Climate Report
Research on the economics of climate change

cdc climat research | Caisse des Dépôts GROUP

No. 41 • September 2013

COMBATING FUEL POVERTY: POLICIES IN FRANCE AND THE UNITED KINGDOM

Johan Tyszler[1], Cécile Bordier[2] and Alexia Leseur[3]

The National Debate on Energy Transition in France highlighted issues relating to the social acceptability of the measures in question, and especially the inclusion of fuel poverty. However, the wide range of determining factors for fuel poverty (high energy prices, poor living conditions, and limited financial resources) make it hard to characterise the households involved. Several indicators are available although the defining criterion that is currently used, even though it is disputed, is the allocation of at least 10% of a household's income to expenditure on fuel: in this case, 3.8 million households would be concerned in France, and 4.7 million in the United Kingdom.

Remedying fuel poverty breaks down into two separate areas in France and the United Kingdom: a series of curative measures relating to the payment of bills (income support, affordable fuel pricing, and assistance with solvency in the event of arrears, etc.), and preventive measures relating to improving the insulation in homes.

Although the former measures are desirable in the short term, their effectiveness is limited primarily due to their lack of sufficient coordination, clarity and focus, and due to the fact that they do not address one of the sources of the problem, namely the quality of buildings' insulation. The last point is the focus of energy-efficiency policies, via the National Housing Agency's *Habiter Mieux* programme in France and the Green Deal-ECO programme in the United Kingdom. The first programme targets fuel poverty, while the second has a more general focus. The recent nature of these programmes does not enable us to assess their effectiveness; however, the initial results underline the importance of better identification on the ground and of support for households, especially in France, which is currently introducing measures in keeping with this approach via "single contact points".

[1] Johan Tyszler is the Head of "Fuel Poverty" research at CDC Climat Research - recherche@cdcclimat.com.

[2] Cécile Bordier is Head of the "Cities, Regions and Climate Change" project at CDC Climat Research - cecile.bordier@cdcclimat.com - + 33 1 58 50 74 89.

[3] Alexia Leseur is Head of the "Regional Climate Policies" Research Unit at CDC Climat Research - alexia.leseur@cdcclimat.com - +33 1 58 50 40 30.

ACKNOWLEDGEMENTS

The authors would like to thank all the reviewers for their careful proofreading and insightful comments: Olivier Teissier and Isolde Devalière (CSTB, ONPE), Alain de Quero and Christian Mourougane (ANAH), Rachel Guyet (Ceri – Science Po), Damien Desjonquères (Total Supply & Marketing), Bouchra Zeroual (CLER), Benoit Ringot (Véolia Eau), Claire Levavasseur (2EI), Michel Laviale (Chairman of the ORSE Finance Club) et Patricia Crifo (Université Paris-Ouest – Ecole Polytechnique), and the research team of CDC Climat.

Publication director: Benoît Leguet - ISSN 2101-4663

To receive regular updates on our publications, send your contact information to recherche@cdcclimat.com

Press contact: Maria Scolan - 01 58 50 32 48 - maria.scolan@cdccclimat.com

This publication is fully-funded by Caisse des Dépôts, a public institution. CDC Climat does not contribute to the financing of this research.

TABLE OF CONTENTS

INTRODUCTION

The transition towards a low-carbon society raises a number of questions regarding costs and access to energy resources. These questions are in keeping with growing concerns regarding the increase in fuel poverty, a situation in which households experience difficulties, or even find it financially impossible to pay their fuel bills and meet their essential needs. In fact, fuel poverty was the opening topic at the initial hearings held by the French National Council for Debating Energy Transition[4], thereby underlining the importance of the social challenges posed by this transition. Although the issue of fuel poverty already arises in the absence of reflection on the energy transition, it is reinforced by possible increases in energy prices, and therefore of the associated energy bill. The fight against energy poverty, as a social policy, could conflict with the objectives of climate policies; but the French National Debate on Energy Transition has shown that it will also enable the social acceptability of the policy climate of the country.

The fuel poverty phenomenon was first studied in the United Kingdom, where research began in the 1990s with the publication of the first reference work, *Fuel Poverty* (Broadman, 1991). This initial research gave rise to the official British definition of fuel poverty, which defines a household that allocates over 10% of its income to expenditure on fuel in order to maintain an adequate level of warmth in the home (21 °C in the main living rooms and 18 °C in the others) as being in fuel poverty – in this case, we are talking about a 10 % “needs to spend threshold" (NST). The latest annual statistical report published by the United Kingdom Department of Energy and Climate Change (DECC) puts the number of households in fuel poverty in 2010 at 4.75 million, i.e. around one fifth of the United Kingdom's population.

In France, the Grenelle 2 Law of 12 July, 2010 enabled a legal framework for combating fuel poverty to be established. The law uses the definition of fuel poverty drawn up by the Grenelle Building Plan working group, which was published in 2009: “Any person who experiences specific problems in accessing the power supply required to satisfy their basic needs, due to the inadequacy of their resources or their living conditions, is in fuel poverty” (Pelletier Report, 2009). The latest National Housing Survey conducted by the *INSEE* puts the percentage of French people who have a NST of over 10% at 14.4%, i.e. around 3.8 million households (INSEE, 2006). According to another criterion, namely the “feeling cold indicator”, the number of people in fuel poverty would be slightly different- around 3.5 million. However, the steep increase in requests for assistance with energy bills addressed to voluntary organisations and district and inter-district social services centres over the past three years (UNCCAS, 2013), indicates an increasing number of fuel poor households, primarily due to rising energy prices. The phenomenon is currently said to affect over 5 million households, if we take into account households with an income below the median income (Fondation Abbé Pierre *et al.*, 2013). An ongoing update to the National Housing Survey will enable the statistics to be updated by the end of 2014.

There is no definition, let alone an action plan for fuel poverty at the European level[5]. France and the United Kingdom have nonetheless chosen two similar policies, namely direct financial support for households and improving the insulation in homes. The actions taken in line with both kinds of policy to help the fuel poor face major constraints, i.e.:

- Characterising a household as being fuel poor;
- Defining policies that are appropriate for the various aspects of fuel poverty;
- Identifying households on the ground, and helping them to access existing assistance and schemes so as to ensure better distribution and greater effectiveness of the measures.

[4] Hearings on March 28 and April 11, 2013 : http://www.transition-energetique.gouv.fr/audition-du-conseil-du-debat/le-calendrier-des-auditions

[5] Directives 2009/72/EC and 2009/73/EC regarding the internal electricity and natural gas market require member states to take “appropriate measures to guarantee sufficient protection for vulnerable consumers and ensure [that they are] supplied with the necessary gas and electricity, or assistance with improving energy efficiency”. It is worth noting that each member state is responsible for defining the concept of "vulnerable consumers" and of the “appropriate measures”, which gives European countries a certain amount of independence were combating fuel poverty is concerned.

These questions form the framework of this climate study, which initially examines the determining factors for and the consequences of fuel poverty, and then assesses the solutions provided to the three issues listed above in each country.

I. THE PRIMARY DETERMINING FACTORS FOR FUEL POVERTY

A. Financial resources, living conditions and the price of energy: fuel poverty has many causes

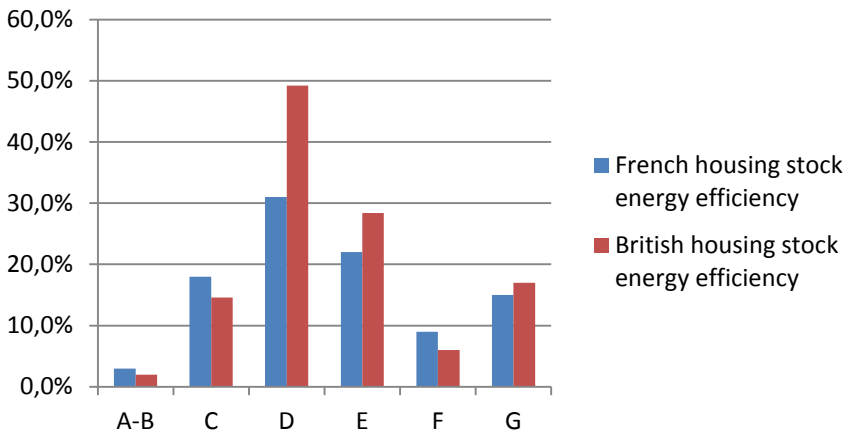
The causes of fuel poverty are many and complex; however the phenomenon can primarily be explained by a combination of several factors, namely i) poor living conditions, ii) the rising trend in the price of various kinds of fuel, and iii) the household's low income level.

Living conditions

Poor energy performance of homes is one of the determining factors for fuel poverty. According to the French National Housing Agency (ANAH, 2008), 77% of homes fall within categories D to G of the French Energy Performance Assessment Certificate. This is due to the fact that these homes were built before the first insulation regulations were issued in 1974.

In the United Kingdom, where the first insulation regulations were issued in 1965, the energy performance levels for the housing stock are less divergent, with fewer homes consuming very large amounts of fuel (Categories F and G) and fewer high-performance homes (categories A and B), as shown in Figure 1. Households living in homes that consume large and very large amounts of fuel are therefore more vulnerable to a rise in fuel prices.

Figure 1 – Energy performance in the French housing stock in 2007 (blue), and in the United Kingdom housing stock in 2011 (red)



Notes: The methods used to calculate energy performance certificates in France and the United Kingdom are not the same. For example, the A category in the French Energy Performance Assessment (EPA) indicates an energy consumption level that is lower than 50 kWh for each square metre of floor space. The assessment's British equivalent, the Energy Performance Certificate (EPC) is based on a points system ranging between zero and 100, where 100 points represent the maximum performance level.

Source: ANAH, 2008 and DCLG, 2013

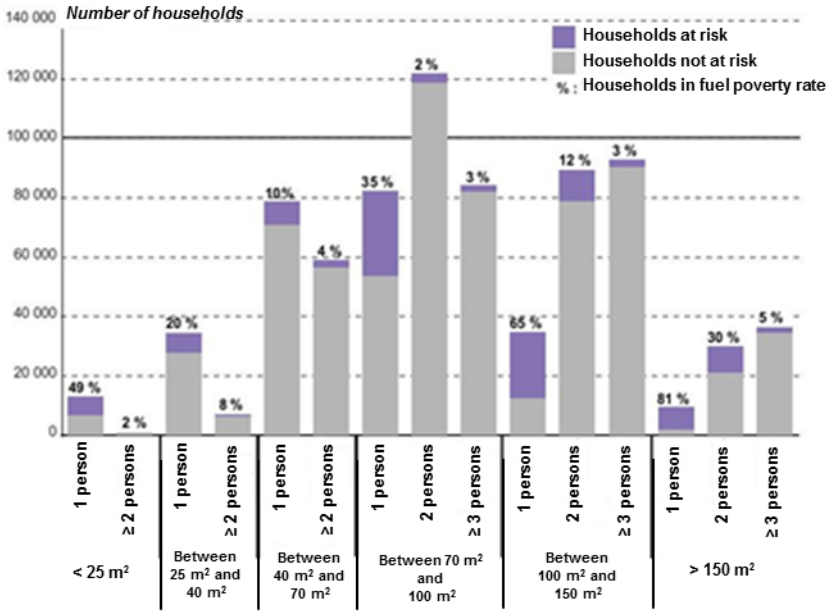
The kind of fuel used to heat the home is also a determining factor for a household's fuel bills, as heating is the main fuel expenditure item, which accounts for 65% of the housing stock's fuel end-consumption, and for around 50% of housing energy bills[6]. The *French National Institute for Statistics and Economic*

[6] ADEME, Strategy for using energy in a rational manner: buildings, 2005.

*Studies (*INSEE*)* estimates that the cost of heating a home with heating oil is around 28% higher than heating it with electricity, based on identical kinds of accommodation and household (INSEE, 2006a).

Other factors to take into consideration include the size of the home, which is positively correlated to the fuel bills and to the number of people living there. Recent studies have underlined a preference for detached homes, as well as sociological and demographic factors (an ageing population and a surge in divorces, etc.) that are contributing to a rise in the number of people living alone, which has doubled since the 1960s. Figure 2 sets out the results of a study performed in the Poitou-Charentes Region, the conclusions of which can be projected on a national scale. The figure shows that people living alone are most affected by fuel poverty, and that this is especially true if they occupy a large floor area.

Figure 2 – Level of fuel poverty according to the size of the home and of the household



Note: study performed on a sample of 155,000 households in the Poitou-Charentes region.

Source: INSEE, AREC, 2012

The location of the home may also have a material impact on a household's fuel bills. Suburban and rural areas usually combine the most aggravating factors, such as the poor quality of the insulation in a home, which is most often a detached house that is harder to heat, less straightforward access to centralized energy supply (gas, and collective heating networks, etc.), as well as higher fuel spending due to transportation issues. The last item is significant: the average cost of fuel for a private car was estimated at €1,650 (excluding maintenance expenses10) in 2006, compared with €1,450 per year for housing-related fuel bills (INSEE, 2006a). In 2012, the average fuel costs for housing and transportation – related fuel costs amounted to €1,502 and €1,702 respectively (CGDD, 2012).

---

[7] See for example, The Office of the French Commissioner General for Sustainable Development, *Préférence des ménages en matière de logement (Households' Accommodation Preferences), March 2013.*

[8] French Social Monitoring Agency, *Trend*s, January 2012.

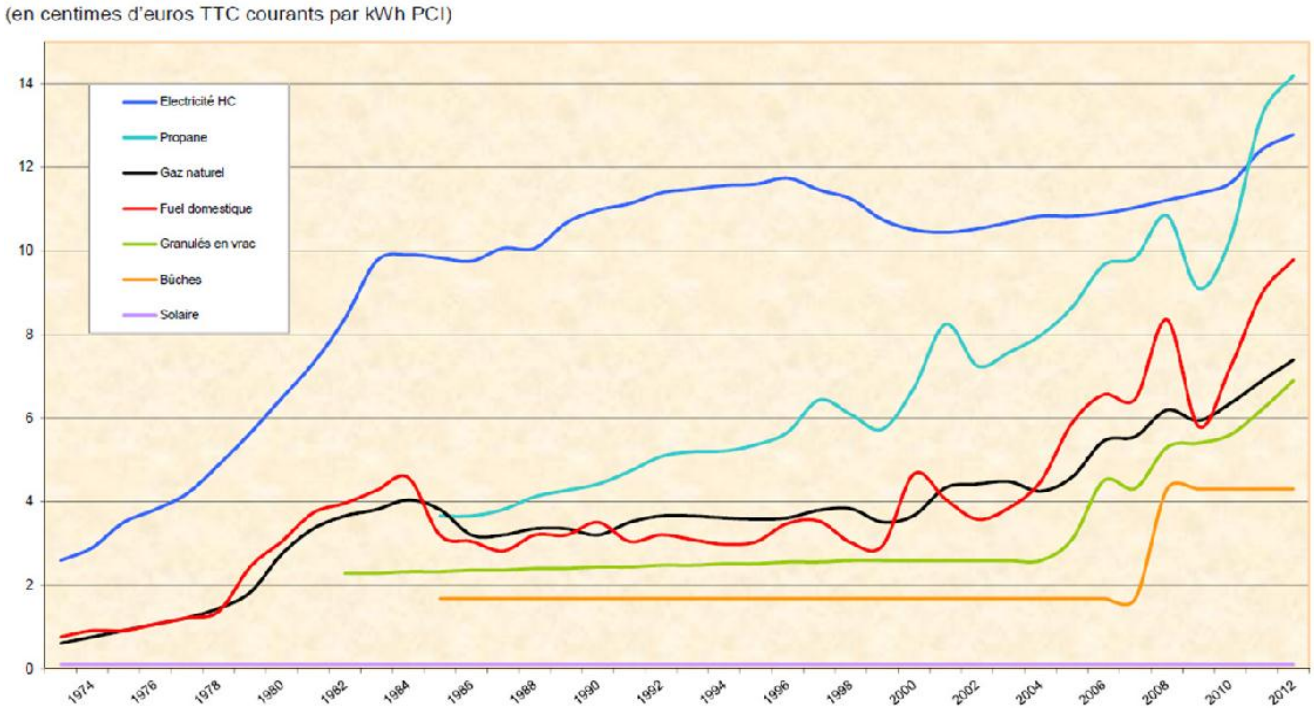
[9] "Depending on the fuel source, detached homes consume between 10 and 50% more heating oil than homes in apartment buildings", C. Raux and JP. Traisnel*, Habitat et déplacement dans les aires urbaines. Impacts énergétiques et environnementaux de la croissance urbaine*, (Housing and transportation in urban areas; the impact of urban expansion on energy and the environment) 2007.

