Moldova: The data component of the Energy Vulnerability Reduction Fund

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Acronyms and Abbreviations

EVFR: Energy Vulnerability Reduction Fund
EVIS: Energy Vulnerability Information System
MLSP: Ministry of Labour and Social Protection
CES: Commission for Emergency Situations
UNDP: United Nations Development Programme
NSAEP: National Social Assistance Electronic Platform
CSV: Comma separated value
SDG: Sustainable Development Goals
CGE: Computable General Equilibrium
SAM: Social Accounting Matrix
INFF: Integrated National Financing Framework
GDP: Gross Domestic Product
SDG: Sustainable Development Goals
SOE: State owned enterprise
EVFR: Energy Vulnerability Reduction Fund
EVIS: Energy Vulnerability Information System
HBS: Household Budget Survey
EU: European Union
NDS: National Development Strategy
GAP: Government Action Plan
UNSCDF: United Nations Sustainable Development Cooperation Framework
NSAEP: National Social Assistance Electronic Platform
MLSP: Ministry of Labour and Social Protection
GHG: Greenhouse gas emissions
VAT: Value added tax
MDL: Moldovan Lei
LIHC: Low income-high costs
TFP: Total factor productivity
ODA: Official development assistance
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About UNDP

UNDP is the leading United Nations organization fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners in 170 countries, we help nations to build integrated, lasting solutions for people and planet.
Key Insights

1. The Energy Vulnerability Reduction Fund (EVRF) was established in the Republic of Moldova to provide compensation for energy-poor and vulnerable households affected by increased energy tariffs. The Fund aims to reduce vulnerability and the risks of falling into energy and income poverty while promoting energy efficiency measures for long-term vulnerability reduction.

2. The EVRF comprises on-bill targeted compensation and support programmes to enhance energy efficiency. These supports are implemented in collaboration with the Government, energy providers, and the United Nations Development Programme (UNDP), ensuring a multi-stakeholder approach to address energy vulnerability.

3. The estimated cost of the EVRF is at least EUR 250 million for a five-month period, with partial funding from the Government. Additional resources are mobilized from development partners and international financial institutions (IFIs) to meet the Fund's requirements.

4. Online registration on the Government’s compensation programme’s registration page for the compensation programme, powered by the Energy Vulnerability Information System (EVIS), is necessary for receiving monthly compensation. EVIS, managed by the Ministry of Labour and Social Protection (MLSP), collects relevant data to classify consumers into five energy vulnerability categories, which also includes non-vulnerable consumers category.

5. The online registration process involves cross-checking data with official government data sets from the Tax Authority, Cadaster and the Agency for Public Services. Additionally, private sector partners such as energy providers' data sets are referenced, ensuring data accuracy and completeness. This data integration allows for a comprehensive understanding of each household's energy vulnerability level, enabling the effective assessment and mitigation of energy poverty.

1. Background

In October 2021, the Republic of Moldova entered an energy crisis when gas prices increased due to very tight global energy markets, and electricity shortages caused tariffs to spike. Furthermore, in 2022, the prices tripled for natural gas and electricity, at prices around three times higher than in previous years (around $770/1,000 cubic metres in October 2021; $450/1,000 cubic metres in November and December 2021; $650/1,000 cubic metres in January 2022). The war in Ukraine further deepened the energy crisis and has led to a 30 percent reduction in gas supply and a price increase combined with high
inflation rates. The attacks on Ukraine's critical infrastructure also impacted Moldova because the power facilities in Ukraine were supplying approximately 30 percent of Moldova’s energy. As a result of these circumstances, more than 70 percent of the households in Moldova were categorized as energy-vulnerable and were spending more than 10 percent of their incomes on energy, especially during the cold periods from November to March.

To address the urgent energy crisis in Moldova, UNDP, together with the Government of Moldova, designed and implemented the Energy Vulnerability Reduction Fund (EVRF) an evidence-based, on-bill compensation scheme to minimize the negative impact of energy inflation on Moldovan households. The objective of the EVRF is to compensate energy-poor and vulnerable households for the increase in centralized heating, natural gas and electricity tariffs, with the overall goal to reduce vulnerability and decrease the risks for vulnerable households to fall into the energy poverty, and mitigate the vulnerability for future energy shocks. An online registration of Moldovan households was put in place and launched in October 2022, and by the end of March 2023, 763,561 households had registered on the platform.

This policy brief aims to assess and explain the data governance challenges and issues related to the EVRF. The first part describes the background and the establishment of the EVRF. It includes an in-depth analysis of the data providers, systems, results and issues experienced from the online registration and the challenges regarding the EVRF data. In addition, the brief will provide suggestions and recommendations on how to improve the data collection and management regarding the EVRF in order to further improve the system for the next period from November 2023 to March 2024.

