Paris, June 2025

PUBLIC FUNDING

I4CE INSTITUTE FOR CLIMATE ECONOMICS
Une initiative de la Caisse des Dépôts et de l'Agence Française de Développement

French Observatory of Access Conditions to the Ecological Transition for Households

2025 Edition

Authors: **Charlotte Vailles** and **Sirine Ousaci**

Supported by

Projet soutenu par Fondation de France

European Climate Foundation

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

ADEME
AGENCE DE LA TRANSITION ÉCOLOGIQUE

INTRODUCTION

« The ecological transition is a luxury only the rich can afford" and is "out of reach for the majority of French people". Most people will have heard or thought this during discussions about climate and climate policies. Buying an electric vehicle costs €10 000 more than a combustion engine car. Replacing a gas boiler with a heat pump costs €15 000 … **And deep retrofitting your home can cost €50 000. But is the ecological transition really out of reach? Is it truly unaffordable for middle-income households?**

To answer this question, we have (again) looked at the data and defined **key indicators**, that enable us to assess **the capacity of households to invest in the ecological transition, for both housing and mobility:** the **out-of-pocket cost**, in other words the investment amount after deducting state aid; the households' **capacity to finance** this out-of-pocket cost through their savings or a loan; and the **impact on household budgets,** to determine whether energy savings can cover the monthly repayments in the case of a loan. We explore the accessibility of investments that may not be strictly necessary due to ageing or unsuitable equipment (boilers, roofs, cars), but are justified overall by the need to meet climate targets and to protect households from potential energy price hikes. For electric mobility, we also look at the comparison with investment in an equivalent combustion engine alternative.

In this year's edition, we have assessed these indicators retrospectively – over ten years for retrofitting and five years for electric mobility – **in order to identify the factors that have made transition solutions more, or less, economically accessible in recent years.**

We present these indicators for **two household profiles:** the Fields family and the Newtown family, both **middle-income households that rely on a car for their daily needs.** We have chosen to focus on a lower-middle-income rural household (the Fields family) and an upper-middle-income peri-urban household (the Newtown family). These two households clearly do not capture the full range of household situations, nor do they fully represent the middle-income group. However, we felt that these two profiles enable us to assess interesting situations at the heart of the policy debate. We have also explored certain indicators in other scenarios, including a low-income household and a high-income household. These additional analyses are mentioned throughout this Observatory report and are detailed in the annexes.

We focus here on **the economic capacity of households to make the investments needed for the ecological transition.** The accessibility of this transition for households depends on many other factors, such as the availability of charging stations, of retrofitting tradespeople, and so on. We analyse the evolution of some of these other access conditions using a dashboard of indicators, though this overview is not intended to be exhaustive. This household-centred analysis might suggest that the success of the ecological transition lies in the hands of individuals, but it is important to remember that the transition is above all a matter of collective choices and public policies.

CONTENTS

This work was prepared with financial support from the European Climate Foundation, the Fondation de France and ADEME. The information and opinions presented in this report are the sole responsibility of the authors.

The authors would like to thank all those who contributed to this work, particularly through their feedback and reviews:

Patrick Jolivet and **Solange Martin** (Ademe), **Louis-Gaëtan Giraudet** (Cired), **Jean-Baptiste Laval**, **Louise Rabier** et **Nicolas Taconet** (Direction Générale du Trésor), **Damien Demailly**, **Maia Douillet**, **Hadrien Hainaut**, **Louise Kessler**, **Maxime Ledez** (I4CE).

The ecological transition demands that households make substantial investments – in insulating their homes, installing a low-carbon heating system, buying an electric car, and so on. **Are these investments economically accessible to households, especially those in the middle-income bracket?**

This edition of the Observatory reviews **key indicators**, that enable us to assess **the capacity of households to invest in the ecological transition, for both housing and mobility.** These indicators are assessed retrospectively for two middle-income household profiles: **a lower-middle-income rural household** (the Fields family) and **an upper-middle-income peri urban household** (the Newtown family).

This analysis shows that retrofitting a home is, overall, more accessible to middle-income households than it was 10 years ago. In 2025, the Fields family, who live in a rural oil-heated house, can afford to carry out a deep energy retrofit of their home and even make net savings, which was not the case 10 years ago.

Ten years ago, the out-of-pocket cost for a deep energy retrofit of the Fields household's home was €36000 – almost a full year's income. They had enough borrowing capacity to take out a loan for that amount, but energy savings were not enough to cover the loan repayments. **Ten years on, the out-of-pocket cost has fallen by €15 000** and now amounts to just under six months of income. **Their borrowing capacity has improved, and now energy savings cover the monthly loan repayments, and even leave them with net savings of €130 per month.**

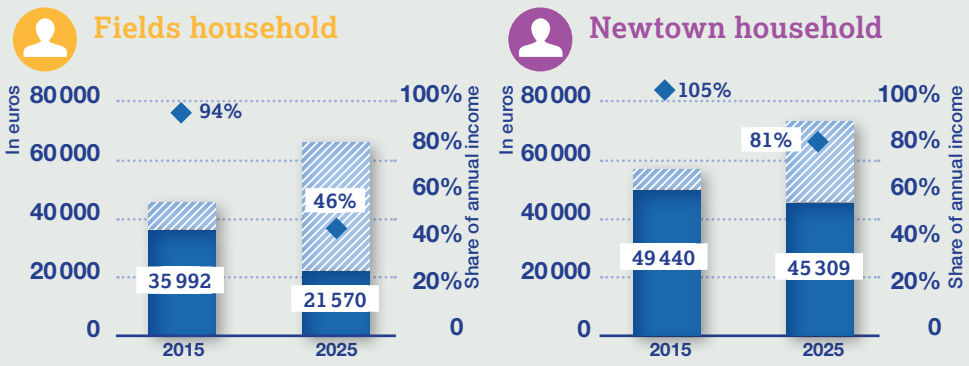
The Newtown family, who live in a peri-urban gas-heated house, can also finance a deep energy retrofit, but energy savings do not fully cover their loan repayments.

The Newtown household has also seen **some improvement since 2015, but their situation in 2025 is less favourable than that of the Fields household.** The financial aid they can obtain for retrofitting their home is lower, since they are in a different ANAH (National Housing Agency) income category and their property has different characteristics. They have sufficient borrowing capacity to cover the out-of-pocket costs with a loan, but energy savings do not fully cover their loan repayments, even when using their savings to reduce the loan amount. However, the net increase in their budget remains modest (around €20 per month), which seems manageable, especially since a deep energy retrofit improves comfort and protects the household from potential future energy price hikes.

Installing a heat pump enables households to make enough energy savings to cover the monthly loan repayments.

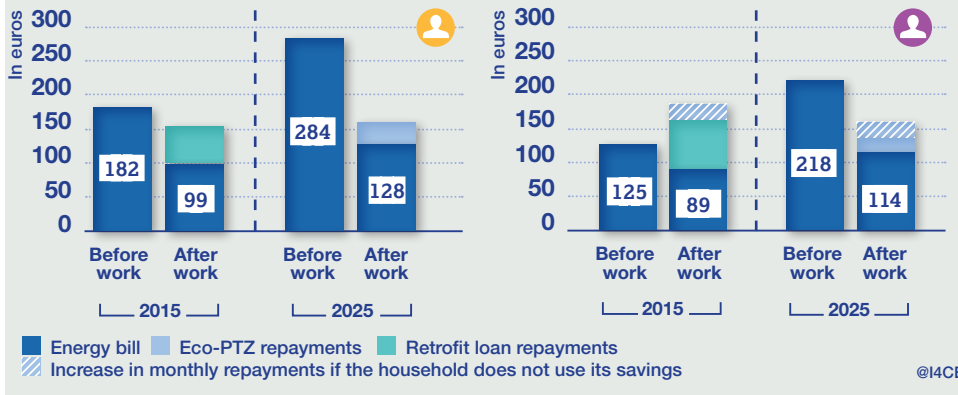
For the installation of a heat pump, **the out-of-pocket cost has increased over the past ten years** for both the Fields and Newtown households. However, while **energy savings were not enough to cover the loan repayments a decade ago, they easily cover them now.**

OUT-OF-POCKET COSTS FOR DEEP ENERGY RETROFIT



Other developments also need to be monitored to determine the accessibility of deep energy retrofits: in particular, the number of RGE-certified tradespeople (certified under the French government's environmental quality scheme), which rose slightly to 63 000 in 2024; and the availability of subsidised loans for households, with a growing number of "Eco-PTZ".

EVOLUTION OF THE MONTHLY ENERGY BUDGET AFTER INSTALLING A HEAT PUMP



Developments in mobility are less clear-cut.

For the Fields household, the out-of-pocket cost has increased, and the fuel savings still do not cover the cost of financing an electric car.

For a household that does not specifically need to change their car (here, the Fields household), we compare buying an electric car with keeping their petrol car. This scenario can also provide a rough benchmark for comparison with buying an older, third-hand model, for example, which is cheaper to purchase but has higher maintenance costs.

In this situation, we assess the total out-of-pocket cost for an electric car, which has increased over the past five years by between €5 000 and €10 000, depending on the model. **Fuel savings (of around €110 per month in 2020, rising to €120 in 2025) are not sufficient to cover the loan repayments. Only the social leasing scheme would have enabled the Fields household in 2024 to access an electric car while reducing their mobility budget.** It should be noted that this scheme only made the car available to households for three years, raising questions about long-term access to electric mobility if the scheme is not renewed and the buy-back price – for contracts with a purchase option – remains too high for households.

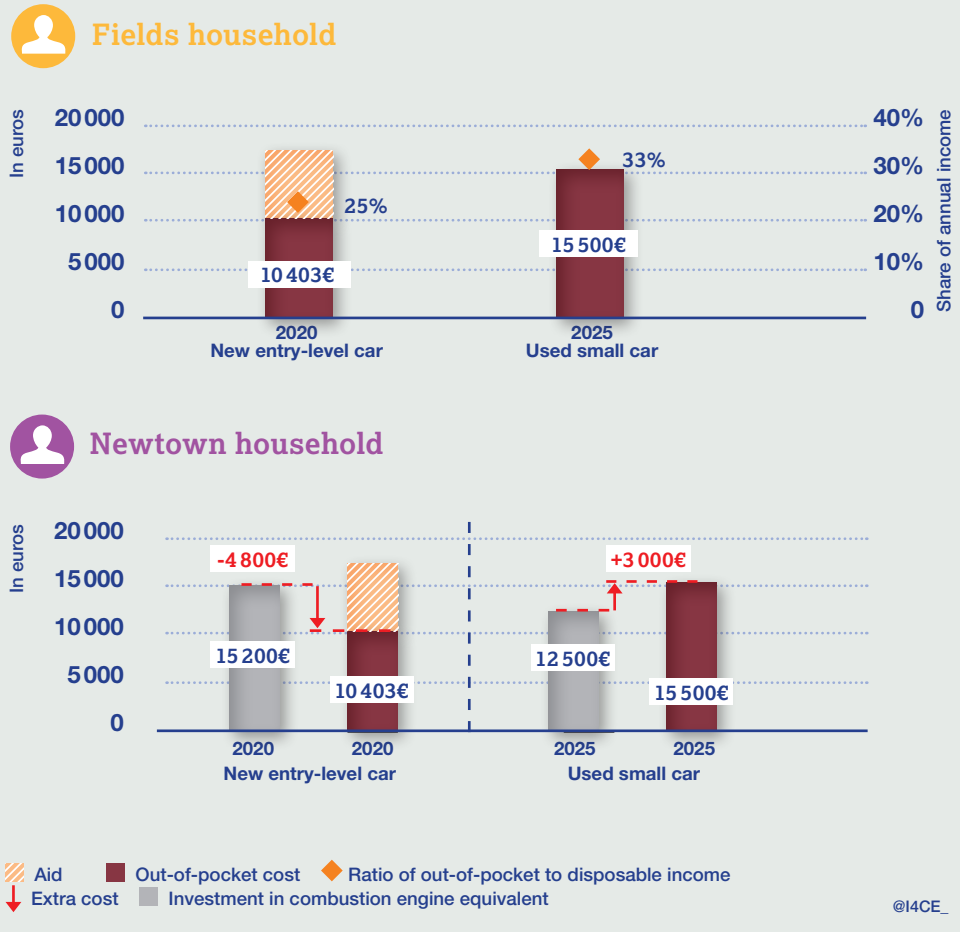
It should also be noted that for the Fields household, an alternative scenario is described in the annexes, comparing the purchase of an electric car with that of a combustion engine equivalent.

For the Newtown household, the extra cost of an electric car compared to a combustion engine equivalent has increased over the past five years, but the fuel savings are still enough to cover the cost of financing that difference.

For an upper middle-income household (here, the Newtown household) that needs to replace their car, we compare the purchase of an electric vehicle with that of a combustion engine equivalent. Five years ago, a new entry-level electric car cost almost €5 000 less than its combustion engine equivalent. Today, the out-of-pocket cost for an electric car exceeds that of the combustion version by a few thousand euros. **But purchasing an electric car still makes financial sense for the Newtown household.** The fuel savings from switching to electric are enough to cover the higher loan repayments compared to a combustion engine alternative. In 2025, the overall mobility budget – covering all car-related expenses, including the loan – could fall by a few dozen euros for the Newtown household. **These net savings have declined over the past five years; in 2020, they were closer to €140 per month.**

Other trends in recent years have been quite positive for the development of electric mobility: more and more electric cars are being sold on the used market, and the number of publicly accessible charging points continues to rise, keeping pace with the rollout of electric vehicles.

OUT-OF-POCKET AND EXTRA COSTS OF AN ELECTRIC CAR



VARIOUS KEY FACTORS EXPLAIN THESE DEVELOPMENTS

The first key factor is the **impact of financial aid** available to households.

Where deep energy retrofits are concerned, the introduction of the MaPrimeRénov' Parcours Accompagné scheme has led to a significant increase in retrofitting aid for middle- and lower-income households. Changes to the Eco-PTZ (a higher maximum amount and longer term) have also made investments more accessible to households.

Where mobility is concerned, the social leasing scheme has enabled lower-middle- and low-income households to purchase an electric car without increasing their mobility budget. Other electric mobility incentives have largely decreased over the past two years: the scrappage scheme was withdrawn, the bonus reduced, and eligibility criteria tightened (removal of aid for used cars and introduction of an environmental rating), all of which have resulted in an increase in the out-of-pocket cost for electric vehicles.