[10] The average total cost associated with the use of a private car in France (including fuel, insurance and maintenance expenses etc.) was estimated at €6,049 in 2012 (Automobile Club Association, 2013).

The rising price of fuel

Spending on fuel is obviously tightly correlated to the price of fuel. As shown in Figure 3, the price of domestic fuel has increased sharply over the past few decades, and the trend has accelerated since 2010: the average increase, across all fuel sources was 12.3% in 2011 and 5.2% in 2012 compared with 1998, which has been selected as the benchmark year (*INSEE*, 2013). The direct impact of this trend is the increasing risk of households being exposed to fuel poverty.

Figure 3 – Price of domestic fuel in France between 1974 and 2012



Source: ADEME, DECC, 2013

Notes: electricity including the service contract (off-peak hours); 33 cm beech logs; average French domestic heating oil price; and natural gas including service contract.

Where future trends are concerned, however, it is extremely hard to forecast the evolution of prices, given that the factors involved are varied and complex, and include economic growth in emerging countries, the geopolitical energy context, a emergence of non-conventional fossil fuels, and price volatility, etc. A global consensus on a generalised increase in fuel prices over the longer term is nonetheless emerging.

In the case of electricity, the situation in France is characterised by relatively low prices, which are around 30% below the European average, primarily due to the dominant position of nuclear power in the energy mix. Several factors are expected to lead to an increase in the price of electricity over the long term, including the deregulation of the European market, the cost of investing in electrical networks, and the development of renewable energy. According to a report on the costs of the nuclear power industry issued by the French Court of Auditors on 31 January 2012, the decommissioning of nuclear power plants and the management of radioactive waste could result in additional costs that remain hard to quantify. In addition, a report by the French Senate (Desessard, 2012), and a more recent report from the French Energy Regulation Commission (CRE, 2013) concluded that a 30% increase in the price of electricity will be required by 2017. On 9 July 2013, to cover the costs incurred by EDF, the French Government announced a 5% increase in the regulated electricity tariffs charged to 28 million EDF customers as from

[11] The report described the uncertainty relating to the long-term management of radioactive waste and to the decommissioning of power plants, where it is likely that the costs have been underestimated.

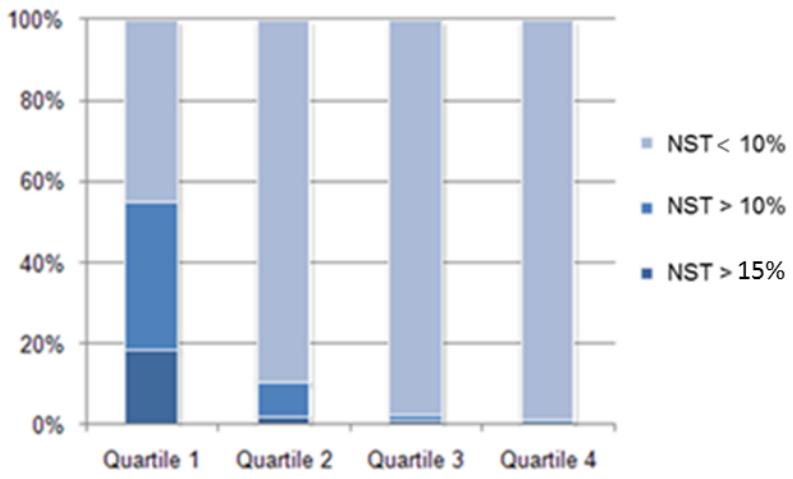
[12] Forward-looking assessment based on the average bill excluding tax, including the Contribution to the Public Electricity Service (CSPE), and based on the "blue" residential tariff.

August 1 of the same year, i.e. an average increase of €50 in the electricity bill for a household with electric central heating, and of €35 for other households. The Government has also suggested a similar increase in August 2014. Conversely, small consumers will benefit from a reduction in the cost of low electrical-power contracts, which apply to 80% of the French population.

A low income level

Fuel poverty primarily affects the poorest households: half of the people who make up the poorest 30% of the French population are considered to be in fuel poverty. Moreover, the current financial downturn is exacerbating the impoverishment of the population by hitting the lowest income categories hardest. These income inequalities are accompanied by increasingly unequal spending on fuel, i.e. the portion of the household budget allocated to expenditure on fuel, which is particularly high in poor households (see Figure 4).

Figure 4 – Spending on fuel according to living standards in 2006



Notes: living standards are classified by quartile (from Q1, i.e. the poorest 25% of households, to Q4, i.e. the wealthiest 25% of households). 36.5% of households in the first quartile spend over 10% of their total household budget on fuel, while 18.5% spent over 15% of their household budget on fuel.

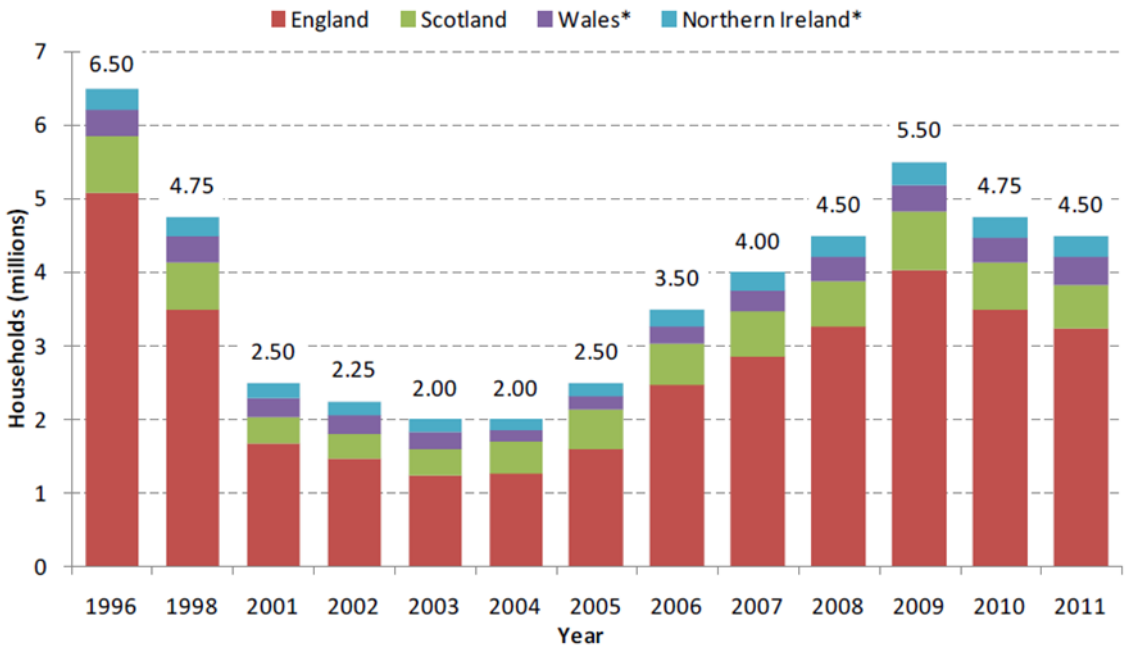
Source: INSEE, 2006b

In addition, the heating solutions chosen by the poorest households have a negative impact on their spending. In fact, heating oil, which provides central heating for 4.5 million French households, is a common source of energy for many poor households, who can smooth their consumption by purchasing small quantities of oil, despite the higher overall end cost. Likewise, electric heating units, which are not very expensive, are extremely energy intensive. However, investing in more cost-efficient heating solutions or in improving the energy efficiency of their home is beyond the reach of most people in fuel poverty.

The United Kingdom saw a fall in the number of households classified as having an NST of over 10% between 1996 and 2003, mainly due to the fall in fuel prices, which coincided with an increase in wages, as well as to the introduction of in-home energy efficiency measures (as described in Section III). The trend reversed between 2004 and 2009, following price increases of around 75% for electricity and of around 122% for gas. Lastly, the reversal of the trend between 2009 and 2011 was due to an increase in income and to energy efficiency gains that offset the increase in energy prices, as shown in Figure 5 (DECC, 2013).

[13] This proposal for a two-stage increase in tariffs must be approved by the French Energy Regulatory Commission and by the French Higher Energy Council.

Figure 5 – Number of households in the United Kingdom with a NST of above 10%



Source: DECC, 2013.

Box 1 – Financial poverty and fuel poverty

At first, fuel poverty appears to be no more than one expression of financial poverty, as the poorest members of society are also usually those who occupy energy intensive homes that are far from service areas, and do not have sufficient resources to handle a surge in energy prices. The United Kingdom data enable us to challenge this assumption: around one quarter of the 1.5 million households in fuel poverty in 2005 (i.e. with a NST of 10%) were not poor households (with an income of less than 60% of the median income). Conversely, one third of the 2.4 million poor households were not in fuel poverty.

Financial poverty can be identified as one of the main causes of fuel poverty, but it is not the sole explanation. In fact, fuel poverty raises issues like the relationship with housing, in-home comfort, increasing energy prices and urban development policies.

This means that a policy aimed at reducing financial poverty cannot in itself provide an appropriate solution to the issue of fuel poverty, which involves other variables that go beyond the income received by the household on a stand-alone basis.

Source: CDC Climat Research based on Palmer et. al.

B. The consequences of fuel poverty

One of the first consequences of fuel poverty is that it leads a household to make choices, and to forego spending on various needs, including heating, food, healthcare and education, etc.

The consequences for health have been studied in particular detail. For instance, households have a higher risk of being exposed to cardiovascular illnesses, to respiratory diseases, and to poisoning primarily because of damp conditions or the inhalation of pollutants due to the use of inappropriate

heating solutions and to going without heating. British studies on the health consequences of fuel poverty have emphasised the correlation between excessive death rates in winter and the quality of home insulation (Marmot Review Team, 2011). In France, an initial assessment launched in the Hérault Department by the Fondation Abbé Pierre shows that the fuel poor are relatively more exposed to health problems (respiratory illnesses and winter illnesses, etc.) than people who are not in fuel poverty, primarily due to their poor living conditions (Fondation Abbé Pierre, 2013).

In addition to the impact on health, a number of other consequences may appear that are related to increased tiredness and stress due to the cold, which may have a psychological impact on fuel poor households in both their social and professional lives (inability to concentrate, depression, and problems at school, etc.).

II. CHARACTERISING AND MAPPING THE MULTIPLE FACES OF FUEL POVERTY

Since fuel poverty has causes that are socioeconomic (households' financial situation and lack of information), technical (quality of buildings and facilities' insulation) and geographical (rural and suburban areas), it is extremely multi-dimensional.

To deal with the issue in an effective manner, public policies will therefore need to factor in the diverse nature of fuel poor population groups. The effectiveness of such policies will therefore rely to a significant degree on preliminary work based on:

- Characterising the various forms of fuel poverty, and drawing up the resulting estimates, in order to develop appropriate policies. In addition, the indicators must be reliable and accurate enough to assess changes in the phenomenon following the implementation of policies.
- The actual identification of households in fuel poverty, in order to target the right population groups and steer them towards appropriate policies.

This section will deal with the first point, while the following sections will deal with drawing up appropriate policies and effectively identifying and supporting the population groups involved.

A. Characterising the fuel poor: the indicators currently used in the United Kingdom and France

The needs to spend threshold (NST): a primarily financial description

The 10% needs to spend definition, i.e. the portion of a household's budget allocated to spending on fuel, has been the official gauge for fuel poverty in the United Kingdom until 2013. It is also used in France when processing National Housing Surveys[14]. According to this financial definition, 3.5 million households in the United Kingdom and 3.8 million households in France were in fuel poverty in 2006.

Brenda Boardman first adopted this threshold in 1991. She started from the observation that the poorest 30% of households spent 10% of their income on fuel on average, i.e. twice the median spending in the United Kingdom, a threshold beyond which fuel costs are considered as “excessive”. This indicator therefore enabled the households concerned to be identified for the first time, and the trend in the phenomenon to be monitored over time, based on easily accessible data (fuel costs and income) that were updated by national statistical surveys on a regular basis.

This definition has a number of limitations:

- It includes a certain number of wealthy households that occupy large homes with substantial heating costs, or that use electrical appliances that are relatively energy inefficient[15];
- It excludes households that go without heating, which means that the portion of their income devoted to fuel is below the 10% threshold. In France, the *Phébus* Public Enquiry conducted by the Ministry of

[14] In this regard, see the way in which the ANAH processed the 2006 NHS data, and Isolde Duvalière’s work on fuel poverty.

[15] In this case, the Queen of England would be in fuel poverty (The Guardian, 2013).

the Environment, the results of which are expected in late 2013, will enable a comparison between households' theoretical spending on fuel and the amounts on their bills. We will then be able to draw up a “restriction indicator” in order to calculate the difference between the theoretical bill and the actual bill, so as to quantify the percentage of households that are in a situation where their use of fuel in the home is restricted.

- It does not accurately capture the impact of fuel prices rising faster than household incomes. For instance, an individual who earns an annual salary of €20,100 and must meet fuel costs of €2,000 does not, therefore, have a needs to spend level of over 10%, and is therefore not considered to be in fuel poverty. If the price of fuel and that individual's salary increase, and if their annual expenditure on fuel then amounts to €2,200 per year, while their income amounts to €21,100, they will be in fuel poverty, even though the €1,000 increase in their net income is much higher than the €200 increase in their expenditure on fuel.
- The definition does not take households’ non-discretionary expenditure into account, especially their expenditure on housing. Home-owner households that have no housing costs are less negatively affected if they dedicate a substantial percentage of their income to fuel than households that are first-time buyers, or tenants who need to spend a significant proportion of their income on housing.
- Furthermore, the 10% threshold is based on an amount that is double the median expenditure on fuel recorded during the 1988 United Kingdom Family Budget Survey. The British Government used this threshold in the 2001 Fuel Poverty Strategy, and it has not been reviewed since, even though the median spend on fuel has changed. Where France is concerned, the threshold has not been adjusted for situations where expenditure on fuel is considered as excessive in a French environment.
- In addition, and on the same basis as the definition included in the French Grenelle 2 law, it does not take into account vulnerability related to transport, i.e. difficulties in obtaining the fuel supply required to satisfy transportation requirements (which are also partly determined by the location of the home). Recent studies (IDDRI, 2012) and (Crédoc, 2013) insist on the need to include the transportation dimension in the definition, so as to provide a more accurate overview of a household's expenditure on fuel.

