



Energy Efficiency Policies and Measures to Tackle Energy Poverty

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Energy transition and energy poverty?

All countries now agree about the need to increase further energy efficiency as a key strategy towards a transition to low carbon economies.

The purpose of this presentation is to look at how energy policies try to assist households in energy poverty situation to do this transition.

This is especially important as these households are often excluded of the traditional energy efficiency measures implemented, and may even be harmed by these measures.

What is energy poverty?

There is no general consensus on the definition of energy poverty.

However, energy poverty, or fuel poverty, is often defined as a situation where low-income households are not able to adequately provide basic energy services in their homes at affordable cost.

To be more precise, a widely-used definition is that a household in fuel poverty needs to spend more than 10% of its income on energy.

Policies to address fuel poverty?

- To address fuel power, the most common approach is to **reduce the energy expenditures** of low income households with social tariffs, energy subsidies and prepaid meters.
- More recently, policies are also focusing on measures aiming at **improving energy efficiency** for these households to reduce their energy expenditures in a more sustainable and long-lasting approach.
- The objective of this presentation is to focus on **energy efficiency P&Ms** targeting fuel poverty.

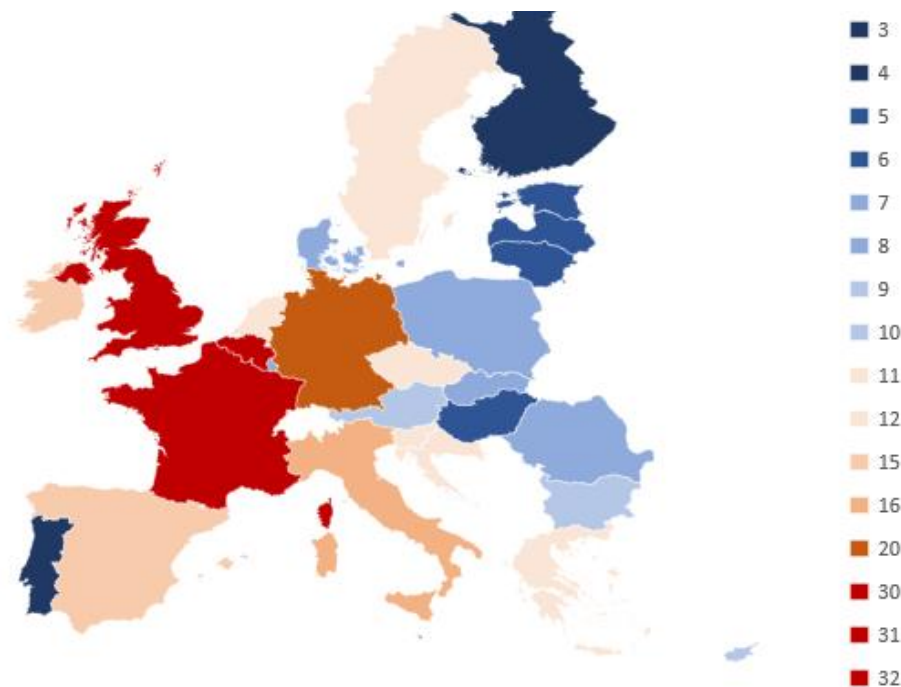
Content

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 - Increasing awareness of public authorities
 - Energy poverty observatories
 - Indicators of energy poverty
 - Policy and measures (P&Ms)
- Energy poverty in developing and emerging countries



An increasing awareness of public authorities on energy poverty in Europe

- In 2018, around 20% of EU households (i.e. ~45 million) are considered in situation of fuel poverty.
- Because of this situation, there is a **growing concern of public authorities on energy poverty**, which results in a **multiplication of policy measures** addressing energy poverty: around 200 measures are currently implemented (7 per country on average and above 30 in UK, the front runner, France or Belgium). EU countries have even to submit to the EU Commission a national strategy to address energy poverty.



