streamSAVE Dialogue Groups

Priority Action:

Energy efficiency measures to alleviate energy poverty

Minutes of Meeting 2

Friday 9 December 2022

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Short summary

This meeting discussed the calculation methodology and related issues about energy savings from energy efficiency measures to alleviate energy poverty. Key points highlighted in the discussions:

- There is a much higher attention on energy poverty: this is now part of the general public debate (like inflation, employment, etc.)
- The literature shows that reducing energy poverty brings multiple benefits that are likely more than compensating the intervention costs.
- Health benefits from building renovations are proven and are an essential benefit of energy efficiency interventions tackling energy poverty.
- Building renovations may also have negative effects for tenants, in case of increase in the rent.
- The literature provides evidence and indicative values about differences between energy poor households and other households as regards baseline energy consumption (before intervention).
- However, there is not enough data available to define indicative values about possible differences in the effects of energy efficiency interventions, especially for behavioural measures.
- The differences in energy consumption between energy poor households and all households may vary according to the type of energy or end-use, and the sub-groups of energy poverty (related to different energy poverty indicators).
- Finding control groups when assessing the effects of energy efficiency interventions is not always possible, leaving before/after comparison as only alternative.
- Combining quantitative and qualitative methods provide complementary evidence to better understand the effects of energy efficiency interventions, especially about multiple impacts / benefits.
- With the current energy crisis, considerable public budget is used to mitigate the impacts of increasing energy prices with short term measures. Which raises debates about the targeting of the measures, and the balance between short-term and long-term measures.
- Implementing deep renovations for energy poor households is a difficult but essential task to really take them out of energy poverty.
- Discussions can continue in the online forum.

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(All times are in CEST)

PART 1: streamSAVE methodology for energy efficiency measures to alleviate energy poverty

Complements and updates about the streamSAVE methodology, by Guillermo Borragán Pedraz (VITO)

(*See presentation file available on the streamSAVE Knowledge and support facility*)

Guillermo Borragán Pedraz reminded that the methodologies developed in streamSAVE covered three action types: thermal refurbishment, small-scale RES for heating and behavioural measures.

The main difference compared to the calculation formula used for 'non energy poor' households about thermal refurbishment is the introduction of a factor to take into account prebound effect, in addition to a factor about rebound effect.

The **prebound effect** is to take into account that energy poor households usually consume less energy than assumed in standardized assessment of energy consumption (e.g. lower indoor temperature, less rooms heated).

A literature review collected and compared estimates available for rebound and prebound effects.

About small-scale RES for heating, differences were found in the literature about **average characteristics of heating systems** (efficiency) between energy poor households and other households. The data available shows that energy poor households tend to have less efficient heating systems. But there might be large variations among countries, for example due to differences in the main types of heating systems. Therefore, it is recommended to use national values, whenever possible.

About behaviour changes (focus on feedback and tailored advise in residential sector, as defined in the related Priority Action), not enough data or evidence could be found in the literature to define indicative values for an energy saving effect that would be specific to energy poor households (and different from average values found for all households). The alternative was then to include a factor of prebound effect to adjust the energy consumption before intervention, to take into account the difference between energy poor households and other households, similarly to the cases of insulation measures and replacements of heating systems.

The impact on energy consumption (article 3 EED) and in terms of CO2 savings are derived from the calculations of final energy savings, applying complementary primary energy and emission factors.

Guillermo Borragán Pedraz also briefly showcased the streamSAVE platform, highlighting that the discussions can continue in the online forum, and that the Training Module makes possible for registered users to test the methodologies.

Q&A

- *Can you put here the definitions you used for "rebound" and "prebound"?*

Both factors are about the differences between the actual and estimated (or conventional) energy consumption.

The streamSAVE methodologies refer to (Sunikka-blank and Galvin, 2012)[1] about the prebound effect that is meant to reflect that households living in less efficient buildings tend to use less energy overall, being often in situations of under-consumption (restriction).

At the opposite, rebound effect is meant to explain patterns of over-consumption following building improvements. More references can be found in the methodologies.

PART 2: Experiences from two countries

Insights from the National research program on energy poverty in the Netherlands, by Anika Batenburg and Arianne J. van der Wal (TNO, the Netherlands)

(*See presentation file available on the streamSAVE Knowledge and support facility*)

Anika Batenburg presented findings from a Dutch research program on energy poverty.

The research included a literature review. This provided evidence that reducing energy poverty brings multiple benefits that are likely more than compensating the intervention costs: energy savings, improved living comfort, prevention of debts, prevention of social isolation, employment opportunities, improved conditions for physical and mental health.

