Targeted and Inclusive Approaches to Tackling Energy Poverty in a Crisis Context:
Case Study from Moldova

by a collective of authors¹

According to UNDP estimates² from the early days of the energy crisis in Moldova, 71 percent of households were in the most vulnerable energy category, spending 90 percent or more of their available income—after the minimum expenditure—on energy and heating during the cold period. Highly dependent on energy imports, the country risked tripling its population living in poverty from 11 to 35 percent. In the context of a compounded crisis and the war in Ukraine, the Moldovan Government, in close collaboration with the United Nations Development Programme (UNDP), developed an innovative and targeted on-bill energy compensation mechanism, the first of its kind in Moldova, the Energy Vulnerability Reduction Fund (EVRF). The aim of EVRF is to create an inclusive solution that minimizes the negative impacts of the sharp increase in energy prices on energy-vulnerable and income-poor households, therefore safeguarding social cohesion. At the same time, in the longer term, the EVRF aims to incentivize the transition towards sustainable energy sources and to achieve higher levels of energy efficiency in the residential sector. This paper presents the main outcomes of the UNDP support for the establishment and implementation of a robust EVRF, along with an impact assessment and lessons learned that are applicable to other country contexts.

With the recent rise in energy prices on the continent, several European countries have taken significant steps to combat energy poverty³. For example, the United Kingdom has implemented the Energy Company Obligation (ECO) scheme, which provides energy efficiency measures to vulnerable households. Germany’s one-off heating cost subsidy programme supports low-income households with heating expenses, while Spain’s Energy Savings Plan provides reduced electricity rates. Ireland’s Better Energy Warmer Homes scheme focuses on energy efficiency.
upgrades, and Portugal has announced an energy affordability support package for businesses. Additionally, the European Energy Poverty Advisory Hub (EPAH) serves as a valuable resource, offering expertise and guidance to countries in their efforts to address energy poverty effectively. Similarly, in Moldova, the Energy Vulnerability Reduction Fund (EVRF) serves as a comparable initiative aimed at reducing energy poverty and supporting vulnerable groups in a targeted manner through direct on-bill compensation measures.

Crisis context in Moldova

Energy security in Moldova is still being hampered by many challenges, including its dependence on imported energy. Still recovering from the pandemic induced economic downturn in 2020, the Russian invasion of Ukraine has led to the worst energy crisis ever experienced in Moldova. In November 2022, the Russian Federation reduced the volume of gas delivered to Moldova by 49 percent, directly affecting the volume of electricity produced by the Cuciurgan Power Station (or MGRES) - a major consumer of gas and supplier of electricity to Moldova - situated in the Transnistrian region, which is not controlled by the authorities of the Republic of Moldova. Power supplies from MGRES covered, as a rule, between 70 percent and 80 percent of the consumption of Moldova. The rest was covered by imports from Ukraine, unreliable today after the destruction of the Ukrainian infrastructure. The situation has placed energy vulnerability and energy poverty at the forefront of any policy debate in Moldova.

The immediate effect of the energy crisis in Moldova has been a rapid increase in the rate of inflation, driven by a quadrupling of electricity prices on the back of the gas supply shock. Combined with some pre-existing socio-economic challenges, this has seen the level of energy poverty rise to over 60 percent in Moldova.

Research conducted by the UNDP Global Policy Network highlighted that inflation figures in September 2022 showed an increase in overall utility prices of 105 percent compared to September 2021. As a result, Moldovan households were reported to have started supplementing their additional spending on energy through lower spending on other subsistence goods, such as food, after already cutting spending on virtually all non-essential goods. The study suggests that under the levels of inflation at the time (September 2022), the number of people living in poverty could increase by about 640,000, with approximately 35 percent of the Moldovan population being at risk of falling below the poverty line (<$5.50/day). If the energy crisis had not occurred, the number falling below the poverty line would be about 10 percent of the population.

