, public transport, charging points); **qualified jobs matching needs** (retrofit tradespeople, support services); and **decisions that do not depend solely on the household** (in the case of apartments or rented housing). These conditions are assessed in the second part for each topic.

The Observatory primarily focuses on **low- and middle-income households,** which we define respectively as the 30% of households with the lowest standard of living (deciles 1 to 3) and the next 50% (deciles 4 to 8). High-income households are defined as the 20% with the highest standard of living (deciles 9 to 10)[1].

A methodological report available in French annexed to the Observatory details the assumptions and methodologies used, and presents sensitivity analyses on certain parameters and complementary results.

1. Strictly speaking, living standard deciles refer to the standard of living thresholds that divide the population into 10 equally sized groups. For simplicity, the term "deciles" is used here to refer to the 10 groups themselves, rather than to the thresholds. The definition of "standard of living" that we use is given by the French National Institute of Statistics and Economic Studies here.

RETROFITTING

MOBILITY

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EXECUTIVE SUMMARY 1/2

ACCESS TO THE TRANSITION FOR LOW - AND MIDDLE - INCOME HOUSEHOLDS IS IMPROVING

Climate policies must address the issue of access to the ecological transition, particularly for low- and middle-income households. This Observatory assesses the necessary – but not sufficient – conditions for households to engage in the ecological transition, for deep energy retrofitting of housing and for mobility.

Five key messages emerge from the 2024 edition:

1 Access to the ecological transition is improving for low- and middle-income households

First, increased state aid for low- and middle-income households has reduced the out-of-pocket costs of investments for the transition. Deep energy retrofitting aid increased significantly between 2023 and 2024 (by more than 60% for all households for single-family houses, and by more than 35% for apartments). This development is in line with the trend observed over the last 15 years, with substantial aid increases for deep energy retrofits of single-family houses, particularly for low- and middle-income households. This income-indexed support is less pronounced for apartments, but the introduction of universal aid for all households has, to some extent, facilitated decision-making in favour of retrofits in condominiums. In terms of mobility, **social leasing has helped to remove the barrier to investing in electric vehicles for households that have benefitted from the scheme.** Over the past 15 years, mobility aid has also increasingly targeted low- and middle-income households. For both retrofitting and mobility, low- and middle-income households account for a significant share of aid recipients, although data gaps prevent a full assessment, and this share has declined slightly for some types of aid in recent years (ANAH aid and the scrappage bonus).

Second, **subsidised financing schemes can help middle- and low-income households to cover the out-of-pocket costs.** Where retrofitting is concerned, the characteristics of the Eco-PTZ (zero interest eco-loan) – high limit, zero interest rate, long duration – make it a good option for financing work.

Third, **state investments needed to support households in the transition are also increasing. An analysis of public transport in the Ile-de-France region shows that the area is well-served,** with many services accessible within 30 minutes for most households. However, the assessment of access to employment areas is less positive, with more than a third of Ile-de-France residents only able to access less than 10% of jobs in the region within an hour. **The new lines planned for the Grand Paris Express project** (metro lines that will link Parisians suburbs without passing through Paris) **are expected to improve this situation by 2030.** It should be noted that these findings would undoubtedly differ for another region. **Cycling infrastructure is also developing:** the length of cycle routes is increasing, as is the number of secure bicycle parking spaces at train stations.

Finally, positive developments are taking place, although it is not always possible to identify the role of the various public policy tools. For instance, where mobility is concerned, **the used electric vehicle market has finally taken off, making electric vehicles more accessible to low- and middle-income households,** though the impact of the various public policy tools (manufacturer standards, corporate fleet greening obligations, the bonus-malus system, the scrappage scheme) remains unclear.

2 The transition enables households to achieve significant energy savings

Households that manage to invest in deep energy retrofits and/or electric mobility achieve substantial energy savings, ranging from €100 to €380 per month for housing, and around €80 per month for mobility for a household that drives 10 000 km per year.

Under certain conditions, these energy savings can cover the investment financing, thus avoiding an increase in household mobility or housing budgets. For housing, Eco-PTZ monthly repayments are generally covered by the energy savings from deep retrofits. However, caution is required in certain scenarios: when households are initially in a situation of energy poverty, or when specific characteristics of the home or its location limit the potential for energy savings. For mobility, the additional cost of purchasing a used electric vehicle compared to its combustion engine equivalent is covered by energy savings for a household that drives 10 000 km per year.

DIFFICULTIES PERSIST FOR SOME HOUSEHOLDS AND DATA GAPS PREVENT A FULL ASSESSMENT

3 Difficulties persist for many households, which should receive special attention from public policies

For some households, access to the transition is more complex – for example, tenants seeking a retrofitted property, or households living in apartments where retrofitting depends on collective decisions and where installing an electric vehicle charging point is often more difficult.

In addition, despite the aid available, the out-of-pocket costs of investments for the transition remain high for middle- and low-income households. For retrofitting, the increase in aid has reduced this cost to around €10 000 for apartment retrofits for low- and lower-middle-income households, but for houses, it is more than €20 000. For mobility, excluding social leasing, the out-of-pocket cost is more than €12 000 for a used electric car or a new entry-level model, and more than €20 000 for a new standard small car. When compared to a new or used combustion engine equivalent, the additional cost is several thousand euros.

Households have various options to finance these out-of-pocket costs, including their savings, standard or subsidised loans, and car leasing contracts. However, **access to these financing solutions can be challenging for households with certain characteristics,** such as low and/or irregular income, limited savings, existing debt (a mortgage, for example), or those who are elderly. An estimated 5.3 million homeowners over the age of 65 have savings of less than €30 000, and for an estimated 13.5% of homeowners with a mortgage, the out-of-pocket costs of retrofitting their home exceed their financing capacity, taking account of their savings and borrowing capacity. Many homeowners are therefore unable to finance deep energy retrofits of their homes. Debt to finance an electric car can also be prohibitive for low- and middle-income households, due to the high debt-to-income ratios required: more than 10% for a new standard small car and more than 5% for a new entry-level model or a used car.

4 There are regional disparities in access to the transition

Financial aid provided by some French local authorities helps to significantly reduce the out-of-pocket costs: some metropolitan areas offer retrofit aid of up to €10 000. For mobility, around half of the metropolitan areas in low-emission zones (LEZs) provide local scrappage bonuses ranging from €3 000 to €6 000, and the State offers an additional €1 000 for scrappage in LEZs, as well as up to €3 000 if similar local aid is also available.

Household access to the transition also depends on factors that may vary according to location. For retrofitting, this includes the **availability of qualified tradespeople and advisors to assist households.** Currently, the total number of tradespeople appears to be sufficient, but local shortages are possible.

For electric mobility, **public charging points are needed:** their number is increasing, but not as quickly as the number of electric vehicles on the road, and the ratio of vehicles to charging points varies from one location to another.

5 Data gaps still prevent a full assessment

Data gaps at several levels prevent an in-depth assessment of the conditions for household access to the transition. First, there is **no comprehensive overview of local aid schemes**, including the number of local authorities that offer retrofit or mobility aid, the number of households concerned, the aid amounts, the eligibility criteria, or the actual recipients.

Second, **only partial data exists on the beneficiaries** of the various national schemes. Information is publicly available on the beneficiaries of some schemes (scrappage bonus, ANAH aid – although a more detailed categorisation of beneficiaries would be useful here), but very little is available on others (ecological bonus), or none at all (reduced VAT rate, CEE Energy Savings Certificates).

Finally, **no indicator has been found of the quality of access to services via public transport** at the national level.

ACCELERATING THE RETROFITTING OF HOUSING IS A KEY PLANNING CHALLENGE

The retrofitting of housing is a key planning challenge, which will partly rely on low - and middle - income households – *(p. 5)*

The French National Low-Carbon Strategy aims for "a radical thermal renovation of the existing stock, to arrive at a level in line with Low Consumption Building standards (BBC) on average across the whole stock by 2050". Of the 30 million main residences in the housing stock, less than 6% are already energy-efficient (classed as A or B on the energy performance certificate - DPE), highlighting the scale of the retrofitting challenge. More than half of these homes are owner-occupied. Unsurprisingly, owner-occupiers are more numerous among higher-income households, but low- and middle-income households account for more than 70% of owner-occupiers.

Are low- and middle-income households able to invest in deep energy retrofits of their homes? – *(p. 6 à 13)*

Our previous work has shown that despite the increase in financial aid in recent years – which has been more significant for low- and middle-income households – the out-of-pocket costs still amount to tens of thousands of euros, and access to subsidised loans can be limited by households' debt capacity. The analyses presented here aim to update these figures, particularly in light of the revision of aid for 2024, and to provide a more detailed examination of the obstacles faced by households, considering their characteristics beyond income. Our analysis of the accessibility of deep energy retrofits focuses on the following questions:

- **What financial aid are households entitled to for retrofitting their homes?** *(p. 6-7)*
- **Which households actually benefit from these aid schemes?** *(p. 8)*
- **What are the out-of-pocket costs for households** *(p. 9)*
- **To what extent can households access subsidised loans to cover these out-of-pocket costs?** *(p. 10-12)*
- **Do these financing solutions help households to maintain their financial balance?** *(p. 13)*

The probability of achieving the BBC standard decreases with the number of steps in the retrofitting process. In addition, step-by-step retrofits are more complex to implement and require a comprehensive overview of the retrofitting process (ADEME, 2021a). We have therefore chosen to assess deep energy retrofits. Some of our analyses are based on the most ambitious upgrades for a selection of typical buildings, while others are based on average costs to achieve the BBC standard. The characteristics of the households considered are income, ownership status, mortgage debt, and age. The assumptions, along with sensitivity analyses on certain parameters, are presented in the annexed methodological report.

Are the other conditions to make deep energy retrofits accessible being met? – *(p. 14 à 16)*

The accessibility of deep energy retrofits does not depend only on the economic capacity of households to make the investments required:

- **Collective solutions must be considered in certain cases, particularly the connection to district heating networks where possible** *(p. 14)*
- **The case of condominiums raises the issue of decision-making** *(p. 14)*
- **Making retrofits accessible requires appropriate support for households and the availability of qualified tradespeople** *(p. 15)*
- **Retrofitting challenges are more complex in the case of a tenant household** *(p. 16)*

Other obstacles to retrofitting have been identified but are outside the scope of this study (information about the challenges of retrofitting and existing aid, finding alternative accommodation, etc.).

EXTENSIVE RETROFITTING OF THE HOUSING STOCK IS NEEDED TO MEET SNBC TARGETS

Retrofitting of housing: a key challenge that needs to be accelerated

French ecological planning sets a target of **900 000 "deep" energy retrofits by 2030**, with a steadily increasing trajectory *(Tableau de bord du Secrétariat général à la planification écologique, SGPE)*. This term refers to energy retrofits that improve the energy performance certificate (DPE) rating by at least two classes. The initial target for 2024 was to carry out 200 000 deep retrofits. In early 2024, this was revised down to 140 000-150 000, which is still double the pace seen in previous years (66 000 deep retrofits in 2022; 71 000 in 2023)[2] *(ANAH, 2024c)*.

It should be noted that the performance of these retrofits is not necessarily sufficient to meet the objectives of the National Low-Carbon Strategy (SNBC), which aims for "a radical thermal renovation of the existing stock, to arrive at a level in line with Low Consumption Building standards (BBC) on average across the whole stock by 2050" *(French Ministry of Ecological Transition, 2020b)*.

As of 2023, almost half of all homes were heated with fossil fuels (gas or oil), and less than 6% of homes were energy-efficient (classed as A or B on the DPE) *(CGDD, 2023b)*, highlighting the scale of the challenge.

Most of the investment needs to come from owner-occupiers

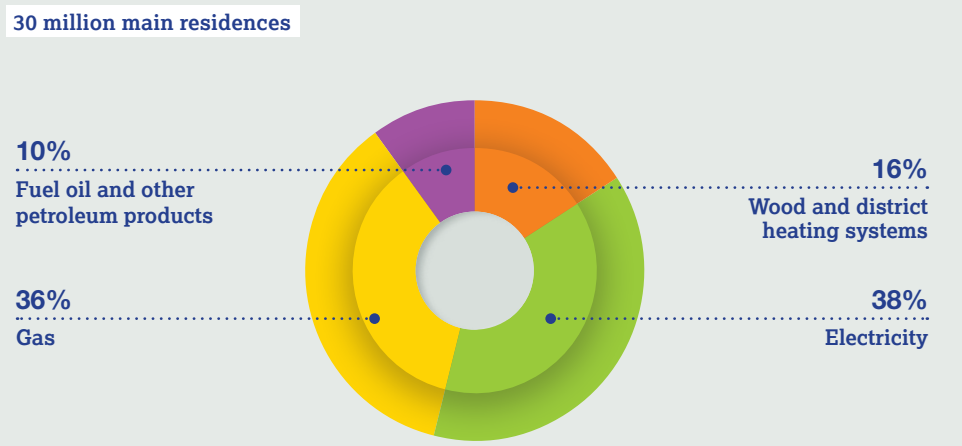
The housing stock consists of **30 million main residences. The majority of main residences are owner-occupied** (58%): of these owners, around 80% live in single-family houses and 20% in apartments.

Unsurprisingly, owner-occupiers are more numerous among higher-income households. Of middle-income households (deciles 4 to 8), 63% own their main residence. In total, **72% of owner-occupiers are from low- and middle-income households.** The following pages (pp. 6 to 13) discuss the economic capacity of owner-occupiers to invest in deep retrofits of their homes.

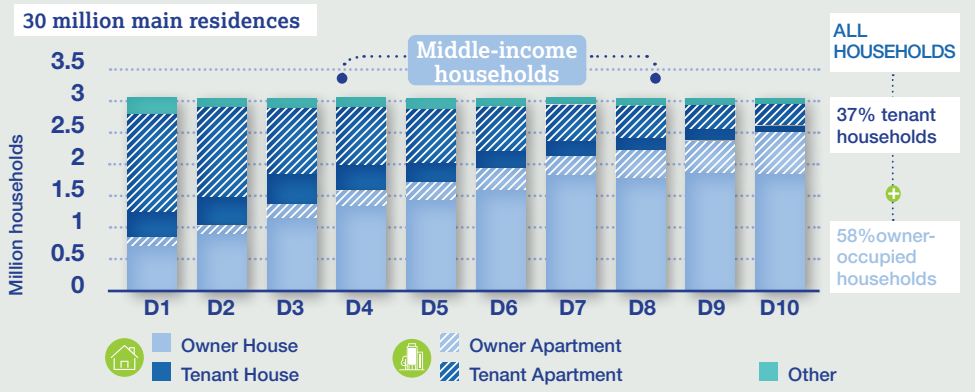
In total, 37% of households are tenants of their main residence: of these, 25% live in single-family houses and 75% in apartments. The specific challenges of retrofitting in this case are discussed on p. 16.

Of the 13 million apartments, 4.6 million have a collective heating system *(CEREN, 2023)*. The specific challenges for apartments are discussed on p. 14.

DISTRIBUTION OF MAIN RESIDENCES ACCORDING TO HEATING ENERGY



OCCUPATION STATUS OF MAIN RESIDENCES BY HOUSEHOLD LIVING STANDARD DECILE



The "Other" category includes households living in free accommodation, usufructuaries (without bare ownership), and owners or tenants residing in temporary buildings, hotel rooms, shelters, or non-residential collective buildings (schools, police stations, offices, etc.).

Source: I4CE calculations, using 2022 data from the INSEE "Statistiques sur les revenus et conditions de vie" (SRCV)

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2. Prior to the 2024 reform of MaPrimeRénov', the term "deep retrofits" referred to retrofits that reduced primary energy consumption by at least 35%.

AID FOR DEEP RETROFITS OF HOUSING HAS INCREASED SIGNIFICANTLY IN 2024

Aid for deep retrofits of single-family houses increased significantly between 2023 and 2024

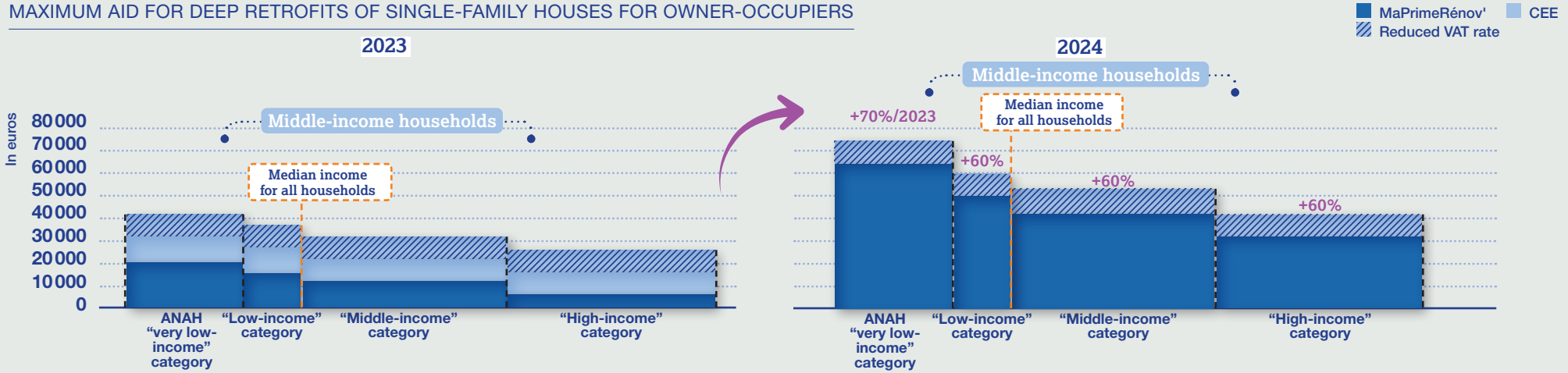
The maximum aid for deep retrofits of single-family houses has increased by 70% for low- and lower-middle-income households, and by 60% for other middle-income and higher-income households[1].