The second key factor behind these developments is **the cost of investments.**

For retrofitting, this is generally an upward factor: the cost of work has increased, as have heat pump prices (both rising by more than 30% between 2015 and 2025). For mobility, electric car prices have also increased as a rule. However, the launch of new entry-level models and the greater availability of used electric cars have helped to offset this trend.

A final key factor strongly affecting the accessibility of investments for households is **the price of energy.**

Prices for gas, heating oil and petrol have risen sharply in recent years, especially in 2022 and 2023, significantly boosting potential energy savings. Gas prices doubled from 2015 to 2025, heating oil prices doubled between 2015 and 2023 before falling slightly, and petrol prices rose by more than 20% between 2015 and 2023, before declining slightly.

LESSONS FOR THE FUTURE

The situation has improved across a number of indicators: out-of-pocket costs for deep energy retrofits have fallen significantly for middle-income households, potential energy savings have increased, and financing options are now more favourable.

Given that certain investments are still financially out of reach for households, particularly those in the middle-income bracket, and that past improvements are largely due to state aid, careful attention will need to be paid to the government's 2026 budget in a challenging fiscal context.

The 2026 budget will need to prioritise access to transition solutions for those who need them most, through subsidies, schemes like social leasing, and so on. Regulatory or fiscal measures can also be used to encourage those with the means to invest. These measures can, in turn, make investments more accessible to households: for example, EU vehicle emissions regulations can encourage manufacturers to reduce the sale price of their electric models. Similarly, regulations on greening corporate fleets help to boost the used electric vehicle market.

It is also important to remember that other changes are needed to make the ecological transition truly accessible to households, such as developing public transport, training retrofitting tradespeople, and so on. Some of these changes will also need to be supported by public spending.

A FOCUS ON TWO HOUSEHOLD PROFILES FROM THE MIDDLE-INCOME BRACKET

To assess the economic capacity of households to invest in the transition, we focus on **two household profiles: the Fields family** and **the Newtown family**. These two households share certain characteristics: they belong to the **middle-income bracket** (defined here as households whose standard of living falls between the third and eighth deciles), they live in a **single-family house** that they **own** and are still **paying off through a mortgage, they rely on a car for everyday travel,** and they have two children. They differ in other respects: income level, area of residence, housing characteristics, and mobility habits *(see boxes).*

The methodological report included in the annex to this Observatory provides a detailed description of the household characteristics, data sources, results for other household profiles, as well as sensitivity analyses for certain key parameters. It should be noted that in this edition of the Observatory, local aid has not been taken into account, although it can significantly improve the accessibility of investments for households *(I4CE, 2024).*

> Fields household

Two adults and two children

→ The Fields family has a disposable income of around **€3 900** per month in 2025. With two adults and two children, they fall into **the 4th living standard decile,** placing them in **the lower-middle-income.**

→ The Fields household lives in a **rural oil-heated house,** rated G on the energy performance scale (DPE), built before the 1950s and located in the Île-de -France region.

→ They own a **used petrol car purchased a few years ago.** Mrs Fields uses it daily to get to work, 30 km from their home. Including school runs, shopping trips and occasional holiday outings, they drive around **16 000 km** per year.

→ The Fields household falls into **the low-income category as defined by ANAH***.

> Newtown household

Two adults and two children

→ The Newtown family has a disposable income of around **€4 700** per month in 2025. With two adults and two children, they fall into **the 6th living standard decile**, placing them in **the upper-middle-income bracket.**

→ The Newtown household lives in a **peri-urban gas-heated detached house**, rated E on the energy performance scale (DPE), built in the 1970s and located in the Île-de-France region.

→ They own two cars, a small car and a family car, both of which they use for commuting daily daily. In total, the small car covers **11 000 km** per year and the family car 14 000 km per year year.

→ The Newtown household falls into **the middle-income category as defined by ANAH**.

*** The income categories used by ANAH do not correspond to the definition applied elsewhere in this document. The Fields household, which we classify as lower-middle-income (with a standard of living between the third and fourth deciles) falls into ANAH's low-income category. This category is calculated based on reference tax income and household size.**

INDICATORS TO ASSESS THE ECONOMIC CAPACITY OF THE TWO MIDDLE-INCOME HOUSEHOLD PROFILES TO INVEST IN THE ECOLOGICAL TRANSITION

Investments for the transition to be made by households

The ecological transition requires investments, some of which will fall partly to households, in particular **home retrofitting** and the **rollout of electric vehicles** *(I4CE, 2023b)*. Although not all households will need to make these investments, or to do so immediately, their economic accessibility is an important issue. The investments expected of households, along with the objectives of environmental planning, are outlined in the introductory pages for each topic *(p.8 for housing and p.19 for mobility)*.

Indicators to assess the economic capacity of households to make these investments

We assess the economic accessibility of these investments for households, particularly those in the middle-income bracket, using the two standard profiles described on the previous page. For housing, we consider two options: **the most ambitious energy retrofit possible for each house or the replacement of the boiler** with a heat pump.

For mobility, we consider an investment in an **electric car and a fast-charging point:** for the Fields household, we assume this investment replaces an existing petrol car; for the Newtown household, we assume it replaces an investment in a combustion engine equivalent.

In this analysis, we do not consider that households will need to invest in both home retrofitting and mobility. Making investments in both within a short timeframe would further constrain their financing capacity.

We have developed **indicators to assess various aspects of the economic capacity of households to make these investments:**

- **Out-of-pocket cost:** What is the out-of-pocket cost for households after deducting the aid they are entitled to? How does this compare to their income? If applicable, how much more does the investment cost compared to a combustion engine alternative?
- **Financing capacity:** Is the household's debt margin sufficient to cover the out-of-pocket cost, taking into account their available savings and borrowing capacity?
- **Financial balance:** How do the investments impact households' mobility/housing budgets? Do energy savings enable them to cover the cost of the investments?

Depending on the situations of households and the challenges they face, different indicators are highlighted. These indicators are assessed over time **to identify the factors that have either increased or reduced the economic accessibility of transition solutions in recent years.**

HOME RETROFITTING: FOCUS ON MIDDLE-INCOME HOUSEHOLDS THAT OWN A SINGLE-FAMILY HOUSE

Home retrofitting: a key challenge for environmental planning

Environmental planning revolves around two key approaches: **deep energy retrofitting and the replacement of fossil-fuel boilers with low-carbon heating systems,** such as heat pumps *(SGPE, 2023).*

Environmental planning sets a target of **900 000 "deep" retrofits per year by 2030,** with a gradual increase over time. This term refers to energy retrofits that improve the energy performance certificate (DPE) rating by at least two classes. These are less demanding than so-called "energy-efficient" retrofits, which – barring specific constraints – should bring a home up to the A or B class (C in the case of an energy-inefficient property). Planning also aims to phase out **75% of oil-fired boilers in residential buildings by 2030,** along with around **20% of gas boilers** *(SGPE, 2023).*

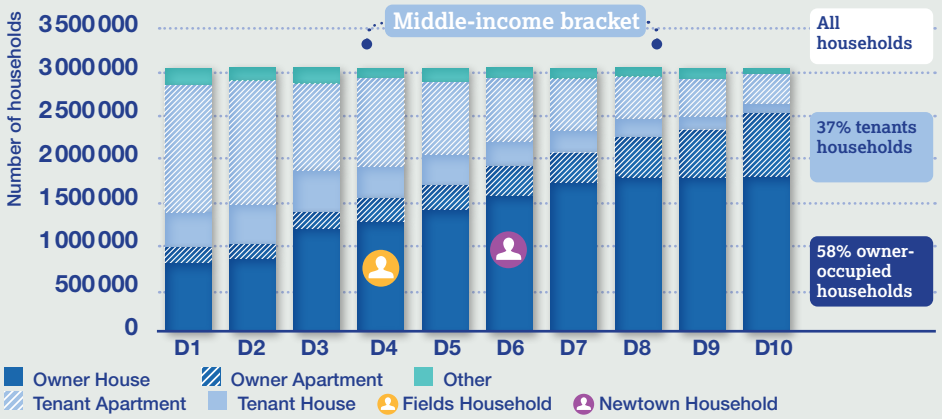
Two options assessed: a deep retrofit or a boiler replacement

For each household profile, we assess two options: the **most ambitious energy retrofit possible for their home (including the installation of a heat pump)** or just the **replacement of the boiler with a heat pump.** It should be noted that insulating poorly insulated homes before fitting a heat pump is generally recommended, particularly to avoid additional costs from oversizing the system and to limit the impact on electricity consumption and peak demand *(Cler & Negawatt, 2023).*

A focus on middle-income households that own a single-family house

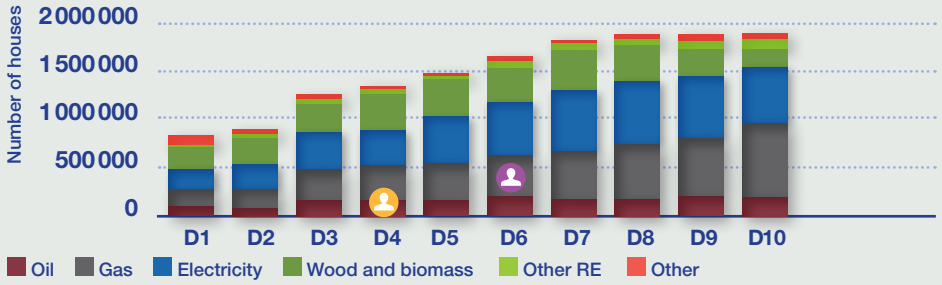
The Observatory focuses on **middle-income households that own a single-family house**. The cases of apartment buildings and tenant households raise specific issues and are not covered in this edition. In total, 14.3 million households own a single-family house, of which 7.8 million fall within the middle-income bracket. Of these single-family houses, nearly 5.7 million are still heated by oil or gas.

HOUSING TENURE OF MAIN RESIDENCES BY HOUSEHOLD LIVING STANDARD DECILE



Note: The "Other" category includes households living rent-free, usufructuaries (without bare ownership), and owners or tenants living in temporary structures, hotel rooms, hostels, or non-residential collective buildings (schools, police stations, offices, etc.).
Note to the reader: The Fields household is among the 1.3 million homeowners in the 4th living standard decile, and the Newtown household among the 1.6 million in the 6th decile.
Source: I4CE calculations based on 2023 data from the INSEE "Statistics on income and living conditions" (SILC)

FOCUS ON HOME OWNERS: BREAKDOWN BY HEATING ENERGY SOURCE AND LIVING STANDARD DECILE



Note to the reader: The Fields household is among the 160 000 households in the 4th living standard decile that own an oil-heated house, and the Newtown household is among the 400 000 households in the 6th decile that own a gas-heated house.
Source: I4CE calculations based on 2023 data from the INSEE "Statistics on income and living conditions" (SILC) survey.

@I4CE_

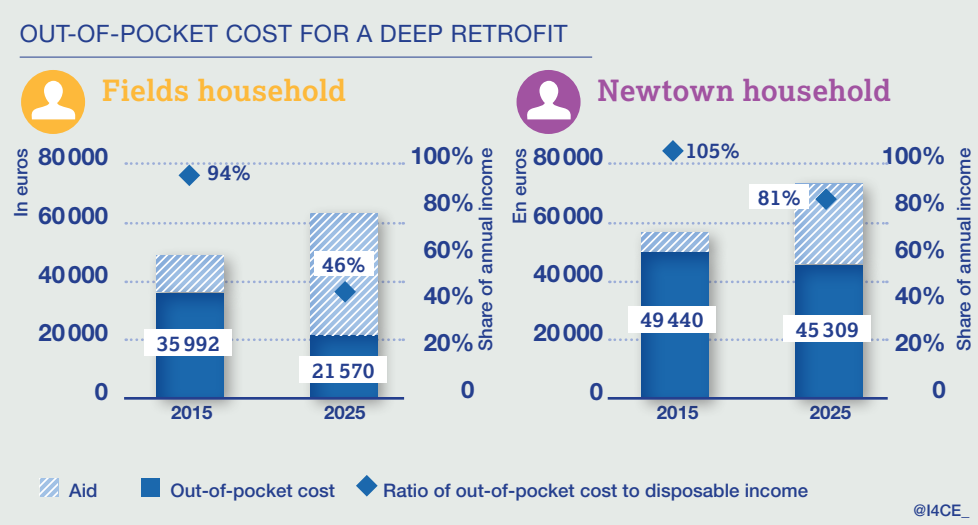
The Housing section is structured around the two retrofit scenarios studied: first, a deep energy retrofit of the house (pp. 11 to 16), then the replacement of the boiler with a heat pump (pp. 17 to 18), for each of the two households, the Fields household followed by the Newtown household.

For each option, indicators are used to assess different aspects of the capacity of the households to invest (out-of-pocket cost, financing capacity for the deep retrofit, and impact on the housing budget). These indicators are explored retrospectively over the past ten years to highlight the factors that have either improved or reduced the households' capacity to invest.

Deep retrofit

INDICATOR #1 : OUT-OF-POCKET COST

What is the out-of-pocket cost for households after deducting the aid they are entitled to? How does it compare to their annual income?



Ten years ago, the out-of-pocket cost for a deep energy retrofit of the Fields family's home was €36 000 – almost a full year's income. By 2025, that cost has fallen by €15 000 thanks to **successive increases in available aid over that period, despite the rising cost of work.** It now stands at around €20 000, or just under six months of income.

For the Newtown household, the out-of-pocket cost for retrofitting their home has fallen little in absolute terms over the past ten years, and amounts to 80% of their annual income in 2025. The retrofitting aid they are entitled to in 2025 is lower than for the Fields household, due to the fact that they are in a different ANAH income category, and to the characteristics of their home, which can only gain three DPE classes through a deep retrofit.

INDICATOR #2 : FINANCING CAPACITY

Do households have the capacity to finance this out-of-pocket cost, either through savings or a loan?

The out-of-pocket cost represents a significant sum, but both the Fields and Newtown households – despite having an outstanding mortgage – have sufficient borrowing capacity to take out an Eco-PTZ loan to cover the full out-of-pocket cost. The Fields household has no savings to draw on, but the Newtown household could choose to use part of theirs to reduce the amount they need to borrow. Their borrowing capacity was already sufficient in 2015, but the margin has improved since then thanks to a reduction in the out-of-pocket cost, **an increase in the maximum amount and term of the Eco-PTZ**, and a rise in their income.