Moldova’s heavy reliance on energy imports makes it highly vulnerable to price fluctuations in the global market. The energy-poor population is particularly susceptible to increased energy costs, which can worsen financial strain and social unrest. Despite efforts to enhance energy security and reduce import reliance through renewable energy and efficiency measures, Moldova still faces significant energy vulnerabilities.

Since October 2021, Moldova has faced a significant increase in gas prices due to very tight global energy markets and a recently amended contract with Gazprom. Moldova is heavily dependent on Russian natural gas, with Gazprom being its primary supplier. This dependence makes Moldova vulnerable to fluctuations in gas prices and any political disputes that may arise between the two countries. The new contract terms can significantly influence the stability of Moldova’s energy supply and its overall energy security.

During the winter of 2021–2022, Moldova purchased its gas at prices about three or four times higher than in previous years.
Also, according to the Ministry of Infrastructure, the purchase price for domestic consumers for November 2022 to February 2023 was MDL 27.103/m³.

Energy vulnerability is an emerging form of poverty in Moldova, given the consequences of the energy crisis and the potential impact of energy inflation on the incomes of Moldovan households. The early income simulation by UNDP¹ suggests that, approximately, an additional one-quarter of the households (the number of people living in poverty could increase by around 250,000 people) are at risk of falling below the poverty line due to the extremely high inflation (30.24 percent, National Bank of Moldova).²

To tackle the impact of the energy crisis and with technical support from UNDP Moldova, the Government of Moldova introduced the Law on the Energy Vulnerability Reduction Fund in July 2022, which entered into force in September 2022. The Law aims to prevent and combat the population’s energy vulnerability and to increase energy accessibility among vulnerable consumers.³ An overview of both primary legislation and all the decisions of the Commission for Emergency Situations (CES) can be found in the References section.

² Annual inflation | National Bank of Moldova (bnm.md)
³ The Commission for Emergency Situations (CES) of the Republic of Moldova issues legally binding decisions through a simplified procedure during a state of emergency in Moldova. This has allowed the Government to adjust its main decisions on energy vulnerability to situations that were not initially foreseen.
The Law sets out five categories of energy vulnerability for households: consumers with extremely high, high, average, low, or without energy vulnerability. In addition, Law 241/2002⁴ sets out the type of criteria according to the category of energy vulnerability of the household consumer, as follows:

- income level of the family or of the single person;
- the ratio between expenditure on energy resources and income of the family or of the single person;
- type of heating system;
- family composition; and
- other criteria established by the Government.

The criteria were defined by the Government Decision 704/2022.⁵

Additionally, UNDP Moldova provided a conceptual vision for setting up and operating an information system for the implementation of the EVRF, including aspects related to the Fund’s objectives, principles, main characteristics, functionality and conceptual architecture, and functional and non-functional requirements of the information system. For the first time in the history of the country, it was decided to build an electronic compensation system demanding people's online registration.

Since Moldova is the country that has hosted the largest number of Ukrainian refugees per capita, UNDP, in collaboration with the Government and partners, made sure that the architecture of the platform would include refugees as beneficiaries. Since the start of the conflict in late February 2022, more than 460,000 refugees from Ukraine have entered Moldova, most of whom women, children, and older people. While many have moved on to Romania and other European Union countries, nearly 100,000 refugees have chosen to stay in Ukraine’s smallest neighbour.

Initial discussions envisioned the development of a National Social Assistance Electronic Platform (NSAEP) under the MLSP with the Energy Vulnerability Fund being as one module connected to this platform. However, due to the limitation of time (the heating season was starting in few months), it was decided to first develop the EVIS and then to focus on developing the NSAEP.

The initial architecture of the EVRF was developed to interact with the information systems of other central public authorities of the Republic of Moldova by using the Government’s interoperability platform MConnect to perform data exchange with third information systems where possible.

⁵ Ibid.
Compensation is directly reflected in the energy bills sent to households by energy distributors, with the amount of compensation paid by the Fund explicitly stated. To support households struggling with online registration, a network of librarians and social workers are supporting households who struggle with online registration; also, a dedicated Call Centre and Communication Unit within the MLSP are further supporting the registration process.

The MLSP launched the EVIS\(^6\) on 12 October with the support of UNDP.

2. Introduction

The Energy Vulnerability Information System (EVIS), or compensatii.gov.md, is an online registration platform where Moldovan citizens (including Ukrainian refugees) can apply for compensation to cover part of their energy bills and cope with the financial burden caused by the energy crisis. The MLSP launched EVIS for Moldovan households to apply for compensation on 12 October 2022 with UNDP’s support.