A study assessed that 650 000 households (8% of the population) were at risk of energy poverty in 2019, due to multiple challenges, including the unability to invest in more efficient appliances or renovating their dwelling, or the lack of awareness about how to save energy or how to make use of subsidies.

The research started with reviewing indicators of energy poverty that could be clustered in three main categories:

- Affordability of energy: Low income & high energy costs (LIHC)
- Housing quality: low income & home with low energy quality (LILEQ)
- Ability to participate in the energy transition: home with low energy quality & no possibility to invest in sustainable upgrades (LEQ), which could be due to split incentive (when households are tenants) or lack of financial capabilities (when owners)

The data available on households enabled to compare four groups of households: one group including all households, and three groups with households at risk of energy poverty according to the categories listed above (LIHC, LILEQ and LEQ). All the energy poor groups had a higher gas consumption (main energy for heating in the Netherlands), with the highest consumption in the LIHC group. The differences in electricity consumption were smaller, with higher consumption fo the LIHC group and lower consumption for LEQ and even smaller for LILEQ (compared to all households).

Households in energy poverty were found to spend 13 to 20% of their income on energy vs. 5% on average for all households.

[1] Sunikka-blank, M., & Galvin, R. (2012). Introducing the prebound effect- the gap between performance and actual energy consumption. *Building Research & Information*, 40(3), 260-273

Looking at households' characteristics showed that the types of households over-represented among energy poors include single-person households, and especially single-parent families.

The study also mapped where households at risk of energy poverty are living, showing a higher rate of energy poverty in the North East of the country, where the population has lower income and/or lives in older buildings.

The current research is now investigating the effects of policy interventions on the various facets of energy poverty (energy costs, but also well-being and other aspects), and with the aim to compare the effectiveness of different types of interventions.

The assessment also aims to test hypotheses about the multiple benefits that interventions can bring.

The study combines quantitative (with questionnaires and Dutch national statistics) and qualitative methods (5 to 10 in-depth interviews per policy intervention examined).

The assessment makes use of data before and after the interventions, and when possible including comparison with control groups.

The research is done with various partnerships and schemes dealing with building renovations, behavioural interventions or white good regulations.

Q&A

- *How do you deal with who is financing renovations and how you ensure that homes will still be affordable to the people after the renovations?*

Housing corporations also get financial support from the government. But indeed, the rent might be higher after the renovations. However, it is not always the case, as it is possible for the housing corporations to spread the renovation costs among the tenants, taking into account their different income. Tenants of housing corporations may also include households with higher income.

Another issue is that some households could not have access to loans. A new regulation has been adopted to ensure that these households can get access to loans for improving the energy efficiency of their dwellings.

In the Netherlands you can also apply for a "housing allowance" where you can get a specific amount of money back from the government if you fall below a certain monthly income and your rent (prior to utilities) also falls below a specific amount.

- *Can you provide more details about the assessment of the impacts, especially using control groups?*

It depends on the intervention.

For the renovations, the housing corporations cannot renovate all dwellings at once, which provide some kind of control groups. However, there might be differences in the groups getting the renovations first, and the others.

For the other types of interventions (e.g. energy coaches), it is more difficult to get a control group. Then assessments are based on before/after comparisons.

The French framework on energy efficiency measures for energy poverty alleviation, by Ute Dubois (ISG International Business School, France)

(*See presentation file available on the streamSAVE Knowledge and support facility*)

Ute Dubois presented an overview of the French framework on energy efficiency measures for energy poverty alleviation.

As a background, there has been a higher attention to energy poverty since 2020 and the COVID crisis, going beyond the experts of the topic (e.g. in mass media). This was mostly because the various current crises have made a large part of households increasingly vulnerable to energy poverty.

The government engaged a considerable public budget to face this, and especially to mitigate the impact of increases in energy prices (e.g. "tariff shield"). This raised debates about whether the policy measures have been effective in addressing energy poverty (looking at design, targeting and implementation), and what would be needed in the future.

The presentation is then focused on the three main energy efficiency measures to tackle energy poverty.

An important background element is that the French housing stock is still largely inefficient, with 17% of dwellings being in energy classes F and G ("energy slums"), representing about 5.2 million main residences. Their occupants are particularly vulnerable to the current crisis and increases in energy prices.

At the same time, 58% of the French respondents to the Eurobarometer survey think that their home does not need an energy efficiency renovation.

In practice, energy poverty is hard to assess. Some statistics cannot be updated regularly. Some indicators used in France still rely on data from a survey done in 2013 (due to delays in updating the surveys because of COVID). Other data are about 2020.

Whereas the context has evolved quite rapidly.

The most recent data comes from the energy poverty barometer of the French energy ombudsman (national survey among a sample of households smaller than the main housing survey used by the national energy poverty observatory).