Since 2008, **this aid has increased for all households and has been increasingly targeted at low- and middle-income households.** Between 2008 and 2024, the maximum aid amounts have more than quadrupled for low- and lower-middle-income households, approximately tripled for middle income households, and doubled for upper-middle and higher-income households (see methodological report). This increase is well above the increase in the INSEE residential buildings maintenance and improvement price index, which rose by around 40% between 2008 and the end of 2023.

AID FOR DEEP RETROFITS OF SINGLE-FAMILY HOUSES

To finance deep retrofits of their homes, households can access various aid schemes: aid from the Agence Nationale de l'Habitat (ANAH - French National Housing Agency), Energy Savings Certificates (CEE), and a reduced VAT rate of 5.5% on the cost of work.
In 2024, the **MaPrimeRénov' Parcours** Accompagné programme was created to finance "deep retrofits", in other words those that improve the energy performance certificate (DPE) rating by at least two classes. The programme is open to owners of homes built more than 15 years ago. The aid includes the valorisation of CEEs by ANAH, and the amount depends on both household income and the expected performance of the work. A bonus is awarded if the home is no longer classed as energy-inefficient.

MAXIMUM AID FOR DEEP RETROFITS OF SINGLE-FAMILY HOUSES FOR OWNER-OCCUPIERS



Note: **The income categories in this figure are those used by ANAH, and the definition of "low-income households" does not correspond to the one used elsewhere in this document.** The width of the categories is approximately proportional to the share of owner-occupiers in each category relative to the total number of owner-occupiers.

Assumptions: For 2024, the amount of MaPrimeRénov' Parcours Accompagné corresponds to the retrofitting of a single-family house with an energy improvement of four classes. For 2023, Energy Savings Certificates are calculated based on the "Coup de pouce rénovation globale" for the example of a "rural oil-heated house" (Ministère de la Transition Écologique et Solidaire, 2020a). For both 2023 and 2024, the reduced VAT rate corresponds to work amounting to 70 000 euros excluding tax (the MaPrimeRénov' Parcours Accompagné ceiling for 2024). The median income for all households and the "Middle-income" category are determined based on the correspondence between the deciles of reference tax income per unit and the eligibility thresholds for ANAH aid (see Methodological Report).

Sources: ANAH, 2024a and Ministère de la Transition Ecologique et Solidaire, 2020a.

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1. These figures focus on aid specific to retrofittingand do not take account of aid schemes for rehabilitating substandard or degraded housing, even though retrofitting may account for a significant portion of the work funded under these schemes.

AID HAS ALSO INCREASED FOR APARTMENTS IN 2024

Aid for deep retrofits of apartments has increased in 2024

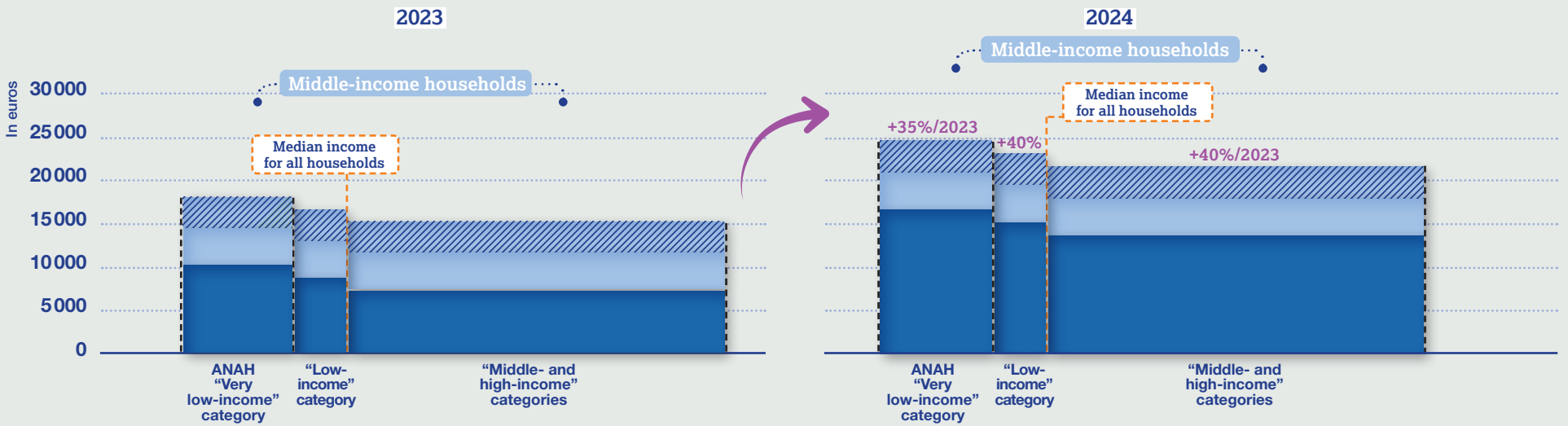
Between 2023 and 2024, the maximum aid available to households for deep retrofits of apartments increased by **35% for very low-income households** according to ANAH, and by **40% for other households**.

In 2021, the launch of the MaPrimeRénov' Copropriété programme and of universal aid for all households initially led to a decrease in aid for low- and lower-middle-income households compared to the individual aid they could previously receive under the former Habiter Mieux Copropriété programme. The significant increase in aid between 2023 and 2024 has now surpassed the pre-2021 level.

AID FOR DEEP RETROFITS OF CONDOMINIUMS IN 2024

For apartment buildings, MaPrimeRénov' Copropriété subsidises work on the common (or common interest) areas of condominiums. The amount of aid depends on household income and the energy improvement achieved by the work, which must be at least 35%. A bonus is awarded if the property is no longer classed as energy-inefficient. Households can also use MaPrimeRénov' for work on privately-owned areas.

MAXIMUM AID FOR RETROFITS OF APARTMENTS FOR OWNER-OCCUPIERS



Note: **The income categories in this figure are those used by ANAH, and the definition of "low-income households" does not correspond to the one used elsewhere in this document.** The width of the categories is approximately proportional to the share of owner-occupiers in each category relative to the total number of owner-occupiers. It should also be noted that there are other conditions for accessing aid, such as the age of the property.

Assumptions: For 2023, the amount for MaPrimeRénov' Copropriété is calculated for an energy improvement of at least 50%. For 2023, Energy Savings Certificates are calculated based on the "Coup de pouce rénovation globale" for the example of an apartment block (Ministère de la Transition Écologique et Solidaire, 2020a). For 2024, Energy Savings Certificates are calculated based on the same example, with the "Coup de pouce rénovation globale" 2024 for a collective residential building. In both 2023 and 2024, the VAT reduction is given for works amounting to 25 000 euros excluding tax (the MaPrimeRénov' Copropriété ceiling for 2024). The median income for all households and the "Middle-income" category are determined based on the correspondence between the deciles of reference tax income per unit and the eligibility thresholds for ANAH aid (see Methodological Report). It should be noted that the standardised operation sheet, on which the "Coup de pouce" is based, was replaced by a new version in November 2024.

Sources: ANAH, 2024a and Ministère de la Transition Ecologique et Solidaire, 2020a.

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LOW- AND MIDDLE-INCOME HOUSEHOLDS BENEFIT MOST FROM ANAH SUBSIDIES

ANAH aid for retrofits mainly benefits low- and middle-income households

The number of homes supported by the Agence Nationale de l'Habitat (ANAH) – and the amount of aid distributed – declined slightly in 2023, mainly due to high inflation and the anticipated revision of aid for 2024 *(ANAH, 2024c).* The majority of ANAH retrofit aid subsidises individual upgrades – in other words, tackling one or more areas of work in isolation. **In 2023, 31% of ANAH retrofit aid was used for deep retrofits,** a slight increase compared to previous years.

Retrofit aid has mainly benefited households in the ANAH "Very low" or "Low-income" categories. These categories roughly correspond to the 50% lowest-income households, including low-income and some middle-income households, according to our definition. However, the share of aid they receive has declined in recent years, falling from 84% in 2021 to 77% in 2023.

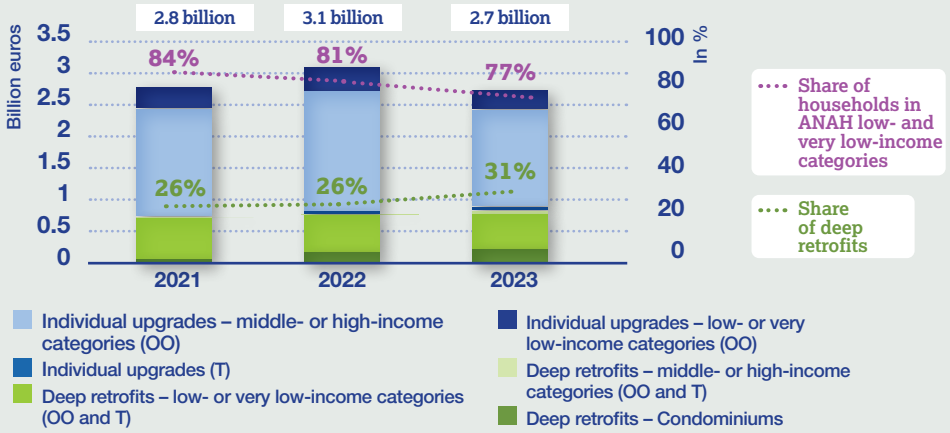
The findings still appear valid when considering all forms of aid, but there are data gaps regarding the beneficiaries of other schemes

It should be noted that ANAH subsidies only account for slightly more than a third of the total amount of national public aid and extra-budgetary schemes (the extra-budgetary schemes considered here are Energy Savings Certificates – CEE)

Just over half of the CEEs for retrofits are earmarked for the ANAH lowest-income households category.

We did not find any information on the beneficiaries of the VAT reduction, but it should be noted that the share of households undertaking retrofitting work – and therefore benefiting from this VAT reduction – increases with household income *(ONRE, 2022)*. Nor did we find any information on the total amount of aid distributed by local authorities or on the recipients of this aid.

AMOUNT OF NATIONAL ANAH AID FOR RETROFITS



Sources: Anah (2023, 2024b)

Note: **The income categories in this figure are those used by ANAH, and the definition of "low-income households" does not correspond to the one used elsewhere in this document.**

OO: Owner-occupiers; T: Tenants

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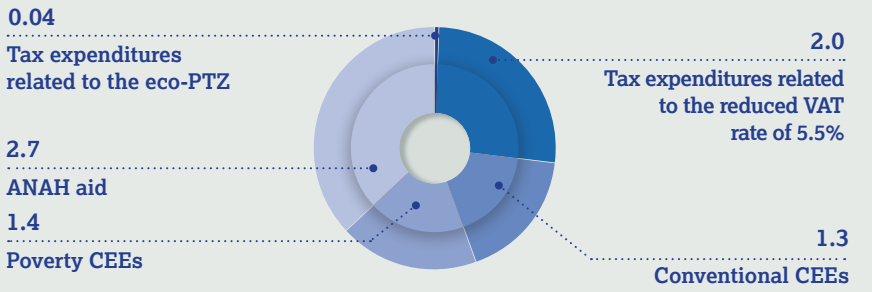
AMOUNTS OF BUDGETARY AND EXTRA-BUDGETARY SCHEMES FOR HOME RETROFITS IN 2023 (BILLION EUROS)



Note: The eco-PTZ tax credit is not linked to the year in which work is carried out (the amounts are spread over five years after the loan is signed). It should be noted that tax expenditures related to the VAT reduction are overestimated (by around 10%), as some of them subsidise social landlords. Local aid is not shown in this figure. The VAT reduction for non-energy retrofits is not included, nor is the deduction for repair expenses for landlords.

Sources: PLF 2024 and Ministère de la Transition Energétique, 2023 for estimates of CEE amounts.

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AID INCREASES HAVE SIGNIFICANTLY REDUCED OUT-OF-POCKET COSTS FOR LOW- AND MIDDLE-INCOME HOUSEHOLDS

The out-of-pocket costs can still amount to tens of thousands of euros for all households

The increase in aid in 2024 for deep retrofits has significantly reduced the out-of-pocket cost for households – in other words, the investment amount minus aid. **However, for the deep retrofitting of a single-family house, the out-of-pocket costs still amount to tens of thousands of euros for all households. For the retrofitting of an apartment, the out-of-pocket costs are more limited and can fall below €10 000 for low-income and some middle-income households.** The cost of retrofits is a key factor in these results, and relatively broad ranges are found in the literature (*ADEME, 2024; Effinergie 2021 & 2022)*. However, the typical total investment is in the range of €60 000-70 000 for the deep retrofitting of a single-family house, and €25 000 for an apartment.

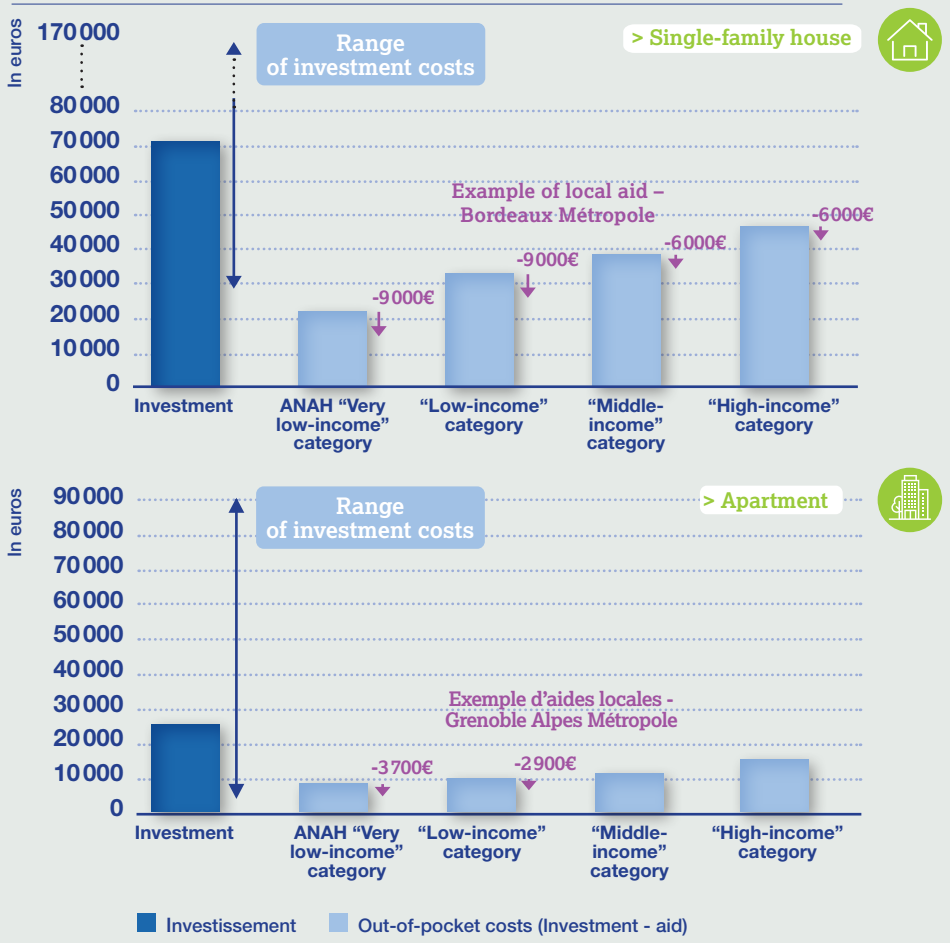
Local aid provided by some local authorities – particularly the metropolitan areas – can reduce these out-of-pocket costs

Some local authorities provide additional aid for deep retrofits. The Agence Nationale pour l'Information et le Logement (National Agency for Housing Information - ANIL) conducted a review of these local aid schemes in 2021, noting that **60% of local authorities provided at least one form of retrofit aid, most of which could be combined with state aid** *(ANIL, 2021)*. However, this study gives no information on the aid amounts in question or the number of households concerned, and has not been updated. We found no up-to-date sources providing a comprehensive overview of local aid schemes. Some metropolitan areas provide substantial aid, such as Lyon (EcoRéno'v programme), Grenoble (MurMur), Bordeaux (Ma Rénov), and Paris (Eco-rénovons +). This aid typically amounts to several thousand euros and can even exceed €10 000 in some places. Other local authorities provide retrofit aid, but the amounts are generally quite low, except in some places that are particularly committed to the issue, such as the Bas-Rhin department *(La Fabrique de la Cité, 2024)*.