The declarative method: feeling cold

To deal with the second limitation of the NST indicator, fuel poverty can be assessed using a method that is known as the “declarative” or “subjective” method. This method consists in asking a sample of households directly if they have problems heating their home or if they felt cold during the winter, for instance. In France, 3.5 million households answered the question “did your household suffer from the cold at home during at least 24 hours last winter?” affirmatively in the 2006 National Housing Survey. However this way of measuring remains subjective.

Is the Hills & LIHC indicator a more accurate definition?

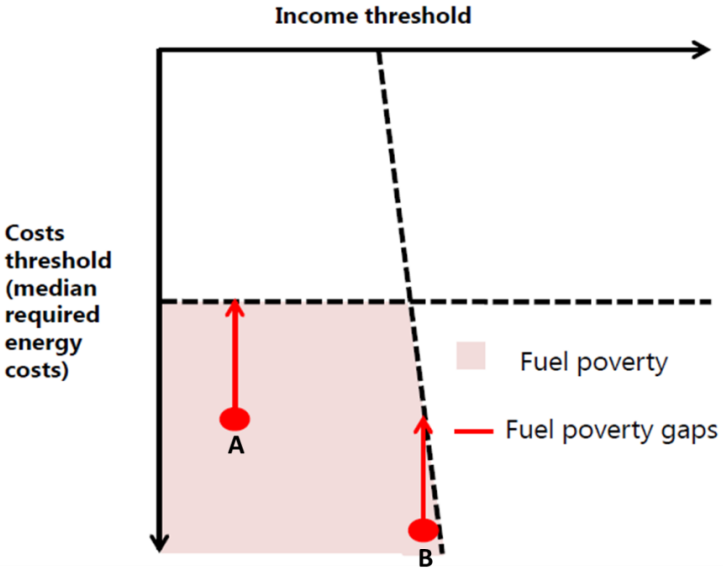
Given the drawbacks of the previously mentioned indicators, Professor John Hills, the Director of the Centre for Analysis of Social Exclusion at the London School of Economics, suggests describing a household as being in fuel poverty when two conditions are met (Hills, 2012):

- The fuel costs for the household are higher than the national median level, which is defined as the “reasonable cost” threshold required to achieve an appropriate level of comfort (21 °C in the main rooms and 18 °C elsewhere).
- The income available to the household is below the poverty threshold, which is set at 60% of the national median income after deducting housing costs (rent, and mortgage repayments, etc.) and fuel costs (electricity bills, etc.).

This definition, also referred to as the LIHC (Low Income High Costs [LIHC]), is supplemented by another indicator that enables the severity of a household's fuel poverty to be assessed. The fuel poverty gap, as indicated by the red vertical arrows in Figure 6, measures the reduction in fuel costs required to lift a household out of fuel poverty, as well as the causes of the problem. According to this definition, 2.6 million households were in fuel poverty in the United Kingdom in 2011. The aggregate fuel poverty gap for all UK households in fuel poverty was estimated to be £1.15 billion in 2011.

This definition was recently adopted in France under the *BRDE* (*bas revenu dépenses élevées)* acronym, as part of the work performed by the National Fuel Poverty Monitoring Agency. Figure 7 shows the results for the LIHC indicator in France. By basing its calculations on the 2006 National Housing Survey, the Monitoring Agency was able to determine that the fuel poverty rate in France was 11.3%, or 3 million households[18] (ONPE, 2013).

Figure 6 – Characterisation of fuel poor households based on their income and their expenditure on fuel



Notes: The coloured section represents the percentage of the population above the reasonable fuel costs level (horizontal line) and below the poverty threshold (vertical line). The length of the red arrows shows the household's margin of manoeuvre in terms of lifting itself out of fuel poverty (known as the fuel poverty gap") based on constant income, and therefore shows whether the household's situation is due more to its expenditure on fuel than to its resources (see Household B which is facing very high fuel costs, but where the income is close to the poverty threshold).

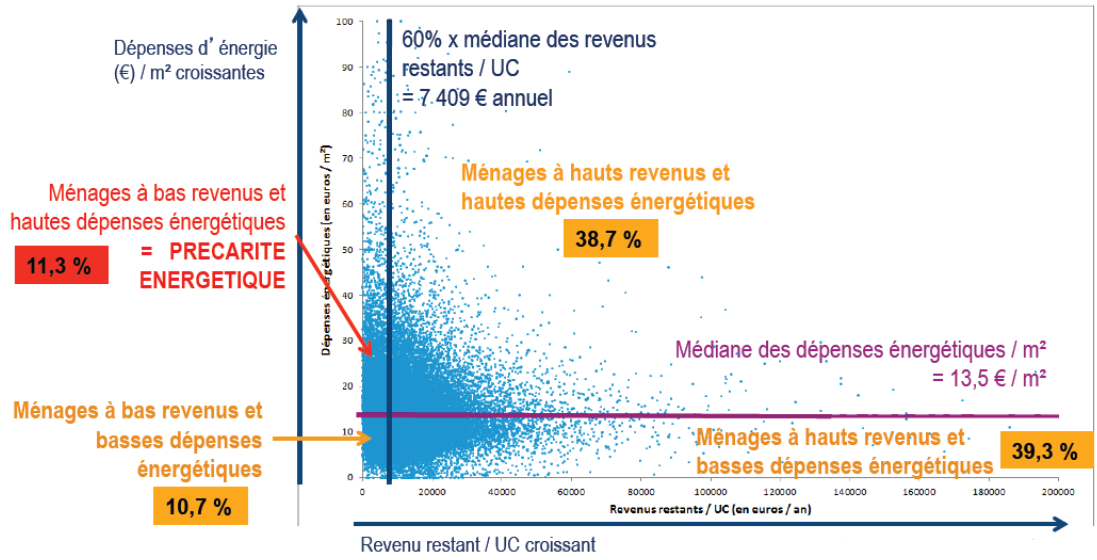
Source: John Hills, Getting the measure of fuel poverty, 2012

[16] It is worth noting that the *BRDE* indicator is not an exact transposition of Hills' definition: The methods for calculating fuel and power costs differ significantly (especially in terms of including the number of m^2 of floor space in the fuel and power cost weighting method).

[17] The French National Fuel Poverty Monitoring Agency (ONPE) was founded on 1 March 2011. Its main aim is to increase understanding, and to monitor the phenomenon and the households involved, primarily through the statistical processing of databases and through designing monitoring tools (performance indicators, and maps, etc.), as well as to monitor and assess policies for combating fuel poverty. The ONPE is chaired by Jérôme Vignon, and is jointly financed by ADEME, EDF, GDF SUEZ, the French National Energy Mediator, and the Social Housing Federation; it includes both power companies and voluntary organisations. The ONPE enables discussions to take place between these players, in the form of workshops, in order to discuss issues relating to fuel poverty and to make recommendations aimed at monitoring the phenomenon and adjusting the tools to combat it.

[18] According to this indicator, 2.57 million households were in fuel poverty in the United Kingdom in 2011.

Figure 7 – Results for the LIHC indicator in France



Notes: fuel costs (ordinate axis) are in increasing order in this chart. They were shown in decreasing order in Figure 6. UC = unit of consumption.

Source: ONPE, 2013

Box 2 – Comparison between data in France and in the United Kingdom

A household's spending on energy in the home can be estimated in two ways:

- By recording the real costs through energy bills;
- By modeling the theoretical costs, depending on the characteristic features of the accommodation, climate, and household.

The United Kingdom gathers the data required to model household's theoretical energy consumption in the home every year as part of the *English Housing Survey*. These theoretical data therefore enable the United Kingdom Department of Energy and Climate Change to publish a statistical report on fuel poverty every year (*Annual Report on Fuel Poverty Statistics*), and to monitor changes in the phenomenon on an ongoing basis.

France does not perform studies that are similar to the *English Housing Survey* on a regular basis, and does not have sufficient data to model theoretical expenditure on fuel in the home. In fact, French fuel poverty statistics are based on the *INSEE*'s National Housing Surveys, which are carried out every six or seven years; these surveys enable real data from households' bills to be gathered. This is why the current French data on fuel poverty dates back to the last National Housing Survey in 2006, as the next survey is scheduled for late 2013.

Source: CDC Climat Research, CSTB.

The advantage of the LIHC indicators resides in their ability to highlight the severity of the fuel poverty issue, by distinguishing between the impact of fuel costs and of the household's financial resources. They therefore enable a distinction to be made between policies that are specifically dedicated to tackling fuel poverty, and more general policies dedicated to combating financial poverty. The fuel poverty gap is shown by a vertical arrow in Figure 6, since a policy for combating fuel poverty, in the strict sense of the term, aims to reduce fuel costs in order to reach a "reasonable fuel cost" threshold. A horizontal arrow would represent an increase in income, and therefore a policy to reduce financial poverty.

However, the Hills indicator also has its limitations. First, it does not take transportation-related costs into account. In addition, as shown in Figure 7, the indicator automatically excludes 10.7% of households

because their fuel costs are higher than the median expenditure on fuel, even though they are below the poverty threshold. In relation to this, Moore (2012) has suggested another method to achieve this aim, which is based on the concept of residual income and minimum decent income, as summarised in Box 3.

Box 3 – Moore's indicator

To describe situations of fuel poverty as accurately as possible, the French National Poverty and Social Exclusion Monitoring Centre (ONPES) recommends an approach that includes all so-called "non-discretionary" expenditures (i.e. rent, fuel, light and power in the home, transportation expenses, healthcare, education and taxes, etc.), in order to define a genuine "residual" income. The ONPES is currently trying to define a "standard minimum income" (SMI) or "decent minimum *income*", i.e. the income required to live properly in current society, through these various concepts.

The United Kingdom is already in a position where it can define the decent minimum income relating to each kind of household and its location. Richard Moore then suggests comparing the actual household data (income, and the cost of housing, fuel and power) collected by the national housing surveys (NHS) with a theoretical SMI (which covers all non-discretionary expenditures, except the cost of housing and fuel). Mathematically, a household will be described as being in fuel poverty where:

$$\textbf{Fuel expenditure}_{NHS} > \textbf{Income}_{NHS} - \textbf{Housing costs} - \textbf{SMI}$$

According to Moore's definition and to that used in the 2008 United Kingdom Housing Survey, around 5.5 million households are in fuel poverty in the United Kingdom, i.e. only have the means to pay their fuel bills if they cut back their spending on other items.

This method cannot currently be applied in France, as the ONPES' work on defining an SMI is not yet complete. Moreover, the definition of an SMI requires understanding a home's theoretical fuel requirements, i.e. data that will be available following the *Phébus* Public Enquiry (2013).

Sources: CDC Climat Research, based on Moore, 2012.

B. Comparing and using the indicators

Table 1 summarises the results of the various indicators for the situation in France, so as to compare the various target population groups.

Table 1 – Comparison between fuel poverty indicators in France

	NST >10%	NST > 10% for the first three deciles	Feeling cold indicator	LIHC indicator
% of households concerned	14.4%	11.0%	14.8%	11.3%
Number of households concerned	3,800,000	2,900,000	3,500,000	3,000,000
Number of individuals concerned	6,700,000	4,600,000	n.a.	7,200,000
Standard profile for each indicator	➢ Household: single owner, not in employment ➢ Housing: old, detached home ➢ Location: rural.	➢ Household: single tenant, not in employment ➢ Housing: old, small-to-medium sized ➢ Location: small districts, and large cities	➢ Household: tenant, not in employment ➢ Housing: old, small-to-medium sized, electric heating ➢ Location: large cities	➢ Household: tenant, family with children ➢ Housing: more large homes, electric and collective heating systems ➢ Location: urban units of > 20,000 inhabitants

Source: CDC Climat Research, based on ONPE data (2013).

It is interesting to compare the two population groups that arise from the financial and declarative assessments, in order to observe the influence of the indicator selected in terms of the target population groups more closely.

Among the 3.8 million households with a NST of above 10% and the 3.5 million households stating that they suffered from the cold, only 621,000 households meet both definitions. In fact, except for the low income levels in both cases, the NST approach highlights a population group that primarily consists of individuals living alone, unemployed individuals, retirees, and home owners, who usually live in old, or even very old detached homes[19]. Conversely, the feeling cold criterion mainly concerns younger households, tenants, and multi-family homes. Lastly, in terms of geographical distribution, rural districts are more concerned by the 10% needs to spend criterion, while there are more reports of sensitivity to cold in large cities (INSEE and ONPE, 2011). Table 2 sets out the dominant characteristic features of households for both indicators.

[19] As the NST criterion focuses on the first three deciles, and therefore applies to the poorest population groups, it naturally highlights a profile that is slightly different than that underlined by the overall NST criterion, and which is dominated by tenants living in small homes in urban areas.

Table 2 – Households based on the feeling cold indicator

% of households declaring feeling cold		% of households with a 10 % or higher NST	
All households	14,8	All households	14,4
Households belonging to the first quartile	22,0	Households belonging to the first quartile	40,1
Tenants	25,2	Owners	19,5
Aged over 50	19,1	Aged over 60	25,4
Housing built between 1949 and 1975	17,7	Housing built before 1948	20,1
Urban area > 200 000 inhabitants	17,5	Rural municipalities	20,8
Multi-family housing	21,0	Detached housing	17,1

Explanatory note: 25.2% of tenants said that they suffered from the cold; 20.1% of households living in homes built before 1948 have a needs to spend threshold of over 10%.

Source: INSEE, 2011

As for the previous criteria, the comparison of the LIHC indicator with the NST indicator seems to confirm differences between the target population groups. Among the 3 million households that the LIHC indicator classifies as fuel poor, only half are classified as fuel poor according to the 10% NST. Due to the way the first indicator is compiled (primarily as a result of the fuel calculation method), it shows a relatively high proportion of large households (couples with children). Conversely, 13.2% of single households are fuel poor according to the LIHC indicator, compared with 23.1% for the NST indicator, which places more emphasis on the lower income available to single households in terms of fuel costs.

Thus, each indicator highlights a specific kind of fuel poor household, as summarised in Table 1. These differences between population groups are closely linked to the many causes of fuel poverty (financial resources, heating oil, quality of buildings' insulation, and geographical location, etc.), which vary from one household to the next, as well as to the definition criteria:

- Households in rural districts, which are mostly owner occupiers, are characterised by a higher needs to spend level. Indeed, as these households use heating oil more often and have less access to networked power, their average fuel costs are higher than those of households in urban areas. Moreover, rural homes are older and less well insulated, on average, while their floor space is relatively greater. Meanwhile, the average income for rural households is lower than elsewhere (Crédoc, 2013).
- The declarative method specifically highlights tenants, who are especially exposed to the cold as they depend on their landlord's willingness to improve the quality of the insulation of the home that they live in. Moreover, the feeling cold criterion probably recognises households that are not included in the previous definition, such as those in situations where heating is restricted.
- The Hills and LIHC indicators point to larger households (families with children). This is primarily due to the methods used to weight fuel costs according to household type (single person or a large family, etc.) and the habitable floor space.