Given the significance of the residential sector in terms of energy consumption (some 50 percent of total energy consumption), a comprehensive understanding of households’ energy consumption patterns and choices is imperative. As a departure point, this policy brief provides an analysis and understanding of the Moldovan residential sector’s energy characteristics, considering energy-use profiles and other characteristics, such as geographical distribution and demographic characteristics.

Approach to tackling energy poverty in Moldova: Targeted on-bill compensation mechanism

Tackling energy vulnerability and poverty in a crisis context is a highly complex issue that requires a multifaceted approach. This approach may present as a combination of emergency measures to stabilize the situation, combined with building longer-term solutions. The response may involve a variety of instruments, including emergency relief efforts, increased access to renewables, encouragement of energy conservation and efficiency and fostering of community-led solutions and energy compensation mechanisms, both targeted and untargeted. However, testing such complementary approaches in a crisis context, such as the one in Moldova, is challenging due to limited fiscal space and capacities.

A combination of supply and demand interventions is needed to curtail the effects of the energy crisis and alleviate energy poverty. A situation where subsistence spending on one necessity (energy)
must be carefully weighed against spending on another (food) is not tenable and must be addressed with the utmost urgency.

As a demand-side measure to tackle the impact of the energy crisis, the Moldovan Ministry of Labour and Social Protection (MLSP), with technical support from UNDP Moldova, introduced a Law on the Fund for Reduction of Energy Vulnerability in July 2022, which came into force in September 2022. The law aims to prevent and combat the population’s energy vulnerability, increase energy accessibility among vulnerable consumers and promote energy efficiency. The main objective of the EVRF is to finance energy vulnerability reduction measures and programmes, including compensation for the payment of energy bills intended for vulnerable energy consumers, subsidies for efficient use of energy resources and other measures of social assistance.

As part of the law, in October 2022, the Government of Moldova launched the Energy Vulnerability Information System (EVIS), an online platform that allows the registration and processing of requests for on-bill compensation of households’ energy expenses. The programme stipulated a differentiated compensation scheme with five categories of energy vulnerability for households: i) consumers with very high, ii) high, iii) medium, iv) low or v) no energy vulnerability. These categories are based on income level, number of people within households, number of assets (real estate) owned and main type of heating source and energy expenses, among others. Based on a ratio of energy expenses to disposable income of each family, households are assigned to one of the five categories. Once assigned a vulnerability category, the household’s energy tariff is re-calculated with the actual subsidies and the consequent changes in tariffs according to their vulnerability category.

The category of energy vulnerability is determined according to the household’s ratio (R):

\[
R = \frac{\text{the household’s estimated monthly expenditure on energy}}{\text{the household’s monthly energy budget}}
\]

- \(0.20 \leq \text{Ratio} < 0.35\) means low vulnerability (category 1)
- \(0.35 \leq \text{Ratio} < 0.90\) means medium vulnerability (category 2)
- \(0.90 \leq \text{Ratio}\) means high vulnerability (category 3)
- \(\text{Ratio} \geq 0.90\) means very high vulnerability (category 4)

*detailed formula available in the Annex I

During the online registration process, data is automatically cross-referenced with other relevant official government datasets to ensure concordance of data and avoid mistakes and duplicated entries. Registration was designed to be user-friendly and avoid overwhelming the beneficiary, with as much data retrieved through the government’s interoperability platform MConnect. The platonic ideal of the EVIS would not require individual user registration at all; the user’s data would be simply generated from MConnect from complete and updated datasets. Not all public databases are up to date, however, which is why the information provided by the beneficiary during registration (especially income, address and family composition) is crucial for building a comprehensive energy vulnerability profile for the household. The EVRF used a super-light administrative procedure, relying on administrative data and requiring minimum confirmation from receivers. The EVRF communicated well in advance, allowing people enough time to correct any mistakes made during registration or change their category of energy vulnerability if they did not agree with the assigned category. This combination of user-generated data and data retrieved from government databases ensured a balance between targeting efficiency and alleviating the administrative burden.