DEEP ENERGY RETROFITS:

The "Climate and Resilience" law of 2021 introduced a definition of a deep energy retrofit. It corresponds to achieving an A or B rating on the Energy Performance Certificate (DPE) after work, considering various upgrades, with exceptions particularly for energy-inefficient buildings. Some of our analyses are based on the most ambitious upgrades for a selection of typical buildings, while others are based on average costs to achieve the BBC standard.

INVESTMENT COSTS AND OUT-OF-POCKET COSTS FOR DEEP ENERGY RETROFITS



Note: **The income categories in this figure are those used by ANAH, and the definition of "low-income households" does not correspond to the one used elsewhere in this document.**

Sources: The investment costs, along with the other factors used to estimate the amount of aid for the different household categories – energy savings, greenhouse gas emissions reductions – have been calculated based on average data from the Observatoire BBC for the BBC renovation of single-family houses and apartments *(Effinergie, 2021 & 2022)*. The costs of work have been updated with the INSEE residential buildings maintenance and improvement price index.

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ECO-PTZ CHARACTERISTICS – CAP, DURATION, RATE – MAKE IT A GOOD OPTION FOR FINANCING OUT-OF-POCKET COSTS

High cap, long repayment period, zero interest rate: the Eco-PTZ is a good option for financing the out-of-pocket costs of work

The out-of-pocket costs can be financed with a subsidised loan, particularly a zero-interest eco-loan (Eco-PTZ). The Eco-PTZ was introduced in 2009 and allows owner-occupiers or landlords to finance retrofitting work without interest or means testing. If the work carried out qualifies for MaPrimeRénov', households can obtain the "Eco-PTZ PrimeRénov'", with simplified administrative procedures. There is also an "Eco-PTZ Copropriétés" available to finance the retrofitting of common areas or private areas of collective interest by condominium associations. Since this year, the financing cap for "Eco-PTZ PrimeRénov'" stands at €50 000 (previously, this cap applied only to overall energy retrofitting work). **This cap typically covers all out-of-pocket costs, particularly for low- and middle-income households.** However, retrofit costs can sometimes be higher, and the cap would then be insufficient to cover out-of-pocket costs, as highlighted by a Senate Select Committee report *(Sénat, 2023)*.

For work eligible for MaPrimeRénov and/or deep retrofitting work, the maximum repayment period is **20 years** (15 years in other cases). This long duration and the zero rate help households to maintain their financial balance (see p.13).

The number of Eco-PTZ loans has reached its highest level since the launch of the scheme

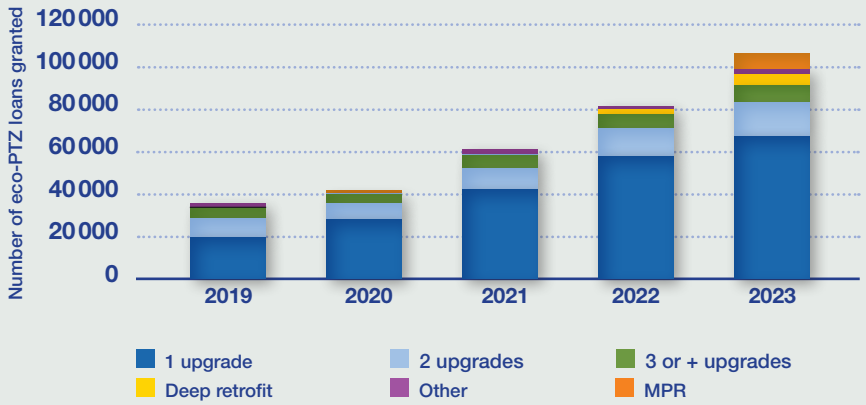
Shortly after the launch of the scheme in 2009, the number of Eco-PTZ loans granted annually fell from around 70 000 to 20 000-30 000, mainly due to the low interest rates and a lack of interest from banks and households (Giraudet, 2021). Since 2019, the number of eco-PTZ loans granted has risen sharply, standing at **more than 100 000 eco-PTZ loans granted in 2023.**

Eco-PTZ loans mainly finance individual upgrades and have benefited increasingly high-income households in recent years

In 2023, 80% of eco-PTZ loans were for single or dual upgrade works. **Although more loans for deep retrofit projects are now being granted, they currently account only 5% of all eco-PTZ loans.**

In recent years, the proportion of eco-PTZ recipients from lower-income households has decreased in favour of higher-income households. In 2021, around 12% of eco-PTZ loans were granted to owner-occupiers in the last two income deciles, but this group now receives 20% of the loans. Conversely, the share of eco-PTZ loans granted to owner-occupiers in the first six income deciles has decreased in recent years

NUMBER OF ECO-PTZ LOANS GRANTED SINCE 2019



Sources: SGFGAS (2020, 2021, 2022, 2023, 2024)

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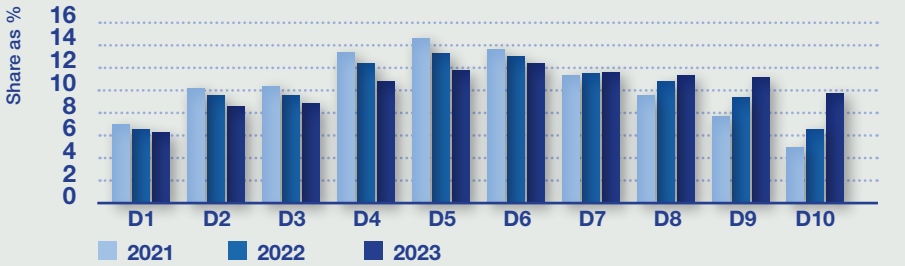
SHARE OF ECO-PTZ LOANS GRANTED BY REFERENCE TAX INCOME DECILES OF OWNER-OCCUPIERS



Note: The income deciles shown in this graph are those of owner-occupiers, meaning their income is generally higher than that of all household groups.

Sources: SGFGAS (2022, 2023, 2024)

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FINANCING RETROFITS IS DIFFICULT FOR OLDER OWNER-OCCUPIERS WITH INSUFFICIENT SAVINGS

Obtaining an eco-PTZ is difficult for older households, the majority of which have limited saving

Eco-PTZ loans are a good solution for households, but obtaining one can be difficult, particularly for older households or those with health issues or irregular incomes. Each bank sets its own limit on the repayment age and may require insurance from households, depending on its risk assessment.

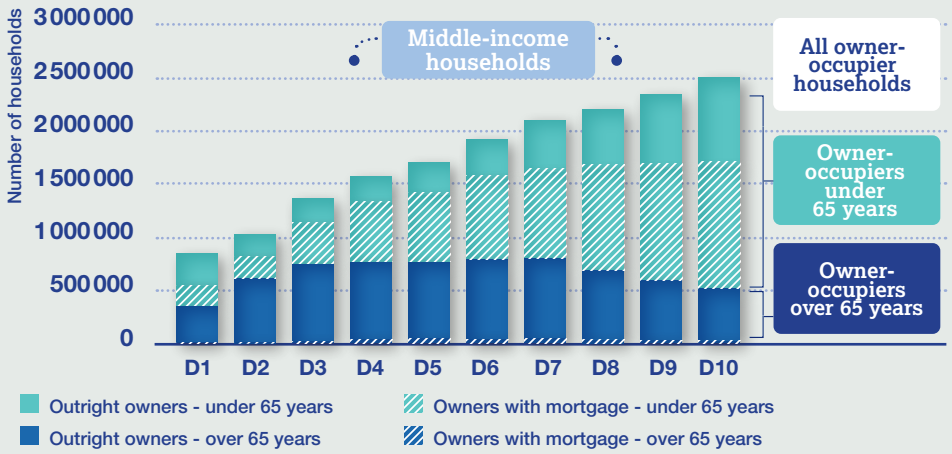
Some 6.7 million owner-occupiers are over 65 years old, accounting for 38% of all owner-occupiers. It is estimated that 1.3 million of them have savings of more than €30 000. In total, an estimated **5.3 million owner-occupier households over 65 years have savings of less than €30 000,** and could therefore struggle to finance retrofitting work. It should nevertheless be noted that 940 000 of these households have estimated assets of more than €30 000, excluding their main residence.

A specific subsidised loan has been created for households struggling to access credit, but so far this scheme has not taken off

Another subsidised loan for retrofits has been introduced for households struggling to access bank credit: the Prêt Avance Rénovation (PAR – advance retrofit loan). This loan is repaid upon sale or inheritance of the property, and is secured by a mortgage and guaranteed by the state for 75% of the loan amount. Since June 2024, this loan is no longer subject to means testing.

Only two banks currently offer this loan, and fewer than 100 loans were granted in 2022 and 2023 *(ONPE, 2024)*. Several obstacles explain the lack of enthusiasm for this scheme, both from households (particularly the reluctance to leave debt to heirs) and from banks. These include the significant investments required in IT and human resources, the fact that low-income households are not targeted by banks, and the risk of conflict with heirs if they are not informed about the loan *(ADEME, 2024)*.

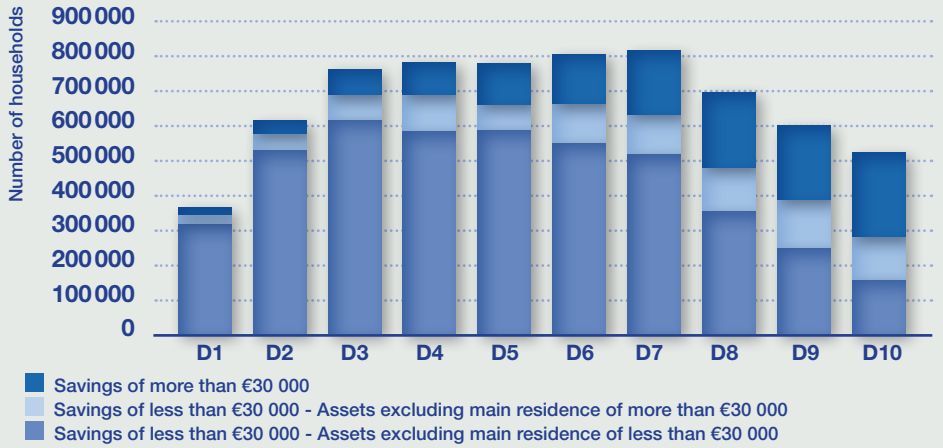
OWNER-OCCUPIERS, BY LIVING STANDARD DECILE OF ALL HOUSEHOLDS



Note: Owners with a mortgage are those who have an ongoing mortgage for the purchase of their main residence.

Source: I4CE calculations based on SRCV 2022 data, INSEE. @I4CE_

FOCUS ON OWNER-OCCUPIERS OVER 65 YEARS OLD



Assumptions: The savings accounts considered are passbook savings, home savings plans, securities savings, financial investments, and share savings plans. The SRCV database provides intervals for savings in each of these accounts. Here, the lower limit of the interval has been considered. The assumptions and their implications for the findings are detailed in the methodological report.

Source: I4CE calculations based on SRCV 2022 data, INSEE. @I4CE_

ACCESS TO LOANS CAN ALSO BE DIFFICULT FOR HOUSEHOLDS THAT STILL HAVE AN OUTSTANDING MORTGAGE ON THEIR MAIN RESIDENCE

For the 7 million homeowners with a mortgage, accessing a loan can be problematic

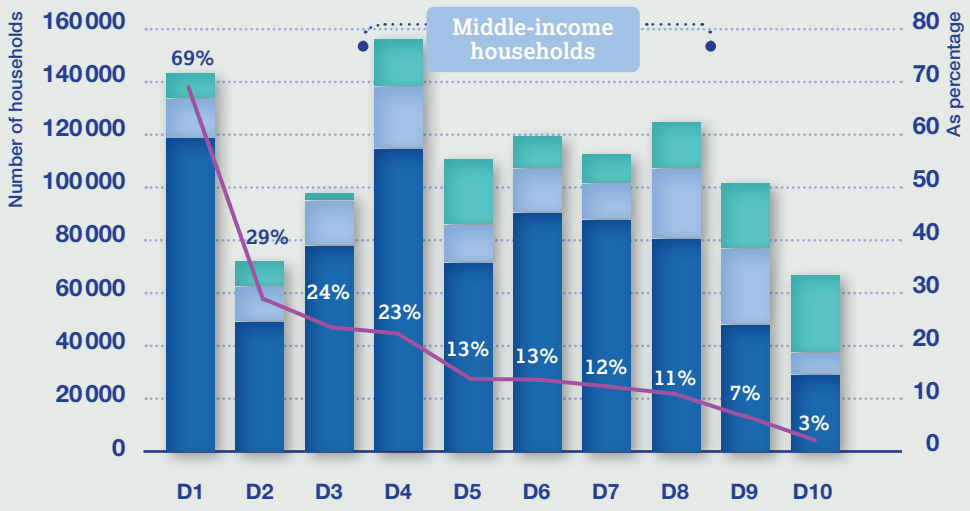
In total, there are 7 million homeowners with an ongoing mortgage for their main residence, accounting for **39% of all owner-occupiers.** These households may also struggle to obtain an additional loan, as they are sometimes at the limit of their borrowing capacity. Since 2022, banks have been required to adhere to mortgage lending conditions set by the Haut Conseil de Stabilité Financière (HCSF - High Council for Financial Stability), in particular limiting the debt-to-income ratio – in other words, the ratio between loan repayments and household income – to 35%.

Buying a property is an ideal time for major work, but it is also when household borrowing capacity is most limited if retrofitting costs have not been planned. Among households that took out a mortgage in 2023, around 60% had a debt-to-income ratio of more than 30% at the time of borrowing *(ACPR, 2024)*.

Borrowing capacity can remain limited for years after taking out a mortgage. It is estimated that for **940 000 households (13.5% of all homeowners with a mortgage), the debt-to-income ratio required to finance the out-of-pocket costs of retrofitting work exceeds their borrowing capacity, taking account of their savings.** If we assume that their savings to finance the work, this figure would rise to 1 million.

The proportion of homeowners with a mortgage whose borrowing capacity and savings are insufficient to cover the out-of-pocket costs is much higher among lower-income households (between 24% and 69%) and middle-income households (between 11% and 23%) than among higher-income households (3-7%).

OWNERS WITH A MORTGAGE FOR WHOM FINANCING DEEP RETROFITS EXCEEDS FINANCING CAPACITY, BY LIVING STANDARD DECILE OF ALL HOUSEHOLDS



Note: At least 130 000 owners with a mortgage in the first decile (not counting households whose borrowing capacity is unknown) do not have the financing capacity to retrofit their home; this represents 69% of owners with a mortgage in the first decile.

Assumptions: The calculations were made using the 2022 INSEE "Statistics on income and living conditions (SRCV)". For each household in the database, the debt needed to finance the deep retrofit of the homes described on page 9 is calculated, assuming the household uses all of its savings except for precautionary savings equivalent to three months of disposable income. This debt is then compared to the household's borrowing capacity, taking into account mortgages for the main residence. For some households, this information is not available, and they thus appear in the "Owners with a mortgage whose borrowing capacity is unknown" category. See the methodological report for details on the methodology.

Source: I4CE calculations based on SRCV 2022 data, INSEE.

@I4CE_

CURRENT AID AND THE USE OF AN ECO-PTZ GENERALLY ENABLE HOUSEHOLDS TO MAINTAIN THEIR FINANCIAL BALANCE

Financial balance is an important criterion for low- and middle-income householdss

One of the conditions for the viability of deep retrofits for low- and middle-income households is that they allow them to **maintain their financial balance,** with projected energy savings at least equivalent to loan repayments *(I4CE, 2022 & 2023)*. This criterion is also one of those used by third-party financing companies to assess household financing capacity *(ADEME, 2024)*. It is particularly important for the lowest-income households, for whom the proportion of unavoidable expenditure is the highest *(CNLE, 2024)*.

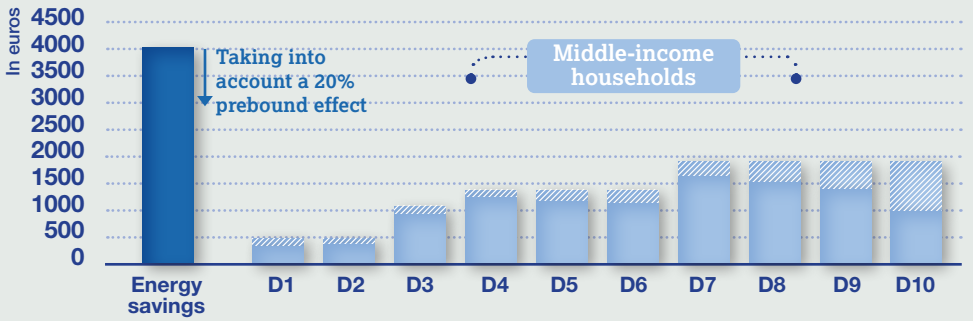
Energy savings generally cover loan repayments

The energy savings generated generally offset the repayments of an Eco-PTZ, which would not be the case for a loan with a shorter duration and high interest. The financial aid available to households – depending on their income and the performance of the work – helps to reduce loan repayments, as does the ability to use savings to initially cover some of out-of-pocket costs.