Public policies that are based on fuel poverty indicators

The implications of these indicators for public policies are relatively significant. Basing the eligibility criteria for a policy to combat fuel poverty on a single indicator would result in inclusion errors (i.e. helping households that are not in fuel poverty) and in exclusion errors (households that are in fuel poverty according to other indicators but are not taken into account) (Dubois, 2011).

For instance, the United Kingdom Department of Energy and Climate Change announced a change of direction in July 2013, when it adopted the Hills indicator as the official definition of fuel poverty, thereby calling into question the historically accepted 10% NST, "in order to ensure that support is targeted towards those who need it most". Such a political choice may have consequences for the target

population groups. This is the case in France, where the eligibility criteria for the *Habiter Mieux* (Better Living) programme, a system that provides assistance with financing the ANAH works (described in Section III), have changed. The criteria were originally based on the needs to spend threshold, which meant that only fuel poor owner occupiers were able to benefit from the programme between 2010 and 2013; however, the programme is now open to landlords and joint owners.

The choice of an indicator is therefore a major political decision, since it determines the way in which policies to combat fuel poverty are targeted, and therefore the allocation of financial resources to one population group rather than another.

C. Mapping fuel poor households

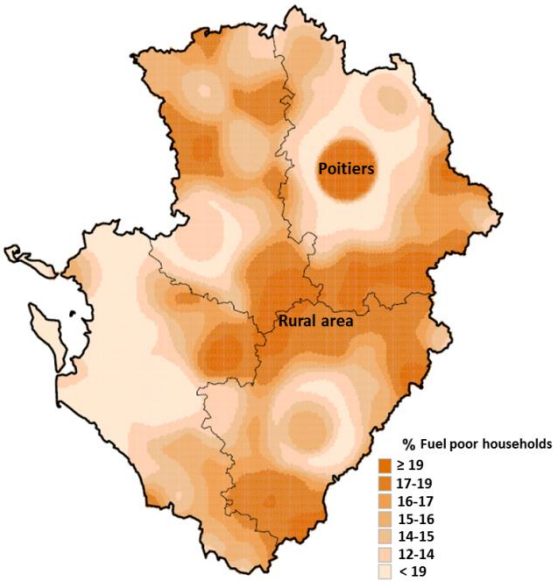
The indicators set out use statistical data, which does not enable us specifically to identify households in fuel poverty. Initiatives suggest mapping the country on the basis of fuel vulnerability, in order to identify households in fuel poverty more accurately, by identifying the priority target areas.

At the regional level

The INSEE and the Poitou-Charentes Regional Energy and Climate Agency conducted a study at the regional level in 2012, using available local data (income, characteristic features of the housing stock, and harshness of the climate, etc.) and models, in order to determine a household's likelihood of being in fuel poverty, using the 10% NST indicator.

Figure 8 maps fuel poverty in the Poitou-Charentes Region, and enables us to identify the theoretical number of fuel poor households and their location. For instance, rural areas are characterised by a relatively higher needs to spend. The City of Poitiers also stands out clearly on the map. This is due to a high proportion of single unemployed households (mostly students) in the city, while its suburbs, which stand out due to a low rate of fuel poverty, are home to relatively wealthier households.

Figure 8 – Percentage of households exposed to fuel poverty in the Poitou-Charentes Region



Source: INSEE, AREC, 2012

At the national level

In France, the aim of the "PRECARITER" tool, which was recently developed by ERDF and Energies-Demain, is to identify fuel poor population groups, this time at the Metropolitan France level. The tool uses

all the available public data that describe all households (housing, taxes, fuel bills, etc.), and so draws up a series of indicators used to describe fuel poverty from various standpoints:

- The housing needs to spend threshold, which corresponds to the previous NST indicator. The PRECARITER tool considers a household as being in a “vulnerable in-home fuel” situation if their housing NST is above 10%.
- The transportation needs to spend threshold, which is the equivalent of the housing NST for daily transportation expenses. A household is in a “vulnerable transportation fuel” situation if it devotes over 10% of its income to non-discretionary expenditure on transportation fuel (travel between home and work).
- The combined overall fuel needs to spend threshold, which is a summary of the two previous criteria.
- The housing needs to spend ratio, which is the portion of available income devoted to housing expenses (fuel expenses, rent, mortgage repayments, and water bills, etc.). The selected threshold for defining fuel poverty is 40%.
- The transportation needs to spend ratio, which is the portion of available income devoted to households’ daily transportation expenses (fuel expenses, and purchasing and maintaining vehicles). The selected threshold for defining fuel poverty is 30%.
- Residual income, which is the difference between available income and all of a household's expenses that are considered as non-discretionary (housing, transportation and other “non-discretionary expenses”). A household is defined as fuel poor if that difference is less than 0.

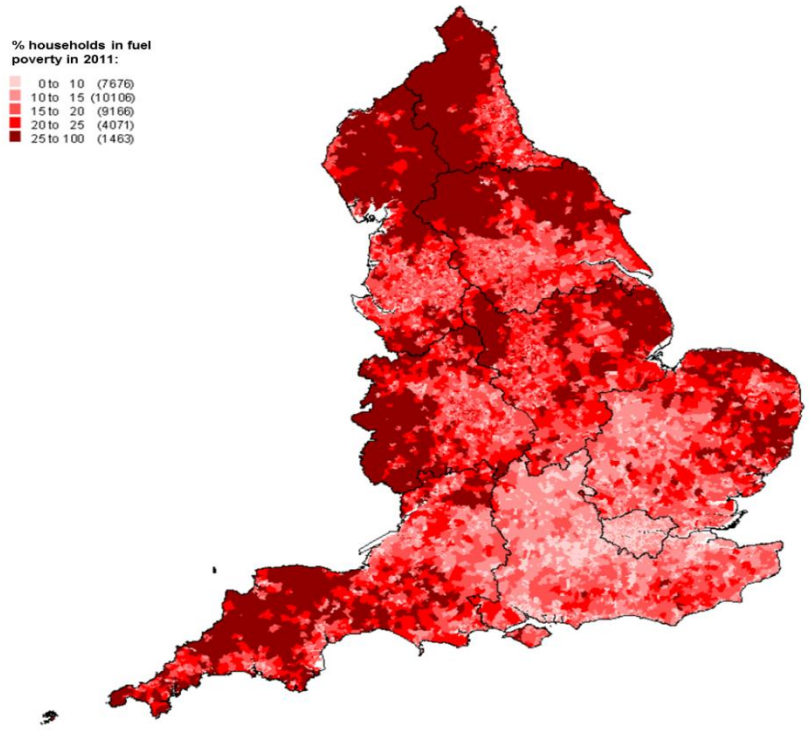
The PRECARITER tool enables us to identify areas at risk, with an accuracy level that ranges from a district or a municipality of around 2,000 inhabitants, up to the national level.

In the United Kingdom, the DECC publishes a map every year based on UK statistical data. This map shows the percentage of fuel poor households, based on the fuel needs to spend definition on the scale of a geographical area of between 1,000 and 3,000 inhabitants.

As shown in Figure 9, London reported a relatively low level of fuel poverty in 2011, due to the higher insulation performance of its housing stock, as well as to a higher level of income per inhabitant than elsewhere. Conversely, the North of England was more exposed, due to its relatively poor housing conditions and to the low income of its households.

The value-added of such tools resides in their capacity to direct the task of identifying the target areas, and therefore making it much easier. However, the development of mapping instruments does not eliminate the need to identify fuel poverty situations, i.e. to identify every household that is actually in fuel poverty, and to help these population groups. This issue is addressed in the final section of this report.

Figure 9 – Percentage of households exposed to fuel poverty in the United Kingdom in 2011

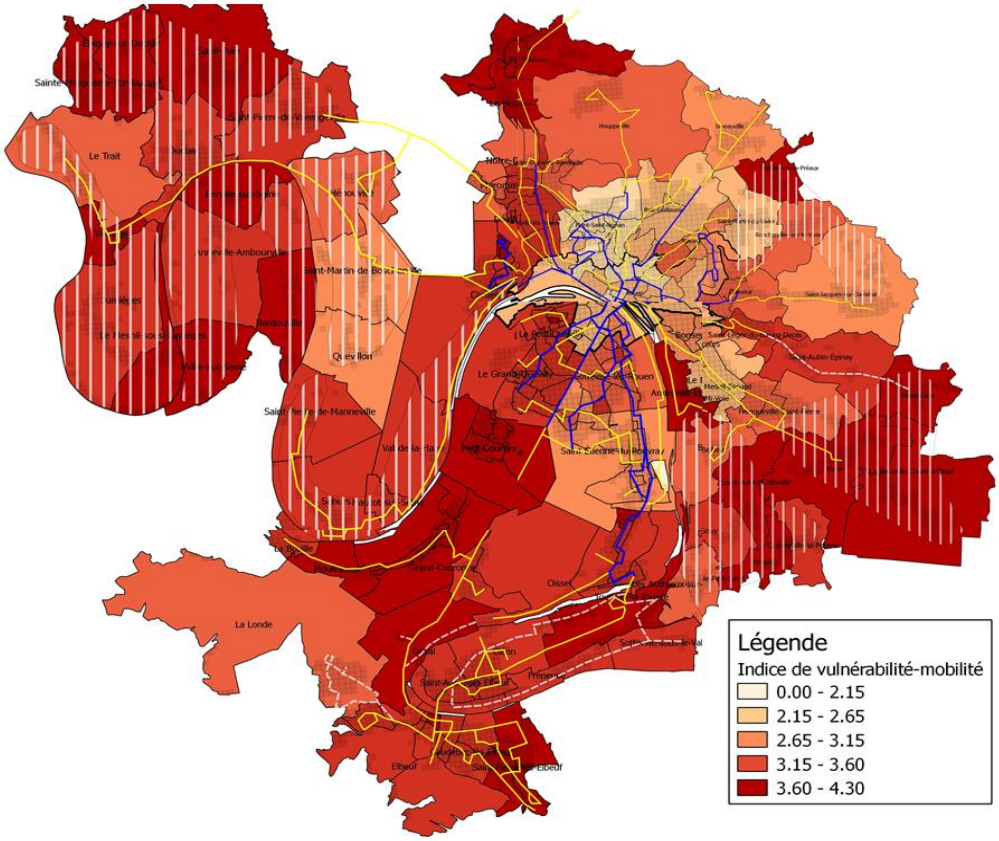


Source: DECC, 2013

Box 4 – Mapping the "vulnerability-mobility" in France

The notion of "vulnerability-mobility" expresses the situation of some households struggling with the accumulated phenomenon of increase in the transportation-related fuel costs and in the commuting distance. These households run an important risk of fuel poverty. Today, nearly 22.5 % of households in the urban areas of French cities allocate over 18% of their income to expenditure on transportation; they are therefore in a "vulnerable transportation fuel" situation (Verry D., Vanco F., 2009). Households most at risk are those belonging to the lower middle classes and living in peri-urban areas.

An example of a mapping tool for diagnosing the risk of vulnerability-mobility of a given territory is presented in the figure below. Developed by 2EI and AZAO in partnership with TRANSDEV, this tool locates the most vulnerable households according to their constraints and mobility practices, the particularities of the territory, and is accompanied by a qualitative diagnosis. The purpose is to develop concrete and adapted solutions, such as alternatives to private car.



Intersection of Vulnerability-mobility with the transport services on the Rouen Elbeuf Austreberthe territory

Sources : 2EI, AZAO et TRANSDEV.

III. PUBLIC POLICIES FOR COMBATING FUEL POVERTY: CURATIVE AND PREVENTIVE MEASURES

In France and the United Kingdom, curative policies that help households to pay their fuel bills are combined with preventive measures, which focus on reducing fuel consumption by improving the insulation of the housing stock. Although the intervention methods and the underlying resources for both kinds of tools are fundamentally similar, they are nonetheless not identical in both countries[20].

A. Curative assistance with paying bills: a disputable efficiency

In the United Kingdom: two kind of public policies

The Warm Home Discount Scheme: assistance with electricity bills

The Warm Home Discount Scheme is an initiative that aims to help two million individuals who find it hard to pay their electricity bills. The scheme received funding of £1.3 billion for the period between 2011 and 2014 from energy companies, which impose a levy on the United Kingdom population's energy bills; the fund provides direct support amounting to £135[21] to two main groups[22]:

- Elderly people on low pensions. 700,000 individuals in this group were able to benefit from the £135 rebate, which was directly deducted from their electricity bill for the period between 2011 and 2012, i.e. a total amount of £84.2 million.
- Vulnerable low-income households[23] (other than the elderly). The eligibility criteria for the second group are set by the power suppliers and approved by the United Kingdom gas and electricity market regulator (OFGEM). 235,000 households within this group received the £135 subsidy for the period between 2011 and 2012 i.e. £28.1 million in total.

As part of this programme, power suppliers can also help these households by offering them various services, such as raising their awareness of environmentally friendly behaviour, and energy efficiency measures, etc. Energy suppliers spent £23.2 million over the period between 2011 and 2012 as part of these initiatives.

The Cold Weather Payment and the Winter Fuel Payment: Government assistance during cold spells

The following two Government grants, which can be combined, were introduced in order to support households' income and to combat winter cold spells more effectively.

- In the event of a major cold spell between 1 November and 31 March, i.e. if the local temperature is below 0 °C during seven consecutive days, the Cold Weather Payment enables low income and vulnerable households to automatically receive a payment of £25 for each seven-day period. 5.8 million payments were made to around 4 million households during the period between 2012 and 2013, for a total amount of £146.1 million (Department for Work and Pensions, 2013).
- The Winter Fuel Payment is granted before Christmas every year to retirees aged 60 or more, in the form of an automatic payment that ranges between £100 and £300. 12.7 million eligible individuals benefited from the programme between 2011 and 2012, at a cost of around £2.7 billion (DECC).

---

[20] This Climate Study addresses policies aimed at reducing households' fuel and power bills (via assistance with paying bills and energy efficiency), which are viewed as similar to policies aimed at combating fuel poverty. More general policies for reducing financial poverty (via income subsidies and social housing policies, etc.) were not examined.

[21] The amount of the discount was set at £120 for the initial period of the scheme (2011-2012).

[22] All the data were drawn from the 2012 "Warm Home Discount Scheme Annual Report".

[23] In the United Kingdom, a "vulnerable" household is a household that contains an elderly person, children, a person suffering from a long-term illness, or a disabled person.

In France: three kind of public policies

Affordable fuel tariffs

Affordable fuel tariffs, i.e. basic needs electricity tariffs (TPN) since 2005 and special social solidarity gas tariffs (TSS) since 2008 are intended for households where the monthly income does not exceed €967 for a single person[24]. They take the form of a reduction in the price of the contract, which varies between 40 and 60% for the TPN, depending on the number of consumption units that make up the household, and according to the consumption band and the number of consumption units for the TSS. At the end of 2012 1.3 million households were covered by affordable electricity tariffs, while 530,000 households were covered by affordable gas tariffs, which amounted to the equivalent of an average annual subsidy of €90 for electricity and of €100 for gas. The scheme budget, which is financed by all customers via the Public Contribution to the Electricity Service (CSPE) and via the Contribution to the Special Social Solidarity Gas Tariff (CTSS), amounts to over €160 million per year (ADEME, 2013).