As of the end of March 2023, over 763,000 households—representing around 75 percent of Moldova’s households, according to national census data—have registered to benefit from the public compensation mechanism.
As part of this scheme, the compensation amount was paid directly to the energy supplier, which credited the energy account of consumers. By subsidizing the energy bills of vulnerable households, the Moldovan government is helping to keep these households afloat and reduce what would otherwise have been a massive increase in the national poverty rate.

Figure 2 below shows that household expenditures on thermal energy and gas were disproportionately higher compared to electricity and did not significantly differ across vulnerability categories.
The most vulnerable households consuming thermal energy and gas received between two and three times more compensation, respectively, compared to low vulnerability households to prevent negative impact on household budget and thus reduce energy poverty.

On average, highly vulnerable households consuming gas received more than 1,000 MDL in comparison to medium and low vulnerability households, which received 853 and 359 MDL, respectively. Similarly, very highly vulnerable households using thermal energy saw their bills reduced by 1,324 MDL, while low vulnerable households received a compensation of 795 MDL, on average.

During the 2022-2023 winter period, gas prices have risen significantly—by 15.87 MDL or 118 percent. For natural gas, the price span that households were required to pay per m³ starts with 12 MDL, charged to the households in the high vulnerability category, and 29.27 MDL, charged to non-vulnerable households without any compensatory contribution.

However, the government’s gas subsidies covered 63 percent of this price increase. This means that households were left to bear only 37 percent of the additional cost due to the higher gas prices. For households using thermal energy, the situation was more challenging, as the price of thermal energy saw a substantial increase of 75 percent. The price that households were required to pay per m³ ranged from 1,450 MDL/GCal for highly vulnerable households to 3,082 MDL/GCal for the least vulnerable, who did not receive any subsidy. Nonetheless, the government’s subsidies have managed to cover 84 percent of this price hike. Electricity subsidies, although covering a significant portion of the population, were not as effective in dealing with the rising electricity prices. They were able to cover only 11 percent of the price increase for electricity, leaving households to pay the remaining 89 percent of the increased costs.

Figure 3. Compensation by vulnerability category—registration data

Source: Ministry of Labour and Social Protection, EVRF database.
The impact of the EVRF at micro and macro levels was evaluated by UNDP Moldova. The key research questions and the main findings are summarized below.

What was the impact of energy compensation on poverty in Moldova, in terms of both energy and income poverty? Also, what was the impact on households below the poverty line? At the same time, we are interested in measuring the likelihood of the subsidy in pulling people out of income poverty.

UNDP’s assessment simulation, based on the use of the household budget survey (HBS) datasets, described in more detail in the annex, suggests that energy subsidies provided by the EVRF during the 2022-2023 heating season had strong positive effects on reducing energy poverty but with some effects differentiated by energy sources. The proportion of highly vulnerable households in energy poverty dropped by 71 and 10 percentage points for gas and electricity, respectively, because of the provided compensations. The mechanism benefits high vulnerability households more than the other energy vulnerability categories.

Figure 4. Proportion of households in energy poverty in Moldova

Due to the energy compensation payments, the overall effect of the decrease in income poverty was significant. This effect was seen across all four vulnerability categories. For the very high energy vulnerability category, the proportion of income-poor households decreased by 43 percent. It is important to highlight that the effect rose progressively with the vulnerability category, meaning that the energy compensation payments were well targeted and benefited more households in the high and very high energy vulnerability categories, a desired effect of the policy intervention.
Energy, and in particular gas subsidies, helped significantly reduce energy poverty for households below national absolute poverty line (by 83 percentage points for natural gas) in the short term, but such subsidies are not sufficient to address structural problems causing income and non-monetary poverty in Moldova.

