

Resolving Fuel Poverty in Europe: Understanding the Initiatives and Solutions

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Executive summary

Overcoming fuel poverty has become a major global challenge in mature economies like Europe. Despite a number of initiatives launched by organisations, countries, and companies, millions of people in Europe struggle to pay their energy bills. Fuel poverty also impacts the environment and world economy. This paper discusses the fuel poverty situation in Europe along with initiatives currently underway and solutions under development.

Introduction

Even though there is no official definition, “fuel poverty” refers to the experience of everyday people who are unable to pay the price for the energy needed to adequately heat their living space, light their rooms, and cook their meals. This situation occurs because of a combination of low income, high energy prices, and the low energy performance of their housing. Each year, there are more victims of fuel poverty in Europe than people who manage to get out of the situation.

Many stakeholders – public or private, non-governmental organizations (NGOs), foundations, and others – are seeking ways to contain and eradicate fuel poverty. For instance, a 2015 energy transition law adopted in France recognizes the need to combat fuel poverty. The first article acknowledges a right to energy for everyone; the third article engages France in the thermal renovation of 500,000 houses each year, half of which are occupied by low-income households. The 19th article also requires a study of opportunities to create funding to assist low-income households with housing renovation.

Fuel poverty is also about reducing greenhouse gas emissions and sustainability. The fuel poverty phenomenon requires some specific interventions and initiatives such as energy-efficient housing, energy pricing reform, social aid, and shared energy efficiency objectives. However, the lack of a common definition, the difficulty of accurate measurement, and the diversity of situations make it a challenge to structure global solutions.

This paper focuses on fuel poverty initiatives underway in Europe and explores sustainable solutions to addressing the problem. Drawing upon the expertise of Schneider Electric, the paper will also consider the role that education, training, and hybrid alliances can play in counteracting fuel poverty.

Understanding fuel poverty

Lack of a common definition

Thought leadership about fuel poverty began in Britain after the oil shocks of 1974 and 1978. Britain is one of the European countries that suffer most from an excess of winter deaths. For example, 9,300 of the 31,100 deaths recorded during the winter of 2012 took place inside British residences.¹ In the past decade, this issue has become a major challenge in Europe, where 50 to 125 million people are considered to be living in fuel poverty.² This number varies depending on how experts describe fuel poverty and how studies are performed. While the European Parliament has highlighted the significance of the fuel poverty situation for more than a decade, no common definition exists for all the countries of the European Union. The British have attempted to conceptualize fuel poverty via their ‘Low Income – High Costs’ Hills Indicator (see **Table 1**).³

Table 1
Hills indicator for determining fuel poverty

Hills Indicator		
Low Income – High Costs		
If energy expenses of the household	>	National median (weighted by m ²)
AND		
If income of the household (taxes + housing costs)	<	Poverty threshold
Result is fuel poverty		

¹ Hoyland, Dayle, ‘Better Housing, Better Health for Oxfordshire’, National Energy Foundation, Nov. 2014

² ‘Alleviating Fuel Poverty in the EU’, BPIE (Buildings Performance Institute Europe), May 2014

³ Hills, John, ‘Getting the Measure of Fuel Poverty, Final Report of the Fuel Poverty Review’, 2012

This British analysis asserts that people who spend more than 10% of their disposable income to obtain adequate heating comfort at home (or people who would spend more than 10% of their disposable income if they wanted to obtain an adequate heating comfort at home) are classified as living under fuel poverty conditions.

In France, according to the Grenelle law of 2010, 'A person suffers from fuel poverty if he/she finds it difficult in his/her house to dispose of enough energy in order to satisfy his/her elementary needs because of insufficient funds or poor housing conditions'.

Other European countries such as Germany, Spain, Portugal, and Italy have not yet adopted a precise definition of fuel poverty, but as a whole, stakeholders agree to define fuel poverty as the inability to sufficiently heat a house for a reasonable price, given the income. In accordance with the work of the European Partnership for Energy and the Environment (EPEE), understanding fuel poverty is the basis for finding ways to resolve it.⁴

The French RAPPEL (Poverty and Fuel Poverty in the House Network of Stakeholders) explains that many different realities are hidden, and occur because of multiple linked reasons:

'Fuel poverty is the result of many factors that have a strong influence on the evolution of energy expenses in total housing costs'.