The fixed-rate expense rebate linked to housing benefit[25]

The French Family Benefit Office network applies a fixed-rate rebate to expenses linked to housing benefit, which is intended for tenants and first-time buyers under certain income conditions (ranging from very low incomes to average incomes). This rebate provides additional assistance with water and fuel bills, which amounts to €51.82 per month for a single person, and to €11.74 for each additional person (French Ministry for the Equality of the French Regions and Housing, 2012). Over 6.1 million individuals were in receipt of housing benefit in 2010, and the total amount paid was €15.9 billion[26].

The Housing Solidarity Fund

The purpose of the Housing Solidarity Fund provided for by the 1990 Besson Law, which is managed by Departmental General Councils and co-funded by a large number of players, including municipalities and social housing landlords, depending on the Department, is to introduce an entitlement to housing. The Fund helps households in arrears with their fuel bills according to eligibility criteria that vary from one department to another. In 2009, the Housing Solidarity Fund provided support to 342,998 households (assistance with fuel bills only) at a cost of over €66 million[27]. Social security funds that provide assistance with controlling fuel consumption, which are generally coordinated with Housing Solidarity Funds, also enable minor home improvement works to be carried out.

Other “extra-legal” funds are provided by voluntary organisations and Central Social Activity Schemes (CCAS) and/or Inter-District Assistance Schemes (CIAS), where energy accounts for 12% of the budget. These schemes provided subsidies amounting to an average of €156 (excluding water and fuel) to 149,500 households in 2011 (UNCCAS, 2013).

[24] New eligibility threshold determined by the Decree of 27 December 2012. The former threshold was €716 for a single person.

[25] Housing benefit may be interpreted as income support (and therefore as aimed at reducing poverty in the overall sense), however we also view it as a curative policy for reducing fuel poverty to the extent that the fixed-rate expense rebate is aimed at covering fuel and power expenses.

[26] National Family Benefit Office, Union of Companies providing In-Home Services Comment: €15.9 million amounts to the total amount of housing benefit, and not specifically to the fixed-rate expense rebate.

[27] MEDDE, DREES calculations.

Table 3 – Summary and limitations of curative assistance in France and the United Kingdom

	France		United Kingdom	
	Affordable tariffs (TPN and TSS)	**Other curative assistance**	**Warm Home Discount**	**Other curative assistance**
Principle	Electricity (TPN) and gas (TSS) contract tariff reductions	Assistance with fuel arrears	Fixed-rate reduction on electricity bills	Automatic payments to households during cold spells
Financing	Fuel customers (via the CSPE and the CTSSG)	Government budget (tax) department and districts	Fuel customers	Government budget (tax)
Eligibility	➢ Annual income below the French basic medical cover threshold, depending on the composition of the household	➢ Individual housing benefit (APL): tenants and first-time buyers under certain income conditions ➢ Social Housing Fund (FSL): arrears ➢ CCAS grants arrears	➢ Retirees in receipt of low pensions are automatically eligible ➢ Other low-income households must contact their fuel suppliers, which set their own stability criteria	> Over 60 and on request
Average amount paid per household	➢ TPN: €90 per year ➢ TSS: €100 per year	➢ APL: €622 (+€140 for each additional person) per year ➢ FSL: €192 per year ➢ CCAS grants: €156 per year	£135 per year	➢ WFP: £100 to £300 per year ➢ CWP: £25 for each consecutive seven-day "major cold spell" period
Eligible households	➢ TPN: 1,300,000 ➢ TSS: 530 000 (December 2012)	➢ APL: 6.1 million (2010) ➢ FSL: 344,000 (2009) ➢ CCAS grants: 149,500 (2011)	2.07 million	➢ WFP: 12.7 million individuals ➢ CWP: 5.8 million
Limitations	➢ Targeting: some fuels are not taken into account, including wood, coal, heating oil (fuel subsidies were withdrawn in 2009); housing benefit is not necessarily granted to fuel poor households, and is calculated independently of the amounts of fuel actually consumed ➢ The amount of the benefit varies according to the Department, where Social Housing Funds is concerned ➢ The affordable tariffs are financed via the CSPE: electricity and gas bills for all households increase: negative impact on struggling households ➢ Low take-up rate due to administrative complexity, and to the lack of coordination and clarity among the various systems. 1.35 million people who are entitled to affordable tariffs do not claim them		➢ Eligibility criteria partly determined by power suppliers ➢ Financed by a levy on households' fuel bills negative impact on struggling households	➢ Targeting: is not specifically intended for fuel poor households, but more generally for so-called vulnerable and low-income households

Notes: (1) affordable tariffs in effect before the passing of the Brottes Law in 2013.

Source: CDC Climat Research based on DECC, DWP, Ademe, METL, MEDDE, Rapport Pelletier, IDDRI.

The public policies disputable effectiveness

As shown in

Table 3, the range of affordable tariffs in both France and the United Kingdom is limited for four main reasons:

- Targeting: they do not apply to all households in fuel poverty. Specifically, many kinds of fuel are not taken into consideration, including heating oil, which remains quite popular among low-income households in both France and the United Kingdom. In the second country, only 12% of Winter Fuel Payment beneficiaries are in fuel poverty (House of Commons Library, 2012), even though the payment is the main assistance measure in terms of its amount.
- The take-up rate is not optimal, especially in France where the coordination and clarity of existing systems are called into question by the players on the ground as well as by the audit report (ADEME, 2013) delivered to Philippe Martin, the new Minister for the Environment and Energy, in July 2013. According to this report 1.35 million people who are entitled to affordable tariffs do not claim them, i.e. a non-take-up rate of around 20%.
- The level of assistance remains very limited, and accounts for less than 10% of total bills: in France, the average amounts of the TPN electricity and TSS gas payments, i.e. €90 and €100 per year respectively, are low when compared with the average annual bill for a French household, which amounts to €1,450 across all households, and to around €1,250 for the poorest 20% of households. The same observation is valid in the United Kingdom, where affordable tariffs only cover 9.5% of a household's fuel bills, which amounted to €1,421 on average in 2011 (DECC, 2013).
- Where financing these benefits is concerned, we need to distinguish between the benefits financed by tax on the one hand, and those that are levy-funded on the other. The French affordable tariffs (TPN and TPS) and the United Kingdom affordable tariffs (Warm Home Discount) are financed by all electricity and gas customers. This means that vulnerable or fuel poor households that do not receive these payments, because they are not eligible or due to a lack of information about the schemes, or their inability to understand them, contribute to their financing, and therefore see their situation worsen. If a measure is financed by tax, this enables contributions to its financing to be made on a sliding scale, and therefore offers more protection to vulnerable customers, than if the measure is financed by a levy on bills (IDDRI, 2013).

In addition, generally speaking, curative assistance does not in itself provide a long-term solution for lifting a household out of fuel poverty. They may therefore be interpreted as a "palliative measure" with no long-term effect. However, these initial subsidies are often essential in the short term in order to relieve the most severe symptoms of fuel poverty, and to support households before implementing so-called "preventive" policies. These policies are reflected in a plan to improve the insulation of both countries' housing stock.

Box 5 – Recent changes in France: the Brottes Law provisions

Several recent measures have been introduced to increase the effectiveness of curative policies for combating fuel poverty.

The law aimed at "preparing the transition towards an energy-efficient system, which includes various provisions regarding water pricing and wind farms" provides for an increase in the number of households eligible for affordable tariffs. The scope for determining those entitled to the TPN and TSS payments will be extend to all social security organizations, which will enable 4.2 million households, or 8 million people to be reached. Affordable tariffs are now automatically granted to all the beneficiaries of complementary health care insurance assistance (ACS). All individuals eligible for the ACS (i.e. whose income is lower than €892 per month for a single person and €1,875 for a family of four people), may ask their health insurance provider to enable them to benefit from affordable tariffs.

Furthermore, in order to remedy the underlying problem of cut-offs (580,000 had their electricity and/or gas cut off because of arrears in 2012), the Brottes Law has endorsed a plan to extend the winter respite period to all customers: cut-offs (water, heating, and gas) will be prohibited between 1 November and 15 March.

Furthermore, the Law includes a recommendation from the Pelletier report regarding the introduction of a "fuel shield" for fuel poor households. This shield, which would take the form of a "fuel voucher" would replace the current assistance measures, and would involve all fuels used in the home. The terms and conditions of its implementation and the amount are set to be examined in a report delivered to Parliament within nine months of the approval of the law.

Sources: French National Assembly, (2013).

B. Preventive grants for improving buildings' insulation[28]

Improving living conditions, and more specifically improving the insulation in homes, enables one of the main causes of fuel poverty to be addressed, and the fuel bills of the households involved to be reduced on a long-term basis.

In the United Kingdom: a national energy efficiency programme

The Green Deal and the ECO

As part of the 2011 Energy Act, the last major United Kingdom energy law, where the main section was dedicated to financing energy efficiency in the home, David Cameron's Government implemented a new scheme for improving the housing stock's insulation, namely the "Green Deal". The Green Deal, which was launched on 28 January 2013, replaces former energy efficiency measures, which consisted of

[28] This section describes the energy efficiency policies that may theoretically benefit fuel poor households, as well as specific fuel poverty policies.

energy savings certificates (Carbon Emission Reduction Target or CERT[29]) and an obligation on power suppliers to finance energy saving measures for low income households (the Community Energy Savings Program, or CESP), which expired in 2012. The launch of the Green Deal in the United Kingdom also marked the end of the "Warm Front Scheme", a Government programme aimed at subsidising insulation improvement works, which offered initiatives targeting fuel poor households in areas that were defined as a priority[30].

The Green Deal is based on the principle of third-party investment. This principle enables a project manager to finance their insulation improvements via a third-party investor who is refunded via the energy savings generated following the works. The aim of the mechanism is to enable an improvement in insulation quality following the works, and ultimately enable net savings for the owner, once the investment has been repaid.

The third-party investors consist of a group of power suppliers and specialised industrial companies, which are certified by an accreditation mechanism that is specific to the Green Deal. Furthermore, the Green Deal is based on both components of the following Golden Rule: the monthly repayments for the works scheduled on the bills must be lower than or equal to the forecast energy savings while the repayment period must not exceed the expected useful life of the improvements performed. For instance, when installing double glazing, the repayment period must not exceed 20 years (DECC, 2012).

The process can be broken down into four stages:

1. An expert, known as the Green Deal Assessor, carries out an energy audit of the home in order to determine the work to be performed and the underlying energy savings;
2. The owner contacts an approved third-party investor (a Green Deal Provider), who takes charge of financing and performing the works. Both parties enter into an agreement at this stage;
3. The Green Deal provider orders the works from an operator, and pays the costs in advance; the operator checks that the improvement projects are compatible with the Golden Rule;
4. The fee is linked to the home's electricity meter: the occupant repays the loan through their electricity bill, and the mechanism is ongoing even in the event of a change of owner. According to the Golden Rule, the repayments are theoretically lower than the energy savings achieved.

The mandate of the Green Deal Finance Company, a not-for-profit company that includes some 50 players from the public and private sectors, is to finance the Green Deal Providers by purchasing their receivables at an interest rate of around 7%.

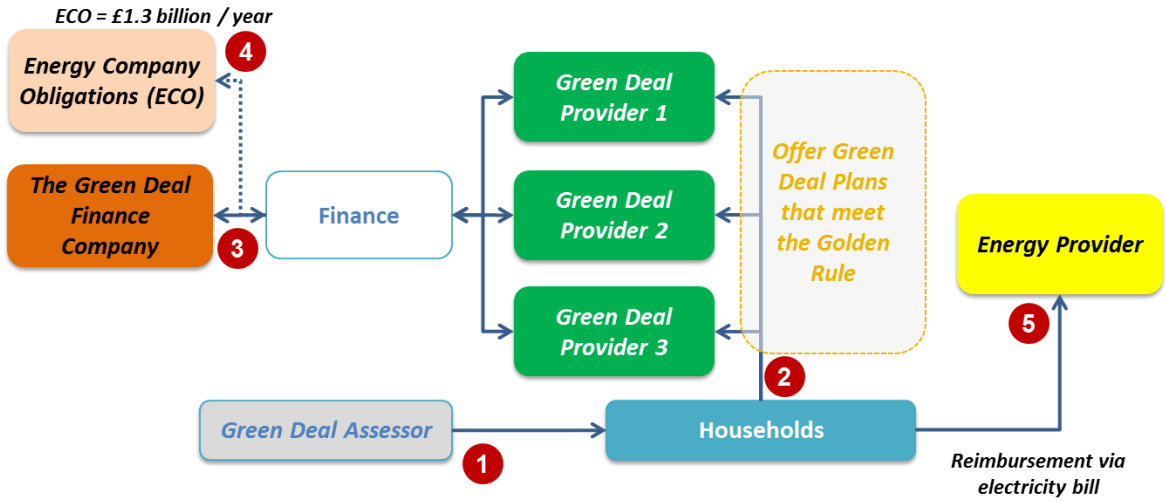
The Golden Rule places a *de facto* limit of around £10,000 on the amount of the loans. In cases where the cost of the works is incompatible with the Golden Rule, i.e. where the improvement projects are too costly, and the return on investment periods are long (e.g. for the external insulation of solid walls), an obligation, known as the Energy Company Obligation, has been introduced for the country's six main power suppliers (EDF Energy, British Gas, E.ON UK, npower, Scottish Power and SSE) as a measure to support the Green Deal. This measure, which has been introduced for the period between January 2013 and March 2015, commits the power suppliers to allocating £760 million every year to improvement projects that are considered as too expensive to enable them to meet the Green Deal criteria. The ECO also requires £540 million to be allocated to insulation improvement works for low income or remote households (primarily in rural areas) as well as for vulnerable households (within the meaning of the term in the United Kingdom) that are at risk of fuel poverty, namely the Affordable Warmth scheme.

Figure 10 summarises the general operating mechanism for the Green Deal.

[29] This mechanism, which was implemented between 2002 and 2012, was an energy savings certificate that was equivalent to the current French model, which requires power suppliers and distributors to help their customers make energy savings.

[30] The other regions have decided to pursue similar programmes that are not described in this report.

Figure 10 – How the Green Deal works



Notes: (1) the home owner can go through a Green Deal Provider directly in order to commission an assessment from a Green Deal Assessor. The Provider therefore plays a "single point of contact" role throughout the process, from the assessment to the financing stage.

Source: CDC Climat

Households that have subscribed to a Green Deal are also eligible for the Green Deal Cashback Scheme, a Government subsidy program that grants refunds of up to £1,000 depending on the system installed. For instance, an amount of £150 is paid for floor insulation work (DECC).

France: several economic and financial tools to subsidise works

In France, François Hollande reconfirmed the Grenelle Environmental Law's aim to reduce the fuel consumed by the national housing stock by at least 38% by 2020 at the September 2012 Environmental Conference, and more recently, in order to mark the publication of the National Housing Investment Plan. The plan is looking to renovate 500,000 homes from the French housing stock every year, including 120,000 social housing units and 380,000 private homes. Around 50,000 improvements in the second category will target fuel poor households.

To achieve these goals, France has designed various mechanisms to support energy efficiency. These mechanisms are set out in this report, in order to assess the way in which they reduce fuel poverty, even if not all the mechanisms were specifically designed for fuel poor households.

Energy savings certificates (CEE)

The regulatory framework for energy savings certificates, which was established by the French Energy Policy Guidance Programme (POPE) Law of July 2005, requires power suppliers and distributors, namely the “liable parties” to achieve a level of energy savings that they must justify via holding an amount of

certificates equivalent to their liabilities, or else face financial penalties[31]. Energy savings certificates are obtained following initiatives that the operators undertake independently or by purchasing them from other players who have carried out energy-saving initiatives (local authorities or other "eligible" organisations). Some of the possible initiatives specifically relate to energy savings in the home, including subsidised loans for carrying out insulation improvement works, and for energy performance assessments and environmental advice, etc.[32].