Source: Ministry of Labour and Social Protection, EVRF database.
The second important aspect is related to the impact of the compensation on energy consumption at the household level. UNDP’s assessment suggests that the impact of gas compensation varies depending on the level of vulnerability, indicating that the subsidies have different effects on natural gas consumption for households with different degrees of vulnerability. Natural gas subsidies led to increased consumption for low vulnerability households to a larger degree than for those more in need of support, suggesting that the mechanism can be further improved by revisiting the level and amount of the granted support to low vulnerability households using gas for heating purposes.

On the other hand, electricity compensation shows contrasting effects. It decreased consumption for low vulnerability households but increased it for other groups, particularly medium vulnerability households. The impact of electricity subsidies on highly vulnerable groups was limited and seems to have had no significant effect on their consumption. However, the relatively stable electricity consumption for very high vulnerability households justifies the level of subsidies provided to them.
In contrast to gas and electricity subsidies, thermal energy subsidies show a different pattern. They lead to a marginal decrease in consumption across all vulnerability groups, although the effect is less pronounced for high and very high vulnerability households compared to the medium vulnerability group. The decrease in thermal energy consumption may be attributed in part to a relatively warm winter as well as to behavioral change induced by the increased prices — with a steep rise in prices for thermal energy, building administrators opted to lower the average heating temperature in order to keep heating costs reasonable.

These observations highlight the need for a nuanced approach when designing energy compensation schemes, which considers the varying effects on consumption based on vulnerability levels and the potential behavioral responses to subsidies.

**Figure 9. Impact of thermal subsidy**

![Graph showing impact of thermal subsidy](Source: Ministry of Labour and Social Protection, EVRF database.)

**Type of evidence used for the building and operationalization of the EVRF and its impact assessment**

UNDP has used a variety of data sources for the co-design of the EVRF and its robust impact assessment. Such datasets included HBS data for 2019–2022 (provided by the National Bureau of Statistics), EVRF registration data, export data from national governmental databases (including the latest information on households registered in the EVRF, income data, other), energy consumption data (monthly consumption provided by the energy distributors) and other macroeconomic aggregates.

**Key recommendations and lessons learned**

**Integration of complementary subsidy programmes:** The UNDP Moldova impact assessment highlights that the EVRF effectively reduced energy poverty, particularly for households using gas and electricity. Therefore, integrating other governmental and municipal energy subsidy programmes into the EVRF could potentially replicate these effects for other energy sources, expanding its reach to more diverse households, including rural ones that rely on firewood and coal for heating.
Refining targeting and coverage: The impact assessment found that the energy compensation was well-targeted, benefiting the households from the high and very high energy vulnerability categories more, with a reduction in income poverty seen across all vulnerability categories. The Leave No One Behind principle was foundational to the EVRF's architecture: from reaching the poorest households to providing higher amounts of compensation to those in the very high energy vulnerability category to the fact that the vast majority (~75 percent) of all Moldovan households received compensation (even those who chose not to register received compensation according to the low energy vulnerability category, by default)—the EVRF prioritized inclusiveness and fairness. This also contributes towards SDG 1.3: Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030, achieve substantial coverage of the poor and the vulnerable.

Despite these positive results, there is room for improvement. Refining the categorization algorithm could ensure better identification, targeting and enrolment of households in need, including those in lower vulnerability categories.

Enhancing data governance framework: The assessment leveraged a variety of data sources, including HBS data, EVRF registration data and national governmental databases. This comprehensive approach to data underlines the importance of robust data governance at all levels. By further integrating diverse data sources and prioritizing data privacy and quality, the government can enhance its understanding of energy vulnerability and improve the effectiveness of the subsidy scheme.

Strengthening government assessment capacities: UNDP's assessment demonstrated the importance of robust impact assessment, which led to a comprehensive understanding of the effects of the EVRF. For future assessments, developing relevant mechanisms and methodologies in the government, such as monitoring key performance indicators and conducting thorough assessments, can provide valuable insights into the impact and effectiveness of the subsidy mechanism. Collaborations with other EU governments that have addressed energy poverty could also facilitate knowledge exchange and shared learning.