- **Monetary** – This refers to households that exceed a certain percentage of income on energy spend. The British use this definition, which, while simple to calculate, carries the disadvantage of excluding households that must minimize energy consumption to avoid high energy bills and can include high-income households that have high energy use. This definition is also used by the French organization, Fondation Abbé Pierre.
- **Administrative** – This aspect comprises all households benefiting from public aid for assistance with energy expenses. In France, public aid resources include the Solidarity Fund for Housing, the First Necessity Price (for electricity) and the Solidarity Special Price (for gas).
- **Life quality** – If members of a household declare that they have suffered from cold weather conditions in their home for at least a 24-hour span, they would fall into the fuel poverty category from a subjective viewpoint. However, critics dismiss this indicator as a measurable factor.

Another difficulty in defining fuel poverty lies in the process of conducting studies. The number of people reported to be struggling with fuel poverty varies, depending on the parameters of a given study. Studies based on wide parameters, for instance, risk diluting the information base and possibly neglecting to pinpoint those in most need of assistance. Conversely, narrow parameters can risk excluding people who struggle with fuel poverty, but don't meet the tightened conditions of a study.

Underlying factors

Fuel poverty is the result of many factors that have a strong influence on the evolution of energy expenses in total housing costs.

The weight of energy expense is critical for a **low-income** household. According to the French Agency for Environment and Management of Energy (ADEME), 20% of the poorest French households allocate to energy bills a share of their budget that is 2.5 times higher than do 20% of the richest households.

However, economic poverty does not necessarily imply fuel poverty. According to a British⁵ study quoted in a report of the French Caisse des Dépôts,⁶ out of 1.5 million households

⁴ European fuel Poverty and Energy Efficiency: European studies on fuel poverty (stopped in 2009).

⁵ Palmer, Guy, Fuel Poverty and Income Poverty Overlap, New Policy Institute, 2008

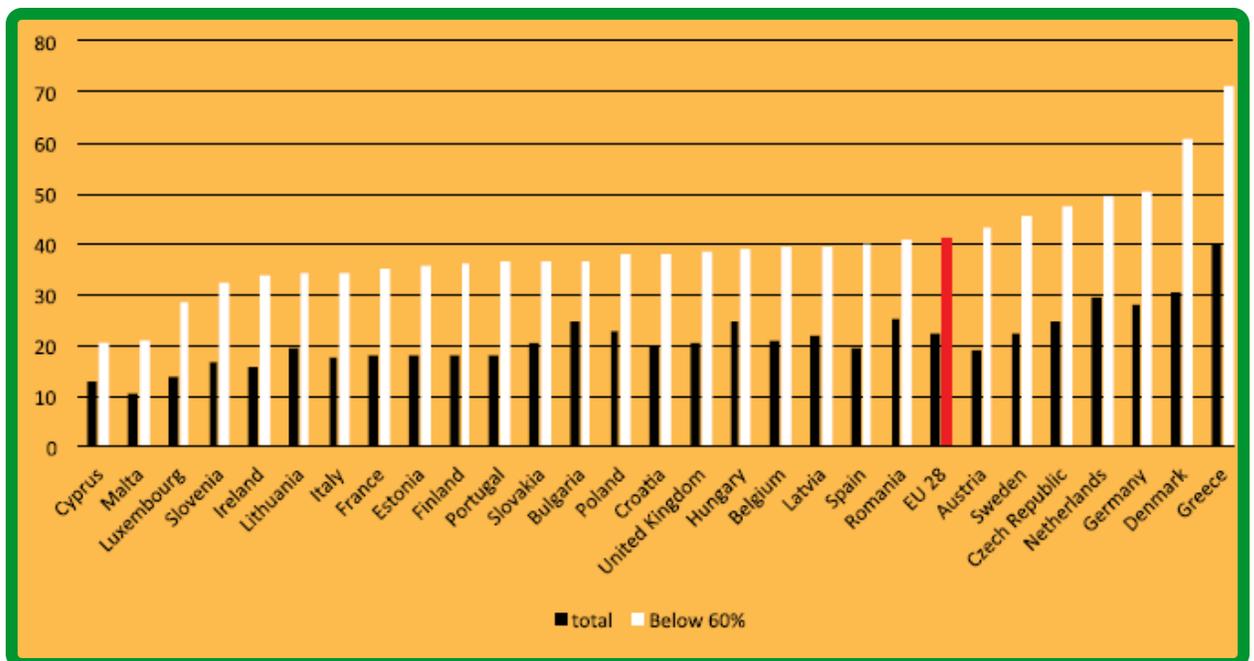
living under fuel poverty conditions in 2005, one quarter weren't classified as poor. This study focused on households that allocate more than 10% of their economic resources to energy expenses and defined as 'poor' those at less than 60% of the median income. Additionally, out of the 2.4 million poor households, one-third weren't in a fuel poverty situation.