Unlike the Fields and Newtown households, **some households are unable to take out a loan to finance the out-of-pocket cost of a deep retrofit, particularly older households or those with health issues or irregular incomes.** It is estimated that 5.1 million owner-occupiers over the age of 65 have savings of less than €30 000. In addition, some households are already too heavily indebted to finance renovation work: an estimated **1 million** homeowners would exceed their borrowing capacity to finance the out-of-pocket cost of retrofitting, even when factoring in their savings.

INDICATOR #3 : FINANCIAL BALANCE

How do the investments impact households' housing budgets? Do energy savings enable them to cover the cost of investments?

For the Fields household, up until 2021, energy savings were not enough to cover the loan repayments. From 2022 onwards, several factors shifted the balance: **an increase in energy prices**, a reduction in monthly repayments thanks to a l**ower out-of-pocket cost, and an increase in the maximum amount and term of the Eco-PTZ**. As a result, the Fields household can now make net monthly savings of €130 (energy savings after loan repayments).

For the Newtown household, energy savings are not enough to cover the loan repayments, even in 2025 and after using their savings to reduce the amount borrowed. The net increase in their budget is around €20 per month, or 0.3% of their disposable income, which seems manageable, especially since a deep retrofit improves comfort, increases the home's resale appeal, and protects the household from potential future energy price hikes.

Installation of a heat pump

INDICATOR #1 : OUT-OF-POCKET COST

What is the out-of-pocket cost for households after deducting the aid they are entitled to? How does it compare to their annual income?

For both the Fields and Newtown households, **the out-of-pocket cost for installing a heat pump has increased over the past ten years,** as the rise in heat pump prices has outpaced the growth in available aid over the period. It currently stands at around €8 000 for the Fields household and €10 000 for the Newtown household, which is roughly equivalent to two months' income for each.

INDICATOR #2 : FINANCIAL BALANCE

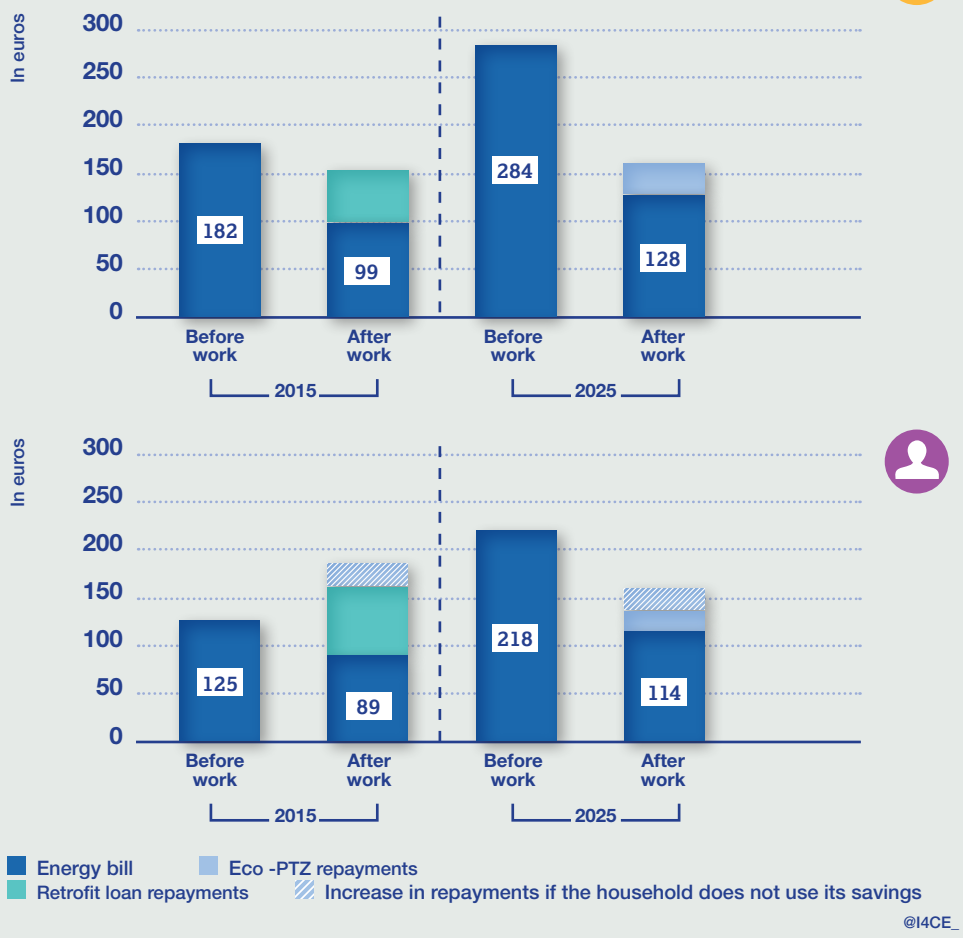
How do the investments impact households' housing budgets? Do energy savings enable them to cover the cost of investments?

For the installation of a heat pump, we do not consider the financing capacity indicator (it is sufficient for a deep retrofit, and is therefore also sufficient for a heat pump).

While energy savings from installing a heat pump were enough as of 2015 to the cover loan repayments for the Fields household, the same was only true for the Newtown household from 2019 onwards, or even from 2022 if they choose to finance the full out-of-pocket cost through a loan without drawing on their savings.

Net savings for households have increased, mainly due to **rising energy prices** and to a lesser extent to **the longer term of the Eco-PTZ**, which helps to finance the installation of a heat pump.

EVOLUTION OF THE MONTHLY ENERGY BUDGET AFTER INSTALLING A HEAT PUMP



THE INCREASE IN AID IN RECENT YEARS HAS SIGNIFICANTLY REDUCED THE OUT-OF-POCKET COST FOR THE FIELDS HOUSEHOLD

Fields household

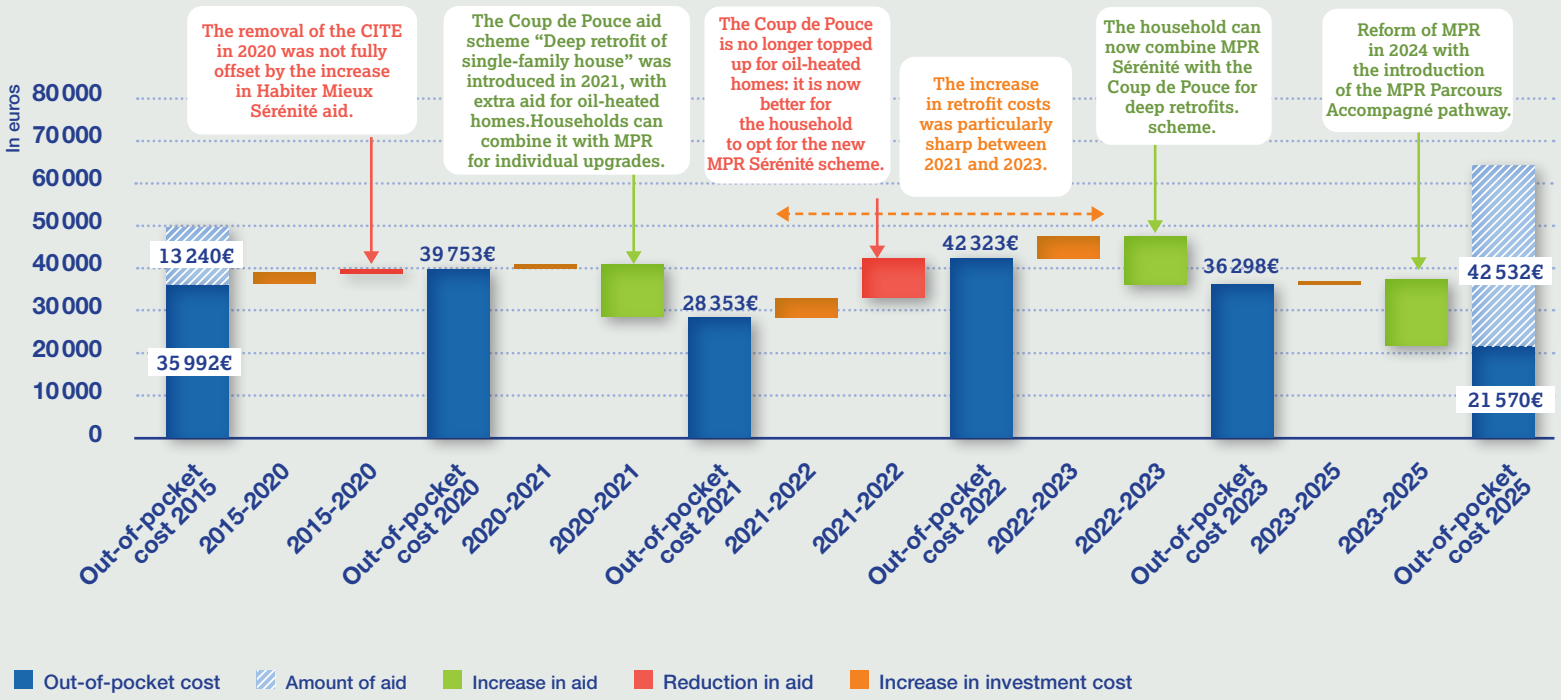
Out-of-pocket cost

The out-of-pocket cost for the deep retrofit of the Fields household's home has decreased by nearly €15 000 over the past ten years

The first indicator used to assess a household's economic capacity to invest in retrofitting their home is the **out-of-pocket cost, in other words the cost of work minus any financial aid the household is entitled to.** In 2015, the out-of-pocket cost for the Fields household was €36 000 for a deep retrofit of their home, which amounted to 94% of their annual income. In 2025, that amount is €21 570 **(almost €15 000 less) and now represents 46% of their annual income.** If the Fields household's income had been lower, placing them in the ANAH "very low-income households" category, their out-of-pocket cost would have dropped by €27 000 over ten years, to less than €10 000 in 2025.

This reduction in the out-of-pocket cost is not due to changes in the cost of work, which has steadily increased over the period, rising from around €50 000 including VAT in 2015 to €64 100 in 2025 (+30%). Over the same period, the amount of aid has fluctuated (see figure), but overall has increased substantially, **more than tripling between 2015 and 2025.**

EVOLUTION OVER 10 YEARS OF THE OUT-OF-POCKET COST FOR THE DEEP RETROFIT OF THE FIELDS HOUSEHOLD'S HOME



In 2015, the out-of-pocket cost for the deep retrofit of their house amounted to 94% of the household's annual income. By 2025, it represents 46% of their income.

Assumptions: Costs are based on the example of the "rural oil-heated house" from the study (Ministère de la Transition Ecologique et Solidaire, 2020), with changes estimated using INSEE's residential buildings maintenance and improvement price index. The aid schemes are described in the annex.

Notes: The amount of aid shown in this figure does not include the VAT reduction. The assumptions regarding the household's specific characteristics are provided in the methological report in the annex.

Abbreviation: MPR = MaPrimeRénov'

@I4CE_

THE INCREASE IN AID IN RECENT YEARS IS LARGELY OUTWEIGHED IN ABSOLUTE TERMS BY THE RISING COST OF WORK FOR THE NEWTOWN HOUSEHOLD

Newtown household

Out-of-pocket cost

For the Newtown household, the increase in aid over the past ten years is largely outweighed by the rising cost of work

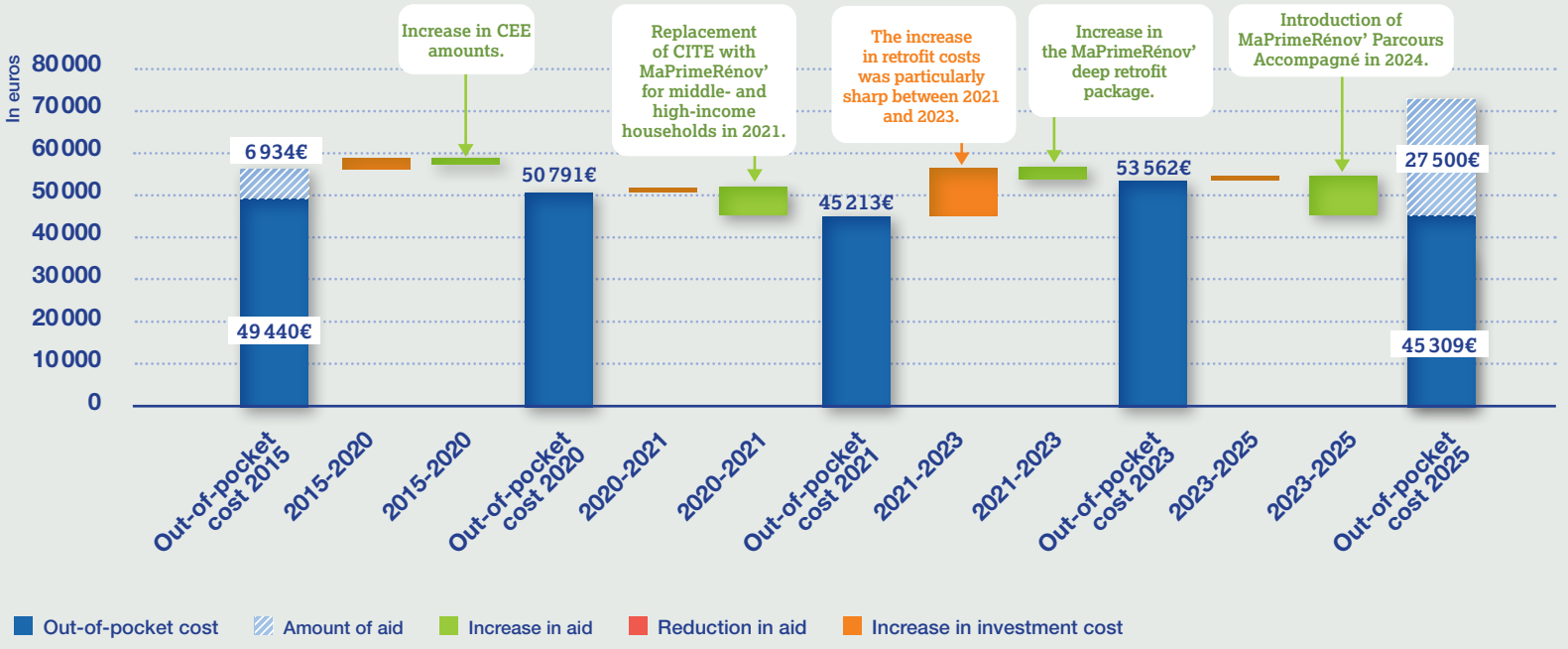
For the Newtown household, the out-of-pocket cost for the deep retrofit of their home has also decreased over the past ten years, but by a much smaller amount, as the increase in aid is largely outweighed by the rising cost of work in absolute terms. The out-of-pocket cost has thus fallen by around €4 000, from €49 400 in 2015 to €45 300 in 2025.