Additionally, while the Moldova use case focuses on a specific regional context of energy security, knowledge transfer opportunities to other energy crisis contexts exist.

Additional variables for the categorization algorithm: The assessment revealed varying impacts of energy compensation payments on energy consumption, depending on the level of vulnerability and energy source. For example, natural gas subsidies led to increased consumption for low vulnerability households but not for those in higher vulnerability categories. These findings suggest the need to incorporate additional variables into the categorization algorithm, such as a modified thermal comfort index, to tailor the compensation to the specific needs and energy requirements of different households.

Advancing energy efficiency in the residential sector: While its immediate focus was to help alleviate the consequences of the sharp increase in energy prices for vulnerable populations, the Energy Vulnerability Reduction Fund is equally valuable as an instrument for medium- to longer-term interventions aimed at supporting most vulnerable households in becoming more energy efficient. The Rabla Electrocasnice Voucher Programme, implemented by UNDP Moldova in collaboration with the Energy Efficiency Agency and the Ministry of Energy, uses data collected through EVRF and offers 50,000 vulnerable households in Moldova vouchers to replace old appliances with more energy-efficient ones as well as vouchers for LED lightbulbs. In addition, UNDP Moldova has begun implementing a pilot project that provides smart electricity meters for vulnerable households to promote a more efficient use of electricity and alleviate pressure on the national electricity grid.

In summary, the assessment conducted by UNDP Moldova provided critical insights and recommendations for the EVRF, emphasizing the importance of a more integrated and nuanced approach to addressing energy vulnerability, the need for robust data governance and internal assessment capacities and the consideration of additional variables for the categorization algorithm. These measures are key to maximizing the EVRF’s impact, expanding its coverage and ensuring its continuous improvement.
Addendum: Improvements of the EVRF for the 2023–2024 winter heating season

Ahead of the 2023–2024 heating season, the recommendations gathered from the impact assessment were incorporated into the EVRF, both from the legislative perspective and from the perspective of the design of the energy vulnerability digital ecosystem.

Two new vulnerability categories were added: ‘primary energy vulnerability’ and ‘extreme energy vulnerability’, with the aim to refine the targeting of the most vulnerable households and make the distribution of households more balanced across all seven categories. Following the decrease in energy tariffs and the change in criteria, the distribution between vulnerability categories is more uniform this time. Thus, if, during the 2022–2023 heating season, given the very high value of energy prices, more than 75 percent of registered households were classified in the category of very high energy vulnerability, for this heating season the distribution of households registered from 1 November to 31 December 2023 is as follows:

<table>
<thead>
<tr>
<th>Category of energy vulnerability</th>
<th>Share of households</th>
<th>Number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme</td>
<td>13.31%</td>
<td>101,335</td>
</tr>
<tr>
<td>Very high</td>
<td>33.90%</td>
<td>258,042</td>
</tr>
<tr>
<td>High</td>
<td>33.27%</td>
<td>253,232</td>
</tr>
<tr>
<td>Medium</td>
<td>10.87%</td>
<td>82,728</td>
</tr>
<tr>
<td>Low</td>
<td>6.43%</td>
<td>48,927</td>
</tr>
<tr>
<td>Primary</td>
<td>1.78%</td>
<td>13,510</td>
</tr>
<tr>
<td>Non-vulnerable</td>
<td>0.44%</td>
<td>3,339</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>761,113</strong></td>
</tr>
</tbody>
</table>

Source: Ministry of Labour and Social Protection, EVRF database.