Another factor is **housing with low energy performance**. The poor energy performance characteristics that cause heat losses drive a household to fuel poverty vulnerability. This situation forces them to increase heating expenses in order to compensate for heating loss. Energy performance diagnosis shows that in France in 2012, more than half (53.6%) of households consumed between 151 and 330 kWhEP/m² per year.

High energy costs also increase the burden of energy expenses, as do an **increase in housing costs**. In 2013, Europeans spent on average 20% of their income for housing expenses. This number jumped to 40% when households with an income at less than 60% of the median income were factored in (see **Figure 1**).⁷ Across Europe, housing prices are steadily rising, representing a significant portion of household budgets.

Figure 1

Share of housing costs in disposable household income for the total population and those with income below 60% of median income



As an example of energy costs, **Table 2** lists 2014 energy expense data for France.⁸

According to the Fondation Abbé Pierre, rents of private housing in France have increased by 57% since 2000, and housing purchase prices of ancient housing have risen by 116%.⁹ The

⁶ 'Lutte contre la précarité énergétique: Analyse des politiques en France et au Royaume-Uni', Climate study, September 2013

⁷ EU SILC 'The state of housing in the EU 2015, A Housing Europe Review' 2013

⁸ General Commission for Sustainable Development, 'Le bilan énergétique de la France en 2014', pic de production, plancher de consommation, July 2015

⁹ 'L'état du mal-logement en France', 20th annual report of Fondation Abbé Pierre, 2015

share of housing in the total expenses of households is therefore higher than 25%, which exceeds the 13% required for food. This is a reversal of expense levels of the 1980s. Other factors also contribute to the negative effects of these four major elements. These include lack of a social network or access to information, language barriers, all of which exacerbate poverty conditions.

Table 2

Percentage of people who suffer from fuel poverty conditions by Western European country.

Source: General Commission for Sustainable Development

2014 Energy Expense Data for France	
€2,980	Average annual energy expenses per household (includes fuel expenses)
€47	1.5% decrease compared to the 2013 bill
5.7%	Share of energy expenses in the effective consumption of households
€1,620	Share of housing expenses (heating, hot water, cooking, electrical uses, etc., 11% less compared to 2013)
5.7%	Increase in electricity prices
0.9%	Decrease in gas prices

People affected by fuel poverty

The primary victims of fuel poverty are low-income households (many of whom are living at less than 60% of median income), who often find it difficult to manage energy expenses. However, this phenomenon can affect middle-class households as well. Indicators for identifying those who struggle with fuel poverty are:

- Households unable to pay their energy bills
- Households living in only one room or area of their houses
- Households with evidence of low indoor temperature during cold months such as condensation, humidity, and mould

ADEME has documented this profile of French people who are unable to pay their heating bills:

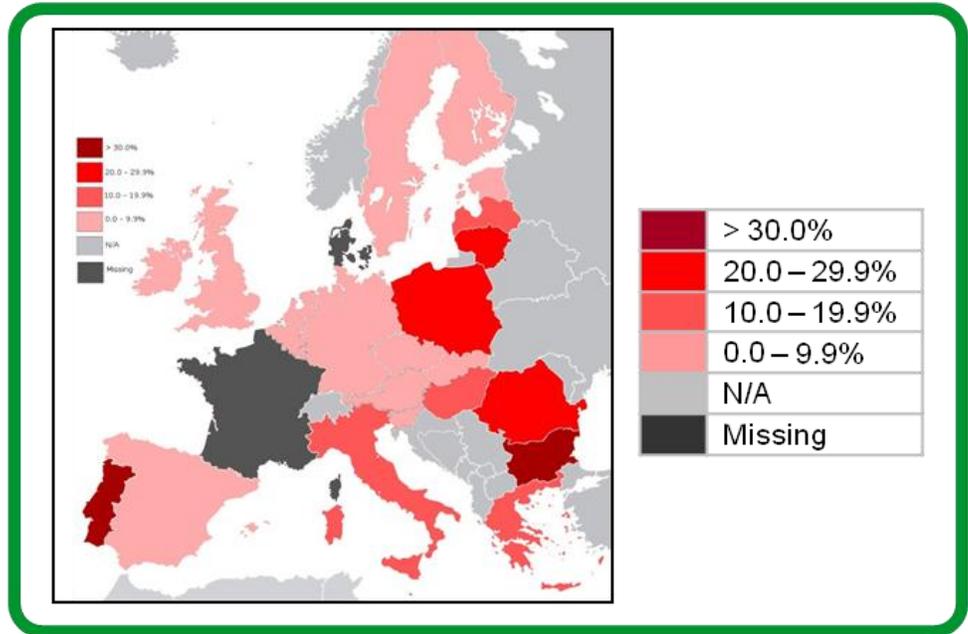
- Nearly 60% are part of the poorest households
- 10% are single-parent families with children
- 46% are people living alone, often the elderly
- 66% are tenants of the private sector
- 62% are owners occupying their house, often the elderly with homes in need of repair
- 65% live in city centre
- 36% live in individual homes built before 1975

Figure 2 maps the percentage of European households unable to afford to keep their home adequately warm (weighted).¹⁰

¹⁰Boardman, B. (2010b) 'Liberalization and fuel poverty', In: Rutledge, I. and Wright, P., ed. 2010. 'UK Energy Policy and the End of Market Fundamentalism', Oxford: Oxford University Press, Chapter 9.

Figure 2

Illustration of percent of population who cannot keep their home sufficiently warm in western Europe



According to the work of the European Partnership for Energy and the Environment (EPEE), the geographical breakdown in Europe of people who struggle against fuel poverty is shown in **Table 3**.

Table 3

Percentage of people who suffer from fuel poverty conditions by Western European country

Estimate of households under fuel poverty by country			
Country	%	Country	%
Netherlands	8.1%	Finland	13.0%
Belgium	8.9%	Ireland	13.5%
Sweden	11.2%	Luxembourg	13.6%
Austria	11.9%	Czech Republic	14.5%
Slovenia	12.0%	France	16.2%
Denmark	12.4%	United Kingdom	19.2%
Germany	12.6%		

The percentage will most likely rise in the coming years if the situation keeps evolving in Europe where:

- About one in seven households is exposed to poverty¹¹
- From 2007 to 2012, the price of domestic gas increased on average by 22.1%¹²
- From 2007 to 2012, the price of domestic electricity increased on average by 13%¹³
- More than 60% of housing in Belgium, France, Spain, Italy, and Britain was built before laws on thermal isolation were implemented

¹¹Report of the European Commission on social affairs and inclusion (2007)

¹²Eurostat/JDN Prices, 1st half 2012

¹³Eurostat/JDN Prices, 1st half 2012

Consequences on society

Health and social impact

One of the most serious consequences of fuel poverty is related to health. Insufficient heating affects the living conditions and health of households. 'The Health Impacts of Cold Homes and Fuel Poverty', a study published in 2011 by the Marmot Review Team, shows that fuel poverty has many negative consequences on health and affects all ages:

- An increase in wintertime mortality – According to the 'Public Health White Paper' published in 2010 by the British Health Department, warmer housing could prevent many deaths attributable to cold winter weather (35,000 in 2008-09).
- An increased risk for some illnesses – Illnesses caused by insufficiently heated homes are linked to blood circulation problems, breathing problems such as asthma, rheumatism, influenza, and others.
- Effects on mental health – The Marmot Review Team report also highlights the risk of anxiety and depression for people who struggle with fuel poverty.