Between the date when the law was introduced and April 2013, 7,567 decisions were issued to 1,130 beneficiaries, involving an actual cumulative total of 366.8 TWh. Around 1% of the standard transactions involved fuel poor households (MEDDE, 2013).

Interest-free eco-loans and the sustainable development tax credit

Interest-free eco-loans and the sustainable development tax credit are schemes that aim to encourage the execution of energy-efficiency works or the installation of energy-saving equipment. The first scheme is available to homeowners and has no income restrictions. It enables them to borrow up to €30,000 for a "package of works" on a primary residence built before 1990. Interest-free eco-loans were granted to 40,755 households in 2011, for a total amount of €692.5 million, i.e. an average loan of €16,992 (SGFGAS, 2011). The second scheme is available to all taxpayers, even those who do not pay tax[33], and enables them to deduct a percentage of the expenses incurred (maximum of €8,000 for a single person and of €16,000 for a couple, plus €400 for each dependent person) from their taxable income for some energy-efficiency works. Some 6.2 million households benefited from the sustainable development tax credit between 2005 and 2010, at an estimated budget cost of €10 billion, i.e. an average subsidy per household of €1,800 (French Senate, 2013).

Individual micro-loans

Individual micro-loans, which are guaranteed by the French Social Cohesion Fund[34], were the subject of several local experiments involving low-income households[35] in 2008, in order to finance the residual cost of home improvement works. The nature of the micro-loans varies depending on the projects: the maximum amounts range between €3,000 and €10,000 with repayment periods of between three and six years, etc.

Social housing eco-loans

Social housing eco-loans, which were a product of the Grenelle Environmental Law, encourage improvements to the social housing stock's insulation. The amount granted ranges between €9,000 and €16,000 (plus an additional amount of €2,000 if the works performed come with a regulatory label, such as an "HEP renovation[36]" label) per home, and is intended for low-income housing organisations, public-private companies, and local authorities; the loan is therefore not directly intended for private individuals. The maximum term of the loan is has been set at 25 years since 2012 and the interest rates, which are backed by Livret A[37] savings accounts, vary depending on the term of the loans[38]. Since only 25,000

[31] An energy savings certificate (CEE) corresponds to an actual total cumulative saving of 1 kWh with the effective period, i.e. the useful life of the equipment or of the measure in question.

[32] A list of the eligible works for private individuals, and the procedures to follow to benefit from the subsidies are available here: http://ecocitoyens.ademe.fr/financer-mon-projet/renovation/les-aides-des-entreprises-de-fourniture-denergie-cee

[33] The credit takes the form of a tax rebate takes the form of a tax reduction for tax payers and of a payment from the tax authorities for non- tax payers.

[34] Fund set up by the French Social Cohesion Planning Act of 18 February 2005.

[35] These are projects under the joint management of various players like Gefosat and the Crédit Coopératif, Fondation Abbé-Pierre and Banque Postale, and Caisse d'Epargne and the PACT Federation.

[36] High energy performance renovation.

[37] Livret A is the most used French regulated tax-free savings account.

social housing units were upgraded in 2012, the initial annual target of 70,000 was not achieved. However, as part of the national housing investment plan announced in March 2013, the French Government would like to exceed the target of 90,000 upgrades per year in 2014, and then the 120,000 annual upgrade target by 2017.

Habiter Mieux grants

As shown in Figure 11 below, the ANAH has been managing the national programme launched by the Government in January 2010 to combat fuel poverty among owner-occupiers under certain income conditions since 2011. The programme was named Habiter Mieux ("live better") when it was finalised in late 2010.

The programme is rolled out on a regional basis, primarily at the Department level, in the form of a Local Commitment Agreement (CLE), which specifies its three key mechanisms and its funding:

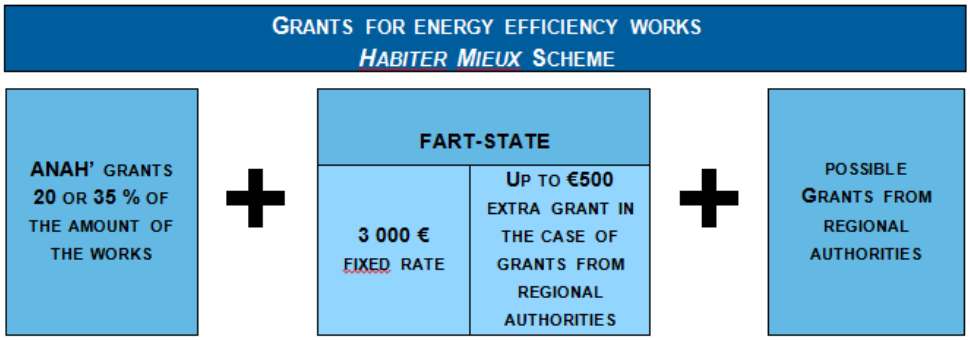
1. **The procedures for identifying households.** Thanks to the initiatives implemented by local authorities, the power networks, and by the EDF, GDF SUEZ and Total power suppliers, and for the local social, technical and financial engineering organisations to support these households; support for the household is customised and consists in defining an approach to the household's improvement project;
2. **The socio-technical-financial guidance of households by licensed local operators.** This assistance is personalised. In this matter, homeowner benefit from a complete project manager assistance that is technical (energy assessment and definition of the project assistance), administrative and social (help with setting up a project, support in assembling, and completion of the project). This assistance, which is made through a home visit, is a condition of access to aid. Indeed, it guarantees the development of a work project and reconciles efficiency and contributory capacity of households. In this context, the goal is to guide households towards the most effective works in terms of energy savings.
3. **The implementation of local procedures to collect energy savings certificates (CEE),** which enables the three major liable parties, namely EDF, GDF SUEZ and Total, to increase the share of energy savings certificates obtained in exchange for the financial contribution to the *Habiter Mieux* programme;
4. **The mechanism for financing the works, which relies on**:
    a. the basic ANAH subsidies for owner occupiers, under income conditions, which are intended to finance between 20 and 35% of the amount of the works undertaken;
    b. A government grant financed by the French Insulation Improvement Assistance Fund (FART), in the form of a fixed-rate grant amounting to €1,600, which can be combined with the previous ANAH grant*;*
    c. The potential involvement of the social departments of socially beneficial cooperative companies for home ownership (SACICAP) for households that have no equity and need to access a bank loan. SACICAP organisations grant interest-free loans with no management fees up to a maximum amount of €20,000 and with a repayment period of up to 10 years, or pre-finance the work subsidies. In 2012, two thirds of this funding was granted to owner occupiers who were in receipt of grants from the National Housing Agency, which amounted to a commitment of over €30 million. However, these loan transactions are currently deferred, as they are threatened by the liquidation of Crédit Immobilier de France. In this respect, individual micro-loans, as presented above, could offer an interesting alternative to SACICAP.

Additional grants may be provided by regional authorities. They vary from one region to the next depending on the local policies in place, such as the social security component of Regional Climate and Energy Plans. In the event that a grant is awarded by local authorities, the *Habiter Mieux* grant is

[38] The housing stock improvement plan announced by François Hollande provides for a 1% reduction in the interest rate on social housing eco-loans.

increased by the same amount (up to a maximum of €500), which means that the fixed-rate grant can amount to up to €2,100.

Figure 11 – Grants for energy-efficiency works



Source: Research by Sia Partners, 2013

In addition to the ANAH loans, the *Habiter Mieux* programme is financed by the National Loan and by the energy savings certificate (CEE) scheme. The three liable parties, namely EDF, GDF SUEZ and Total, provide financial assistance, which amounted to €49 million, €22 million, and €14 million over the period between 2011 and 2013, in exchange for energy saving certificates. Since 2013, the draft Finance Act has provided for allocating the income from the carbon allowance auctions to the ANAH's operating budget, up to a limit of €590 million per year.

The ANAH's support is granted, subject to income conditions, to owner occupiers of homes built over 15 years ago, in order to achieve energy savings in the home equal to or greater than 25% on completion of the works. The *Habiter Mieux* programme enabled 19,500 homes to be renovated between January 2011 and January 2013, i.e. 7% of the determined target of 300,000 fuel poor homes by 2017. From a qualitative standpoint, the average recorded energy savings are estimated at 38%, which is much higher than the minimum 25% required in order to obtain grants.

Public benefit programmes and Operational Housing Improvement Programmes (OPAH), which are backed by departmental action plans involving housing for vulnerable people, contribute to a better distribution of ANAH grants. Public benefit programmes focus on resolving housing issues of a social or technical nature on the initiative of Regional Authorities, which determine the programmes' length. Operational Housing Improvement Programmes are intended for areas that are dealing with sub-standard, insalubrious or inadequate housing issues. This project is carried out under the auspices of an agreement entered into jointly by a local authority, the Government, and the ANAH, for a maximum period of five years.

Better targeting of the ANAH grants

Up until June 2013, the ANAH works grants, which are targeted as part of the Habiter Mieux programme, were only intended for owner occupiers who were left with a "residual amount" of up to €5,50039 to pay, which is still sizeable for the poorest households.

During the national debate on fuel poverty of 9 April 2013, Cécile Duflot, the Minister for Regional Equality and Housing, revealed changes to the Habiter Mieux programme, including a target of 50,000 improvements per year:

- The range of beneficiaries was extended to include landlords and joint owners;
- The eligibility threshold was broadened from the first decile up to the median income, which increased the number of owner occupiers who are potentially eligible from 3 to 7 million;

[39] In cases where the local authority does not provide any grants to the household, contrary to the spirit of Local Commitment Contracts (CLE).

- The residual amount that households are required to finance was reduced by increasing the initial ANAH grants to up to 50% of the amount of the works, and raising the Government grant to €3,000, including €1,350 financed by the Investment for the Future programme. It will amount to €2,000 for landlords and to €1,500 for joint owners;
- The minimum energy savings to exceed are adjusted according to the type of grant beneficiary.

These changes, which are summarised in Table 4, entered into effect in July 2013[40].

Table 4 – Situation before and after the changes to the *Habiter Mieux* programme

	Owner occupier		Owner Landlord		Joint ownership Association	
	Before	**After**	**Before**	**After**	**Before**	**After**
% of the works is funded by the ANAH (depending on the project)	20 to 35%	35 to 50%	Not eligible	25 to 35%	Not eligible	35 to 50% (1)
Government *Habiter Mieux* grant	€1,600	€3,000 for 2 years (2)	n.a.	€2,000	n.a.	€1,500 per unit (2)
Energy savings required	>25%	>25%	n.a.	>minimum of 35% at least and Label D certification (3)	n.a.	>35%
% of works financed (ANAH, FART & local authority grants)	35 to 80% depending on the local authority	65 to 100 % depending on the local authority	n.a.	>35% depending on the local authority	n.a.	>35% to 50%, depending on the scheme

Notes: All the grant award conditions are available on the ANAH website: www.anah.fr/les-aides

(1) No ceiling in the event of works that enable energy savings of over 50%

(2) A €500 increase is awarded in the event that the local authority provides an additional grant for the same amount

(3) Except if impossible from a technical or economic standpoint

Source: French National Housing Agency

Towards a home improvement obligation in France as in the United Kingdom?

In the United Kingdom, a home improvement obligation was already been provided for in the 2011 Energy Act. The act provides that landlords will be prohibited from renting a property where the energy performance is below a certain threshold as from 2018. This should encourage landlords to carry out improvement works to the extent that they are able to benefit from the deal, and so guarantee a certain level of decency in the accommodation for the tenants. Moreover, as from 2016, tenants may demand that their landlords carry out works to improve energy efficiency if the costs can be met via the Green Deal or the ECO.

The idea of introducing an obligation to perform works was discussed in France as early as 2007 at the Grenelle Environmental Round Table, based on a recommendation in the Pelletier Report. The idea is currently included within the framework of the National Debate on Energy Transition. Ongoing discussions

[40] Decree No. 2013-610 of 10 July 2013 regarding the payment of grants from the Private Housing Insulation Improvement Assistance Fund (FART).

focus on the case of landlords and joint owners who are experiencing financial problems, and the difference between common and private areas for the latter.

Comparison between the energy-efficiency schemes and their impact on fuel poverty

Table 5 compares the preventive schemes in France and the United Kingdom.

Table 5 – Summary and limitations of preventive assistance in France and the United Kingdom

	France		United Kingdom
	ANAH grants and *Habiter Mieux* programme	**Other economic tools for assistance with works (sustainable development tax credits, energy savings certificates, interest-free eco-loans, and micro-loans**	**Green Deal & ECO**
Targets	Initially: 300,000 owner-occupiers between 2010 and 2017 National home improvement plan: 50,000 upgrades per year between 2015 and 2020, i.e. 300,000 by 2020.	No quantified fuel poverty reduction targets	No quantified targets Estimated number of households lifted out of fuel poverty: 125,000, and 250,000 households by 2023
Eligible households	Owner occupiers, landlords and joint owners since July 2013	Owner-occupiers, landlords, joint owners and tenants	Owner-occupiers, landlords, joint owners and tenants
Amount of the works financed	➢ Owner-occupier: 65 to 100 % depending on the local authority ➢ Landlord: >35% depending on the local authority ➢ Joint owner: >35% depending on the scheme	➢ Interest-free eco-loan: €30,000 for a package of works ➢ Sustainable Development Tax Credit: €8,000 for a single person and €16,000 for a couple ➢ Micro-loan: €3,000 to €10,000 ➢ Energy savings certificates: depending on the operation	100% (on the basis of the energy savings achieved for the Green Deal)
Progress	19,500 upgrades (2011-2013)	➢ Interest-free eco-loans: 40,755 applications in 2011 ➢ Sustainable Development Tax Credit: 6.2 million eligible households between 2005 and 2010 ➢ Micro-loan: experiments ➢ Energy savings certificates: 1% of transactions involved fuel poor households (2006-2013)	At the launch stage
Limitations	➢ Identification of eligible households ➢ Significant residual expense before changes were made to the programme ➢ Due to the broadening of the eligibility criteria, the programme may now only be a marginal benefit to very poor and poor households	➢ Interest-free eco-loan: relatively unsuited to the profile of fuel poor households ➢ Sustainable Development Tax Credit: households must advance the funding for a period of 18 months ➢ Micro-loan: no large-scale deployment.	➢ The paid-for energy assessment, at a cost of between £95 and £150 may be a disincentive for the poorest households ➢ There is a risk of non-compliance with the Golden Rule: rebound or catch-up effect for households where fuel are limited ➢ The ECO is financed via the energy bills paid by all households: not fair for the most vulnerable households ➢ Does not target fuel poor

			households as a priority

Source: CDC Climat Research Source: based on DECC, ANAH, MEDDE, Senat.

In the United Kingdom, the ECO is assigned an annual budget of £1.3 billion, of which £540 million is actually targeted at potentially fuel poor households. The resources allocated to measures to prevent fuel poverty are roughly equivalent to the funds gathered by the previous mechanisms (Warm Front Scheme[41], CERT[42] and CESP[43]). The *ex-ante* impact study performed by the British Government estimates that the old measures will be more than offset by the Green Deal and the ECO, and that they will enable between 125,000 and 250,000 households to be lifted out of fuel poverty by 2023 (DECC, 2012). However, as the scheme was only launched recently, its actual impact on fuel poverty, specifically via the ECO, is still hard to measure[44].