The social assistance for the cold period of the year (November–March), called APRA, has been added to the EVRF—households that will be assigned to the high, very high, and extreme categories will be eligible for an MDL800 cash transfer, which can be used for the procurement of wood, coal or pellets. APRA integration for 2023–2024 has solved the EVRF’s incomplete targeting of rural households dependent on solid fuels for heating in 2022–2023. In addition, during the 2022–2023 heating season, households had to apply separately for EVRF compensation and APRA, whereas during the 2023–2024 heating season, one submission on compensatii.gov.md provides both for qualifying households.

The algorithm that assigns the household’s category of energy vulnerability will now use different amounts for the estimated level of the household’s monthly expenses based on whether it is a household from a rural area or an urban area, while also taking into account the presence of disabled family members through a connection with the national disability database.

Overall, the EVRF has again been an agile mechanism able to implement changes and ongoing improvements post-launch.
Annex I

The category of energy vulnerability is determined according to the household’s ratio (R):

\[ R = \frac{CEPRA}{VDAE} \]

Where

CEPRA is the household’s estimated monthly expenditure on energy, obtained by multiplying last year’s average monthly energy consumption (monthly average for November 2021–March 2022) [in GCal, m³, kWh] by current non-compensated rates [MDL/GCal, MDL/m³, MDL/kWh], in MDL.

\[ VDAE = VGL - MCF - RLCI, \]

Where

VDAE (in MDL) is the income available to pay for energy/heating (the household income after deducting the household’s minimum expenditure level of 3,430 MDL for the main applicant and 2,400 MDL for each subsequent family member registered; VGL is the overall monthly household income (the household income used in the calculations to determine the household’s category of energy vulnerability (if the income provided by government databases (CNAS, Fiscal Inspectorate) is higher than the income indicated in the application, then the higher income will be the one used in the calculations); in MDL)

MCF: minimum expenditure level of the household = 3,430 MDL for the main applicant and 2,400 MDL for each subsequent family member registered

RLCI: monthly mortgage payment

R = Ratio

- Ratio < 0.20 => low vulnerability (category 1)
- 0.20 ≤ Ratio < 0.35 => medium vulnerability (category 2)
- 0.35 ≤ Ratio < 0.90 => high vulnerability (category 3)
- Ratio ≥ 0.90 => very high vulnerability (category 4)

Annex II

A. Elasticity estimation of household consumption

Our methodology to estimate the household demand for energy is based on the Almost Ideal Demand System (AIDS) model\(^*\), which gives an arbitrary first-order approximation to any demand system derived from utility-maximizing behavior. Also, its functional form is consistent with household budget data. Individuals are assumed to maximize their satisfaction level by the consumption of different goods such as energy, food, clothing, etc. The utility maximization will be subject to a budget constraint determined by the individual’s income (or desired expenditure) and the cost of the goods consumed.

The Quadratic Almost Ideal Demand System (QUAIDS)\(^*\) model chosen for this analysis is an extension of the Almost Ideal Demand System (AIDS) originally proposed by Deaton and Muellbauer (1980). Based on a non-parametric analysis of consumer expenditure patterns, Engel curves have been shown to be of higher rank than two, thus requiring quadratic terms in the logarithm of expenditure.

To derive the budget shares in QUAIDS, the same procedure used for AIDS can be applied, which yields the following expenditure share equations:

\[ w_i = a_i + \sum_{j} \gamma_j \ln p_j + \beta \ln \left( \frac{X}{a(p)} \right) + \lambda \ln \left( \frac{X}{a(p)} \right) \]

where \( w_i \) is the share of commodity i in a household budget, defined as:

\[ w_i = \frac{p_i q_i}{m} \text{ and } \sum_{i=1}^{n} w_i = 1 \]

\( P \) is the market price for commodity j, M represents consumer total expenditures or income and P is an overall price index. For prices we used the Stone price index, defined as:

\[ \log P = \sum_{i=1}^{n} W_i \log p_i \]

where \( W_i \) is the of budget share for good i and p is CPI index obtained from Moldova Statistical Office for each of 52 commodities reported monthly in HBS. For the analysis, we estimate budget share
equations and obtain elasticities for electricity and gas and group other commodities into category ‘other’.