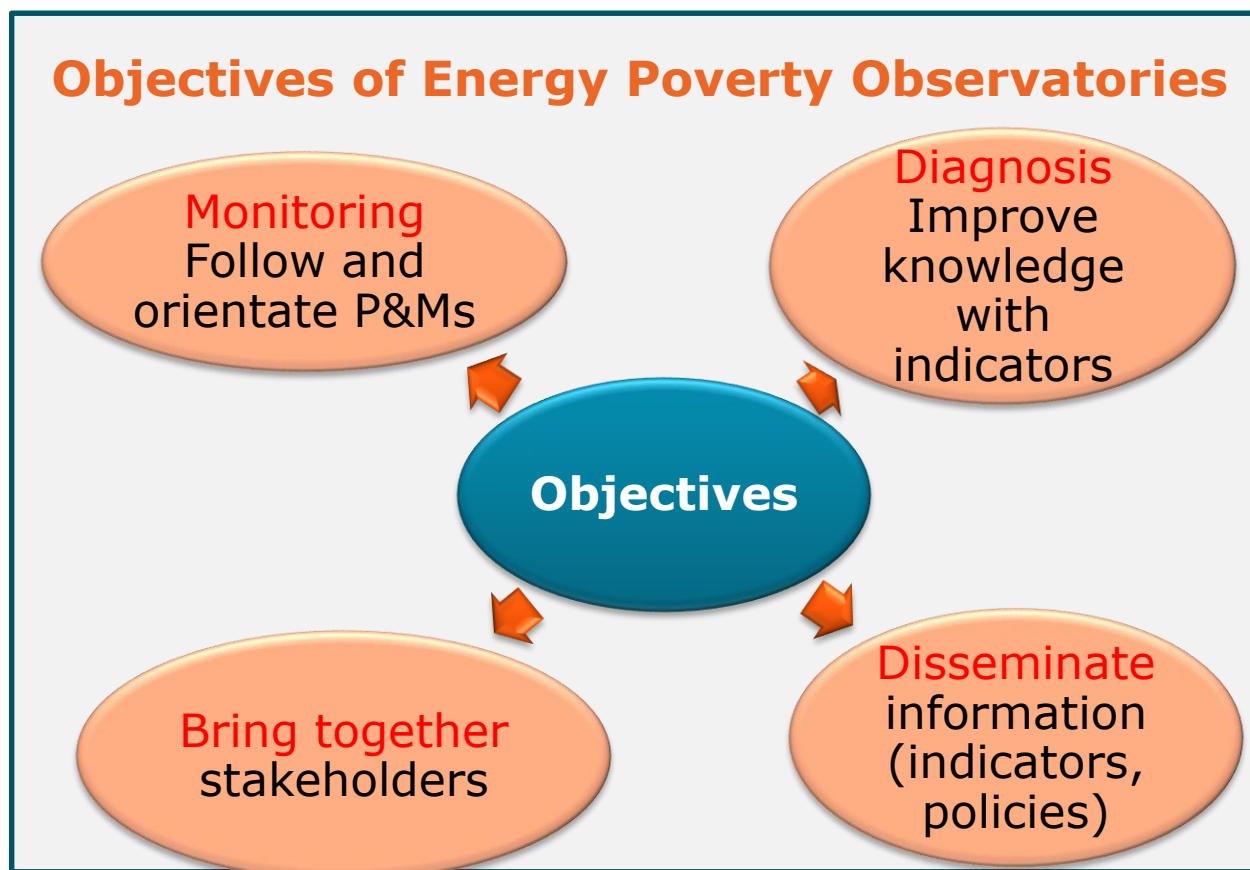
Number of P&Ms addressing energy poverty in EU countries.

Source : Enerdata
(based on EPOV)

Energy Poverty Observatories in Europe

Accurate information is important to get a detailed understanding of energy poverty. As a result, “**Energy Poverty Observatories**” have been created in several European countries and at EU level.

- Energy Poverty Observatories exist in 5 EU countries. Others are under creation (Portugal and Italy).
- The EU Energy Poverty Observatory (EPOV) has been launched in 2018 by the European Commission to address energy poverty across all EU countries.



EU Energy Poverty Observatory: EPOV

<https://www.energypoverty.eu>

EPOV rely on four **tools**:

- A dashboard of 15 types of indicators, including 4 primary indicators and 11 types of secondary indicators (24 in total)*;
- A catalogue of P&Ms addressing fuel poverty in the EU;
- Training materials and documentation on fuel poverty;
- Discussion forums.

*Secondary indicators are background indicators such as energy prices by energy source (6 indicators), housing-related data (e.g. number of rooms per person, energy label...), energy expenses vs. income data by income quintile (5 indicators), excess winter mortality, poverty risk.

Case of the French Energy Poverty Observatory (ONPE)

<http://www.onpe.org>

ONPE is a national observatory aimed at improving knowledge on energy poverty (**residential and transport**), informing and contributing to orientate P&Ms. Created by ADEME, it gathers a strategic comity (funding agencies, governmental organizations, energy utilities) and a comity of partners (mostly civil society representatives).