Several factors explain the difference with the Fields household's situation. At present, the Newtown household receives significantly less aid for retrofitting their home than the Fields household, due to the fact that they are in a different ANAH income category, and to the characteristics of their home, which can only gain three DPE classes through a deep retrofit. If the Newtown household's income had been higher, placing them in the ANAH "high-income households" category, their out-of-pocket cost would have increased by €15 000 over ten years, largely due to the reduction in aid from the MaPrimeRénov' Parcours Accompagné scheme for high-income households in 2025.

The out-of-pocket cost accounts for a smaller share of their income

The ratio between the out-of-pocket cost and the household's annual income has fallen over the period, from **105% in 2015** to around **80% in 2025**, due to the reduction in the out-of-pocket cost, and especially to the increase in income.

EVOLUTION OVER 10 YEARS OF THE OUT OUT-OF -POCKET COST FOR THE DEEP RETROFIT OF THE NEWTOWN HOUSEHOLD'S HOME



In 2015, the out-of -pocket cost for the deep retrofit amounted to 105% of the household's annual disposable income. By 2025, it represents 81% of their income.

Assumptions : Costs are based on the example of the "1975-1985 detached house" from the study (Ministère de la Transition Ecologique et Solidaire, 2020a), with changes estimated using INSEE's residential buildings maintenance and improvement price index. The aid schemes are described in the annex.

Note: The amount of aid shown in this figure does not include the VAT reduction.

@I4CE_

THE FIELDS HOUSEHOLD HAS NO SAVINGS TO DRAW ON, BUT ITS BORROWING CAPACITY IS SUFFICIENT TO FINANCE WORK

Fields household

Financing capacity

Solutions are available to finance the out-of-pocket cost

The out-of-pocket cost for retrofitting the Fields household's home is significant, at more than €20 000 in 2025 *(see p.11)*. They have no savings to draw on to cover this cost and must therefore take out a loan. The best option is the interest-free eco-loan (Eco-PTZ). Introduced in 2009, it enables owner-occupiers or landlords to finance retrofitting work with no interest and no income conditions. Since 2022, the maximum amount for the Eco-PTZ has been raised to €50 000 – enough to cover the full out-of-pocket cost. Before that, the Fields household had to take out an additional loan.

The debt-to-income ratio: an indicator to assess the capacity of a household to take out a loan

Banks apply lending criteria, and since 2022 they have been required to follow the rules set by the Haut Conseil de Stabilité Financière (High Council for Financial Stability), in particular capping the debt-to-income ratio at 35%.

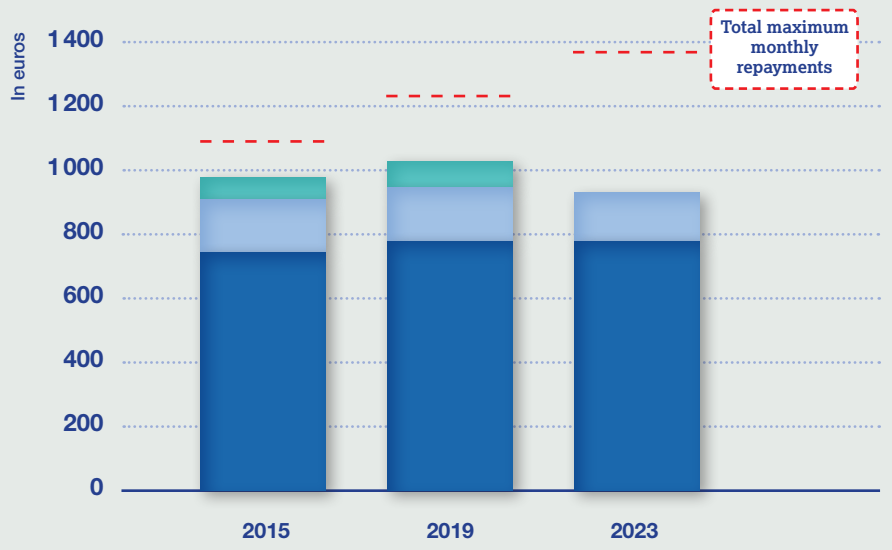
The approval of a loan for the Fields household therefore depends on their remaining borrowing capacity, determined by their income and any existing repayments on their home.

Between 2015 and 2023, the remaining borrowing capacity of the Fields household was sufficient to finance the retrofit of their home

Between 2015 and 2023, the Fields household's capacity to finance the out-of-pocket cost of work through a loan improved. Over this period, their disposable income increased, providing additional borrowing capacity. At the same time, the debt-to-income ratio associated with financing work through a loan has decreased since 2019 due to the higher maximum amount for the Eco-PTZ, the extension of its term from 15 to 20 years, and the reduction in out-of-pocket costs. It should be noted that the values used to determine the Fields household's financing capacity (mortgage repayments and income) represent the median for homeowner couples with children in the fourth living standard decile; they do not reflect all possible household situations within this decile. Indeed, many homeowners lack the capacity needed to finance work *(see page 16)*.

FIELDS HOUSEHOLD'S FINANCING CAPACITY

Fields households



Assumptions: Assumptions on the specific characteristics of household are provided in the annex. The household does not draw on its savings. Eco-PTZ loans are taken out over 15 years between 2015 and 2021, and over 20 years thereafter. Additional retrofit loans are taken out over 10 years. Housing loan repayments include the mortgage for the purchase of the main residence as well as any other loans related to the main residence.

Note to the reader: For the Fields household, in 2025, the total monthly repayments for their housing loan and for the deep retrofit of their house come to €870, whereas they can borrow up to €1 370 per month.

Source: I4CE calculations based on data from the INSEE 2023 SILC survey. @I4CE_

FROM 2022 ONWARDS, THE DEEP RETROFIT OF THE FIELDS HOUSEHOLD'S HOME GENERATES NET SAVINGS, DESPITE LOAN REPAYMENTS

Fields household

Financial balance

The evolution of the households' housing budget before/ after work is used to assess the financial sustainability of work for the households

A key condition to ensure the viability of deep retrofits for low- and middle-income households is that they should enable them to **maintain their financial balance**; projected energy savings should at least cover the loan repayments *(I4CE, 2022 & 2023a)*. This is also one of the criteria used by third-party financing companies to assess a household's financing capacity (*ADEME, 2024)*. It is especially important for the lowest-income households, who spend the largest share of their income on essential expenses *(CNLE, 2024).*

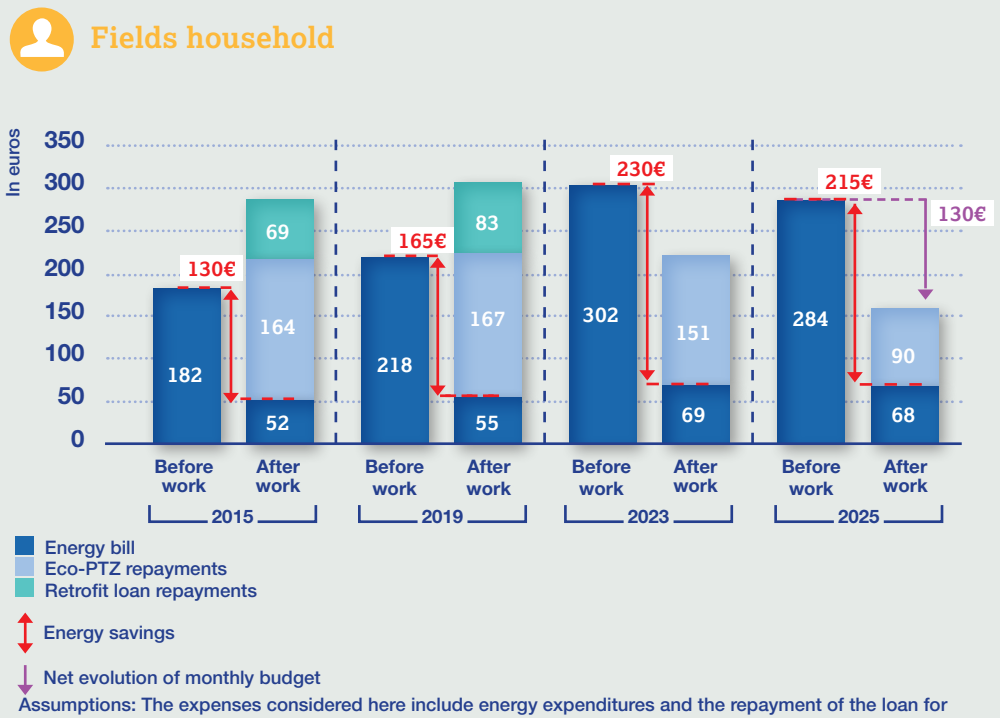
Since 2022, the Fields household saves money every month thanks to the deep retrofit of their home

Up to and including 2021, energy savings from the deep retrofit (around €130 per month in 2015 and €165 per month in 2019) are not enough to cover the monthly loan repayments.

From 2022 onwards, several factors change this situation: rising energy prices, lower loan repayments due to the reduced out-of-pocket cost,and the increase in the maximum amount and term of the Eco-PTZ.

In 2023, energy savings rise to over €230 per month due to higher energy prices. Overall, the household makes net monthly savings of around €80. In 2025, thanks to the increase in aid and despite the decrease in heating oil prices, net monthly savings rise to nearly **€130**.

EVOLUTION OF THE ENERGY BUDGET FOR THE FIELDS HOUSEHOLD'S HOME AFTER WORK



Assumptions: The expenses considered here include energy expenditures and the repayment of the loan for the energy retrofit.

Source: Calculs I4CE based on (Cayla et Osso, 2013)

@I4CE_

Estimating energy savings is a challenging task, and conclusions about the evolution of the housing budget before/ after work depend on it

The literature highlights the gap between theoretical and actual energy savings. This difference, often referred to as the "energy performance gap", is linked to various factors: the rebound effect, errors in assessing building performance, and issues with the quality of work *(France Stratégie, 2022 & CAE, 2024).*

To account for these various effects, we estimate households' actual energy consumption using a heating system usage factor, which depends on the theoretical heating bill and household income. This factor is based on the work of Cayla and Osso *(2013)* and is currently used by the Centre International de Recherche sur l'Environnement et le Développement (International Research Centre on Environment and Development - CIRED) in their modelling work.

It is also worth noting the uncertainty surrounding future energy savings, particularly due to fluctuations in energy prices and changing heating requirements.

ENERGY SAVINGS DO NOT COVER THE LOAN REPAYMENTS FOR THE NEWTOWN HOUSEHOLD, EVEN IF THEY USE THEIR SAVINGS TO REDUCE THE LOAN AMOUNT

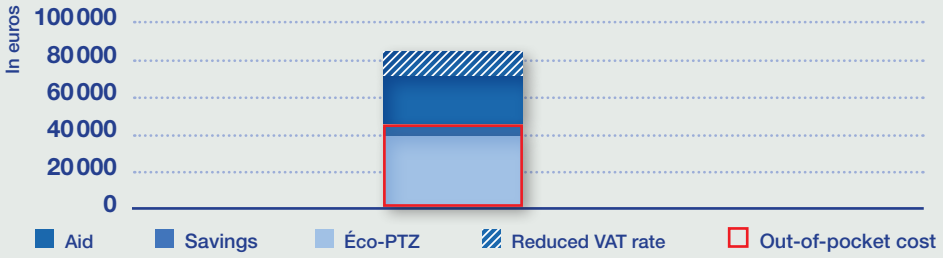
Newtown household

Financing capacity and financial balance

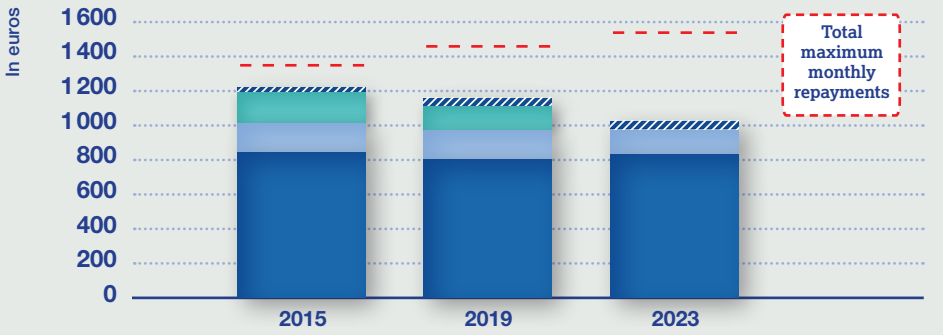
The Newtown household also has sufficient borrowing capacity to finance the deep retrofit of their home

The Newtown household has some savings, which they decide to use to finance the work and reduce their loan repayments. Their borrowing capacity is sufficient to fund the work, and improves over time, thanks to an increase in their disposable income, a reduction in out-of-pocket costs, and an increase in both the maximum amount and term of the Eco-PTZ. Their capacity would have been sufficient even without using their savings (the increase in repayments in this case is shown by the shaded area on the second figure).

FINANCING METHOD FOR THE INVESTMENT IN 2025 FOR THE NEWTOWN HOUSEHOLD



NEWTOWN HOUSEHOLD'S FINANCING CAPACITY



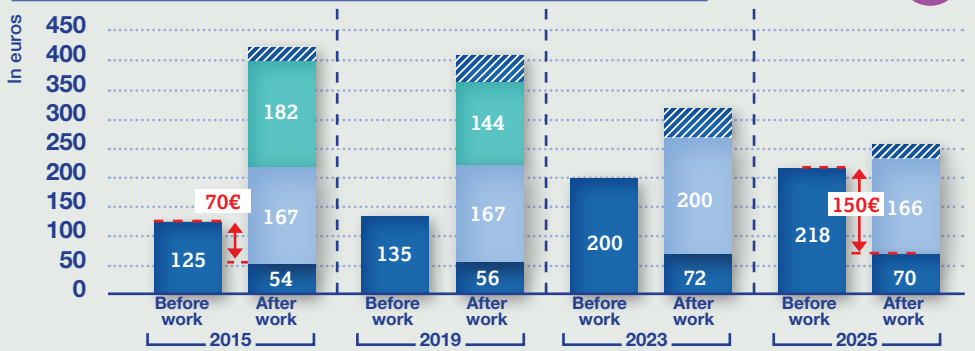
@I4CE_

In 2025, the deep retrofit of their gas-heated house does not enable the Newtown household to make savings

Between 2015 and 2025, energy savings, amounting to €70 in 2015 and €150 in 2025, do not cover the loan repayments, even if the household uses its savings to finance part of the out-of-pocket cost and reduce their monthly repayments. Compared to the Fields household, loan repayments are higher (mainly due to lower aid amounts) and energy savings are smaller – initial consumption is lower, and the price of gas is lower than that of heating oil over the period.