The EVRF was developed through a successful public, private and philanthropic Partnership (4P) comprising the MLSP, the Moldovan Parliament, UNDP Moldova, Simpals (an IT company selected through a tender), the National Network of Libraries, energy

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\(^6\) https://compensatii.gov.md/en
The idea was to make the EVRF platform as friendly as possible for the end user. Initially, the online registration was envisioned to be limited to the introduction of the personal identification number, and the system would be able to interconnect with all existing government platforms to populate the required fields to determine the household’s vulnerability category. While this was implemented to a certain extent, further improvements would have to be made in EVIS, and also in other national electronic systems to make this a reality.

Challenges during the implementation of the EVRF platform included issues with data services and data quality. The data services provider was slow due to an old environment and insufficient resources, making it difficult to use the data service. In addition, energy consumption data sets, provided in Excel spreadsheets by energy suppliers, were partially non-standardized and required additional manual work to be integrated into the EVIS.

During the online registration process, data is automatically cross-referenced with official government data sets from the tax authority, the cadastre, the Public Services Agency to ensure agreement and to 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. Ideally, the EVIS would not require individual user registration; the user’s data would be simply generated from MConnect from complete and updated data sets. Not all public databases are up to date, however, which explains 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. EVRF communication coordinators and the Support Unit located within the MLSP communicated with the general public continuously throughout the winter, allowing the potential beneficiaries to correct any mistakes made during registration and providing ways to appeal their category of energy vulnerability. This combination of user-generated data and data retrieved from government databases ensured a balance between targeting efficiency and alleviating the administrative burden.

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3. Analysis and assumptions

To implement the EVRF effectively, the Government, with the support of UNDP, deployed a rapid digital solution to connect citizens to the Government via EVIS. The system relies on various governmental data sets and services provided by MConnect – a technological solution to ensure interoperability and data exchange between various information systems in the Government.

Additionally, it was decided to develop the system in two major stages: first, developing the interface before the end of September 2022 and allowing the end users to register by the end of October 2022; and then, developing the other modules required for calculating the vulnerability level of each household and transferring the information to all energy suppliers to ensure on-bill compensation.

The selected data sets and services used during the EVRF registration process are as follows:

- the Public Services Agency, the central authority of the state registration of civil status documents, which creates and maintains the real estate cadastre, which is particularly useful for the EVRF registration process;
- the State Population Register, a unique integrated system of citizens' automated records;
- the National Social Insurance House, a central administrative authority, which administers and manages the public social insurance system;
- The State Fiscal Service, which is a public authority empowered to administer taxes, fees, and other payments;
- monthly consumption data from the private or public distributors of energy.

As part of the registration process for the EVRF platform, citizens are informed and agree to the use of their personal data. The Terms and Conditions\(^7\) of the platform clearly state that the MLSP is committed to ensuring transparency in the collection and use of personal information and its retention. The privacy of personal data is ensured and not shared with third parties, including for marketing purposes or for generating revenue from the use of personal data, without the holder's consent or at the request of law enforcement authorities in accordance with the regulatory framework. Additionally, MLSP guarantees the respect of the rights of the holders of personal data provided for by Law no. 133/2011\(^8\) on the protection of personal data, taking all measures to protect such data against unauthorized access, use or disclosure. Therefore, citizens who register for the EVRF platform are fully informed and agree to the use of their personal data in accordance with the platform's Terms and Conditions.

\(^7\) [https://compensatii.gov.md/en/terms-and-conditions](https://compensatii.gov.md/en/terms-and-conditions)
\(^8\) [www.legis.md/cautare/getResults?doc_id=110544&lang=ro](www.legis.md/cautare/getResults?doc_id=110544&lang=ro)
Key challenges

During the development phase, issues with data and services were found, with the main challenges being related to **technological and institutional set-ups**. These challenges affected data access and quality, highlighting the need for effective data governance measures to ensure correct and prompt information for energy vulnerability reduction efforts.

**Inaccessible data services or with delayed responses**

- **Cadastral data** – The requested data consists of cadastral numbers, surface of the estate, etc. The data service provider was slow because the data is in an old environment and does not have enough resources to respond to large requests. As a result, the data service could not be used accordingly. To address the issues, it has been decided to request data in comma separated value (CSV). However, this solution requires more development and manual work, and the process should be performed periodically in order to avoid outdated data. Furthermore, determining whether a household falls under condition 2 (Law no. 704/2022, p. 259) required standardizing the shares owned by the household. This task was time-consuming as the shares retrieved from the cadastre were expressed in several heterogeneous formats, such as fractions, percentages, and 0.X vs. 0,X. Standardizing the shares took approximately six hours of manual work replacing the error data. Additionally, some real estate lacked value information, while other real estate was appraised decades ago, which added another layer of complexity to the process. Despite these challenges, with a great deal of additional work from EVIS administrators, it was possible to review several dozens of cases involving issues with cadastral data and correct them manually.