In France, the incentivising interest-free eco-loan and sustainable development tax credit tools are unsuited to fuel poor households. Since the latters' incomes are low in most cases, their borrower profile is not acceptable to banks that grant interest-free eco-loans. Moreover, these loans are usually only granted on the presentation of invoices. They therefore benefit high-income households, as confirmed in the 2011 statistical report on the scheme, which shows that around 70% of transactions were concentrated among the three highest population deciles, as ranked by taxable income. Likewise, it is hard for the poorest households to access sustainable development tax credits, as they are not in a position to advance the funds over a period of 18 months (Pelletier Report, 2009).

Nevertheless, despite a difficult start, the *Habiter Mieux* programme is gaining traction as a tool that is specifically dedicated to combating fuel poverty, due to its size and its target. A study commissioned by the ANAH is currently ongoing, in order to measure its effectiveness. That effectiveness should be boosted immediately, in order to meet the targets of the home insulation improvement programme thanks to the setting up of single contact points (see Section IV).

Both the British and French home improvement plans can be compared in light of the works that they finance, and on the basis of whether they target fuel poor households. In the United Kingdom, the Green Deal, which is limited by the Golden Rule, is more likely to involve minor works, but will nonetheless be complemented by the ECO within the limit of the funds available, whereas the *Habiter Mieux* programme seeks to renovate the homes of fuel poor households in a more comprehensive manner, which requires sizeable funding.

In an environment where government resources are shrinking, the issue of funding insulation improvements is topical. To achieve its energy efficiency targets, France has introduced a range of instruments that encourage home improvements, which are essentially based on tax payers via subsidies (interest-free eco-loans, and sustainable development tax credits, etc.). Meanwhile, the United Kingdom has opted for a system that requires little or no government funding, since the central financial mechanism for the Green Deal, i.e. third-party investment, requires power suppliers to advance the home improvement costs. In this way, the British government hopes to upgrade millions of homes while limiting public spending. However, the potentially perverse effect of the financing method for these measures can already be underlined, in cases where they rely on a contribution from households, and therefore from fuel poor households, via their energy bills (ECO, Warm Home Discount, TPN, and TSS etc.). This is not so much the case where the funding is provided by progressive taxation (Cold Weather Payment, Winter Fuel Payment, APL, and FSL, etc.), which depends on income. In the United Kingdom, where a wide

[41] The former Warm Front Scheme was intended for insulation improvements in homes occupied by fuel poor households, and amounted to an average annual budget of £227 million between 2000 and 2013.

[42] Under the CERT, which had an estimated budget of £5.5 billion between April 2008 and December 2012, power suppliers were required to meet 15% of their targets involving a priority group defined as households very likely to be in fuel poverty.

[43] The CESP was particularly intended for households in underprivileged districts, and accounted for a budget of around £350 million between September 2009 and December 2012.

[44] Following a recommendation by Parliament, the DECC is expected to assess the impact of the Green Deal and of the ECO on fuel poverty (House of Commons, 2013).

range of environmental policies, including fuel poverty reduction policies, are financed through electricity bills, a recent study has shown that the United Kingdom climate policy, despite an average positive impact on energy bills of £31 per year by 2020, will have a negative impact on households with electric central heating, who will see their fuel bills increase by £282 per year if they do not benefit from the policies (Preston *et. al*., 2013). Once again, the issue of targeting public policies is predominant.

C. Identifying households on the ground and supporting them as a factor for the policies' success

Support is the cornerstone of any initiative targeting fuel poor households

Many people entitled to affordable tariffs or to the *Habiter Mieux* programme do not ask for assistance, either because they are unaware of the scheme or do not understand it, or because they refuse to receive benefits. Therefore, a major effort must be made to identify and support households. In France, identifying fuel poverty situations is usually dependent on social initiatives, which are represented by the social work carried out by Department General Councils, family benefits offices, and voluntary organisations, etc. However, given the estimates, the current identification process does not appear to be broad enough to intervene and meet the urgent requirements of most fuel poor households (PUCA, 2009).

Based on this observation, the French Government would like to improve the identification of fuel poor households in a decentralised manner, on the one hand, and to facilitate access to information for all, on the other hand.

Setting up single contact points in France: improving the way assistance is targeted

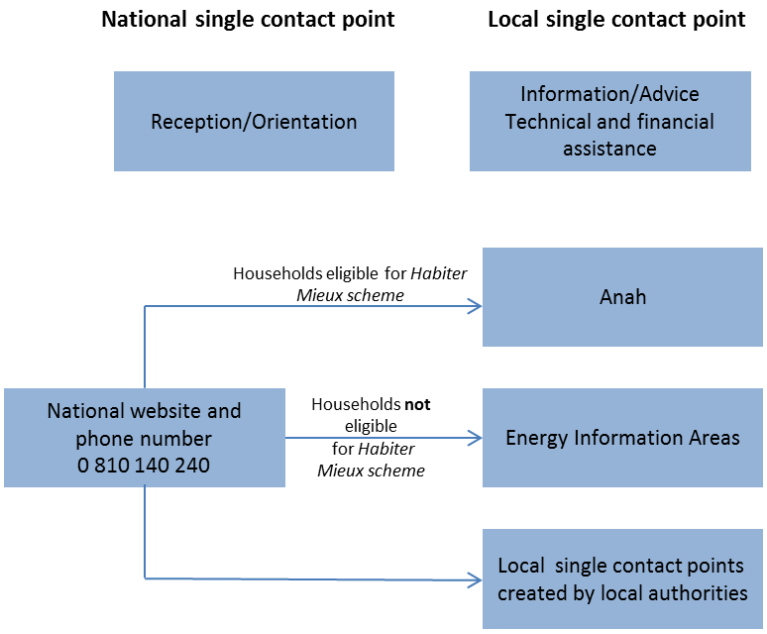
The Pelletier Report suggests setting up a “single contact point” for this purpose, which will be responsible for all fuel poor households, and for directing them to the appropriate assistance and schemes.

On a more general basis, the creation of local single contact points, which was confirmed by the Prime Minister in 2013, will target all the households that want to embark on home improvement works[45]. To this end, a phone number and a national website has been made available since the summer of 2013 in order to direct households towards the existing schemes: the *Habiter Mieux* programme for eligible people and Energy Information Areas for other publics, which provide advice to individuals regarding controlling energy consumption and energy efficiency free of charge (CLER, 2013). Figure 12 shows the relationship between the national single contact point and local ones, as defined by the Circular of 22 July 2013 on the regionalization of the French energy efficiency housing plan.

Schemes of this kind, which are dedicated to fuel poverty, are expanding rapidly in France. Box 5 sets out a single contact point methodology developed by the CLER (Energy Transition Network), which is specifically intended for fuel poor households.

[45] The idea of a single contact point was also taken up in the Brottes Law, as well as in the French Insulation Improvement Plan, via the creation of a public energy-efficiency service that will address both tenants and home owners (including the fuel poor) and will specifically play a supporting role throughout the home improvement works process (CLER, 2013).

Figure 12 – Link between the national single contact point and the local network



Source : METL/MEDDE

Local single contact points are emerging in France. Box 6 presents a methodology of local support platform developed by the CLER (Network for the energy transition), in conjunction with local authorities, which is specifically aimed at fuel poor households.

Box 6 – The *SLIME*: one example of a single contact point dedicated to fuel poverty

In France, one example of a single contact point is the Local Service Involved in Controlling Energy Consumption (SLIME), which is offered by the French Renewable Energy Liaison Committee (CLER). The way the service works is based on three stages (see Figure 12):

1. Identifying the fuel poor via "whistle-blowers" (social workers, power suppliers, postmen, and healthcare workers, etc.) who bring them to the attention of the *SLIME* platform;

2. A social and technical home inspection, in order to carry out an initial assessment, to advise on environmentally friendly behaviour and to install small energy-efficient appliances (power and water).

3. Guiding the household towards the assistance and schemes that are appropriate for its situation.

The *SLIME* is available to any local authority, and is an information programme that aims to control the fuel demand eligible for energy saving certificates. Pilot *SLIME* services managed by the General Councils of the Gers, the Bas-Rhin and the Lot, are currently available in three regions. The local authorities are responsible for guaranteeing the operational implementation, as well as the joint financing of the scheme. The expenses incurred by the pilot local authority are eligible for energy saving certificates according to a ratio where spending €15 generates a total of 1 MWh, an amount that varies on the energy savings certificate market. A call for applications is launched every six months for local authorities that are interested.

Sources: CDC Climat Research, based on CLERC data.

.

Social and technical inspections

Following the work carried out to identify households on the ground, the single contact point intervention methodology provides for an initial social and technical inspection to be carried out. This inspection is crucial, since it enables an initial contact to be established with the household identified, that household's situation to be assessed from a social and financial standpoint, an assessment of the home's energy-efficiency to be performed, and the household's comfort to be improved by installing energy-efficient appliances.

The *Achieve* project, which was conducted on a Europe-wide basis and includes various local action plans for combating fuel poverty in five European countries (Germany, Bulgaria, France, the United Kingdom and Slovenia), provided initial feedback on the benefit of social and technical inspections. In the context of this project, home inspection schemes that were equivalent to single contact points (identification, home visits, raising awareness of environmental friendly behaviour, installing small energy-efficient appliances, and help with accessing existing funding, etc.) were set up. In France, the plan was implemented locally in Marseille, where it was coordinated by the GERES, and in the Plaine Commune Urban District, where the IDEMU operates. In the United Kingdom the project was managed by the SWEA (Severn Wye Energy Agency) in the County of Wiltshire, in the East of England.

The initial results of these social and technical inspections are very positive and are set out in Table 6. They enable eligible households to make annual energy savings amounting to €150 for the French projects and to €43 for the equivalent project in the United Kingdom. This means that the initial home inspection amounts to a financial saving that exceeds the rebate granted on fuel bills via affordable tariffs (€90 per year on average for electricity). In fact, from a social standpoint, the return on the investment, which is estimated at €200 per inspection (Pelletier, 2009) is less than two years

Table 6 – Results of the social and technical inspections performed in France and the United Kingdom

Country	Number of households inspected	Average value of the appliances given to each household (in €)	Specific electricity savings (kWh per year)	Specific heating savings (kWh per year)	Reduction in energy consumption (% per household per year)	Reduction in CO_2 emissions (kg per location per year)	Savings in € per household per year
France (GERES)	138	44	260	815	8	243	142
France (IDEMU)	205	67	776		9	166	165
United Kingdom	33	31	164	254	11	154	43

Notes: the results for those countries are not comparable due to the different cost of fuel as well as to the appliances given to the households, which vary from one country to another.

Source: Achieve Project, 2013

Strengthening identification and support for households in the *Habiter Mieux* programme: "Ambassadors of Energy Efficiency"

The latest housing investment plan, which was announced by François Hollande on 21 March 2013, provides for the creation of 1,000 "energy efficiency ambassadors" recruited by local authorities and voluntary organisations, as part of the Government's *Jobs for the Future* programme. In addition to identifying households, the ambassadors will carry out an initial social, technical and financial inspection and will offer training on environmentally friendly behaviour. They will contribute their skills and will complement the *Habiter Mieux* programme.

The Ambassadors will accomplish the following two missions: raise public awareness of the *Habiter Mieux* scheme; ensuring home visits to identify fuel poor households and help achieve energy savings. This guidance will also be made downstream of renovation works to limit 'rebound effect' (see Box 7). Where

appropriate, the Ambassador will also make the link to other existing curative schemes (The Housing Solidarity Fund) as well as schemes for tackling substandard housing (Anah, 2013).

Box 7 – The rebound effect: energy savings and increased comfort

The success of energy efficiency policy depends on consumption behaviours and on housing practices, which may have a material impact on spending on fuel.

In fact, research on, and the empirical results generated by energy efficiency, highlight the existence of a gap between actual energy consumption and optimal potential energy consumption following the implementation of energy efficiency measures. This phenomenon, which is known as the “rebound effect”, takes two forms:

- The direct rebound effect: the energy efficiency gains generated by an appliance result in a fall in fuel bills, which means that consumers use the appliance more. For instance, fitting low consumption light bulbs may encourage households to leave the light on longer or to increase the heating temperature following an improvement to the home's energy efficiency.

- The indirect rebound effect: the additional income generated by energy savings in one consumption area is used to consume energy in another area. For instance, the income earned following insulation improvement works may be used to purchase a petrol powered car, which results in an overall increase in spending on fuel.

Rebound effect estimates vary from one study to the next, but usually range between 10 and 50% (Crédoc and the French Strategic Analysis Centre, 2013). The determining factors for consumption behaviours and the rebound effect are varied, and include price perception, values, cognitive capabilities, lifestyle and habits, etc. However, these various factors are hard to identify and quantify, as they fluctuate significantly from one household to the next (Crédoc and the French Strategic Analysis Centre, 2013).

Estimating the rebound effect in the context of some fuel poor households is even more complicated. In the case of a household that was deprived of heating before the energy efficiency improvements to its home, that household's energy consumption was therefore lower than the theoretical consumption required in order to achieve a so-called “standard” level of comfort; the rebound effect is therefore naturally similar to a comfort catch-up process.

In order to reduce the rebound effect and induce sobriety in consumer behaviour, the provision of real-time information on energy consumption through "smart meters" could be a solution in order to reduce the rebound effect and induce sobriety in consumer behaviour (See Climate Brief on Smart meters to be published soon).

Moreover, the savings relating to energy efficiency improvements must not be strictly limited to the economic benefits, i.e. to reductions in fuel bills, or to environmental benefits (reduction of greenhouse gas emissions), since they also amount to improvements in quality of life, interior comfort and health. This is especially true for households that have no or little heating, and that finally have heating following the improvement works.

Source : CDC Climat recherche based on Crédoc.

CONCLUSION

Combating fuel poverty must deal with the multifaceted nature of the phenomenon, which makes the task of characterising fuel poor households, and the drawing up of appropriate policies complicated.

Tools for combating fuel poverty in France and the United Kingdom involve curative financial assistance, in the form of an income supplement or a rebate on fuel bills, which are not sufficiently coordinated, clear and targeted, and do not deal with the size of the fuel poverty phenomenon given increasing fuel prices. The issue of these schemes' clarity is a subject for debate, especially in France, where most experts agree on the idea of grouping every type of curative assistance into a single “energy voucher”.

Preventive tools aimed at reducing energy bills on a long-term basis through energy-efficiency measures have also been introduced. These tools vary, depending on whether the measures target poor households. The Green Deal policy is a general energy-efficiency policy that is not specifically dedicated to fuel poor households, and has a limited range due to the Golden Rule, which limits the size and cost of the works. A number of measures aimed at encouraging energy-efficiency improvements exist in France (interest-free interest eco-loans, and sustainable development tax credits, etc.), which also aim to encourage this kind of works, but are not appropriate for poor households. Conversely, these households benefit from specific assistance thanks to the recent introduction of the ECO programme in the United Kingdom and of the *Habiter Mieux* programme in France. There has not yet been enough feedback to estimate the total cost (including the administrative targeting and monitoring cost) and effectiveness of these programmes, even if the *Habiter M*ieux programme is making progress thanks to an improvement in the way households are identified and supported through single contact points, and greater assistance with improvement works.