Looking at other sources (e.g. number of persons getting support from NGOs or local authorities, number of households under energy supply limitations) suggests that the official indicators do not capture the whole situation of energy poverty.

One of the main measures adopted by the government to face the current energy crisis was to contain the increases in energy prices. However this protection applies to households still with the regulated tariffs, not necessarily for households with market tariffs. Moreover, up to now this 'tariff shield' applied to all households with a regulated tarrif (electricity and/or gas), without targeting the most in needs.

In addition, other direct aids were decided and that are targeted to low-income households: additional social energy voucher, and inflation compensation payment (both are one-shot payments to the eligible households).

At the same time, while energy efficiency schemes meant to tackle energy poverty have been in place since 2011, they cover much less households, and also have targeting issues.

Focus on the three main EE schemes available to low income households.

1) Living Better programme ("Habiter Mieux")

Aiming at renovation with significant impact, but too small number of dwellings per year

This is partly because the scheme is complex to use, from households' viewpoint. In most cases, the households need to combine several financial incentives. And even when combining incentives, the remaining part to pay by the households is often too high compared to their financial capabilities.

It is therefore essential that advisors support the households along the whole renovation project, from identifying the opportunities until completion of the works.

2) MaPrimeRénov'

So far mostly used for single interventions, so it covers much more dwellings, but with smaller impacts / energy savings, that are most often not enough for households to get out of energy poverty

3) White certificates

Since 2015, obligated parties need to achieve a mandatory share of energy savings with low income households.

In addition to the standardised actions, specific programmes are also selected by the ministry to provide supporting measures. For example, the SLIME scheme develops partnerships with local authorities to identify households at risk of energy poverty and provide them with energy advice and support to develop their energy saving project. The ECCO DOM scheme is focused on social housing in the overseas. And Toits d'abord renovates dwellings that did not comply with the minimum housing criteria to provide the most vulnerable households with affordable and healthy housing.

The following key issues can be identified in the discussions of the RAPPEL network (gathering actors dealing with energy poverty) about the evolution of public policies over the past two years:

- Focus on short term prioritizing measures to tackle the increase in energy prices (containing this increase with a "tariff shield")
- Issue in the targeting of the short term measures (and especially the "tariff shield"), which results in a very large cost to the State budget, much larger than the budget available to the energy efficiency schemes

Ute Dubois concluded by highlighting the following points (also part of a recent report of the Court of Auditors):

- There is a much higher attention on energy poverty: this is now part of the general public debate (like inflation, employment, etc.)
- Health benefits from building renovations are proven and are an essential benefit of energy efficiency interventions tackling energy poverty.
- Long-term benefits should be prioritized over short-term objectives
- Implementing deep renovations for energy poor households is a difficult but essential task to really take them out of energy poverty. A good example can be found in the eco-housing network ("reseau éco-habitat").

Q&A

- *Are some of the financial incentives paid upfront?*

Most incentives are paid once the applicants submit the invoices (i.e. once the works are completed). But there are loans to address that. This has been one of the objectives of the 0%-rate eco-loan ("éco-PTZ"). More recently, the "prêt avance renovation" was put in place in 2022, with a similar approach as a mortgage loan and the specific objective to help households who cannot pay the remain cost (not covered by other incentives) nor access credit.

- *How do the programs mentioned address the split-incentives issue (since the majority of the energy poor households are not owners) and what is the role of housing companies? Can they benefit from these aids??*

About the split incentive issue, there are some incentives available to landlords. But it remains indeed a big problem. The French government has recently adopted a new law that will be similar to a Minimum Energy Performance Standard for dwellings (ahead of the upcoming new similar provision discussed for the EPBD recast). The least efficient housing will progressively be forbidden for renting or sale.

About social housing bodies, there are incentives specifically available to them, like an eco-loan for social housing ("Eco-PLS") as well as tax incentives. More generally, social housing bodies have to define multi-annual asset management plans. These and other factors make that the social housing stock is not the least efficient part of the French housing stock.

However, most social housing bodies have a technical approach to the renovation of their buildings, and might be underestimating the extent of energy poverty among their tenants. Research is on-going in this field, as social housing bodies are concerned with the increase in energy bills and how it may affect the tenants.

Open discussion

The discussions show partly similar situations in the Netherlands as in France, in particular about increased (media) attention and increases in energy prices.

A new incentive in the Netherlands offers a reduced energy price for households when their energy consumption remains below a given threshold. Like the 'tariff shield' in France, this incentive has a very large cost to the public budget.

There is therefore a similar debate in both countries about short term vs. long term measures.

What is the profitability of the measure is surely a very important question. The payback time is a critical issue for decision makers.

List of participants

30 participants

Name	First name	Organisation	Country
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