Environmental and economic impact

The poor insulation of houses, combined with inappropriate secondary heating, affects greenhouse gas emissions. Such situations can lead households to over-consume energy. Since energy use in homes represents one-third of CO₂ emissions in Europe, this has a significant impact on the environment. Steps toward improvement include the 2009 initiative in France for reducing energy use by 38% in the building trade. In addition, the economic impact of fuel poverty affects all stakeholders:

Individuals and families – Households are the first to suffer from fuel poverty, especially when it's linked to poor living conditions. To increase comfort and compensate for inefficient structures, people often must increase their energy consumption and corresponding expenses. A British study has shown that poor insulation leads to £1 of extra energy expense for every £4 spent on heating.

Companies – Energy suppliers are also affected by the fuel poverty situations of clients; if a client isn't able to pay his or her energy bills, the supplier experiences losses due to recovery costs. This trend has been on the rise since the economic crisis in 2008. In 2009, financial assistance allocated to unpaid gas bills in some regions by the French Solidarity Funds for Housing (FSL) increased by 70% compared to the previous year. In 2011, 9% of European households were late in paying their service bills.¹⁴

Society – The main consequences of fuel poverty on society are summarized in the article 'Five Reasons Why the European Union Must Invest in Thermal Renovation of Homes for Households in Energy Poverty', published on the website euractiv.com. The top points include:

- Fuel poverty impacts national energy consumption and can influence a country's expenses. In France, the gas and oil balance in 2014 amounted to €54.6 billion, which represented more than France's trade gap of €53.8 billion. Reducing fuel poverty could help improve energy self-sufficiency and reduce the trade gap of many countries.
- As the Marmot Review Team demonstrated, fuel poverty can contribute to illness. Studies like a 2003 Healy report have shown that for each euro invested in thermal renovation of housing, a savings of 42 cents on health spending is possible.
- Fuel poverty has indirect consequences on employment, and working to overcome the issue could create employment. For every million Euro invested in thermal renovation

Consequences of Fuel Poverty

A summary of how fuel poverty affects society is available in the article:

'Five Reasons Why the European Union Must Invest in Thermal Renovation of Homes for Households in Energy Poverty'

www.euractiv.com

¹⁴EU-SILC, statistics on income and living conditions

of housing, between 12 and 19 jobs could be created (see **Table 4**).¹⁵ Therefore, an investment of €50 million could create between 600,000 and 950,000 local jobs. In Europe, unemployment costs the taxpayers an average of €20,000 per year (ranging from €18,008 in England and €33,443 in Belgium, according to the European Federation for Services to Individuals). In such a scenario, unemployment avoidance would save €12 to €19 billion each year, and would imply a return on investment in as little as four years.

Number of jobs created by energy renovation of the housing stock per €1 million investment

Jobs/€1 million Source/year	New jobs	Period/year	Sector
UNEP (United Nations Environment Program), 2008	11 to 13 full-time equivalent jobs	2000	Residential
L'Union Sociale pour l'Habitat, 2011	14 jobs in thermal renovation	2011	Property
ILO (International Labor Office), 2012	15 direct and indirect jobs	2012	Housing
EEIF (Energy Efficiency Industrial Form), 2012	19 new local and non-transferable jobs	2012	Construction
BPIE (Buildings Performance Institute Europe), 2011	17 new net jobs	2010	Construction

Table 4

Relationship of energy renovation to the creation of new jobs
Source: Neujobs Working Paper

Solutions and limitations

Several solutions have already been implemented to alleviate fuel poverty. According to national organisations like ADEME, more and more people experience fuel poverty each year, as much as 40% since 2009. Many measures implemented by NGOs and governments are curative rather than preventive and do not address the underlying causes of fuel poverty.

In addition, it is important to understand a household's needs. As the French Fondation Abbé Pierre highlights in its 2015 annual report on the state of inadequate housing in France, many households refuse the social housing offered to them, and many people resort to emergency numbers and services, because they refuse to participate in a process managed by the state.

Assistance with energy bills

Some energy bill relief assistance is available, and initiatives have been launched that aim to reduce the price of energy in European countries such as France, England, Belgium, and Spain. Listed below is a summary of some of these programs.