The situation has nevertheless improved over the past ten years thanks to an increase in the maximum amount and term of the Eco-PTZ, a reduction in out-of-pocket costs, and a drop in electricity prices in 2025. In 2025, the net increase in the Newtown household's budget is around €20 per month – about 0.3% of their disposable income. Although comparing this to their discretionary income might be more appropriate, this limited increase seems manageable, especially since a deep retrofit improves comfort, increases the home's resale appeal, and protects the household from potential future energy price hikes. It should be noted that for this household, the conclusions may vary depending on how actual energy consumption is estimated *(see annexes)*.

EVOLUTION OF THE ENERGY BUDGET FOR THE NEWTOWN HOUSEHOLD'S HOME AFTER WORK



Assumptions: Eco-PTZ loans are taken out over 15 years between 2015 and 2021, and over 20 years thereafter. Additional retrofit loans are taken out over 10 years. Housing loan repayments include the mortgage for the purchase of the main residence as well as any other loans related to the main residence.
Source: Calculs I4CE based on (Cayla et Osso, 2013)

@I4CE_

FINANCING DEEP RETROFITTING WORK THROUGH A LOAN MAY PROVE IMPOSSIBLE FOR SOME HOMEOWNERS, IN PARTICULAR OLDER HOMEOWNERS AND THOSE WITH A MORTGAGE

Obtaining a loan can be difficult for older households

Unlike the Fields and Newtown households, **some households are unable to take out a loan to finance the out-of-pocket cost of a deep retrofit:** in particular, **obtaining a loan can be difficult for older households or for those with health issues or irregular incomes.** An estimated 6.7 million owner-occupiers are over the age of 65. Of these, **5.1 million** (nearly a third of owner-occupiers) have savings of less than €30 000 and could struggle to finance retrofitting work.

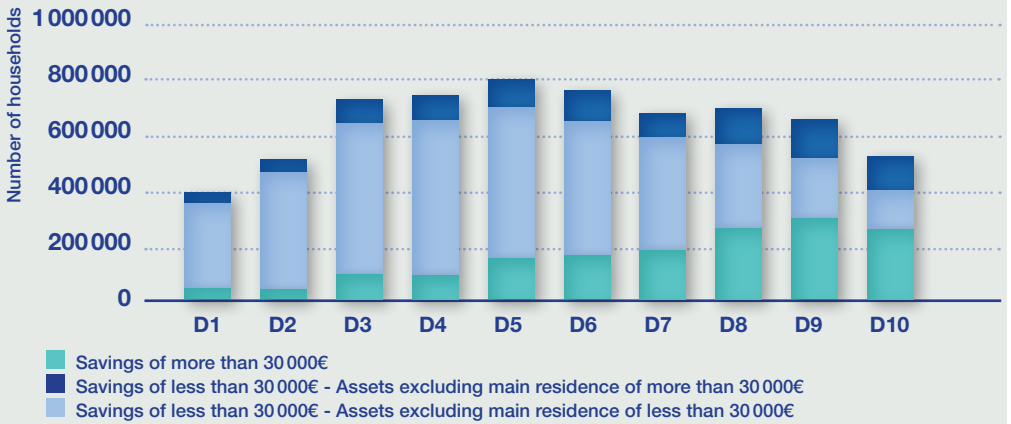
However, it should be noted that almost 1 million of these households have assets valued at more than €30 000, excluding their main residence *(see methodology in the annexes)*. A specific loan, the Prêt Avance Rénovation (retrofit advance loan) has been introduced. This loan is repayable upon sale or inheritance of the property, and is secured by a mortgage and guaranteed by the state for 75% of the loan amount. This scheme has nevertheless generated little interest, with fewer than 100 loans issued in 2022 and 2023 *(ONPE, 2024)*.

Homeowners with a mortgage may be limited by their borrowing capacity

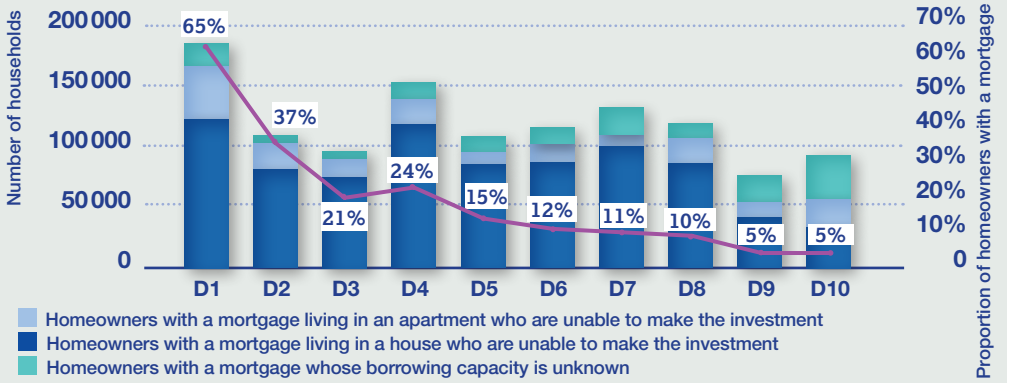
Homeowners with a mortgage – in other words households currently repaying a loan for the purchase of their main residence – may also face difficulties taking out an additional loan, as they are sometimes already at the limit of their borrowing capacity. In 2024, the average mortgage debt-to-income ratio was around 30%, and in around 60% of cases, this ratio exceeded 30% *(ACPR data, 2025)*.

Borrowing capacity can remain constrained for years after taking out a mortgage: it is estimated that for **1 million** homeowners with a mortgage, the debt-to-income ratio needed to finance the out-of-pocket cost of retrofit work exceeds their borrowing capacity, taking account of their savings. This represents 6% of all owner-occupiers.

OWNER-OCCUPIERS OVER 65 YEARS OLD BY LIVING STANDARD DECILE



HOMEOWNERS WITH A MORTGAGE FOR WHOM FINANCING A DEEP RETROFIT OF THEIR HOME EXCEEDS FINANCING CAPACITY, BY LIVING STANDARD DECILE FOR ALL HOUSEHOLDS



Note to the reader: At least 165 000 homeowners with a mortgage in the 1st living standard decile (excluding households with unknown borrowing capacity) lack the financing capacity to fund the retrofit of their home, representing 65% of homeowners with a mortgage in this decile.

Source: I4CE calculations based on data from the INSEE 2023 SILC survey.

@I4CE_

THE OUT-OF-POCKET COST FOR THE INSTALLATION OF A HEAT PUMP **HAS INCREASED** POUR FOR MIDDLE-INCOME HOUSEHOLDS OVER THE PAST TEN YEARS

Fields household

Newtown household

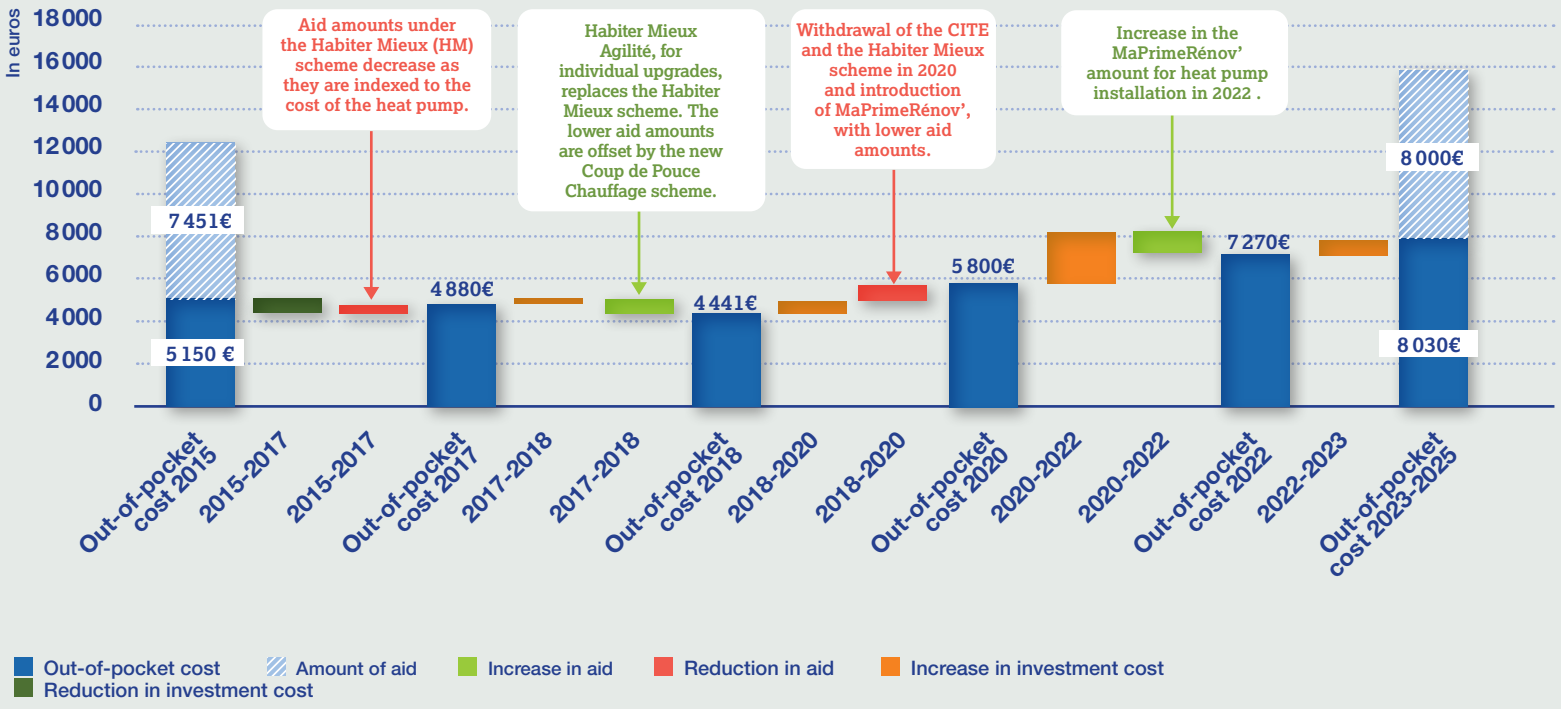
Out-of-pocket cost

The out-of-pocket cost for the installation of a heat pump has increased for middle-income households

Since 2015, the out-of-pocket cost of installing a heat pump in the Fields household's home has increased, mainly due to the rising cost of heat pumps. At the same time, the amount of aid available has fluctuated, with a net increase of around €500 over the period. The out-of-pocket cost has thus increased by €3 000 between 2015 and 2025.

For the Newtown household, the out-of-pocket cost of installing a heat pump to replace their gas boiler also increased, rising from €9 000 in 2015 to €10 500 in 2025. As with the Fields household, this increase is due to the rising cost of heat pumps over the period. The aid available to the Newtown household, which is lower than for the Fields household, nevertheless increased more significantly (by around €1 900 over ten years) *(see annexes)*.

EVOLUTION OVER 10 YEARS OF THE OUT-OF-POCKET COST FOR INSTALLING A HEAT PUMP FOR THE FIELDS HOUSEHOLD



In 2015, the out-of -pocket cost for the heat pump represented 14% of the Fields household's annual income. By 2025, it represents 17% of their income.

Assumptions: The heat pump is installed in the "rural oil-heated house" from the study (Ministère de la Transition Ecologique et Solidaire, 2020a). The evolution of the cost of heat pumps is provided by Observ'ER (2023). The technical specifications are detailed in the annex, as are the specific characteristics of the household. The aid schemes are described in the annex.

Note: The amount of aid shown in this figure does not include the VAT reduction.

@I4CE_

THE REPLACEMENT OF THE BOILER WITH A HEAT PUMP NOW ENABLES BOTH HOUSEHOLDS TO MAKE SAVINGS

Fields household

Newtown household

Out-of-pocket cost

Installing a heat pump enables the Fields and Newtown households to achieve net savings on their housing budgets

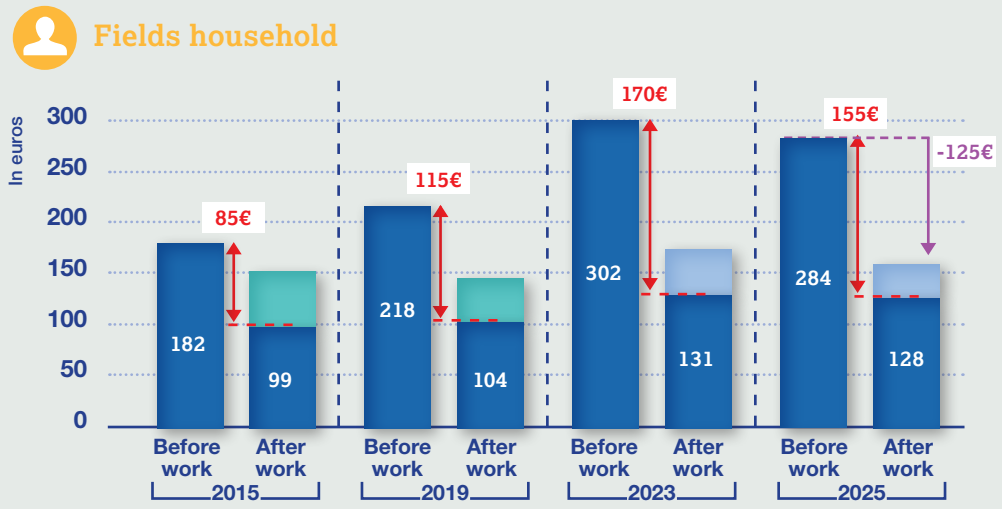
The option of installing a heat pump is compared to that of keeping the existing boiler. It is assumed that the Fields household finances the entire heat pump installation with a loan, while the Newtown household uses their savings to cover part of the out-of-pocket cost and finances the remainder with a loan. Installing a heat pump in their home enables the Fields household to reduce their housing budget from 2015 onwards, as energy savings from the heat pump cover the loan repayments. These net monthly savings, of around €30 in 2015, increase until 2023 to €125, due to the fact that the price of heating oil rises more rapidly than electricity, despite the higher out-of-pocket cost. In 2025, in spite of a reduction in energy savings resulting from a decrease in heating oil prices, net savings stay at €125 due to the longer term of the Eco-PTZ.