Tools :

- Indicator dashboard with **3 indicators reflecting restricted energy consumption** (energy effort rate, remaining funds...); **secondary indicators and monitoring indicators** (e.g. number of energy audits);
- List of local and national initiatives;
- List of available public and private financial supports;
- Focus on 6 French territories.

Energy poverty in Europe: Typical indicators

Indicator	Description
Share of energy expenditures*	% of households with high share of energy expenditure in income ("high" defined as twice the national median).
Arrears on bills*	% of households with arrears on utility bills.
Hidden energy poverty (HEP)*	% of households whose absolute energy expenditures are abnormally low.
Heating/cooling comfort**	Share of population feeling uncomfortably warm or cold, based on survey on feeling comfort (summer/winter).
Presence of leak, damp, rot*	Share of population with leak, damp or rot in their dwelling, based on a survey.
Restriction behavior***	Difference between real and theoretical expenses.
Fuel poverty gap ***	Measure the additional fuel costs faced by fuel poor households to meet the non-fuel poor household threshold. Measures the depth of fuel poverty.

Energy poverty P&Ms in Europe

In Europe, P&Ms on fuel poverty focus mainly on **space heating** and sometimes also on **transport**.

Types of P&Ms implemented in Europe to tackle fuel poverty

Type	Example	Deployment
Information, education	<ul style="list-style-type: none">• Energy information platforms• Provision of energy-saving coaching by specifically trained unemployed people.	+++
Financial incentives to improve EE*	<ul style="list-style-type: none">• Energy checks• Financial support for replacing household appliances or improving home insulation (level depending on household income).	+++
Regulatory measures	<ul style="list-style-type: none">• Mandatory minimum energy standard below which a property cannot be rented• Energy saving obligations for energy utilities for households in fuel poverty.	++

Example of P&Ms on energy poverty: Energy Check, France

Context

In 2018, the energy check replaced social tariffs for electricity and gas.

Characteristics

The check targets households under a certain income threshold. It is an annual subsidy, the amount of which depends on the household income (average of 150 € in 2018 but up to 270 € for low income households). Households have the possibility to use it either to pay their energy bills or to conduct energy efficiency works. The check is financed with a tax on electricity and gas.

Impacts

3.6 million eligible households in 2018 (but 15% of these households did not use it due check loss or administrative difficulties). This number is expected to raise to 5.6 million (~20% of households) in 2019.

Success factors

No administrative paperwork, the check is sent automatically. Simple allocation criterion.

Example of P&Ms on energy poverty: subsidy for the replacement of old cars, France

Context

Taxes on motor fuels have been increasing every year: on diesel to catch with gasoline price; on gasoline and diesel through the CO₂ tax (39€/t in 2018; 56 € in 2020). In November 2018, a large social unrest due to the high level of motor fuel prices led the government to set new measures.

Characteristics

Since 2018, a subsidy helps households replace their old car* with lower emission cars. Non-taxable households get a subsidy of :

- 2000 € to buy a gasoline/diesel car (new or second-hand, with emissions <130gCO₂/km); raised to 4000 € in November 2018 for the 20% most vulnerable households and those driving >60km/day.
- 2500 € to buy a new electric car (lower subsidies also applies for electric 2 and 3 wheelers), raised to 5000 € in November 2018.

Impacts

280 000 replacements in 2018, 70% of which benefitted to non-taxable households; a total of 1 million replacements expected until 2022.

Example of P&Ms on energy poverty: Energy Company Obligations (ECO), UK

Context

UK has a long tradition of PMs on fuel poverty. Energy saving obligations for electric and gas utilities started in 2002 and always required that 50% of the savings should take place with poor households. Since 2013 it is called ECO.

Characteristics

UK government sets obligations to energy suppliers :

- **The affordable warmth (AW) obligation** to help low income households to heat their homes (e.g. boilers' replacement or repair).
- **The Carbon Saving Obligation (CSO)** to improve energy efficiency through roof and wall insulation and connections to district heating.
- **The Carbon Saving Communities (CSC)** (2015-2017) that stated that at least 20% of the carbon savings measures under CSC had to be delivered in low income communities and that at least 15% of CSC obligations should be delivered to rural, low income households.

Impacts

>2 million measures installed from 2015-2017 in ~1.6 million properties

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P&Ms to address fuel poverty in developing/emerging countries?

In developing and emerging countries, i.e. non OECD countries, energy efficiency P&Ms targeting fuel poverty focus mainly on :

- **cooking**, either to disseminate efficient wood cooking stove or to replace them with modern stove (LPG, natural gas and even electricity)
- **lighting**, by providing free efficient lamps and phasing out incandescent lamps
- And possibly **home comfort** (cooler homes).