Certain configurations can, however, be problematic. Some households – particularly those facing energy poverty – may not consume at the theoretical level of their home (prebound effect), and will thus have lower actual energy savings. The characteristics of homes can also influence the financial balance, as shown by the comparison of energy savings and loan repayments for six typical homes. Heating energy and location (climate zone) also impact energy savings *(Effinergie, 2021)*.

Beyond the prebound effect mentioned above, the literature warns that actual energy savings may be lower than expected, particularly due to poor workmanship and the rebound effect *(CAE, 2024)*. These studies focus on individual upgrades. We did not find any references on the difference between theoretical and actual energy savings in the case of deep retrofits, but an ADEME study on the actual consumption of homes that have undergone deep retrofits shows that it is possible to achieve the BBC (low-energy building) standard, and thus very high actual energy savings *(ADEME, 2021b)*.

COMPARISON OF ENERGY SAVINGS AND LOAN REPAYMENTS BY LIVING STANDARD DECILE FOR DEEP RETROFITS OF SINGLE-FAMILY HOUSES



Note: In each decile, the income of the household considered corresponds to the average standard of living of that decile.

Assumptions: The estimates are based on the example of the "rural oil-heated house" from the study *(Ministère de la Transition Ecologique et Solidaire, 2020a)*

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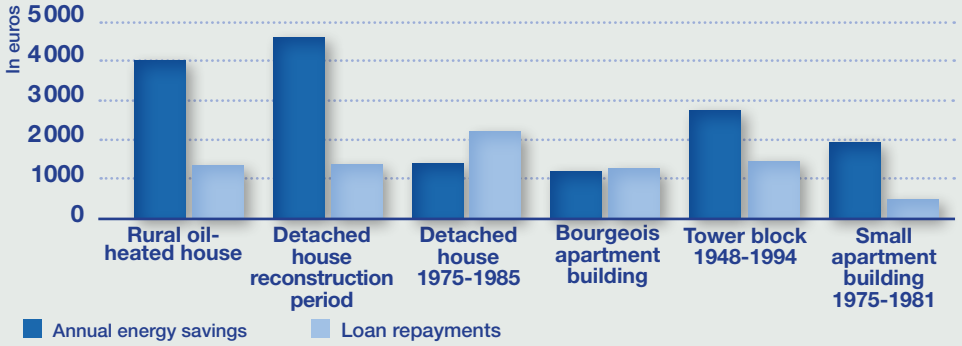
COMPARISON BETWEEN ENERGY SAVINGS AND LOAN REPAYMENTS FOR A MEDIAN-INCOME HOUSEHOLD FOR 6 TYPICAL HOMES



Note: The six homes presented are those from the study *(Ministère de la Transition Ecologique et Solidaire, 2020a)*.
Assumptions: The household has an income corresponding to the median income of French households and finances all out-of-pocket costs through an Eco-PTZ.

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SOME SOLUTIONS FOR DEEP RETROFITS ARE COLLECTIVE

High potential for connection to district heating networks

Housing retrofitting is not just a matter of personal investment by households. Collective solutions must be considered in some cases, particularly connection to district heating networks where possible. France currently has **946 networks**, which primarily distribute heat from renewable and recovered energy sources (66% on average). At present, district heating networks are concentrated around large metropolitan areas.

France Chaleur Urbaine identifies **650 000 homes with collective gas or oil heating that can be connected to a district heating network in France.** When homes with individual gas heating are included, this potential rises to **more than a million** homes.

The regions with the highest potential for connecting homes are Ile-de-France, Auvergne Rhône-Alpes, Grand Est, and Pays de la Loire *(France Chaleur Urbaine).*

The cost of connection depends in particular on the size of the heat exchanger required, the length of the connection, and any site-specific constraints. For buildings with 25 or fewer homes, the cost of a 50-metre connection is estimated at between €75 000 and €110 000. The connection is eligible for the CEE Coup de Pouce for "Heating of collective residential and tertiary buildings", which can be combined with MaPrimeRénov' Copro and can reduce the connection cost to a **few hundred euros** per home *(France Chaleur Urbaine).*

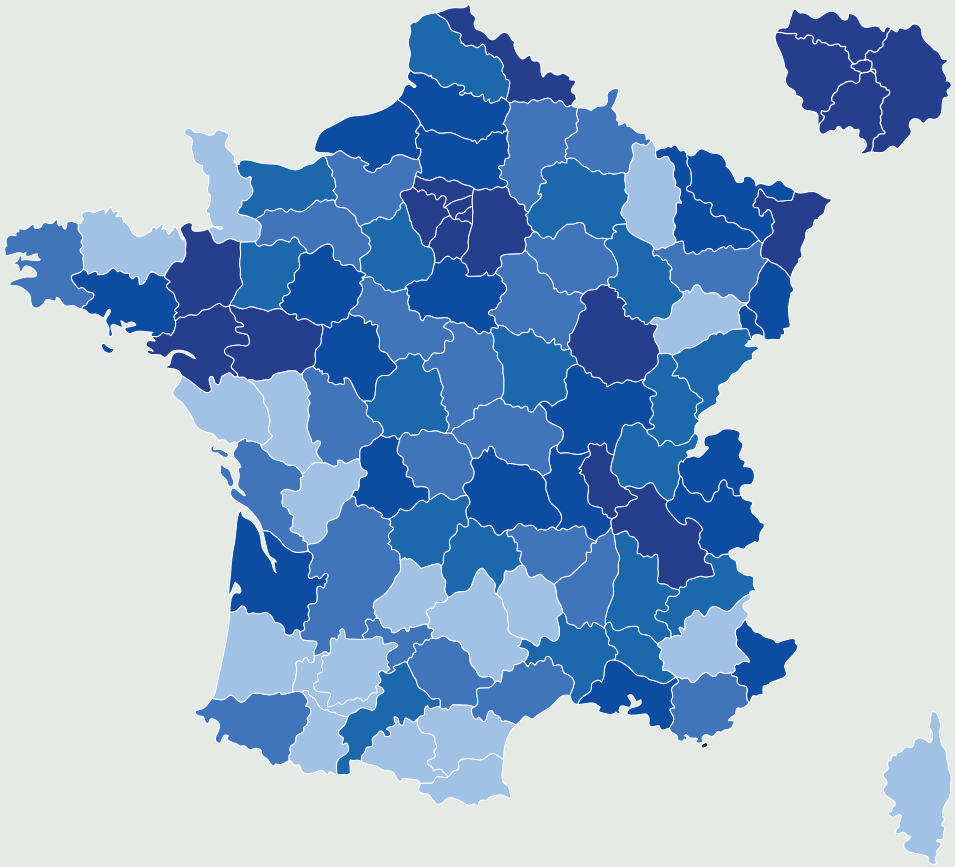
The combination of "universal" aid for all co-owners and enhanced aid for low- and middle-income households facilitates decision-making for deep retrofitting work in condominiums

In order to carry out work in condominiums a project team needs to be formed from among the co-owners, then decisions need to be validated during the general assembly of the co-owners' association. Since the work must be voted on and financed by all, the retrofit may not be completed for several years *(ANAH, 2024d).*

The implementation of "**universal" aid for all co-owners** has helped to drive the increase in condominium retrofits

Even greater additional support for low- and middle-income households would further reduce the risks of deadlock and of non-payment by low-income co-owners if work is carried out (*la Fabrique de la Cité, 2024).*

NUMBER OF HOMES THAT CAN BE CONNECTED TO A DISTRICT HEATING NETWORK WITHIN 150 METRES



Source: France Chaleur Urbaine

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THE AVAILABILITY OF QUALIFIED TRADESPEOPLE AND ADVISORS IS ESSENTIAL FOR DEEP RETROFITS

Making deep retrofits accessible requires appropriate support for households

Support is a crucial element to facilitate action and to prevent projects from being abandoned *(ADEME, 2024)*. This raises the question of the **number of advisors** needed, as well as the **quality and level of support** required to guide households towards deep retrofits. In 2023, ANAH launched the "Mon Accompagnateur Rénov'" programme, aimed at assisting households with the technical aspects of retrofitting as well as with administrative and financial matters.

As of late June 2024, more than 3 300 Accompagnateurs Rénov' advisors had been accredited, with a target of 4 000 to 5 000 by 2025. (ANAH, 2024b)

By 2030, the support needs are estimated at 7 000 to 10 000 FTEs, with 1 FTE for every 80 support cases on average *(SGPE, 2023)*.

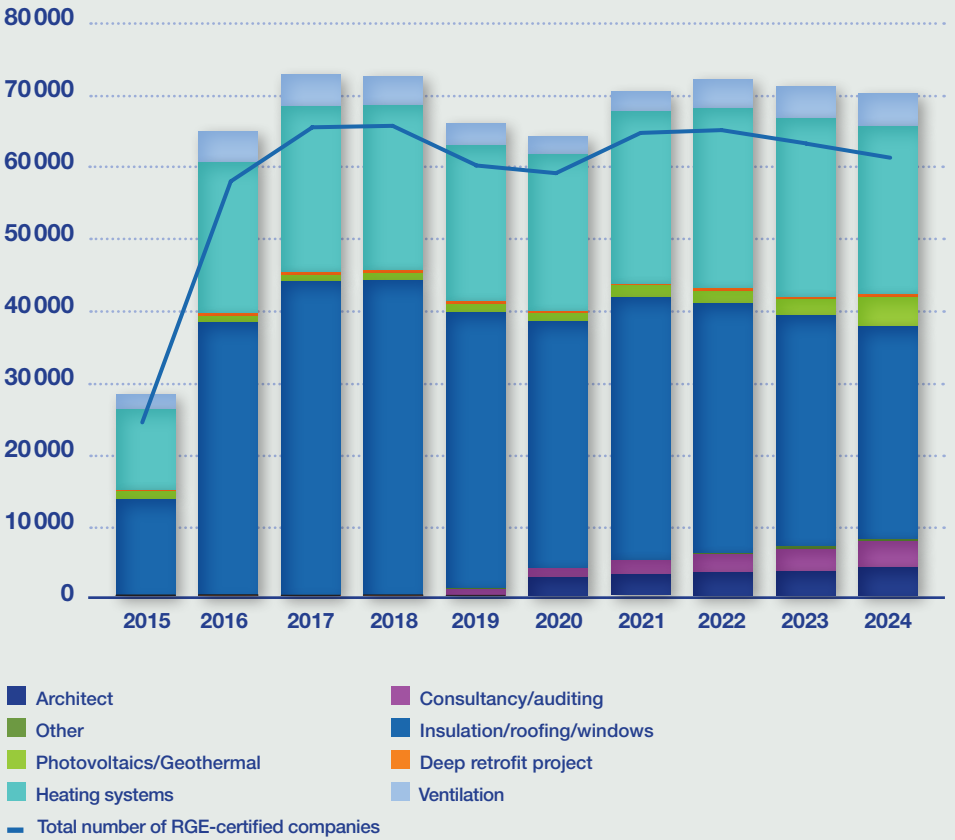
The total number of certified tradespeople currently appears sufficient, but local shortages are possible

To be eligible for aid, households must hire a tradesperson with RGE (Recognised environmental standards) certification. This certification is currently criticised for its complexity by professional federations and for its lack of ambition in terms of the skills required *(Cour des Comptes, 2023)*. The total number of certified companies does not seem insufficient in view of the number of retrofitting projects, but the situation is different at the local level, as indicated by the tradespeople availability index developed by HEERO, or the 2023 Cour des Comptes report. The distribution between trades also needs to be considered. The number of companies certified for insulation has declined by more than 30% since 2018, whereas the increase in deep retrofits should mean greater demand for insulation.

The increase in the number of deep retrofits will require an increase in the number of jobs in the sector

The number of deep retrofits is currently well below targets. Achieving the massive deployment of deep retrofits in line with national objectives would thus require an increase in the number of jobs in the sector compared to today, estimated at 200 000 by 2030 *(ADEME, 2023)*.

NUMBER OF RGE-CERTIFIED COMPANIES BY FIELD OF EXPERTISE, SINCE 2015



Note: The total number of companies for a given year is not equal to the sum of companies by field of expertise because some companies work in several fields. The number of RGE-certified companies is calculated as of 1 January of each year.

Source: ADEME database "Historique des entreprises RGE depuis 2014", as of 12 June 2024

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FOR THE 11 MILLION HOUSEHOLDS THAT RENT THEIR MAIN RESIDENCE, ACCESS TO A RETROFITTED HOME DEPENDS ON THEIR LANDLORD

The 11 million tenant households have little control over the retrofitting of their home

In total, 11 million households rent their main residence, and in most cases (73%), this is an apartment. The proportion of tenant households decreases as income rises: almost 60% of low-income households rent, **one third of middle-income households,** and 16% of high-income households *(SRCV 2022 data, I4CE calculations).*

Only **4.5% of rental homes are energy-efficient** (Class A or B of the DPE). It should be noted that the proportion of energy- inefficient homes is higher in private housing (18.5%) than in social housing (8.1%), due particularly to the incentive provided by the eco-loan for social housing, which is conditional on achieving at least a D rating after work. Tenants can carry out work at their own expense, and since 2022, if the landlord does not respond within two months, this is considered as approval of the proposed retrofitting work. However, tenants have less reason to finance work and are not eligible for ANAH aid.

Regulatory requirements and aid schemes encourage landlords to carry out retrofitting

The gradual ban on letting energy-inefficient homes came into effect in 2023 and may encourage landlords to retrofit their properties. More high-income households are landlords, and they own a larger number of properties. Indeed, households owning at least five properties account for 3.5% of all households, but own 50% of all rental properties held by individuals *(INSEE, 2021)*. However, there are 270 000 landlords among low-income households and 1.2 million among middle-income households. In total, low- and middle-income households account for 50% of all landlords.

Public aid can help them to make this investment. Whereas for owner-occupiers, the challenge is to make deep retrofits accessible, for landlords, the focus is on making them profitable *(La Fabrique de la Cité, 2024)*. Landlords (individuals) are eligible for MaPrimeRénov' Parcours Accompagné for retrofits that improve the DPE rating by at least two classes *(see p. 6)*. This aid can be combined for up to three properties over a five-year period, and the landlord must commit to letting the property as a main residence for at least six years.

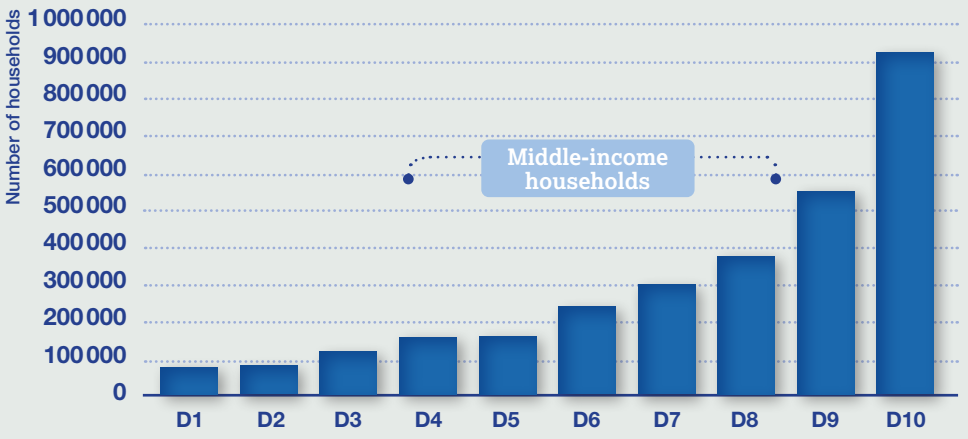
Other forms of aid are available to landlords – whether individuals or legal entities –, particularly in the context of efforts to tackle sub-standard housing.

DPE FOR RENTAL HOUSING

Source: CGDD, 2023b

@I4CE_

NUMBER OF LANDLORD HOUSEHOLDS BY LIVING STANDARD DECILE



Source: I4CE calculations based on SRCV 2022 data, INSEE

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ECOLOGICAL PLANNING FOCUSES ON THE DEVELOPMENT OF PUBLIC TRANSPORT AND VEHICLE ELECTRIFICATION

Among low-income and middle-income households, reliance on private cars is very high, and the proportion of electric vehicles is very low – *(p. 19)*

Ecological planning focuses on various ways to reduce greenhouse gas emissions from transportation, including travel reduction, a modal shift to public transport or soft mobility, and vehicle electrification. This Observatory concentrates on daily mobility, with particular attention to the economic conditions for household access to electric mobility, in a context in which more than 60% of households depend on their car for daily use. Despite the rapid increase in the number of electric vehicles in recent years, they account for less than 2% of all cars owned by households, and this proportion is even smaller for low-income households.