¹⁵Frits Meijer, Henk Visscher, Nico Nieboer, Robert Kroese, 'Jobs creation through energy renovation of the housing stock', *Neujobs Working Paper*, December 2014

France

- Aids are allocated depending on social criteria and are financed through consumer solidarity (final bill of consumers).
- Essential Price for electricity (TPN, Tarif de Première Nécessité), up to €140/year/household
- Solidarity Special Price for gas (TSS, Tarif Spécial de Solidarité), up to €200/year/household
- Housing Solidarity Funds and charities, assistance for households that have difficulty paying their bills, including energy
- Following the 2015 energy transition law, these multiple aids could be merged into one global aid: the “cheque énergie” (energy check), which will address all types of energy instead of only gas and electricity

England

- Warm Home Discount, an aid on energy bills of about €170 for low-pension and/or low income households
- Cold Weather Payment, an aid of €30 per week in case of more than seven sequential cold days
- Winter Fuel Payment paid to all retired people regardless of income level (estimates show that 12% are under fuel poverty)

Although vital for many households, these aids only address the symptoms of fuel poverty rather than enabling households to improve their situation. The amounts are rather low, about €100 euro per year, compared to the total yearly energy bill. The aids target households with access to on-grid energy and do not cover those using sources such as wood, solar, and butane. In addition, modulating energy prices can be counterproductive, as this action doesn't encourage low-income households to efficiently manage their energy consumption.

In Belgium, many stakeholders are critical of aids, as they are available to households where at least one of the members belongs to a certain category (e.g., disabled people, retired people, people under social benefits) and don't take into account the global income and situation of the household.

Housing renovation

Some governments have implemented preventive measures enabling households to renovate their housing.

- In France, the government has allocated €500 million to the National Housing Agency (ANAH, Agence Nationale de l'Habitat) for its program Habiter mieux, for thermal renovation of 300,000 houses of low-income owners or lessors by 2017. However, some who might benefit from the program may not be able to provide advanced financing for renovation, may not be aware of the opportunity, or may be restricted by their status as renters.
- The British government launched Green Deal in 2009 to enable households to improve the energy efficiency of their homes through a system of loans refunded by the energy gains achieved. However, this solution fosters only temporary renovation and not long-term work, and the interest rate is above 8%, which is an obstacle for households that are dealing with fuel poverty.¹⁶
- In Sweden, all consumers are under the same energy tariff system and an allowance is allocated to all households. Low-income households can receive help with their energy

¹⁶P-E Julia, C. Milin, A. Rüdinger, 'Le Green Deal britannique: quels enseignements pour la politique de rénovation énergétique des logements en France?' *Working Paper* (juillet 2014) *SciencesPo*.

bills on a case-by-case basis. This requires a visit by a social service officer to review their circumstances.

Social aids

In Germany, although the government is aware that many people find it difficult to pay their energy bills, the government classifies fuel poverty as a part of poverty in general. No particular national policy has been implemented regarding energy, but some social aids exist. The energy aids are included in unemployment benefits, and they are calculated depending on a household's size and situation (about €52/month).

Raising awareness of eco-behaviours

One of the main difficulties is to identify at-risk households as they may not seek assistance, which makes it difficult for organisations to locate them and offer aid. A significant amount of energy spending could be avoided through simple 'eco-behaviour' changes, as well as the installation of small devices (i.e., faucet aerators, low-energy bulbs, shower hourglass) In France, for example, the Unis-cité organisation created the Médiaterre program, which enables young people performing their civil service to help low-income families learn and adopt eco-behaviours that help reduce their energy bills and environmental imprint.

In Italy, the government and energy companies have deployed smart meters to the extent that 95% of Italian households have such devices. This solution has many advantages: energy companies are able to better understand and address the problem of fuel poverty, and households are able to monitor and control their own consumption. Distribution companies are obliged to install smart gas meters, so nearly all Italian households will have this solution by 2018.

Energy efficiency assistance

Schneider Electric offers energy efficiency education and training. The company's investment fund, Schneider Electric Energy Access (SEEA), supports social entrepreneurs, developing solutions to improve fuel poverty situations.