In addition to price and income, the socio-demographic characteristics also alter spending in different ways. For instance, it is expected that a larger family increases its overall expenditure on energy compared to a smaller family with the same preferences. The socio-demographic variables included in the model are the size of the household, adults over age of 65, education, whether they live in an urban or rural area and whether the household head is female.

Table 1 shows the price elasticities for energy in the two expenditure categories across different vulnerable groups. Each cell in the table quantifies the change in demand for the commodity specified in each column in response to the change in energy prices. This is estimated for each vulnerability category, shown in each row.

Table 1. Uncompensated own and cross-price elasticities

<table>
<thead>
<tr>
<th></th>
<th>Electricity</th>
<th>Gas</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low vulnerability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>-0.283***</td>
<td>-0.053***</td>
<td>-0.597***</td>
</tr>
<tr>
<td>Gas</td>
<td>-0.071***</td>
<td>-0.360***</td>
<td>-0.635***</td>
</tr>
<tr>
<td>Other</td>
<td>-0.039***</td>
<td>-0.026***</td>
<td>-0.934***</td>
</tr>
<tr>
<td><strong>Medium vulnerability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>-0.165***</td>
<td>-0.077***</td>
<td>-0.698***</td>
</tr>
<tr>
<td>Gas</td>
<td>-0.095***</td>
<td>-0.246***</td>
<td>-0.820***</td>
</tr>
<tr>
<td>Other</td>
<td>-0.045***</td>
<td>-0.038***</td>
<td>-0.911***</td>
</tr>
<tr>
<td><strong>High vulnerability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>-0.103***</td>
<td>-0.081***</td>
<td>-0.737***</td>
</tr>
<tr>
<td>Gas</td>
<td>-0.100***</td>
<td>-0.144***</td>
<td>-0.914***</td>
</tr>
<tr>
<td>Other</td>
<td>-0.048***</td>
<td>-0.042***</td>
<td>-0.905***</td>
</tr>
<tr>
<td><strong>Very high vulnerability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>-0.065***</td>
<td>-0.086***</td>
<td>-0.853***</td>
</tr>
<tr>
<td>Gas</td>
<td>-0.099***</td>
<td>-0.153***</td>
<td>-0.859***</td>
</tr>
<tr>
<td>Other</td>
<td>-0.051***</td>
<td>-0.042***</td>
<td>-0.900***</td>
</tr>
</tbody>
</table>

Based on the estimated price elasticity matrices reported above, we simulated how much a household would have spent in November and December of 2022 if it had not received reduced bills. In other words, we simulate total expenditure on electricity and gas using market prices and evaluate whether EVRF had any effects in reducing energy poverty. Market prices are obtained directly from energy distributors. In case of multiple energy distributors for gas and electricity, the average value was taken for specific month. Since EVRF had been in operation since November 2022, the simulation of energy compensation on energy poverty was conducted using HBS data from only the months of November and December 2022.
Endnotes

1. This is a collaborative knowledge product developed by a team of development practitioners from UNDP that includes: Babatunde Abidoye, Dumitru Vasilescu, Andrea Cuzjova, Teresa Martens, Edvard Orlc, Alhassane Camara, Dorin Toma, Marian Mraz, Jessika Bohlinmann, Laurel Patterson, Inga Podoroghin, Serghei Botezatu, Maria Tarigradean, Eugeniu Cepoi, Nicoleta Margarint, Iulia Tsigun, Aleksander Polovinkin, and Adam Kadduri, and others.

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2. UNDP (2022). Moldova: targeted cash transfers to vulnerable groups to compensate for increased food and energy prices. UNDP, New York.


15. APRA (Romanian: Ajutor pentru Perioada Rece a Anului; English: Aid for the Cold Period of the Year): a social assistance cash payment that qualifying vulnerable households used to receive for the five ‘cold’ months of the year (November–March)