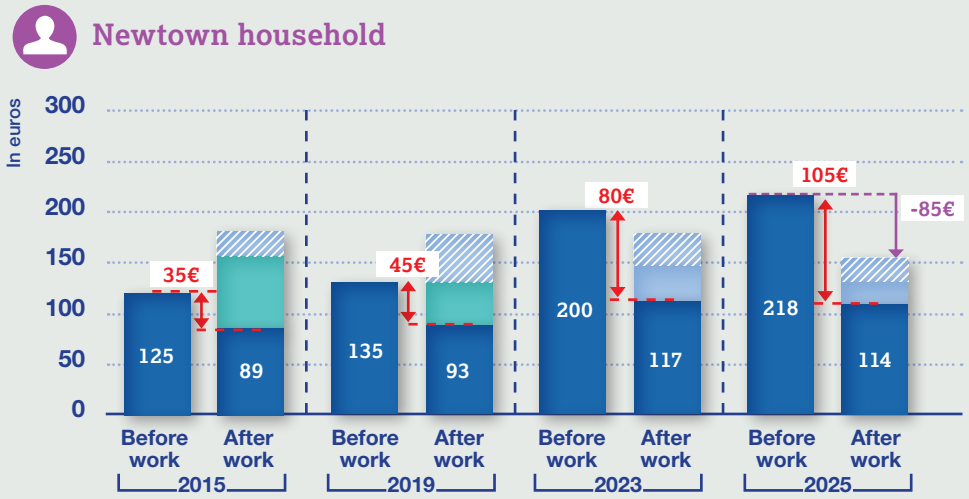
For the Newtown household, energy savings generated by replacing their gas boiler with a heat pump cover the loan repayments from 2019 onwards, unless the household decides not to use its savings to finance part of the out-of-pocket cost. In that case, net savings only begin from 2022, mainly due to rising gas prices and the extended term of the Eco-PTZ.

By 2025, energy savings exceed €100, resulting in net savings of around €85 on the housing budget.

It should be noted that it is generally recommended to insulate houses before installing a heat pump *(Cler & Negawatt, 2023).*

EVOLUTION OF THE ENERGY BUDGET FOR THE FIELDS AND NEWTOWN HOUSEHOLDS AFTER WORK





Assumptions: The household takes out a retrofit loan over 10 years between 2015 and 2019, an Eco-PTZ for individual upgrades over 15 years between 2020 and 2023, and an Eco-PTZ PrimeRénov' over 20 years from 2024.

Source: I4CE calculations based on (Cayla and Osso, 2013)

MOBILITY: A FOCUS ON MIDDLE-INCOME HOUSEHOLDS THAT RELY ON A PRIVATE CAR

Electric mobility: a key challenge for environmental planning

Environmental planning aims for 15% of vehicles on the road to be electric by 2030, which would mean 66% of new vehicle sales by that time *(SGPE, 2023b)*. The electrification of the vehicle fleet will be partly dependent on households, which accounted for half of all new electric vehicle registrations in 2024 *(SDES, 2025b)*.

The Observatory focuses on **middle-income households that rely on a private car** and assesses their economic capacity to invest in an electric vehicle. The modal shift to public transport or cycling is a key pillar of planning, but it is not covered in this edition of the Observatory.

Before 2024, we consider the purchase of a new entry-level car, given the lack of available used electric cars

Middle-income households mainly buy used vehicles *(SDES, 2024)*, but used electric cars were largely unavailable before 2024. For earlier years, we therefore assess the capacity of households to invest in **a new low-cost model**. From 2020 to 2023 we consider the Dacia Spring – the best-selling entry-level model in France during that period. From 2024 onwards, purchase incentives become conditional on an environmental rating, and the Dacia Spring is no longer eligible. At the same time, **new entry-level models** like the Citroën e-C3 have come onto the market since autumn 2024. From 2024, **the used electric car market also begins to grow**, although sales still only represent 3% of the total used car market at the end of 2024 *(Avere & Mobilians, 2025)*.

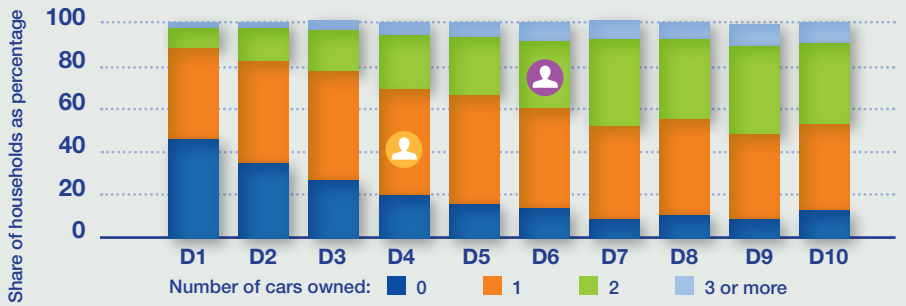
The Fields and Newtown households: different situations, and therefore different indicators

We assume that the Fields household does not to need to replace their current car, a petrol Peugeot 208, which is still running. We assess their capacity to invest in an electric vehicle, considering that the alternative would be to keep their existing car. The Newtown household, on the other hand, owns a small car and a family car, both of which are used daily. The small car is getting old, and they want to replace it. We therefore assess their capacity to invest in an electric vehicle, compared with the purchase of an equivalent combustion engine car. The situations of the two households are not directly comparable, but they enable us to explore different issues surrounding the accessibility of low-carbon investments.

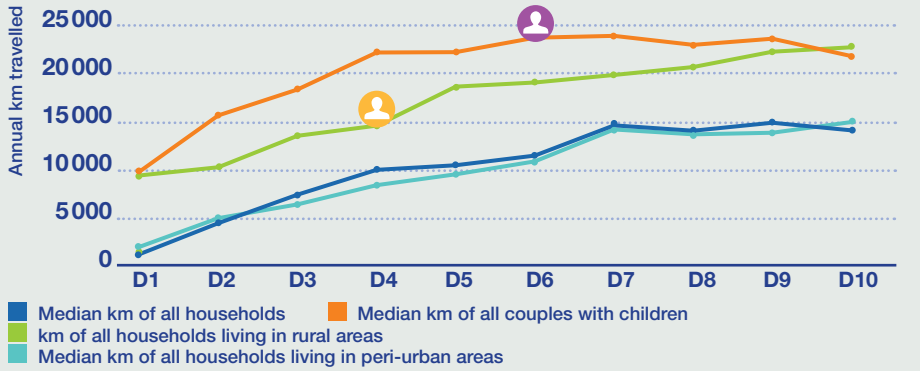
Mobility habits have a significant impact on the economic balance of electric cars

The economic impact of switching to an electric car for households depends on the kilometres travelled, which increases with income, as well as on family composition and area of residence. For the Fields and Newtown households, we consider respectively the median kilometres travelled of couples with children who own one car and live in a rural area, and those of couples with children who own two cars and live in a peri-urban area *(see annexes)*.

SHARE OF HOUSEHOLDS BY NUMBER OF CARS OWNED, BY LIVING STANDARD DECILE



MEDIAN KILOMETRES TRAVELLED BY LIVING STANDARD DECILE, ACCORDING TO FAMILY COMPOSITION AND AREA OF RESIDENCE



Source: I4CE based on the INSEE Individual mobility survey, 2019

@I4CE_

The Mobility section assesses the capacity of each household – the Fields household then the Newtown household – to invest in an electric car. For each household, indicators are presented to explore different aspects of their capacity to invest (out-of-pocket cost and financial balance) (see page 4). These indicators are assessed retrospectively over the past five years in order to highlight the factors that have either improved or reduced the capacity of the households to invest.

INDICATOR #1 : OUT-OF-POCKET COST

What is the out-of-pocket cost for households once the aid they are entitled to has been deducted? How does this compare to their income? Does an electric car cost more to buy than an equivalent combustion engine car?

> FIELDS HOUSEHOLD

The Fields household owns an old petrol car that is still running and does not specifically need replacing. We therefore assess their capacity to invest in electric mobility by **comparing the option of purchasing an electric car with that of keeping their current petrol car.** This scenario can also provide a rough benchmark for comparison with buying an older, third-hand model, which is cheaper to purchase but has higher maintenance costs. Results for an alternative scenario comparing the purchase of an electric car with that of a combustion engine equivalent are described in the annexes.

Between 2020 and 2023, since very few electric cars were available on the used market, we consider the purchase of a new entry-level model. Over this period, **the out-of-pocket cost increased, mainly driven by the rising price of cars,** which was not offset by the slight increase in aid. From 2024 onwards, **more electric cars became available on the used market,** reducing the investment cost, but not enough to offset **the reduction in aid. The out-of-pocket cost rose from around €10 000 in 2020 for a new Dacia Spring to more than €15 000 in 2025 for a used Peugeot,** representing 33% of the Fields household's annual income. It should of course be noted that these models are not directly comparable: one is new with a 27 kWh battery, the other is used with a 50 kWh battery.

> NEWTOWN HOUSEHOLD

The Newtown household needs to replace one of its two cars. We therefore assess their **capacity to invest in an electric car, compared with the purchase of an equivalent combustion engine car.** Until 2023, the out-of-pocket cost for the Newtown household for a new entry-level electric car was lower than the price of a combustion engine equivalent thanks to aid available. In 2024 and 2025, with changes to the purchase aid schemes – withdrawal of the scrappage scheme, reduction of the bonus, and stricter eligibility criteria (withdrawal of aid for used cars and introduction of an environmental rating) – **the out-of-pocket cost for an electric car exceeds that of a combustion engine equivalent by several thousand euros,** whether new entry-level or used.

INDICATOR #2 : FINANCIAL BALANCE

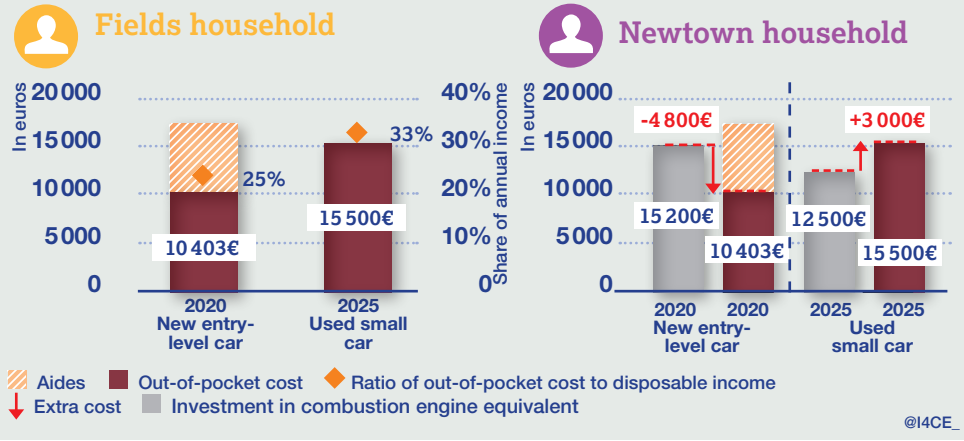
How does switching to an electric car affect households' mobility budgets? Do fuel savings cover the out-of-pocket cost or the additional expense compared to a combustion engine alternative?

We consider that households take out a car loan over six years.

For the Fields household, purchasing an electric car through a loan i**ncreases their mobility budget**, compared to keeping their paid-off car, over the period 2020-2025. Fuel savings (around €110 in 2020, €120 in 2025) do not cover the loan repayments. **Only the social leasing scheme would have enabled the Fields household in 2024 to access an electric car while reducing their mobility budget.** It should be noted that this scheme only made the car available to households for three years, raising questions about long-term access to electric mobility if the scheme is not renewed and the buy-back price – for contracts with a purchase option – remains too high for households.

For the Newtown household, **fuel savings generated by switching to electric cover the increase in loan repayments compared with a combustion engine alternative.** These net savings have decreased over time, but still amount to a few dozen euros in 2025.

OUT-OF-POCKET AND EXTRA COSTS OF AN ELECTRIC CAR



THE OUT-OF-POCKET COST FOR AN ELECTRIC CAR HAS INCREASED **SOMEWHAT** IN RECENT YEARS FOR THE FIELDS HOUSEHOLD

Fields household

Out-of-pocket cost

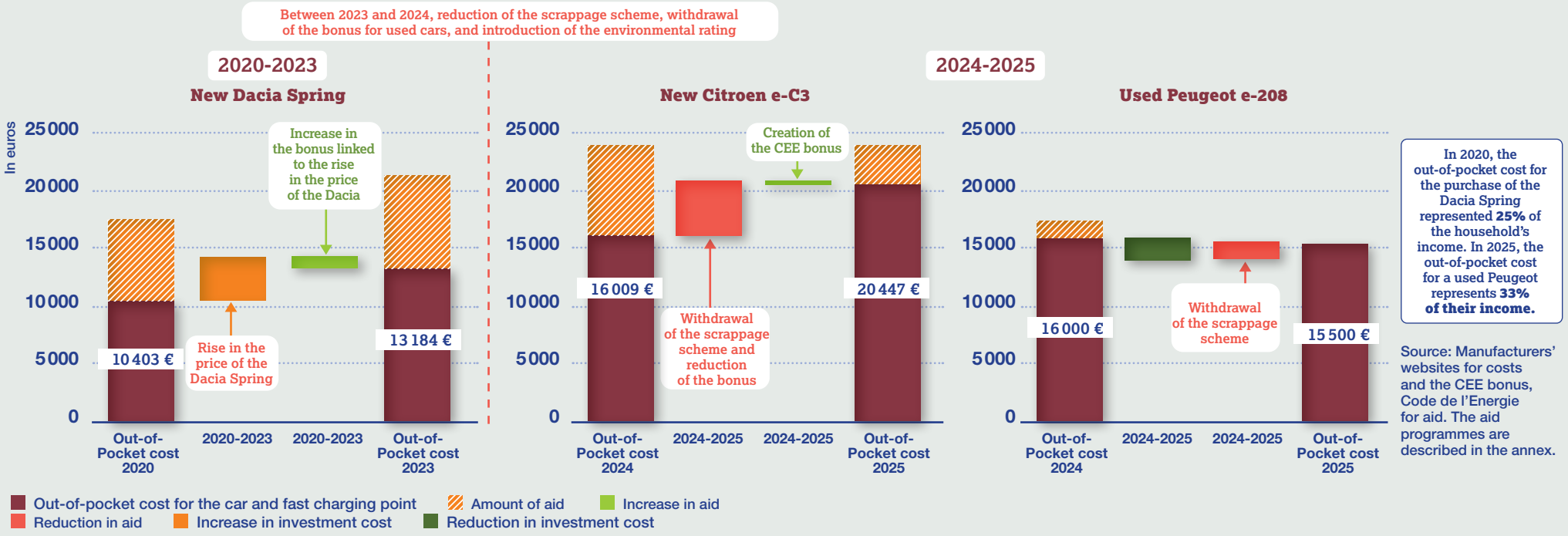
A first indicator to assess the capacity of the Fields household to invest in an electric car: the out-of-pocket cost

We assume that the Fields household does not intend to change their car, as their current vehicle, a petrol Peugeot 208, is still running. We assess their capacity to invest in an electric car over the past five years, considering the alternative would be to keep their current car. For 2020-2023, we consider an investment in a Dacia Spring, and for 2024-2025, an investment in a new e-C3 or a used Peugeot e-208 (*see page 19*).