To what extent are households able to invest in an electric car? – *(p. 20 à 28)*

Our previous work highlighted the limited availability of electric cars on the used market and showed that despite the increase in aid in recent years for low- and middle-income households, purchasing a new electric car was still inaccessible to them. The analyses presented here aim to update these figures, particularly in light of the revision of aid for 2024 and changes in the automotive market, and to provide a more detailed examination of the obstacles faced by households. Our analysis of the accessibility of electric mobility focuses on the following questions:

- **To what extent are electric cars available on the used market?** *(p. 20)*
- **What aid is available to households for purchasing a new or used electric vehicle?** *(p. 21-22)*
- **Which households actually benefit from this aid?** *(p. 23)*

The economic accessibility of electric vehicles is then assessed in a differentiated manner according to the situation of households, and more specifically, whether or not they need to change their car (the possible situations are detailed in the methodological report). For a household that has no plans to change car – for example, because its current combustion engine vehicle is still functional and the switch to electric seems out of reach due to cost –, we assess its ability to invest in an electric vehicle by comparing with the initial situation, where we assume it owns an old combustion engine vehicle. The questions we explore in this case are as follows:

- **What are the out-of-pocket costs for households for a new or used car?** *(p. 24)*
- **What solutions are available to finance these out-of-pocket costs, and do they help to prevent an increase in household mobility budgets?** *(p. 25-26)*

In the case of a household that needs to buy a car – either because it does not have one yet, or because its previous car is no longer suitable for various reasons – the reference situation to which we compare the purchase of an electric car is the purchase of an equivalent combustion engine vehicle. In this situation, the questions explored are as follows:

- **What is the additional cost compared to an equivalent combustion engine vehicle?** *(p. 27)*
- **What solutions are available to finance this additional cost, and to what extent do they help to prevent an increase in the mobility budget compared to the combustion engine option?** *(p. 28)*

In both of these situations, we analyse the purchase of a used electric car, as well as a new one, as the market for used electric cars is still underdeveloped. The assumptions, along with sensitivity analyses on certain parameters, are presented in the annexed methodological report.

Are the other conditions to make the transition accessible in terms of mobility being met? – *(p. 29 à 32)*

The development of electric mobility requires the deployment of charging points *(p. 29)*

Public transport and cycling are key solutions in the transport transition and require the development of appropriate infrastructure *(p. 29 -31)*.

For this edition of the Observatory, we focus on the availability of the infrastructure required for the deployment of these solutions, which we consider to be the main challenge in terms of accessibility. It would be interesting to include an analysis of the costs these solutions represent for households in future editions.

It should be noted that the income categories used in some of the analyses in this section *(p. 21-22, p. 24, p. 26-28)* are based on the reference tax income deciles – which are used to calculate the amount of aid – rather than on living standard deciles as in the rest of the publication.

AN OVERWHELMING MAJORITY OF HOUSEHOLDS OWN A PRIVATE CAR AND ONLY A TINY FRACTION OF THESE CARS ARE ELECTRIC

> 35 million private vehicles for non-professional use

An overwhelming majority of households own a car

In total, 82% of households own at least one car, and this proportion remains very high among middle-income households (88%) and low-income households (67%). The proportion of households that own a car decreases with the size of the urban area, but except in large cities, more than half of all households own a car, even among the lowest-income categories (SRCV data, I4CE calculations). It should also be noted that more than 60% of daily trips are made by car *(CGDD, 2023a)*.

Only a tiny fraction of these cars are electric

The number of electric cars has increased significantly in recent years, with more than 250 000 registrations for households in 2023. In total, there are now **more than one million electric cars** on the road *(Avere, 2024a)*. However, at the beginning of 2024, they accounted for only 1.7% of all vehicles on the road owned by households (SDES data).

PROPORTION OF HOUSEHOLDS OWNING AT LEAST ONE CAR BY MUNICIPALITY SIZE AND LIVING STANDARD DECILE

Size of unit	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Rural municipality	80%	82%	91%	96%	97%	99%	98%	98%	98%	99%
Urban unit, 2 000 to 4 999 inhab.	70%	70%	82%	96%	89%	96%	98%	100%	99%	96%
5 000 to 9 999 inhab.	58%	89%	77%	88%	88%	94%	96%	98%	95%	98%
10 000 to 19 999 inhab.	70%	65%	85%	90%	92%	97%	97%	96%	96%	98%
20 000 to 49 999 inhab.	61%	73%	82%	78%	92%	94%	88%	97%	97%	99%
50 000 to 99 999 inhab.	72%	68%	79%	83%	89%	92%	99%	95%	98%	99%
100 000 to 199 999 inhab.	37%	61%	79%	81%	86%	90%	93%	94%	100%	97%
200 000 to 1 999 999 inhab.	53%	58%	73%	79%	82%	84%	88%	89%	94%	95%
Paris Metropolitan Area	44%	46%	47%	58%	66%	72%	71%	65%	71%	75%

Living standard deciles

Middle-income households

Source: I4CE calculations based on SRCV 2022 data, INSEE

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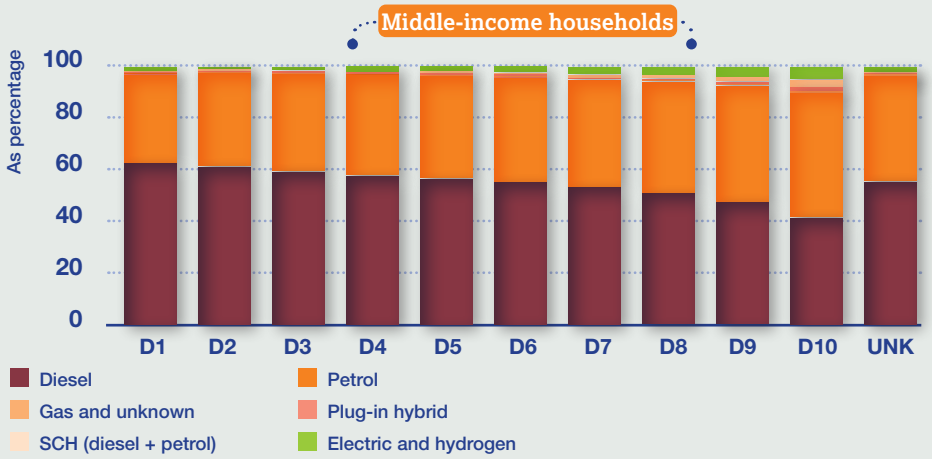
ENGINE TYPE OF CARS OWNED BY HOUSEHOLDS IN 2023 BY LIVING STANDARD DECILE



Note: SCH = self-charging hybrid; UNK: income unknown
Source: SDES, 2024c

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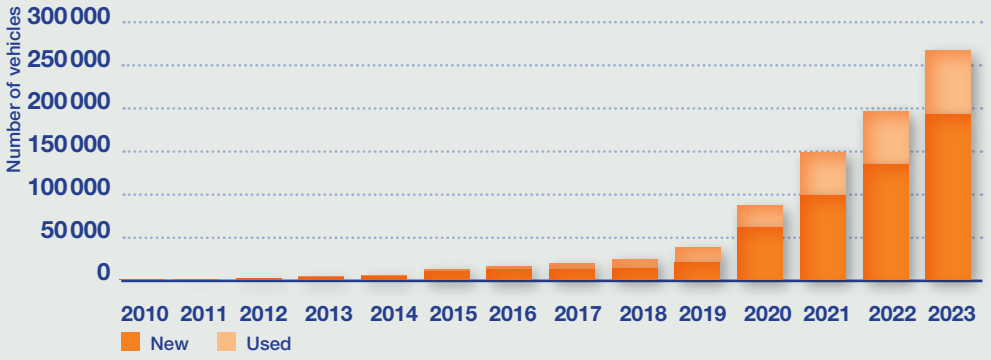
ANNUAL REGISTRATIONS OF PRIVATE ELECTRIC VEHICLES FOR HOUSEHOLDS



Source: SDES, 2024d

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THE USED ELECTRIC VEHICLE MARKET IS EXPERIENCING STRONG GROWTH, BUT REMAINS LIMITED IN VOLUME

Low-and middle-income households primarily buy used cars

In 2022, 5.8 million cars were purchased by individuals, the majority of which were used (87%). The share of used cars purchased is 94% among low-income households, 87% among middle-income households, and 76% among high-income households.

The used electric vehicle market is growing rapidly

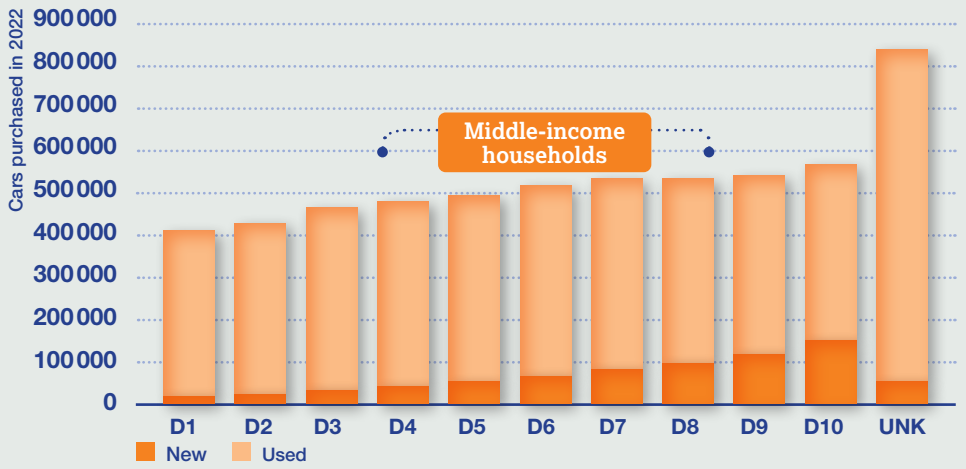
The used electric vehicle market began to grow significantly in the first half of 2024. However, **sales of used electric vehicles still account for only 2% of total used vehicle sales,** and sales of used electric cars are three times lower than those of new electric cars *(Avere-France & Mobilians, 2024).*

Greening requirements for corporate fleets have the potential to supply the used vehicle market, but they are still poorly enforced

The Loi d'Orientation des Mobilités (Mobility Framework Law) requires companies with a fleet of more than 100 vehicles to include an increasing proportion of low-emission vehicles in the renewal of their fleet (10% in 2023, 20% in 2024). Since more than half of all new cars are purchased by companies (60% in 2023 in the European Union, *Transport & Environment, 2024a*), this obligation is theoretically a significant source of electric vehicles for the used market. However, according to a study by Transport & Environment, only 40% of companies subject to this obligation actually complied in 2023 *(Transport & Environment, 2024b).*

It should be noted that over the past 10 years, more than half (60%) of newly registered electric cars were purchased by households.

PURCHASE OF CARS – NEW OR USED – BY HOUSEHOLD LIVING STANDARD DECILES IN 2022



Note: UNK = income unknown
Source: SDES, 2024a

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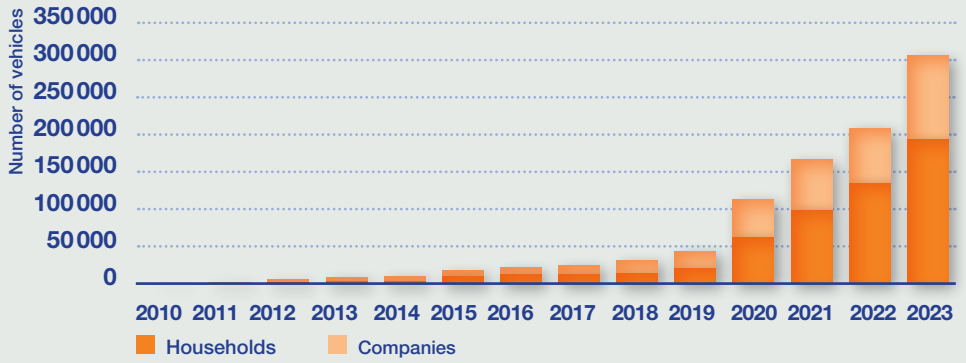
REGISTRATIONS OF NEW ELECTRIC CARS BY HOUSEHOLDS AND COMPANIES



Source: SDES, 2024d

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THE AMOUNT OF AID FOR THE PURCHASE OF ELECTRIC VEHICLES DECREASED OVERALL IN 2024, AND THE SOCIAL LEASING SCHEME WAS INTRODUCED

Between 2023 and 2024, aid for the purchase of a new electric vehicle decreased

The bonus for new cars has been reduced by €1 000 for the 50% highest-income households, and the scrappage bonus has decreased by €1 000 for all households.

However, the tax credit for the installation of a home charging point has increased to €500 and is now reserved for smart systems.

Since 2008, aid schemes for the purchase of new cars and the installation of charging points have increased for low- and middle-income households

After increasing for all households, aid schemes for the purchase of a "clean" new car have been differentiated according to household income. Total aid – including the scrappage bonus for old vehicles – has increased 2.5 times for the 20% lowest-income households since 2008, and more than 1.5 times for the other low-income households and for middle-income households. Aid amounts have slightly decreased compared to the 2008 level for high-income households, following their exclusion from the scrappage bonus scheme in 2023.

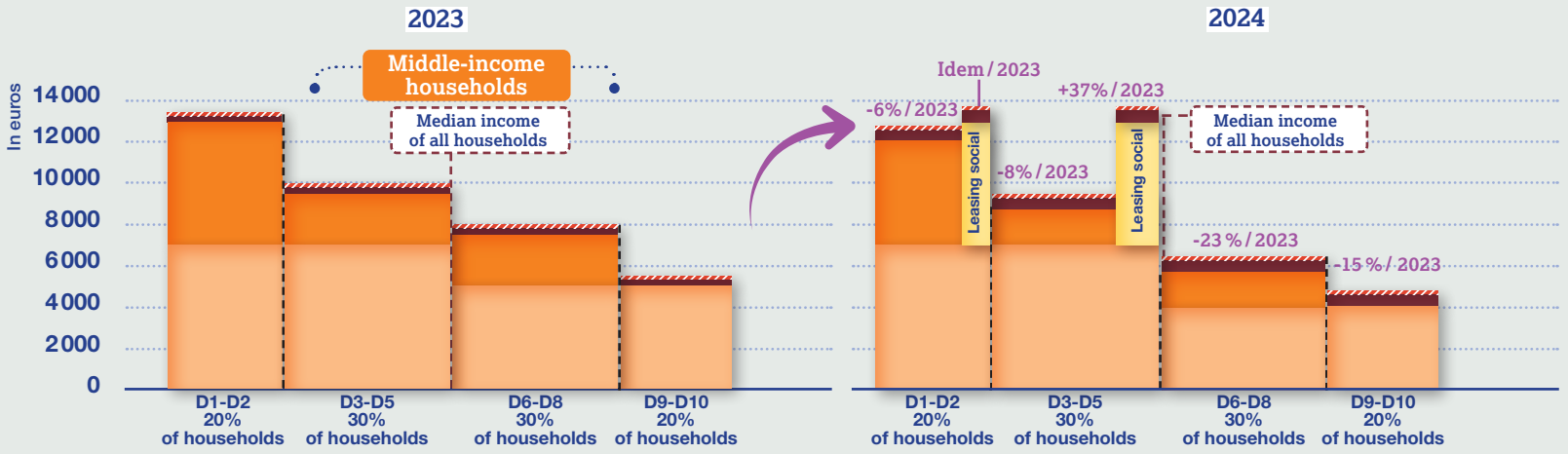
AID FOR NEW ELECTRIC VEHICLES IN 2024

The ecological bonus and the scrappage bonus subsidise the purchase or leasing of electric cars – in exchange for scrapping a Crit'Air 3 or older vehicle for the scrappage bonus.

A new scheme was introduced in 2024 – social leasing – aimed at making electric cars accessible to the 50% lowest-income households, with a lease ranging from around €50 to €150 per month. To be eligible, households must live more than 15 km from their workplace and use their own car to commute, or travel more than 8 000 km per year for professional reasons with their own car. In 2024, 50 000 households benefited from this scheme before it was suspended. Since 2024, all of these schemes are conditional on meeting a minimum environmental score, which depends on the vehicle's carbon footprint.

The installation of a home charging point can benefit from a tax credit and, in the case of apartments, from financing through the ADVENIR programme. Charging points also benefit from a reduced VAT rate of 5.5%.

MAXIMUM AID FOR ELECTRIC MOBILITY – NEW CAR



Note: Eligibility for the scrappage bonus is conditional on scrapping an old vehicle, and eligibility for social leasing has a commuting distance criterion. It is considered that households do not meet the "high-mileage" conditions (commuting distance greater than 30 km, or more than 12 000 km travelled for professional reasons using a personal vehicle). The income deciles shown here are the reference tax income deciles. The width of the representation of the social leasing scheme is proportional to the share of commutes of more than 15 km by income bracket (estimated from the 2019 Enquête Mobilité des Personnes data).

- Ecological bonus
- Scrappage bonus
- Electric leasing aid
- Tax credit for charging point
- Reduced VAT rate for charging point

THE BONUS FOR USED CARS DISAPPEARS IN 2024

Aid for the purchase of a used electric car decreased in 2024

In 2024, the bonus ended for used cars, and the scrappage bonus was reduced for all households. Maximum aid amounts thus decreased by nearly a quarter for the 20% lowest-income households, and by 45% for the other low-income households and for middle-income households.