Energy poverty P&Ms in developing/emerging countries (non OECD)

Types of P&Ms implemented to improve EE and tackle fuel poverty

Type	Example	Deployment
Financial incentives*	<ul style="list-style-type: none">• Subsidies and loans (often reimbursed through utility bill) for:<ul style="list-style-type: none">• efficient wood cookstove purchase• fuel conversion• efficient lighting (even provision of free efficient lamps)	+++
Information education	<ul style="list-style-type: none">• Community « agents » to make door-to-door visits for an energy audit• Service basket program led by a multidisciplinary field team	++
Regulatory measures	<ul style="list-style-type: none">• Phasing out inefficient lighting through minimum standards• Energy saving obligations for energy utilities focusing on households in fuel poverty.	++ +

Examples of energy poverty P&Ms in non OECD countries: *diffusion of efficient wood cooking stoves*

Gold Standard Burn Stove project (Kenya)

Context: in Kenya, households can spend over 20% of their income on biomass for cooking

Characteristics: support to the manufacturing and distribution of improved cookstoves produced locally (400 employees) in a solar-powered factory. Sales and distribution subsidized by carbon finance

Impacts: 120 000 stoves installed over 2012-2014; fuel consumption and cooking time reduced by 50%, fuel saving \$250/year per household

Large Scale use of efficient cookstoves (Cambodia)

Characteristics: Development and commercialization of improved cooking stoves supported by the private sector, with the creation of an association of producers and distributors.

Impacts: ~3.6 million improved cookstoves installed from 1997 to 2016 ; ~ 2 Mt of wood saved from 2003 to 2013; 25% savings on fuel expenditures

Examples of P&Ms on energy poverty in non OECD countries : fuel substitution for cooking



Natural Gas Distribution for Low-Income Families (Colombia)

Context: Colombia has achieved a large expansion of its natural gas network but many households cannot pay the switching cost to gas.

Characteristics : subsidy scheme funded by GPOBA (World Bank) where low income households receive a subsidy of US\$140 (38% of the connection's cost), complemented by loans provided by distribution companies to cover the remaining cost.

Impacts: 35 000 gas connections and stoves installed over 2006-2008.

Programme for energy efficient cooking (PEC) (Ecuador)

Context: LPG is heavily subsidized to enable poor households to use LPG: ~90% of households cook with LPG and subsidies represented ~ 1% of GDP. To reduce the cost of subsidies, PEC aims at replacing LPG stoves with electricity induction ranges.

Characteristics: PEC includes a consumer credit for stove purchase provided through electric utilities. Participants make monthly payments in their electricity bill and receive 80 kWh of electricity per month free.

Examples of P&Ms on energy poverty in non OECD : lighting and energy saving obligation

Domestic Efficiency Lighting Programme (DELP) (India)

Objective: Scheme launched in 2015 to replace 770 million incandescent bulbs with LED variant by 2019.

Characteristics : a joint venture of state-run power companies, the Energy Efficiency Services Limited (EESL) implements the project. It provides LED bulbs at 20-40% of the normal price and allows consumers to pay in installments. The launch of the scheme coincided with the cancellation of a subsidy on CFLs.

Expected impacts: reduction in capacity load, energy savings and reductions in end-consumer's energy bills.

Energy Efficiency Obligation Programme (PEE) (Brazil)

Since 1998, electricity distributors are obliged to invest a share of their annual net revenue in energy efficiency activities (0.50% until 2016 and 0.25% now). Since 2008, a share of these investments should reach low-income households (60% since 2010; 50% before).

Policies and measures to address fuel poverty: final comments

- Many countries are now implementing P&Ms to improve energy efficiency for energy poor households, through a variety of measures and with different focus, depending on the countries.
- The most innovative measures combine subsidies and loans.
- Measures rely more and more on energy utilities to implement the measures (loans reimbursed through the energy bill) and pay for the measures (energy saving obligations).

Policies and measures to address fuel poverty: final comments

- **Observatories of Energy Poverty** aim at gathering information on these measures and their impacts, as well as to monitor their effect on low income households.
- A **new challenge** is now appearing: most countries embark on energy transition strategies to a low carbon economy that may harm households in situation of energy poverty (especially in case of CO₂ tax): this means that, **before implementing any new measures, their impact on energy poor households should be taken into account and accompanying measures should be considered.**

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About Enerdata:

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