The out-of-pocket cost for an electric car has increased since 2020 for the Fields household

The out-of-pocket cost rose from around €10 000 in 2020 for a new Dacia Spring to more than €15 000 in 2025 for a used Peugeot, representing 33% of the Fields household's annual income. It should of course be noted that these models are not directly comparable: one is new with a 27 kWh battery, the other is used with a 50 kWh battery. The increase in the out-of-pocket cost is mainly due to a reduction in aid over the period and to stricter eligibility criteria (environmental rating, withdrawal of aid for used cars). On the other hand, the greater availability of used electric cars helps to reduce investment costs.

EVOLUTION OF THE OUT-OF-POCKET COST FOR THE PURCHASE OF AN ELECTRIC CAR AND A FAST CHARGING POINT FOR THE FIELDS HOUSEHOLD



In 2020, the out-of-pocket cost for the purchase of the Dacia Spring represented 25% of the household's income. In 2025, the out-of-pocket cost for a used Peugeot represents 33% of their income.

Source: Manufacturers' websites for costs and the CEE bonus, Code de l'Energie for aid. The aid programmes are described in the annex.

@I4CE_

THE OUT-OF-POCKET COST FOR AN ELECTRIC CAR HAS INCREASED **SOMEWHAT** IN RECENT YEARS FOR THE FIELDS HOUSEHOLD

Fields household

Financial balance

A key indicator to assess the accessibility of investing in an electric car is the impact on the household mobility budget

For the Fields household, we compare the mobility budget corresponding to the electric car with the budget linked to the use of their petrol car. The budget for the electric car includes repayments – either through a six-year loan or via the social leasing scheme over three years in 2024.

Over 2020-2025, purchasing an electric car increases the Fields household's mobility budget compared with their fully paid-off car

Despite significant fuel savings (around €110 in 2020, €120 in 2025), the Fields household's mobility budget increases with the purchase of an electric car.

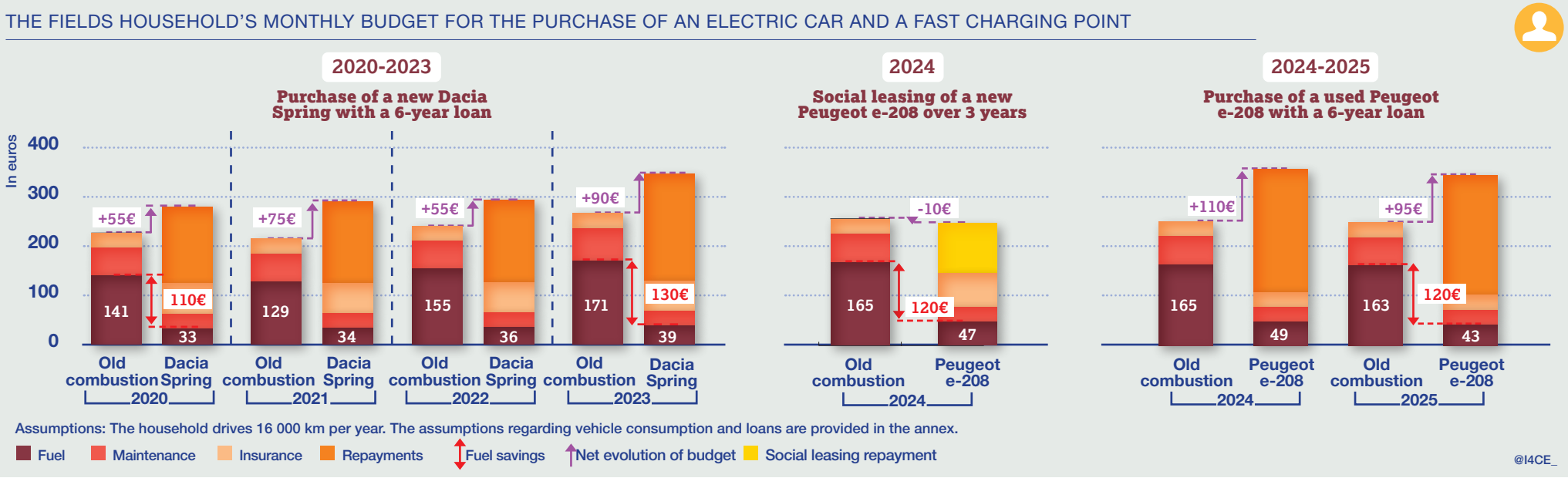
This net increase is €95 in 2025 for the purchase of a used electric car, representing more than a quarter of the household's mobility budget. Even if the household sells their old vehicle to contribute to reducing loan repayments, switching to electric still increases the mobility budget *(see annexes)*.

Only the social leasing scheme would have enabled the Fields household in 2024 to access an electric car while reducing their mobility budget

The social leasing scheme was introduced in 2024 with the aim of providing the 50% lowest-income households with access to an electric car for an affordable lease. In 2024, 50 000 households benefited from the scheme before it was discontinued. It is expected to be reintroduced in autumn 2025, financed through energy savings certificates. The terms are not yet known.

Financing an electric car through the social leasing scheme would have reduced the Fields household's mobility budget by €10 per month. It should be noted that this scheme only made the car available to households for three years, raising questions about long-term access to electric mobility if the scheme is not renewed and the buy-back price – for contracts with a purchase option – remains too high for households.

THE FIELDS HOUSEHOLD'S MONTHLY BUDGET FOR THE PURCHASE OF AN ELECTRIC CAR AND A FAST CHARGING POINT



FOR THE NEWTOWN HOUSEHOLD, AN ELECTRIC CAR WAS CHEAPER TO PURCHASE THAN A PETROL CAR FIVE YEARS AGO, BUT THIS IS NO LONGER THE CASE

Newtown household

Out-of-pocket cost

The extra cost compared to an equivalent combustion engine model: a first indicator to assess the capacity of the Newtown household to invest in electric

The Newtown household owns two cars, which they use daily: a small car and a family car. Their small car is reaching the end of its life and needs replacing. We therefore assess their capacity to invest in an electric car, compared with an equivalent combustion engine model.

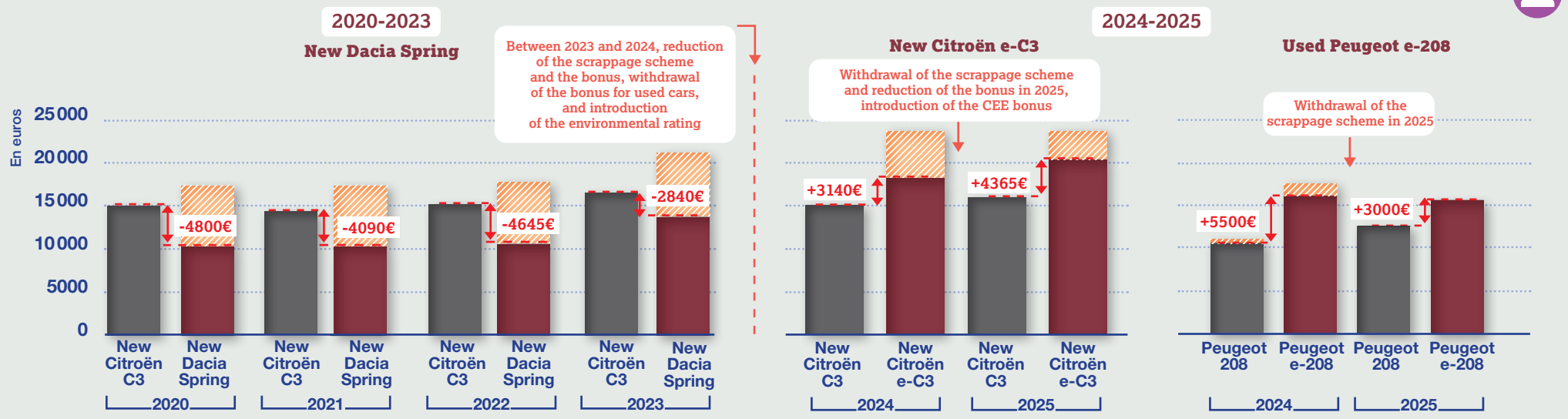
The out-of-pocket cost for an entry-level electric car was lower than the price of an equivalent combustion engine car until 2023

Between 2020 and 2023, the extra cost for the Dacia Spring was negative: thanks to aid, the electric vehicle was cheaper to buy than the combustion engine one. The gap therbetween the price of the combustion engine car and the out-of-pocket cost for the electric car decreased over the period, as the purchase price of the electric model rose more sharply than that of the combustion engine model. It should be noted that the conclusion would have been different for non-entry-level models: the extra cost at purchase for a new standard small car has decreased over the past five years due to the falling price of new small cars, and this would have been the case even for a high-income household receiving less aid *(see annexes).*

Since 2024, the electric car is more expensive to purchase than its combustion engine equivalent, by several thousand euros

With recent changes to purchase incentives – withdrawal of the scrappage scheme, reduction of the bonus, and stricter eligibility criteria (withdrawal of aid for used cars and introduction of the environmental rating) – the out-of-pocket cost for an electric car exceeds the price of an equivalent combustion engine car by several thousand euros, whether new or used.

EVOLUTION OF THE EXTRA COST TO PURCHASE AN ELECTRIC VEHICLE FOR THE NEWTOWN HOUSEHOLD



Source: Manufacturer's websites for costs and the CEE bonus, Code de l'Energie for aid. The aid programmes are described in the annex.

@I4CE_

FOR THE NEWTOWN HOUSEHOLD, SWITCHING TO AN ELECTRIC CAR MEANS IMMEDIATE SAVINGS COMPARED TO A COMBUSTION ENGINE EQUIVALENT

Newtown household

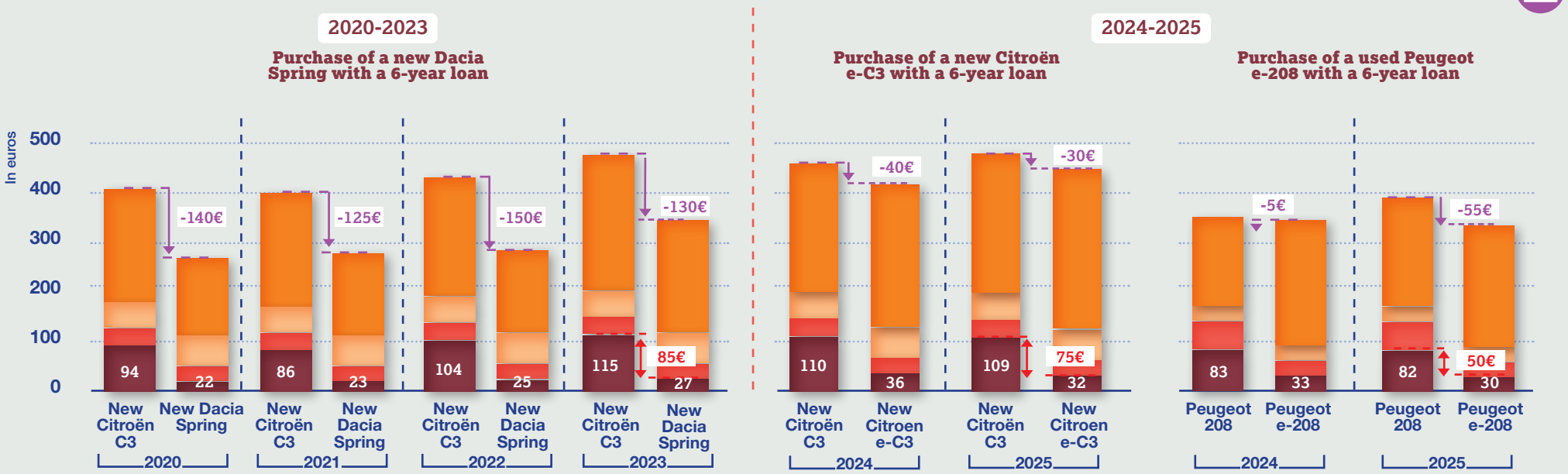
Financial balance

Purchasing an electric car with a loan rather than a combustion engine vehicle has an immediate positive impact on the Newtown household's mobility budget

Between 2020 and 2023, purchasing a Dacia Spring with a loan reduces the household's monthly mobility budget compared to an equivalent combustion engine car, as the out-of-pocket cost for the Dacia Spring is much lower than the purchase cost of the Citroën C3. In 2024, the Newtown household is not eligible for the social leasing scheme. To continue to benefit from aid that is now conditional on the environmental rating, we consider the purchase of the Citroën e-C3. Buying this electric model reduces the monthly budget compared to its combustion engine equivalent. However, this difference narrows in 2025 due to the reduction in aid (*see page 23*). Finally, purchasing a used small electric car also reduces the household's monthly mobility budget.

It should be noted that these conclusions depend on the models considered, and the projected energy savings depend on the kilometres travelled by the household and the evolution of energy prices, which are highly uncertain.

THE NEWTOWN HOUSEHOLD'S MONTHLY BUDGET FOR THE PURCHASE OF AN ELECTRIC CAR AND A FAST CHARGING POINT



Other conditions are necessary to make investments in retrofitting accessible to households. These include the availability of tradespeople to carry out work, and the possibility of taking out a zero-interest eco-loan (Eco-PTZ) – which contributes to the feasibility of retrofitting projects: the long term of the Eco-PTZ (20 years for work eligible under MaPrimeRénov') and its zero rate help households to achieve a financial balance before and after retrofitting (*see pages 14 and 15*).