Fluctuating aid for used cars

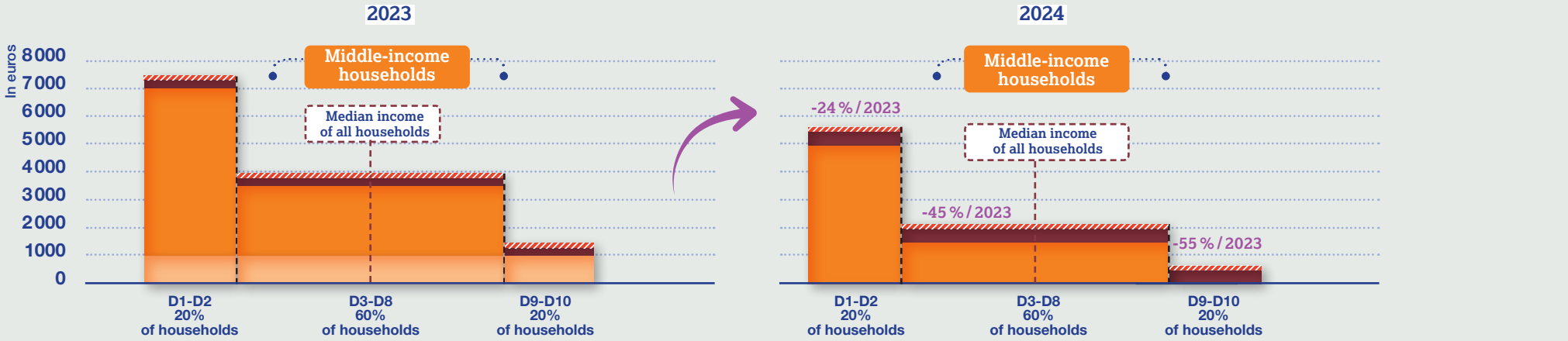
In 2017, it became possible to finance the purchase of a used car with the scrappage bonus for the 50% lowest-income households. This possibility was then extended to all households in 2018, before high-income households were excluded in 2023. The ecological bonus for used cars was in place only in 2023.

AID FOR USED ELECTRIC VEHICLES IN 2024

Used electric cars that were eligible for the ecological bonus in 2023, up to €1 000 for all households, are excluded from the scheme in 2024. However, households can still finance the purchase of their used electric car with the scrappage bonus, which, as for new vehicles, has been reduced by €1 000 for all households and is now conditional on the environmental score. It should be noted that the scrappage bonus can still subsidise the purchase of low-pollution used cars (Crit'Air 1) for the 50% lowest-income households, with smaller amounts.

Used electric cars were theoretically eligible for the social leasing scheme, but in practice, none benefited from it in 2024.
For the purchase of a charging point, households can access the ADVENIR programme and the tax credit, and benefit from the reduced VAT rate *(see above)*.

MAXIMUM AID FOR ELECTRIC MOBILITY – USED CAR



Note: Eligibility for the scrappage bonus is conditional on scrapping an old vehicle. It is considered that households do not meet the "high-mileage" conditions (commuting distance greater than 30 km, or more than 12 000 km travelled for professional reasons using a personal vehicle). The income deciles shown here are the reference tax income deciles.

A CHALLENGE FOR MOBILITY AID: CONTINUING TO TARGET LOW-INCOME HOUSEHOLDS DESPITE STRICTER ENVIRONMENTAL CRITERIA

The scrappage bonus mainly benefits the 50% lowest-income households, although stricter criteria for vehicles have reduced their proportion among recipients

Since 2019, except for summer 2020 during the recovery plan, the eligibility criteria for the scrappage bonus have gradually become more restrictive, with a **renewed focus on lower-income households and stricter emissions criteria for vehicles**.

Nevertheless, despite higher aid for the 50% lowest-income households (in other words, low-income households and some middle-income households, according to our definition), their proportion among recipients of the scrappage bonus has decreased. This is probably due to the increasingly restrictive criteria for vehicles, particularly the ban on purchasing used diesel vehicles through the scheme since 2019. At the same time, the share of electric vehicles rose from less than 2% in 2019 to nearly 60% in 2022.

In the first half of 2024, the share of households with income below the median increased, with 78% of scrappage bonuses for the first half of the year being allocated to them (*ASP-DGEC data*).

The bonus mainly benefits the highest-income households

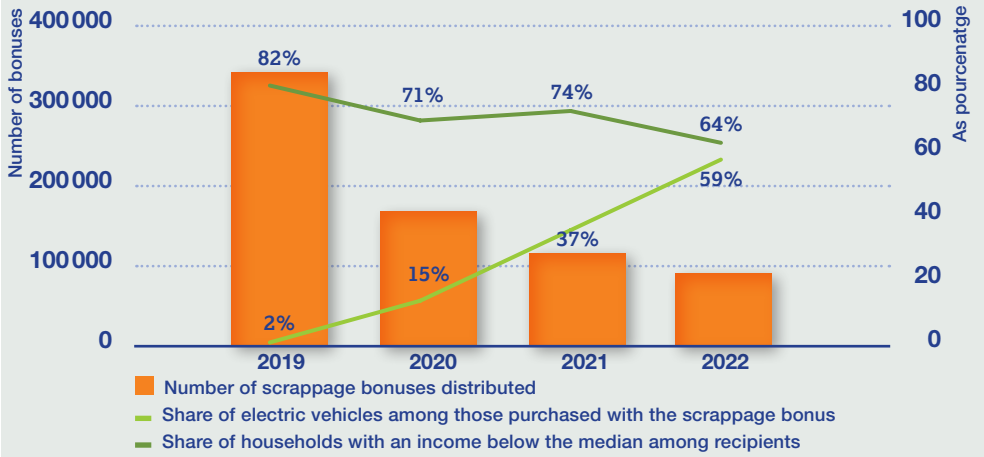
Less data is available on the recipients of the bonus. IDDRI estimates that **14%** of the recipients of the bonus in 2022 were from the 50% lowest-income households *(IDDRI, 2023)*. France Stratégie estimates this figure at **15-20% in 2023** *(France Stratégie, 2024)*.

Their share appears to be increasing, with **nearly 30%** of bonuses for individuals allocated to the 50% lowest-income households in the first half of 2024 *(ASP-DGEC data)*.

Social leasing has made electric mobility accessible to households in the 50% lowest-income group

Subject to the distance travelled for professional reasons, households in the 50% lowest-income group were eligible for social leasing. In practice, it was mainly (60%) the higher-income eligible households that benefited from it (those in the 4th and 5th deciles, in other words the lower middle-income households) *(ASP-DGEC data)*.

NUMBER OF SCRAPPAGE BONUSES DISTRIBUTED SINCE 2019



Sources: CGDD, 2021b, 2022, 2023c

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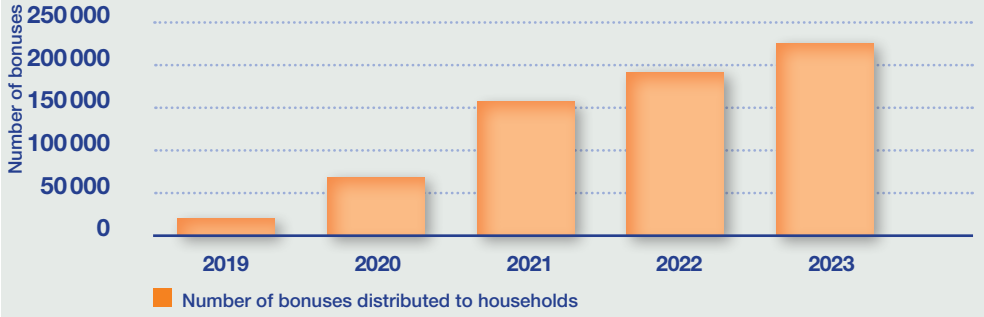
NUMBER OF ECOLOGICAL BONUSES DISTRIBUTED SINCE 2019



Source: France Stratégie, 2024

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THE OUT-OF-POCKET COSTS REMAIN HIGH FOR AN ELECTRIC CAR

> Situation: A household with an old combustion engine car and no plans to change it

The out-of-pocket costs remain high for a new small electric car for low- and middle-income households

For a household that owns a combustion engine vehicle and does not plan to change it, the main indicator for assessing the accessibility of purchasing an electric vehicle is the out-of-pocket cost. Assuming the household has a car for scrappage, the out-of-pocket cost is **more than €20000** for the purchase of a new standard small electric car for all households. For middle-income households, these out-of-pocket costs range from €24 000 to €27 000. They range from **€16000 to €18000** for an entry-level model *(see methodological report)*.

Local subsidies, along with the increase in the scrappage bonus in low-emission zones (ZFE-m), can reduce these out-of-pocket costs: for example, in Strasbourg, the out-of-pocket cost falls to around €20 000 for a standard small car for middle-income households. In the case of particularly high amounts of local aid, such as in Toulouse, the out-of-pocket cost can be as low as €11 500 to €16 000 for middle-income households.

The out-of-pocket cost for a used car can fall to less than €10 000 with local subsidies

For the purchase of a used small electric car, the out-of-pocket cost is lower: it stands at €16 000 for a middle-income household owning a car eligible for the scrappage bonus. Local aid can further reduce this out-of-pocket cost, to around €10 000 for middle-income households in a low-emission zone (ZFE-m) city like Strasbourg, and to between €8 000 and €11 000 in the specific case of Toulouse.

SOME LOCAL AUTHORITIES HAVE INTRODUCED ELECTRIC MOBILITY AID PROGRAMMES

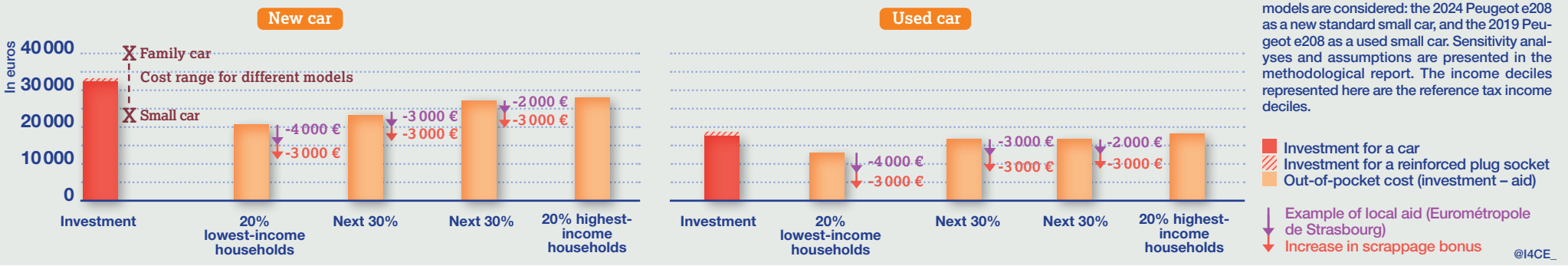
This is particularly the case for several metropolitan areas located in low-emission mobility zones (ZFE-m), of which there are currently 11.

The metropolitan areas of Grand Paris, Lyon, Toulouse, Strasbourg, Rouen and Grenoble offer local scrappage bonuses ranging from €3 000 to €6 000. In some cases, the region or department may also provide additional subsidies that can be combined with those from the metropolitan areas or the state. In the Toulouse metropolitan area, for example, the lowest-income households can receive up to €10 000 in local aid by combining the scrappage bonuses from both the metropolitan area and the Occitanie region.

Moreover, the state increases the national scrappage bonus (PAC) by €1 000 for households living or working in a ZFE-m, and by up to €3 000 if a local authority offers similar aid.

The types of aid provided by the different local authority levels were documented by IDDRI in 2022 *(IDDRI, 2022)*.

INVESTMENT AND OUT-OF-POCKET COST FOR THE PURCHASE OF A SMALL CAR AND A REINFORCED PLUG SOCKET



THE OUT-OF-POCKET COSTS CAN BE FINANCED THROUGH VARIOUS OPTIONS, WHICH REQUIRE HOUSEHOLDS TO BE CREDITWORTHY

> Situation: A household with an old combustion engine car and no plans to change it

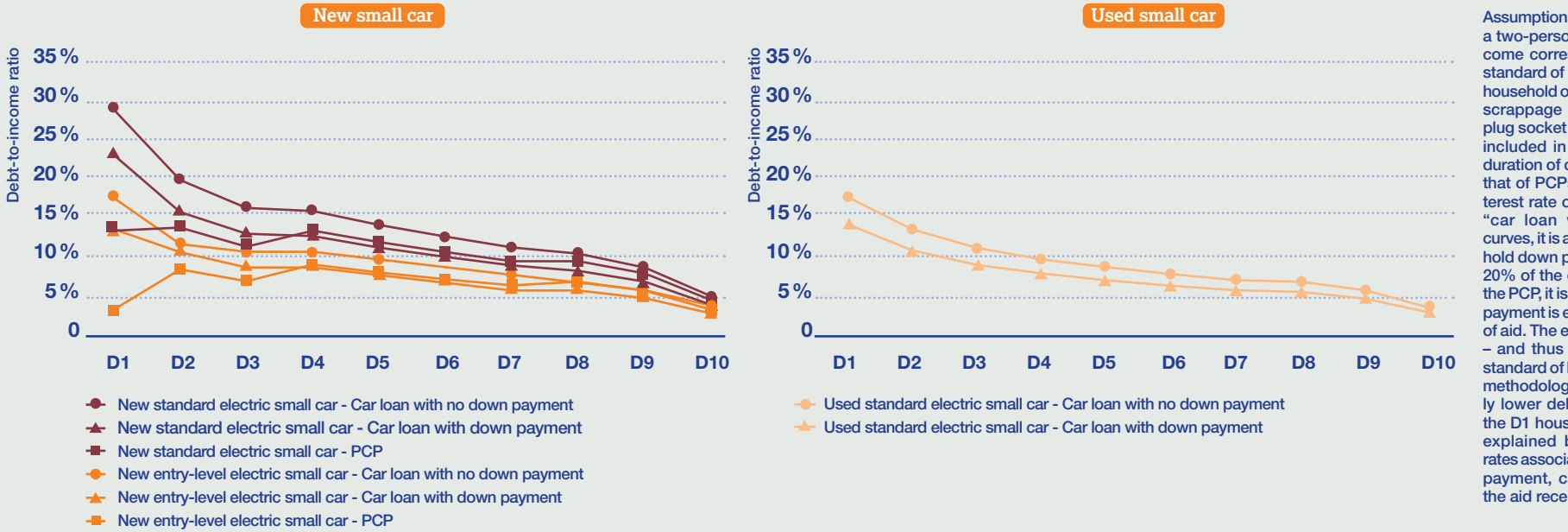
Different options are available to finance the out-of-pocket costs

Different options are available to households to finance the purchase of an electric car: their savings, a traditional car loan, personal contract purchase (PCP), personal contract hire (PCH), and social leasing for eligible households. A zero-interest loan scheme was created for households working or living in a ZFE-m, subject to income conditions, but it was never implemented: the potential market was small, and banks did not roll out this option.

Financing the purchase of an electric car results in a high debt load for households

In order to use a loan or leasing option, households must be considered creditworthy. **The debt-to-income ratios that result from financing an electric car are high for low- and middle- income households: more than 10% for a new standard small car, and more than 5% for a new entry-level small car or a used car.** A down payment of 20% of the out-of-pocket cost, when possible for households, reduces the debt-to-income ratio by a few percentage points. It should be noted that the different solutions are not equivalent: in the case of a loan, the household will own the car at the end of the financing period; in the case of a PCP, the household will need to pay the remaining value if it wishes to purchase the car; and in the case of PCH, the car is provided for the duration of the lease.

DEBT-TO-INCOME RATIO FOR THE PURCHASE OR LEASE OF AN ELECTRIC CAR ACCORDING TO THE FINANCING OPTION, BY LIVING STANDARD DECILE



Assumptions: Each decile considers a two-person household whose income corresponds to the average standard of living of that decile. The household owns a car eligible for the scrappage bonus. The reinforced plug socket or charging point is not included in the loan amount. The duration of car loans is 6 years, and that of PCPs is 3 years, with an interest rate of 4% for loans. For the "car loan with down payment" curves, it is assumed that the household down payment is equivalent to 20% of the out-of-pocket cost. For the PCP, it is assumed that the down payment is equivalent to the amount of aid. The estimation of tax income – and thus of aid – based on the standard of living is described in the methodological report. The relatively lower debt-to-income ratios for the D1 households for the PCP are explained by favourable interest rates associated with the large down payment, calibrated according to the aid received by the household.