The financing of these Government policies also raises questions. It is primarily reflected in making all households contribute via taxation or directly via their energy bills. In the second case, the most vulnerable consumers will see their situation deteriorate, if they are not identified in advance and therefore receive no compensation.

This Climate Study addresses policies to combat fuel poverty that aim to reduce households' fuel bills (via assistance with paying bills and energy efficiency). On the one hand, it did not include other more general policies that have an indirect impact on fuel policy, like general income subsidies, or social housing policies. On the other hand, it did not consider other policies that may help to combat fuel poverty, especially in the transportation field, such as urban development policies (development of public transport, and policies aimed at increasing urban density, etc.), which reduce the fuel expenses of households that are experiencing difficulties. In both these areas, and within the context of energy transition, additional research will need to be carried out in order to assess the effectiveness of more coordinated policies aimed at fuel poor households, the number of which is likely to increase over the coming years, as taking the social consequences of any Government policy into account makes it more socially acceptable.

REFERENCES

- Achieve (2013). *La lettre d'info numéro 4*, www.achieve-project.eu/index.php?option=com_content&view=article&id=117%3Adecouvrez-la-4e-newsletter-dachieve&catid=12%3Anews-fr&Itemid=5&lang=fr
- Ademe (2005). *Stratégie utilisation rationnelle de l'énergie : les bâtiments*, www2.ademe.fr/servlet/getBin?name=B7491EC9CF8C1E44B4608F700A9B69721147707439026.pdf
- Ademe (2013b). *Rapport d'audit sur les tarifs sociaux de l'énergie*, www2.ademe.fr/servlet/getBin?name=F4C15008BF44F4F6ECCB0A7927997F97_tomcatlocal1374075042886.pdf
- Ademe-Puca (2010). *Analyse sociotechnique comparée des dispositifs de réduction des situations de précarité énergétique et construction de stratégies d'intervention ciblées*, www.prebat.net/IMG/pdf/prec_energie_dec2010.pdf
- Anah (2012). *Programme Habiter Mieux (Bilan 2012),* http://www.anah.fr/les-actualites/les-actualites/article/lanah-publie-un-premier-bilan-du-programme-habiter-mieux.html
- Anah (2013). *Ambassadeur de l'efficacité énergétique – une fiche synthétique pour savoir l'essentiel,* http://www.anah.fr/fileadmin/anahmedias/Habiter_mieux/synthese_Ambassadeur_efficacite_energetique_v08-04-13.pdf
- Arqui.C, Fourmon. A, Nicolay. L et Réfabert.F (2013). *5 millions de logements à rénover en 5 ans*. Décisions durables.
- Weissenberger. J (2012). *La lutte contre la précarité énergétique dans l'UE. Bibliothèque du Parlement européen*, www.europarl.europa.eu/RegData/bibliotheque/briefing/2012/120368/LDM_BRI(2012)120368_REV1_FR.pdf
- Boardman. B (1991). *Fuel Poverty*.
- Ian Preston, Vicki White, Emma Sturtevant (2013). *The hardest hit: going beyond the mean.* Centre for Sustainable Energy, www.cse.org.uk/downloads/file/The-hardest-hit.pdf
- Chancel. L (2013). *Quel bouclier social-énergétique* ? IDDRI, www.iddri.org/Publications/Quel-bouclier-social-energetique
- CLER (2012). *SLIME « Services locaux d'intervention pour la maîtrise de l'énergie ». Programme en faveur de la maîtrise de l'énergie en vue de la délivrance de CEE*, *proposé par le CLER*, www.cler.org/info/spip.php?rubrique730
- CLER (2013). *Proposition pour un guichet unique local*, www.cler.org/info/IMG/pdf/Guichet_Unique_Propositions_CLER-3.pdf
- CNLE (2012). *Pour une mise en œuvre des moyens convenables d'existence. Analyse établie autour du concept de « reste à vivre ».* Rapport du groupe de travail du CNLE 2012, www.cnle.gouv.fr/Pour-une-mise-en-oeuvre-effective.html
- Commission de régulation de l'énergie (2013). *Le fonctionnement des marchés de détail français de l'électricité et du gaz naturel*, www.cre.fr/documents/publications/rapports-thematiques/fonctionnement-des-marches-de-detail-francais
- CREAI-ORS Languedoc Roussillon, GEFOSAT, Fondation Abbé Pierre (2013). *Quand c'est le logement qui rend malade*, www.fondation-abbe-pierre.fr/_pdf/quand-c-est-le-logement-qui-rend-malade.pdf
- Crédoc, Centre d'analyse stratégique (2013). *Comment limiter l'effet rebond des politiques d'efficacité énergétique dans le logement ? Importances des incitations comportementales*, www.credoc.fr/pdf/Sou/incitation_comportementale_economie_energie.pdf

- Crifo. P, Laurent. E (2013), *Enjeux environnementaux et question sociale. Pourquoi et comment lier justice sociale et écologie ?* Conseil économique pour le développement durable, www.developpement-durable.gouv.fr/IMG/pdf/023.pdf
- De Quero. A, Lapostolet. B (2009). Rapport Pelletier*, Plan bâtiment Grenelle : groupe de travail précarité énergétique*, www2.ademe.fr/servlet/getBin?name=8F5C951F85179A2A839A7554CB334F761265642576852.pdf
- DECC (2011). *Extra help where it is needed : a new Energy Company Obligation*, www.gov.uk/government/uploads/system/uploads/attachment_data/file/48086/1732-extra-help-where-it-is-needed-a-new-energy-compan.pdf
- DECC (2011). *Preparations for the roll-out of smart meters*, www.official-documents.gov.uk/document/hc1012/hc10/1091/1091.pdf
- DECC (2012). *Final stage impact assessment for the Green Deal and Energy Company Obligation,*https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf
- DECC (2013). *Annual report on fuel poverty statistics 2013*, https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/fuel-poverty-statistics
- Department for Work and Pensions (2013). *Social Fund Cold Weather Payment: summary statistics,* https://www.gov.uk/government/organisations/department-for-work pensions/series/social-fund-cold-weather-payments-statistics
- Dubois.U (2012). *From targeting to implementation : the role of identification of fuel poor households.* Energy Policy 2012.
- Fondation Abbé Pierre et.al. (2013). *La transition énergétique pour tous. Cahier d'acteur collectif pour une vraie prise en compte de la question sociale et de la précarité énergétique dans la transition énergétique,* www.transition-energetique.gouv.fr/sites/default/files/13027_dnte-cahier-d-acteur_fondation-abbe-pierreuniopss_def_light_14-03-13.pdf
- Gouvernement français (2013,) P*lan d'investissement pour le logement les 20 mesures.* Dossier de presse, www.gouvernement.fr/sites/default/files/fichiers_joints/dossier_de_presse_du_ministere_de_legalite_des_territoires_et_du_logement.pdf
- Guyet. R (2012). *Les mesures de lutte contre la précarité énergétique en Angleterre*. CERI-Science Po.
- Hills (2012). *Getting the measure of fuel poverty.* Centre for analysis of social exclusion, http://sticerd.lse.ac.uk/dps/case/cr/CASEreport72.pdf
- House of Commons Library (2012). *Winter Fuel Payments update*, http://www.parliament.uk/briefing-papers/SN06019.pdf
- Insee (2006a). *Enquête budget de famille*, www.insee.fr/fr/publications-et-services/irweb.asp?id=BDF06
- Insee (2006b). Enquête national logement, www.anah.fr/fileadmin/anahmedias/Textes_et_publications/Etudes/Etude_ENL.pdf
- Insee (2012). *La précarité énergétique : avoir froid ou dépenser trop pour se chauffer*, www.insee.fr/fr/themes/document.asp?ref_id=ip1351
- Insee (2013). *Indices des prix à la consommation – moyennes annuelles 2012-2013*, www.insee.fr/fr/themes/indicateur.asp?id=78
- Insee, Arec (2012). *La précarité énergétique dans les logements de Poitou-Charentes : 15 % des ménages concernés*, http://insee.fr/fr/themes/document.asp?reg_id=12&ref_id=19133
- International risk governance council (2013). *The rebound effect : implications of consumer behavior for robust energy policies,* www.irgc.org/wpcontent/uploads/2013/04/IRGC_ReboundEffect-FINAL.pdf

- Le médiateur national de l'énergie (2013). *Rapport annuel 2012,* www.energie-mediateur.fr/fileadmin/user_upload/Publications/RA_MNE_2012.pdf
- Liddell. C (2013*). Northern exposure: alleviating fuel poverty in North and West Belfast, Northern Ireland. National Energy Action NI*. University of Ulster, http://eprints.ulster.ac.uk/view/author_or_editor/356.html
- Marchal. J (2008). *Modélisation des performances énergétiques du parc de logements. Etat énergétique du parc en 2008*. Anah, www.anah.fr/fileadmin/anahmedias/Textes_et_publications/rapport_performances_energetiques.pdf
- Maresca. B (2013). *La précarité énergétique pose la question du coût du logement en France. Crédoc*, www.credoc.fr/publications/abstract.php?ref=CMV258
- Marmot Review Team (2011). *The health impacts of cold homes and fuel poverty. Institute of Healtg*, www.instituteofhealthequity.org/projects/the-health-impacts-of-cold-homes-and-fuel-poverty
- Martiskainen. M (2007). *Affecting consumer behaviour on energy demand.* University of Sussex, EDF, https://www.sussex.ac.uk/webteam/gateway/file.php?name=seg-consumer-behaviour-final-report.pdf&site=264
- Moore. R (2012). *Definitions of fuel poverty: implications for policy*. Energy Policy.
- Moore. R (2012). *Improving the Hills approach to measuring fuel poverty*. Centre for Sustainable Energy, Association for the Conservation of Energy, www.consumerfocus.org.uk/files/2009/06/ACE-CSE-and-R-Moore-2012-11-Improving-the-Hills-approach-to-measuring-fuel-poverty.pdf
- NEA (2013). *The UK fuel poverty monitor 2013, www.nea.org.uk/policy-and-research/publications/publications-2013/uk-fpm-13*
- Ofgem (2012). *Energy affordability: helping develop Ofgem's vulnerable consumers' strategy*. https://www.ofgem.gov.uk/ofgem-publications/57056
- ONPE (2012). *Définitions de la précarité énergétique et modes de calcul.*
- ONPE (2013). Cahier d'acteurs DNTE – *la précarité énergétique en France : une question de grande actualité*. www.transition-energetique.gouv.fr/sites/default/files/dnte-cahiers-d-acteurs.pdf
- ONPE (2013*). De la facture d'énergie dans le logement aux indicateurs caractérisant la précarité énergétique*.
- Palmer. G, MacInnes. T, Kenway. P (2008). *Cold and poor : an analysis of the link between fuel poverty and low income*, www.poverty.org.uk/reports/fuel%20poverty.pdf
- Puca (2009). *Réduction de la précarité énergétique. Les premiers enseignements*, www.prebat.net/?-Reduire-la-precarite-energetique-
- Raux. C, Traisnel. JP (2007). *Habitat et déplacement dans les aires urbaines. Impacts énergétiques et environnementaux de la croissance urbaine*. http://temis.documentation.equipement.gouv.fr/results.xsp?q=auteur%3A%7CRAUX+(C)%7C&sort=auteur_sort&order=descendant
- Saujot. M (2012). *La mobilité, l'autre vulnérabilité énergétique*. IDDRI, www.iddri.org/Publications/La-mobilite,-l-autre-vulnerabilite-energetique
- UNCCAS (2013). *L'implication des CCAS/CIAS dans la lutte contre la précarité énergétique. Enquêtes & observations sociales*, www.unccas.org/services/docs/enquetes-observations-sociales5.pdf
- Sénat (2013). *Projet de loi de finances pour 2013 : écologie, développement et aménagement durables,* www.senat.fr/rap/l12-148-310/l12-148-310.html
- Société de Gestion du Fonds de Garantie de l'Accession Sociale à la propriété (2011). *Bilan éco-PTZ,* https://www2.sgfgas.fr/web/guest/eco-pret-a-taux-zero1
- MEDDE (2013). *Lettre d'information « certificats d'économies d'énergie »,* www.developpement-durable.gouv.fr/IMG/pdf/120801_Lettre_d_information_CEE.pdf
- Ministère de l'Egalité des Territoires et du Logement (2012). *Eléments de calculs des aides personnelles au logement, www.developpementdurable.gouv.fr/IMG/MEDDAT%20Plaq%20logement_BD.pdf*
- House of Commons (2013). *The green deal :watching brief : Government response to the Committee's First Report of Session 2013 14*, www.publications.parliament.uk/pa/cm201314/cmselect/cmenergy/142/142.pdf

LAST PUBLICATIONS IN CDC CLIMAT'S "CLIMATE REPORTS" SERIES

No. 40 **Forests and climate change mitigation in the European policies: priority to fuel wood**
FREDERIC BARON, VALENTIN BELLASSEN & MARIANNA DEHEZA - April 2013

No. 39 **More than 800 agricultural and agri-food sites are affected by the EU ETS**
MARCH CLAUDINE FOUCHEROT & VALENTIN BELLASSEN - Mars 2013

No. 38 **The economic tools of Chinese climate and energy policy at the time of the 12th five-year plan**
DI ZHOU & ANAÏS DELBOSC –January 2013

No. 37 **Ten lessons from 10 years of the CDM**
IGOR SHISHLOV & VALENTIN BELLASSEN - October 2012

No. 36 **Regional Climate, Air and Energy Plans: a too for guiding the energy and climate transition in French regions**
JEREMIE DE CHARENTENAY, ALEXIA LESEUR & CECILE BORDIER - September 2012

No. 35 **Delivering REDD+ incentives to local stakeholders: lessons from forest carbon frameworks in developed countries**
IGOR SHISHLOV & VALENTIN BELLASSEN - August 2012

No. 34 **Including international aviation in the EU ETS: a first step towards a global scheme?**
EMILIE ALBEROLA & BORIS SOLIER - May 2012

No. 33 **Joint implementation: a frontier mechanism within the borders of an emissions cap**
IGOR SHISHLOV, VALENTIN BELLASSEN & BENOÎT LEGUET - February 2012

No. 32 **Financing climate actions in developing countries: what role is there for NAMAs?**
ROMAIN MOREL & ANAÏS DELBOSC -February 2012

No. 31 **Carbon offset projects in the agricultural sector**
CLAUDINE FOUCHEROT & VALENTIN BELLASSEN -December 2011

No. 30 **The role of regional authorities in public support for renewable energies: examples in Europe and France**
MARION JEULIN & ANAÏS DELBOSC -November 2011

No. 29 **Voluntary carbon offsetting by local authorities: practices and lessons**
AMADOU KEBE, VALENTIN BELLASSEN & ALEXIA LESEUR -September 2011

No. 28 **Design of multi-sector Emission Trading Sschemes: a comparison of European and US experiences**
CECILE GOUBET & ANAÏS DELBOSC - May 2011

No. 27 **Drawing up a national climate change adaptation policy: feedback on five European case studies**
GASPARD DUMOLLARD & ALEXIA LESEUR -February 2011

N° 26 **Tackling forestry & agriculture emissions in New Zealand's new carbon market**
O. SARTOR, M. DEHEZA, M. BELTON - November 2010

All of CDC Climat Research's publications are available at:

http://www.cdcclimat.com