The number of RGE-certified tradespeople is rising slightly in 2025

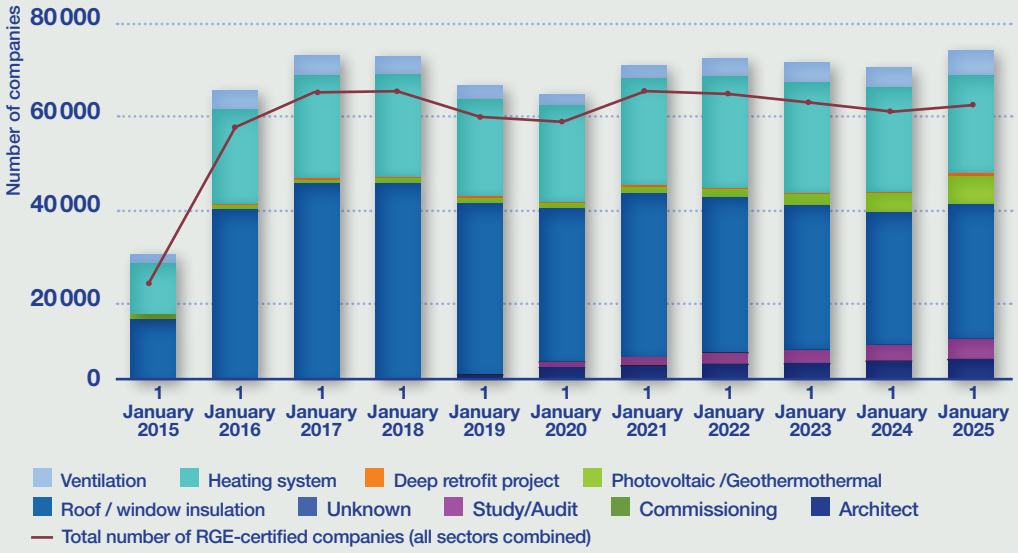
To be eligible for aid, households must use a tradesperson certified under the French government's environmental quality scheme (RGE). The total number of RGE-certified companies has remained fairly stable in recent years, with a slight increase between 2024 and 2025, and now stands at 63000. This number seems sufficient at present given the current number of retrofitting projects, though local shortages may arise *(Cour des Comptes, 2023)*.

Scaling up deep retrofits in line with national targets will require an increase in jobs across the sector. Beyond the issue of tradespeople, making deep retrofits accessible to households also requires a sufficient number of retrofit advisors, to facilitate action and to prevent projects from being abandoned *(ADEME, 2024)*.

More and more Eco-PTZ loans are being issued every year

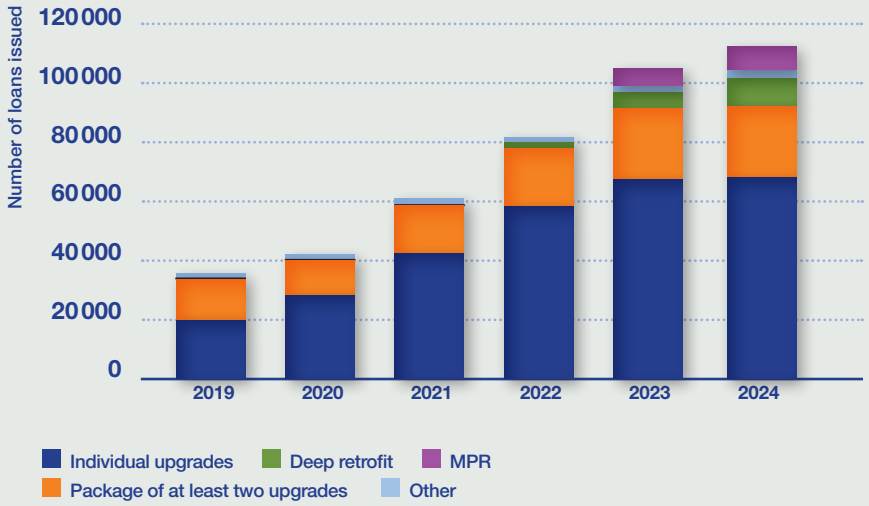
The number of Eco-PTZ loans issued annually rose sharply between 2019 and 2024, increasing from 36000 to 113000. It should be noted that individual upgrades still account for 60% of the Eco-PTZ loans issued in 2024. The share of these loans used to finance deep retrofit works is increasing, but remains fairly low (8% in 2024).

THE TOTAL NUMBER OF RGE-CERTIFIED TRADESPEOPLE IS RISING SLIGHTLY IN 2025



Source: ADEME database "Historique des entreprises RGE depuis 2014", as of 1 January 2025

MORE AND MORE HOUSEHOLDS ARE TAKING OUT ECO-PTZ LOANS TO FINANCE ENERGY RETROFITTING WORK



Sources: SGFGAS 2025, 2024, 2023, 2022, 2021, 2020

@I4CE_

Other conditions are also necessary to make investments in electric mobility accessible to households, such as the availability of electric vehicles on the used market, or of publicly accessible charging points.

Sales of used electric vehicles are increasing, but they still represent a small share of the overall used vehicle market

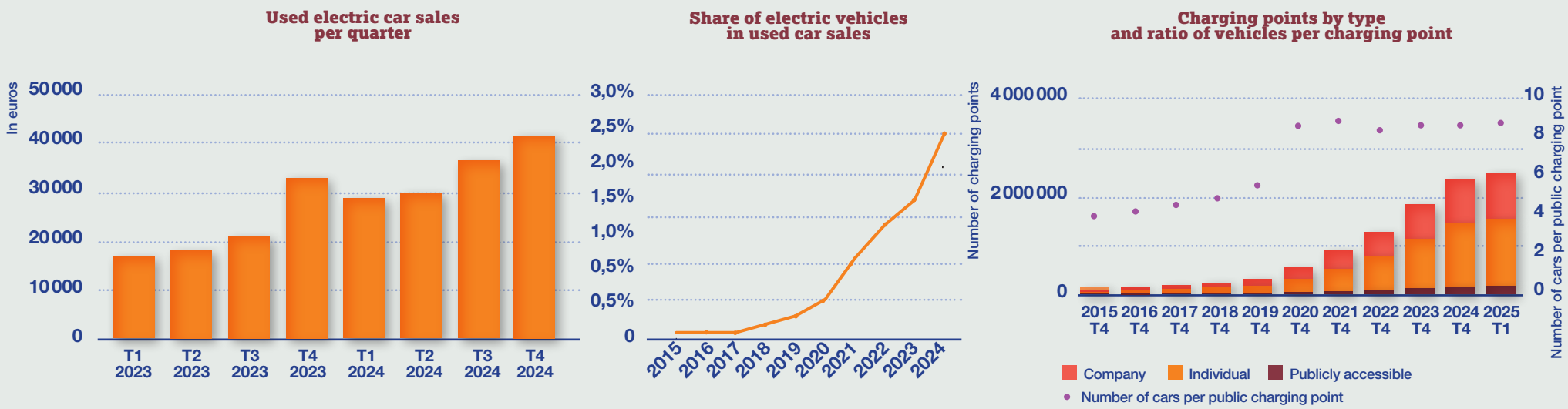
In France, the vast majority of cars are bought used, or 76% in 2024 *(SDES, 2025)*. The availability of electric vehicles on the used market is therefore a key factor in making electric mobility accessible to households. Quarterly sales of used electric vehicles have risen sharply over the past two years, increasing from 17 000 in the first quarter of 2023 to nearly 42 000 in the final quarter of 2024. However, although the share of electric vehicles in used sales has increased in recent years, they still accounted for only 2.5% of sales in 2024.

The number of charging points is increasing, particularly the number of publicly accessible points

Planning strategies include the major rollout of charging points, with a total objective of 3 million points by 2026 and 400 000 publicly accessible charging points by 2030 *(SGPE, 2023b)*. For households that cannot install a home charging point (particularly those living in apartment buildings), and/or for long-distance travel, the deployment of publicly accessible charging points is essential. Their number is increasing, with over 160 000 points available as of the first quarter of 2025. Since 2020, the ratio of electric vehicles to charging points has stabilised at around nine vehicles per charging point. This ratio aligns with the benchmark of one charging point for every ten electric cars in circulation recommended by the European directive on the deployment of alternative fuels infrastructure *(OJ EU, 2014)*.

SALES OF USED ELECTRIC CARS ARE INCREASING, BUT THEY STILL ACCOUNTED FOR ONLY 2.5% OF ALL USED VEHICLE SALES IN 2024

IN THE FIRST QUARTER OF 2025, THERE ARE 2.5 MILLION CHARGING POINTS, INCLUDING OVER 160 000 PUBLICLY ACCESSIBLE POINTS. THE DEVELOPMENT OF THESE PUBLIC POINTS HAS PROGRESSED AT THE SAME PACE AS THAT OF ELECTRIC VEHICLES SINCE 2020



Source: Avere-Mobilians (2025) SDES (2025) and Open Data Enedis, Avere (2025)

@I4CE_

REFERENCES

- Ademe, Anah, ANIL (2015). ***Aides financières 2015. Pour des travaux de rénovation énergétique dans des logements existants.***
- Ademe, Anah, ANIL (2016). ***Aides financières 2016. Pour des travaux de rénovation énergétique dans des logements existants.***
- Ademe, Anah, ANIL (2017). ***Aides financières 2017. Pour des travaux de rénovation énergétique dans des logements existants.***
- Ademe, Anah, ANIL (2018). ***Aides financières 2018. Pour des travaux de rénovation énergétique dans des logements existants.***
- Ademe, Anah, ANIL, Faire tout pour ma rénov' (2020). ***Aides financières. Pour des travaux de rénovation énergétique dans des logements existants.***
- Ademe, Anah, ANIL, Faire tout pour ma rénov' (2021). ***Aides financières. Pour des travaux de rénovation énergétique dans des logements existants.***
- Ademe et France Rénov (2022). ***Les aides financières en 2022.***
- Anah (2019). ***Le guide des aides.***
- Ademe. (2024). ***Financement de la rénovation des logements des propriétaires occupants en précarité***
- Anah (2025, 2024, 2023) ***Guides des aides financières de l'Anah.***
- Avere (2025). ***Baromètre des immatriculations*** (Mars 2025).
- Avere & Mobilians (2025). ***Baromètre trimestriel des voitures électriques d'occasion (VEO) Édition 4e trimestre 2024*** (source : AAA DATA).
- Conseil d'analyse économique (2024). ***Analyse socio-économique de la rénovation énergétique des logements.***
- Cayla, Jean-Michel et Osso, Dominique (2013). ***Does energy efficiency reduce inequalities? Impact of policies in residential sector on household budgets***
- Cler et Negawatt (2023). ***Pompes à chaleur et renovation performante, une combinaison gagnante.***
- CNLE. (2024). ***Faire de la transition un levier de l'inclusion sociale***
- Code de l'énergie. ***Partie réglementaire, Livre II : La maîtrise de la demande d'énergie et le développement des énergies renouvelables, Titre V : Les mesures particulières aux véhicules, Chapitre unique, articles D251-1 à D251-13.***
- Code général des impôts. ***Livre premier : Assiette et liquidation de l'impôt, Première partie : Impôts d'État, Titre premier : Impôts directs et taxes assimilées, Chapitre premier : Impôt sur le revenu, Section V : Calcul de l'impôt, II : Impôt sur le revenu, article 200 quater C.***
- Cour des Comptes. (2023). ***Le soutien aux logements face aux évolutions climatiques et au vieillissement de la population.***
- France Stratégie (2022). ***Les coûts d'abattement. Partie 5 – Logement.*** Rapport de la commission présidée par Patrick Criqui
- I4CE (2022). ***Quelles aides publiques pour la rénovation énergétique des logements ?***
- I4CE (2023a). ***La transition est-elle accessible à tous les ménages ?***
- I4CE (2023b). ***Panorama des financements climat.***
- I4CE (2024). ***Observatoire des conditions d'accès à la transition écologique.***
- Journal officiel de l'Union européenne. (2014). ***Directive 2014/94/UE du Parlement et du Conseil du 22 octobre 2014 sur le déploiement d'une infrastructure pour carburants alternatifs.***
- Ministère de la transition écologique et solidaire. (2020a). ***Stratégie à long terme de la France pour mobiliser les investissements dans la rénovation du parc national de bâtiments à usage résidentiel et commercial, public et privé.***
- Ministère de la transition écologique et solidaire. (2020b). ***Stratégie nationale bas-carbone. La transition écologique et solidaire vers la neutralité carbone.***
- Observ'ER (2024). ***Suivi du marché 2023 des pompes à chaleur individuelles.***
- ONPE. (2024). ***Prêt avance rénovation.***
- SDES. (2024a). ***Achats automobiles en 2022 : moins de motorisations thermiques et des véhicules plus récents pour les ménages les plus aisés***
- SDES. (2025a). ***Données 2024 sur les immatriculations des véhicules***
- SDES. (2025b). ***Données 2024 sur les immatriculations des véhicules (Tableaux communaux).***
- SGFGAS. (2025, 2024, 2023, 2022, 2021, 2020). ***Bilan statistique des eco-PTZ émis en 2023 ; Bilan statistique des eco-PTZ émis en 2022 ; Bilan statistique des eco-PTZ émis en 2021 ; Bilan statistique des eco-PTZ émis en 2020 ; Bilan statistique des eco-PTZ émis en 2019 ; Éco-prêts individuels a taux zero emis en 2024 – 1er trimestre ; Éco-prêts individuels a taux zero emis en 2024 - 2e trimestre ; Eco-prêts individuels a taux zero emis en 2024 - 3e trimestre ; Éco-prêts individuels a taux zero emis en 2024 - 4e trimestre.***
- SGPE. (2023). ***La planification écologique dans les bâtiments.***
- SGPE. (2023b). ***En ligne : Tableau de bord de la planification écologique***, consulté le 13/05/2025.

I4CE is a non-profit research organization that provides independent policy analysis on climate change mitigation and adaptation. We promote climate policies that are effective, efficient and socially-fair.

Our 40 experts engage with national and local governments, the European Union, international financial institutions, civil society organizations and the media.

Our work covers three key transitions – energy, agriculture, forest – and addresses six economic challenges: investment, public financing, development finance, financial regulation, carbon pricing and carbon certification.

I4CE
INSTITUTE FOR CLIMATE ECONOMICS
Une initiative de la Caisse des Dépôts et de l'Agence Française de Développement

www.i4ce.org

INSTITUTE FOR CLIMATE ECONOMICS
30 rue de Fleurus - 75006 Paris

www.i4ce.org
Contact : contact@i4ce.org

Follow us

Création-réalisation : Laëtitia Colas