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ENERGY SAVINGS DO NOT GENERALLY COVER THE FINANCING OF AN ELECTRIC CAR

> Situation: A household with an old combustion engine car and no plans to change it

Switching to electric results in energy savings, which do not generally cover the monthly repayments

Switching to electric results in fuel savings of **around €80 per month for households that drive 10 000 km per year** (the median mileage for vehicles). However, monthly repayments are generally higher than these savings, resulting in an **increase in the household mobility budget** compared to an old combustion engine car that is already paid off. It should be noted that the maintenance costs for a combustion car may

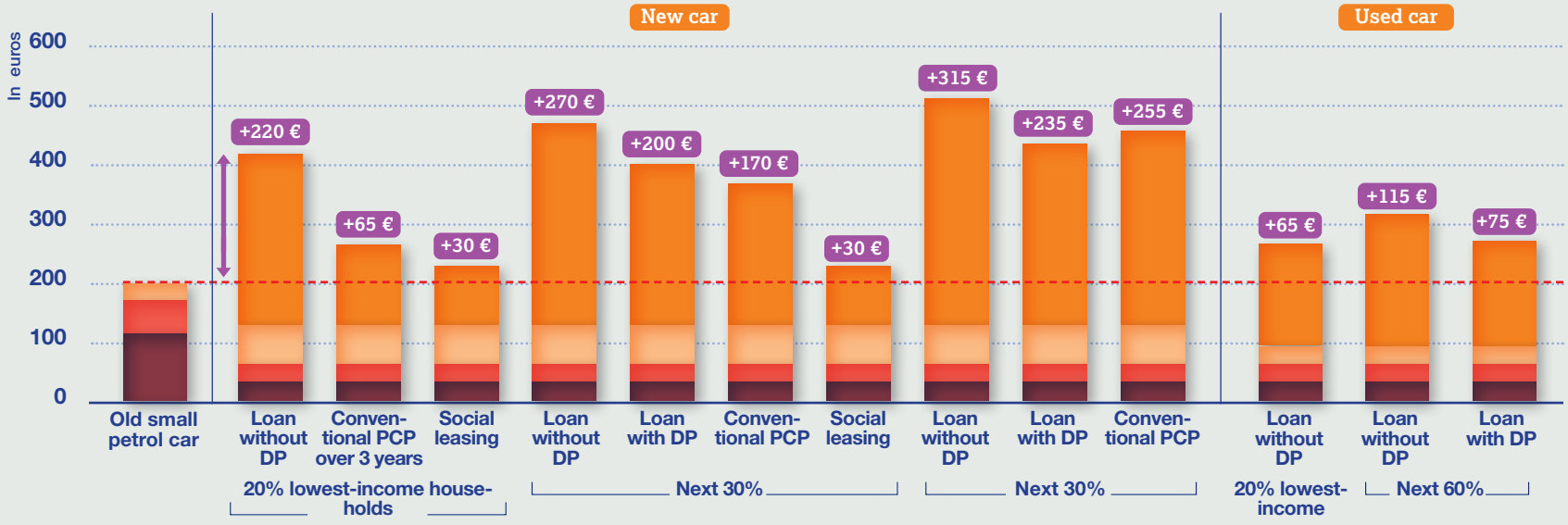
be overestimated: in practice, households can typically handle more of the maintenance themselves on a combustion engine car than on an electric car.

In some configurations – local aid, social leasing, down payment – the impact on household budgets can be moderate

For a middle-income household that drives 10 000 km per year, the monthly budget for a used electric car – including its financing – is more than €100 higher than that of a combustion engine car that is already paid off. Local aid can help to reduce this difference: for example, for a household living in Strasbourg, the monthly budget for a used electric car is €45 higher than that of an old combustion car. A down payment also reduces monthly repayments and the overall budget – for example, an €8 000 down payment enables a middle-income household to finance the purchase of a used electric car without increasing its monthly budget.

The social leasing scheme has also enabled eligible households to lease a new electric car with only a moderate impact on their mobility budget. It is worth noting that, as with traditional leasing, the household does not own the vehicle at the end of the financing period.

MONTHLY BUDGET TO ACQUIRE A STANDARD ELECTRIC SMALL CAR BASED ON HOUSEHOLD INCOME AND DIFFERENT FINANCING OPTIONS



Assumptions: The car is driven 10 000 km per year (the median for vehicles in circulation). The household owns an old car eligible for the scrappage bonus. The reinforced plug socket or charging point is not included in the loan amount. For a loan with a down payment (DP), it is assumed that this down payment is equivalent to 20% of the out-of-pocket cost. For the PCP, it is assumed that the down payment is equivalent to the amount of aid. It is important to note that we are comparing different situations here – in some cases the car is purchased, in others it is leased – and the loan terms differ. The household categories represented here are based on the reference tax income deciles.

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DESPITE THE AID AVAILABLE, ELECTRIC CARS ARE MORE EXPENSIVE TO PURCHASE THAN THEIR COMBUSTION ENGINE EQUIVALENTS

> Situation: A household that was planning to purchase a combustion engine vehicle – new or used

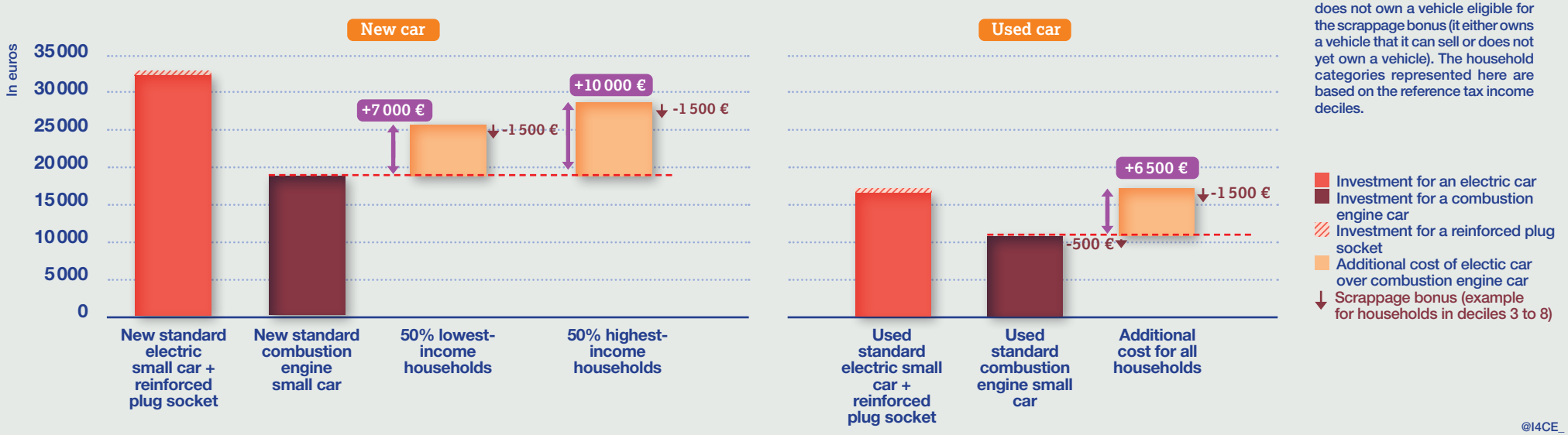
The additional cost of a new electric vehicle compared to its combustion engine equivalent remains high

For a household that had planned to buy a new car, the main indicator for assessing the accessibility of purchasing an electric vehicle is the additional cost compared to a combustion engine equivalent, after receiving aid. **The additional cost of purchasing a new electric small car compared to a combustion engine equivalent is about €7 000 for the 50% lowest-income households and €10 000 for the 50% highest-income households.** This additional cost can be reduced to €5 500 for middle-income households eligible for the scrappage bonus, and can decrease further for households living or working in a low-emission zone offering aid. It should be noted that some local authorities also provide aid for new combustion engine vehicles. For an entry-level small car, the additional cost of the electric model compared to the combustion engine model falls to €1 500 for low-income households and lower-middle-income households, and to €3 800 for other households.

It costs about €6 500 more to buy a used electric car than its combustion engine equivalent

For a used standard small car, **the additional cost of the electric model over the combustion engine model is approximately €6 500.** For households eligible for the scrappage bonus, this additional cost could be reduced to €5 500 for middle-income households. It should be noted that the used combustion engine car considered is eligible for the scrappage bonus. Since the additional aid provided by some local authorities also applies to Crit'Air 1 combustion engine cars, it would not reduce the additional cost in the example presented (but it would reduce it compared to a more polluting used car).

ADDITIONAL COST OF AN ELECTRIC CAR COMPARED TO ITS COMBUSTION ENGINE EQUIVALENT



THE ADDITIONAL COST OF AN ELECTRIC CAR COMPARED TO ITS COMBUSTION ENGINE EQUIVALENT CAN BE FINANCED THROUGH ENERGY SAVINGS

> Situation: A household that was planning to purchase a combustion engine vehicle – new or used

With high mileage, the monthly budget is lower for a new electric small car than for its combustion engine equivalent

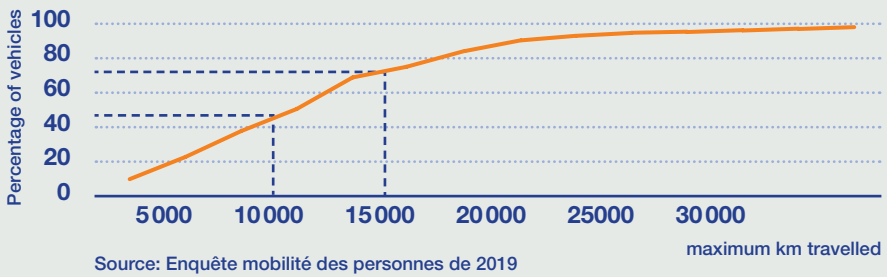
Boying a new electric car instead of its combustion engine equivalent with a 6-year loan increases the monthly budget by about €25 for the 50% lowest-income households and by €70 for other households. For the 50% lowest-income households, the monthly budget for a new electric small car becomes lower than that of its combustion engine equivalent from around 15000 km per year, which applies to 25% of these households'vehicles.

In the case of a used car, the financing of the additional cost is covered by energy savings

For the purchase of a used car, the monthly budget – taking financing into account – for a standard combustion engine small car is roughly the same as for a standard electric small car.

It should be noted that some low-income households would probably not purchase a recent used combustion engine model such as considered here, but rather an older third-hand model, which is inexpensive to buy but comes with high maintenance costs. In fact, among households in the first three deciles, more than a third of the vehicles purchased in 2022 were over 15 years old *(SDES, 2024a)*.

DISTRIBUTION OF VEHICLES IN CIRCULATION BASED ON KILOMETRES TRAVELLED ANNUALLY



Source: Enquête mobilité des personnes de 2019
Scope: Vehicles in circulation provided to households in mainland France.
Note: 75 % travel less than 15 000 km per year.

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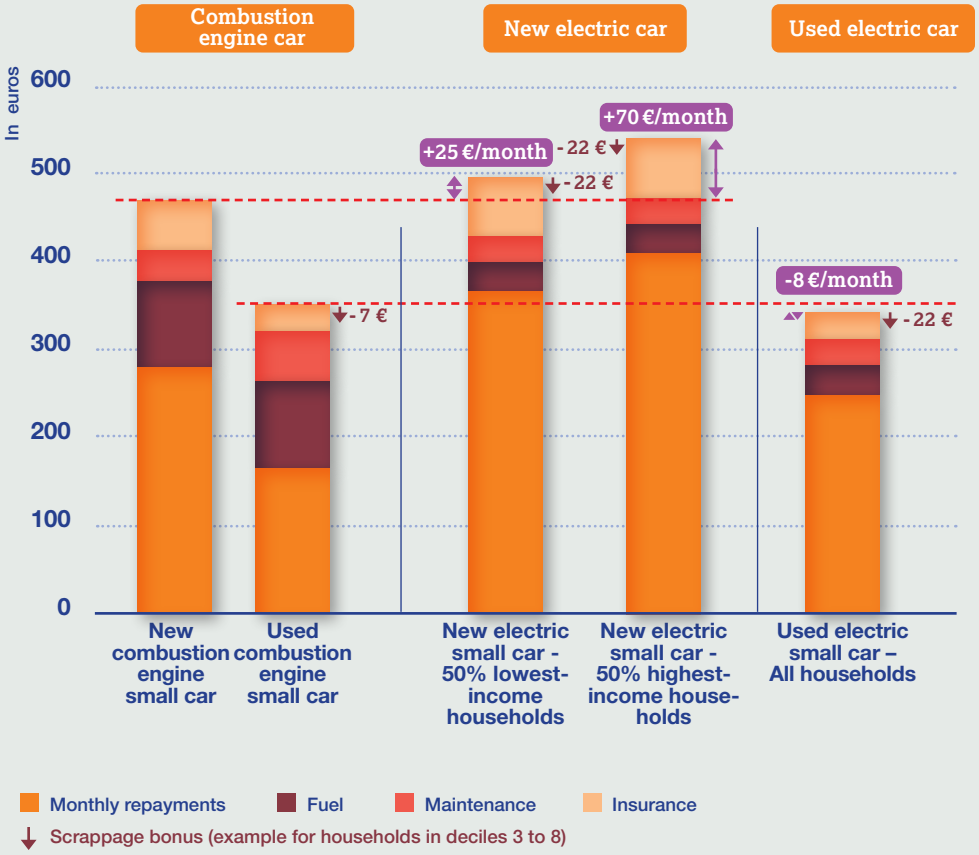
MONTHLY BUDGET FOR THE PURCHASE OF A NEW OR USED STANDARD ELECTRIC SMALL CAR COMPARED TO ITS COMBUSTION ENGINE EQUIVALENT



Assumptions: The car is driven 10 000 km per year (the median for vehicles in circulation). The car is purchased with a 6-year loan with no down payment, and the loan amount does not include the cost of a reinforced plug socket or charging point. In the central case, it is assumed that the household does not own a vehicle eligible for the scrappage bonus (it either owns a vehicle that it can sell or does not yet own a vehicle). The values presented here include the use of the bonus. The income deciles represented here are based on the reference tax income deciles.

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THE NUMBER OF PUBLIC CHARGING POINTS IS INCREASING BUT NOT AS QUICKLY AS THE NUMBER OF ELECTRIC VEHICLES ON THE ROAD

Public policies support the deployment of charging points

There are plans to significantly increase the number of charging points, with an objective of 3 million in total by 2026 and 400 000 public charging points by 2030 *(Tableau de bord du Secrétariat général à la planification écologique, SGPE)*. By the second quarter of 2024, there were **more than 2 million charging points in total, including nearly 140 000 public ones.**

The deployment of charging points is supported both by regulations (obligation to equip car parks, and from 2025, obligation to equip non-residential building car parks with one charging point for every 20 spaces) and by subsidies (in particular for individuals: tax credits of up to 75%, to a maximum of €500, for the installation of a smart charging point; VAT reduced to 5.5%; the ADVENIR programme funded by CEEs, which subsidises the installation of charging points in apartment buildings, as well as by companies or local authorities).

The deployment of public charging points is crucial

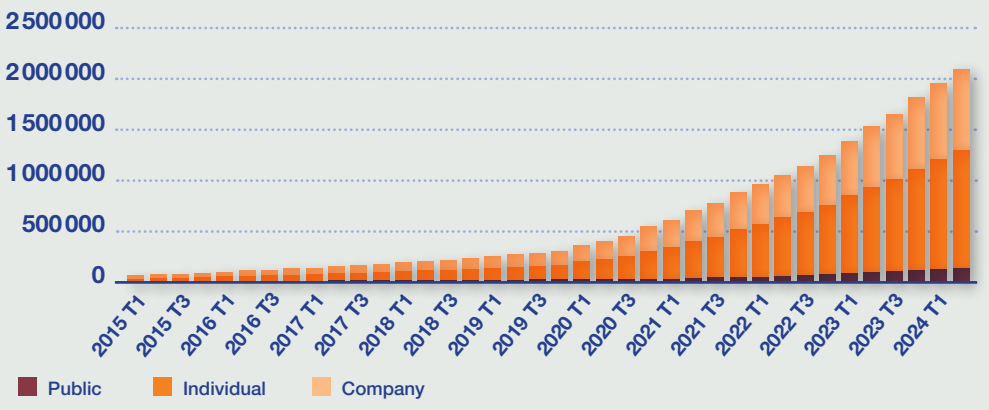
The possibility of installing a home charging point is an important factor in the attractiveness of electric vehicles. For households living in single-family houses, the installation of a charging point is simpler than in apartments, and more of them switch to electric vehicles, for the same sociodemographic characteristics *(CGDD, 2024)*.

For households that do not have the possibility and/or for long journeys, the deployment of public charging points is crucial. The 2014 European Directive on the deployment of alternative fuels infrastructure sets the target of **one charging point for every 10 vehicles on the road** *(OJEU, 2014)*.

By the end of July 2024, the average in France was one charging point for every 13.6 vehicles, with regional disparities. In recent years, this indicator has generally increased: **the number of charging points has risen, but not as quickly as the number of vehicles on the road.**

For public charging points, a survey by UFC Que Choisir (2023) raises concerns about the significant price differences between operators, as well as the complexity and lack of clarity in their pricing plans.