Schneider invests in initiatives such as the following:

- Foncière Chênelet is a group of social enterprises that constructs high energy-efficient homes for social housing. The houses are built and rented by the Foncière Chênelet or built and sold to other social housing landlords.
- LVD Energie is a subsidiary company of La Varappe. With SEEA, La Varappe has created a joint venture, LVD Energie, which builds energy-efficient housing with recycled containers. LVD Energie has built one building for a French social housing landlord based in Lyon, 'Habitat et Humanisme'.

Schneider Electric also supports associations that assist people in fuel poverty situations in mature countries:

- In France, the Schneider Electric Foundation supports the previously mentioned Médiaterre program of the association Unis-Cité. Médiaterre was created by Unis-Cité in 2009. It enables young people performing their civil service to help low-income families learn and adopt eco-behaviours that help reduce their energy bills and environmental footprint. The program has about 450 participants that serve 1,500 households.
- In Spain, the Schneider Electric Foundation partners with Ecoserveis. This association assists families struggling with fuel poverty to better manage their energy spending. Ecoserveis also trains people in job integration to new competencies and new jobs.

The Schneider Electric Foundation supports similar projects in France (Ulysse Energie, previously called Soleni).

Training and education

Schneider Electric programs help people who are struggling with fuel poverty to alter their energy use behaviours. These programs offers guidance on saving energy, highlights available funding for housing rehabilitation, and spurs training and education about eco-behaviours.

Schneider Electric has also developed products and services that increase energy efficiency in commercial and public enterprises as well as residential housing.

Two of those solutions – Wiser and KNX – gather and manage information on residential energy consumption, which can help homeowners save up to 30% on energy costs. Through smart devices, the information is sent to an application, making it possible to change settings and control a home's energy consumption from anywhere via the Internet.

Leveraging alliances

Fuel poverty is a multifaceted issue that involves economics and politics and has a far-reaching impact upon people's health and quality of life as well as the environment. With multiple stakeholders working to address the issue, hybrid solutions and hybrid alliances are key.

The Schneider Electric Foundation, under the aegis of the Fondation de France, is supporting a call for projects launched in September 2015 by Ashoka, an NGO promoting social entrepreneurship. 'Social Innovation to Tackle Fuel Poverty' aims to identify and support the best innovative organizations, which fight against fuel poverty in six European countries (Belgium, Czech Republic, France, Italy, Poland, and UK). Together with a consulting firm, Ashoka and Schneider Electric have identified six categories in which social enterprises can have an impact on fuel poverty:

- Synergies – leveraging synergies with health and social care systems
- Innovative funding – resourcing and partnerships for private initiatives to build or renovate energy-efficient housing or equipment
- Identification – data gathering or sharing with interoperable systems to improve identification of fuel poverty population and needs or awareness of public authorities
- Energy efficiency – switching to energy-efficient solutions such as off-grid energy sources
- Education – boosting education and community engagement
- Skills and job development – creating new skills or jobs in relation to energy efficiency or renewable energy

Conclusion

Fuel poverty is a difficult subject to understand and to measure. While fuel poverty is a significant problem for low-income households, it can also impact other socio-economic groups.

The issue is a major concern for many European stakeholders, both as a difficult reality for households and because of the environmental effects. Although many countries have initiated programs to end fuel poverty, differences in infrastructure and policies complicate efforts to arrive at a common solution.

Sustainable and efficient energy use can help overcome fuel poverty while driving societal and economic development, including increased employment opportunities. Schneider Electric and allied organisations are working to promote energy access for all through training, education, and advanced efficiency solutions.



About the authors

Gilles Vermot Desroches is a Senior VP, Sustainability, at Schneider Electric. After serving as president of an NGO and within a cabinet ministry in France, Gilles joined Schneider Electric in 1998. He has led the corporate responsibility ambition and the performance of the company in environmental, social and societal areas as well as the dialogue with its stakeholders. He is active in several civil and academic organisations like ADEME, ORSE, EpE, Global Compact and Sciences Po Paris University.

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Agnès Dallemagne joined Schneider Electric in 2015 to work at the Foundation. Her role is to develop Schneider Electric employee commitments as well as to coordinate several projects supported by the Foundation, especially some funded on the occasion of COP21. An apprentice, she is also a student at ESSEC Business School, preparing a master's degree in management.