CHARGING POINTS BY TYPE



Source: Open Data Enedis

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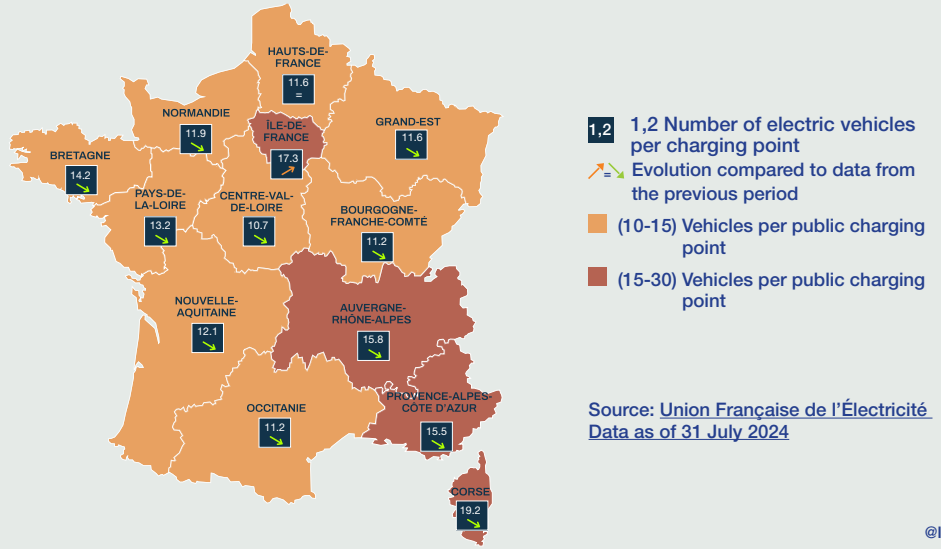
RATIO BETWEEN THE NUMBER OF PUBLIC CHARGING POINTS AND THE NUMBER OF ELECTRIC VEHICLES BY REGION



Source: Union Française de l'Électricité
Data as of 31 July 2024

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IN THE ILE-DE-FRANCE REGION, SERVICES ARE ACCESSIBLE IN UNDER 30 MINUTES BY PUBLIC TRANSPORT FOR MOST RESIDENTS

A focus on Ile-de-France to assess the accessibility of the region by public transport in the 2024 edition of the Observatory

The modal shift towards public transport is a key driver of the ecological transition for household mobility.

To analyse the quality of access to the territory via public transport, we focus this year on the Ile-de-France region, using data from Modality (methodology detailed in the methodological report). For this edition of the Observatory, the emphasis is on the availability of public transport services, which we believe is the main challenge in terms of accessibility. It would be interesting to include an analysis of costs for households in future editions.

The Ile-de-France region is well-served by public transport

The Ile-de-France region is well-served by public transport, with **98% of residents living less than 10 minutes on foot from a public transport stop and an average access time of 3 minutes**. This time rises to 7 minutes in parts of Ile-de-France where the population density is below the regional average.

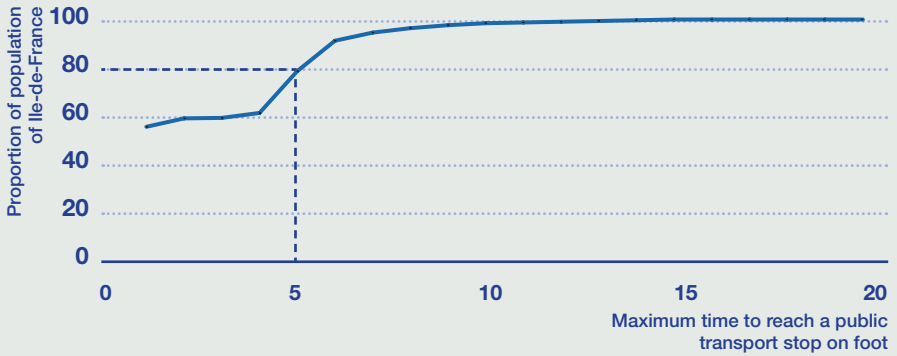
Most services are accessible within half an hour by public transport

Proximity to a public transport stop only provides partial information about the accessibility of the region by public transport, as this indicator does not give the frequency of services or the alignment of routes with household travel needs. Other indicators provide a more accurate assessment of the quality of access, such as the time needed to reach a range of points of interest (for example a school, supermarket, library, hospital, cinema or TGV station).

In 30 minutes by public transport, the vast majority of Ile-de-France residents have access to most of these services (almost 100% have access to a school, supermarket or library; more than 80% to a cinema or hospital; and only 35% to a TGV station (high-speed train)).

It is worth noting that these findings would undoubtedly differ for another region.

TIME TO REACH A PUBLIC TRANSPORT STOP ON FOOT



Note: Around 80% of Ile-de-France residents have a public transport stop within 5 minutes' walk.
Source: Modality data. Methodology detailed in the methodological report.

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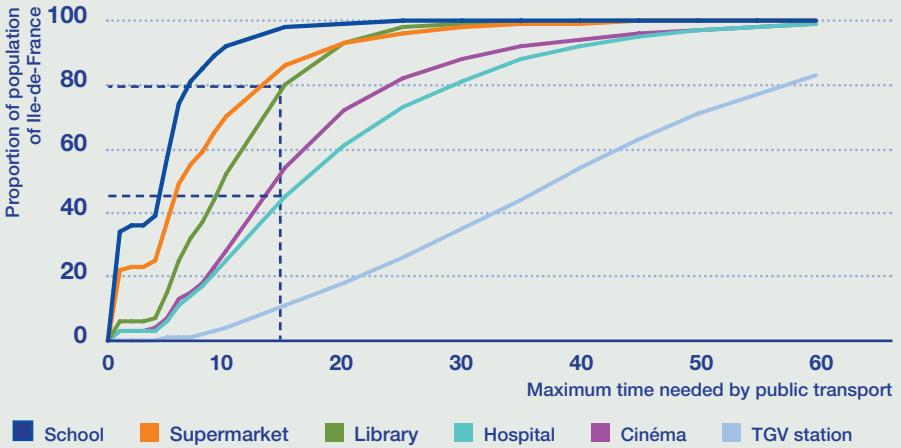
TIME NEEDED TO REACH A RANGE OF POINTS OF INTEREST BY PUBLIC TRANSPORT



Note: 80% of Ile-de-France residents have access to a library within 15 minutes or less by public transport; 45% have access to a hospital within 15 minutes or less.
Source: Modality data. Methodology detailed in the methodological report.

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A THIRD OF ILE-DE-FRANCE RESIDENTS HAVE ACCESS TO LESS THAN 10% OF JOBS IN THE REGION BY PUBLIC TRANSPORT

The proportion of jobs accessible by public transport is an indicator of the quality of access to the region

Another indicator is the proportion of jobs in the region accessible within a given time – for example, one hour – by public transport. On average, Ile-de-France residents have access to **30% of the jobs in the region.** This average covers a wide range of situations.

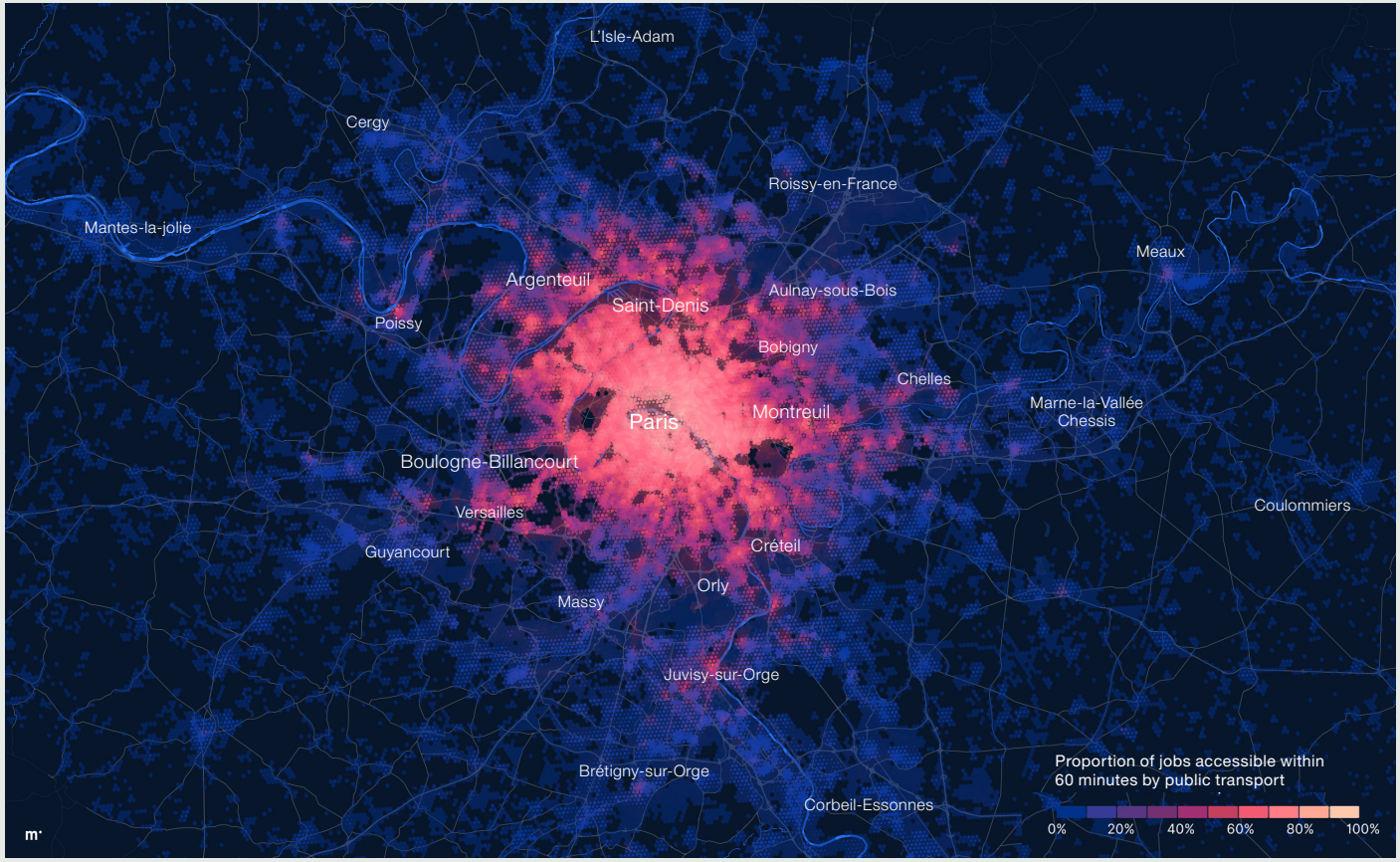
Just over a third (35%) of Ile-de-France residents have access to less than 10% of the jobs in the region. Access to the region is strongly correlated with population density. For the 5% of residents in areas where the population density is below the Ile-de-France average, only 3% of jobs are accessible by public transport.

A minority (1%) of the population of Ile-de-France has access to more than 70% of the jobs in the region. These residents have a higher than average disposable income and live in central Paris.

The Grand Paris Express will improve access to jobs, particularly in the Seine-Saint-Denis and Val-de-Marne departments

The new transport lines planned as part of the Grand Paris Express project will improve access to jobs for all households in Ile-de-France. The expected gain in terms of job accessibility by 2030 will vary across areas, with the greatest improvements in Seine-Saint-Denis and Val-de-Marne *(Modality, 2021).*

SCORE FOR ACCESS TO JOBS WITHIN ONE HOUR BY PUBLIC TRANSPORT IN ILE-DE-FRANCE



Key: A job access score – representing the proportion of jobs in the region accessible within one hour by public transport – is calculated for each area of the region (hexagons approximately 350 m in diameter). The colour indicates the proportion of jobs accessible within one hour by public transport, and the size of the circle is proportional to the area's population density.
Source: Modality. Methodology detailed in the methodological report.

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THE SHARE OF CYCLING AND THE AVAILABILITY OF CYCLING LANES ARE HIGHER IN LARGE URBAN CENTRES

Cycling is on the rise, but its modal share remains low

In 2023, cycling increased overall by 5% compared to 2022. This growth is mainly driven by utility cycling, which rose by 7%, particularly in large urban centres *(Vélos & Territoires, 2024a)*. However, the modal share of cycling in local travel remains low (2.6% in 2019, *CGDD, 2021a*). A third of households own an adult bicycle, but only 8% of bicycles are used daily, and 40% are used less than once a month. **The bicycle ownership rate increases with income,** with an average of 0.3 bicycles for low-income households, 0.6 for middle-income households, and 0.8 for high-income households.

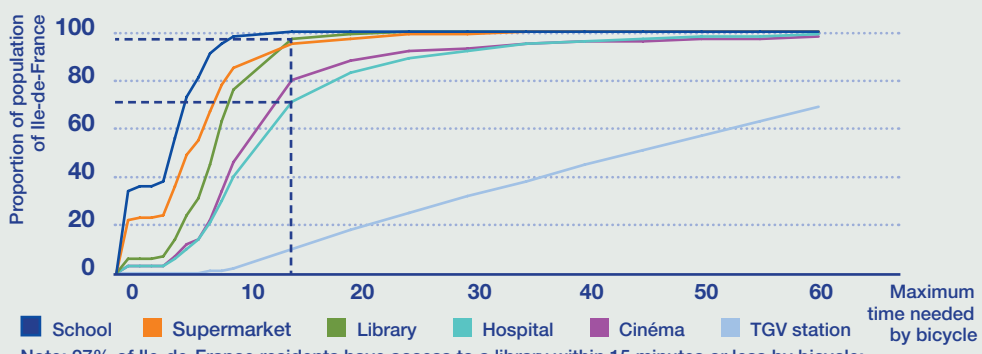
The length of cycle paths is increasing, and the proportion of dedicated lanes is higher in large urban centres

Cycle paths are a crucial element in the development of cycling. **The length of cycling infrastructure has been increasing in recent years.** Vélos & Territoires uses a "road network cyclability rate" defined as the ratio of cycling infrastructure to the total length of the public road network that can potentially be cycled. In 2022, **the average cyclability rate in France was 3%,** with significant disparities. The larger the urban area, the higher this rate is. In 2022, the average rate was 16% in cities with more than 200 000 inhabitants, and 5% in towns with 10 000 to 20 000 inhabitants. Furthermore, within urban areas, the rate in city centres is always significantly higher than in the suburbs *(Vélos & Territoires, 2022)*. It should be noted that this index does not consider other factors that determine the cyclability of a road, such as the speed at which vehicles travel.

Other conditions are necessary for the deployment of cycling

The provision of suitable bicycle parking solutions is also necessary to improve cycling practices in France. The 2019 Loi d'Orientation des Mobilités (Mobility Framework Law) set goals for the development of secure parking spaces at train stations, determined based on the level of traffic at each station. In total, nearly 40 000 parking spaces have been created at train stations *(Vélos & Territoires, 2024b)*. Land use planning and proximity to points of interest are also key factors in the development of cycling. The vast majority of Ile-de-France residents have access to most services within 30 minutes by bicycle (almost 100% have access to a school, supermarket or library; more than 90% to a cinema or hospital; and only 32% to a TGV station).

TIME NEEDED TO REACH A RANGE OF POINTS OF INTEREST BY BICYCLE - EXAMPLE OF ILE-DE-FRANCE



Note: 97% of Ile-de-France residents have access to a library within 15 minutes or less by bicycle; 71% have access to a hospital within 15 minutes or less.
Source: Modality data

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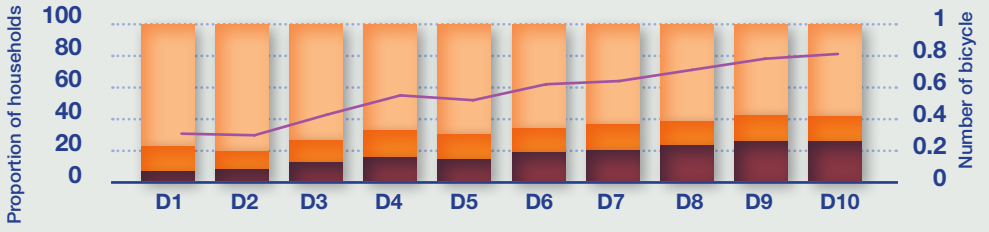
BICYCLE OWNERSHIP AMONG HOUSEHOLDS ACCORDING TO INCOME



Source: Data from 2019 Enquête Mobilité des Personnes

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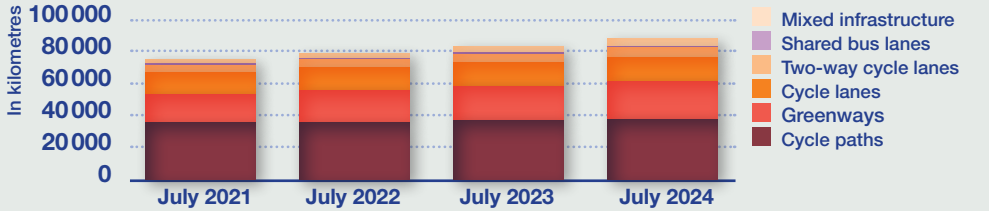
CYCLING INFRASTRUCTURE



Source: Géovélo

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