- **Energy consumption data provided by private energy distributors** – The data requested consist of customer’s energy consumption data. However, there were issues with the data quality due to non-standardized data, errors in assigning the consumer the unique registration number (NLC, or place of consumption number), and duplicate entries in the database (the same customer registered several times, or two customers indicating the same NLC in their applications). Just as in the above case, the solution entails obtaining the data in XLS format and performing data cleaning. This approach also demands more manual work, and it should be performed monthly to obtain the customer’s energy consumption. To moderate these issues, it is recommended to develop a standardization process for NLC numbers. This process can include guidelines and rules for assigning NLC numbers and implementing data quality checks to ensure accuracy. Also, for data collecting and storage processes, it is recommended by implementing data quality checks during the data collection process using data validation techniques and storing the data in a standardized format to make it easier to analyse and work with. Improving the data collection and storage processes can help reduce errors and inconsistencies in the data, which can improve the overall quality of the data.

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• **Fiscal data** – The data sets include information about citizen’s income. The issue is that the service supplying fiscal data is experiencing delayed responses, typically requiring 2nd or 3rd requests to successfully retrieve the desired information. This situation creates an inefficiency in the overall system, because it generates superfluous requests that burden the server with added load. These factors culminate in a situation where the fiscal data service is unable to respond promptly to first requests, needing multiple attempts from the client-side. This, in turn, creates a vicious cycle where the server is inundated with redundant requests, further worsening the response latency and negatively affecting overall system performance. To mitigate this issue, it is essential to conduct a thorough analysis of the service architecture, find bottlenecks or constraints, and implement proper optimizations or upgrades to ensure efficient and prompt responses from the server.

**Incomplete or missing data**

• **Data on the population's gender** – Through interoperability it was impossible to retrieve data about gender for some respondents for at least 0.1 percent. In the population data service, gender data may be missing for several reasons: human error, system or equipment failure, loss of sample, or unsatisfactory technicalities while recording the values. To resolve this issue, it is crucial to set up robust data exchange protocols, ensure consistent data formats and standards, and implement error-checking mechanisms to minimize the impact of these factors on the accuracy and completeness of gender data in an interoperable environment. Gender-disaggregated data can help identify gender-specific patterns in energy consumption, expenditure and access to energy services, which can then inform targeted interventions to improve energy access and reduce energy poverty among women and men. Gender data can also help to identify the specific needs and vulnerabilities of women and girls in the context of energy poverty and vulnerability, such as the impact of energy poverty on women’s health, safety and education.

• **Heating data from condominium tenants’ associations** – The issue with the heating data from the condominium data set is that the information available is on an aggregated level for each association. Hence, it is not possible to easily reference the heating usage and consumption of individual households, given that there is not a unique NLC per household, but rather a unique NLC for the whole condominium. This poses a challenge for the EVRF, because it aims to provide targeted compensation for households based on their energy consumption and vulnerability. The unique NLC is assigned per condominium association, rather than per household, i.e. the association receives a total bill for the heating usage of all households within the association. However, the association’s accountant must then prepare individual bills for each apartment or household based on the readings from each apartment's energy metre. To address this issue, it is necessary to find a way to disaggregate the data to the household level directly in EVIS, which would allow for more precise targeting of compensation based on individual energy consumption and vulnerability levels. This involves working with the condominium associations to obtain more granular data, or exploring other data sources, such as individual household energy bills, to supplement the existing data set.
2022–2023 heating season, these data were obtained through email correspondence and the sharing of Excel files between EVIS administrators and administrative bodies of associations; this arrangement was extremely labour-intensive, requiring up to 500 emails per month. A more direct integration of associations’ data into the EVIS would streamline the process, lighten the manual workload, and reduce the probability of manual errors.

- **Income data** — Although the EVIS integrates data from the Fiscal Inspectorate to verify, supplement and correct the income data declared by applicants, there are still applications where the category of energy vulnerability was calculated using a monthly household income equal to zero, as declared by the applicant. This is because the Fiscal Inspectorate does not possess income information for these households; therefore, MConnect was unable to send the information into the EVIS. By March 2023, there were 28,384 households with “total monthly income = 0”, which highlights cases of fraud that the EVIS was not able to correct, given that a family cannot survive without income.iii Because the income taken into calculation for these households was 0, they received the “very high” category of energy vulnerability. With undeclared work being a core issue of the Moldovan labour market, several ambitious actions have been launched on a national scale in the last year to help tackle it: the “Trecem pe alb” campaign,iv the modernization of the Labour Inspectorate, a country-wide campaign to recruit labour inspectors. While relying on such efforts to help build a more complete national income database, internal EVIS measures could also be implemented to help prevent unfair attribution of energy vulnerability categories for such cases.

4. Key recommendations and lessons learned

**Integration of complementary subsidy programmes:** The UNDP Moldova evaluation highlights that the EVRF effectively reduced energy poverty, particularly for households using gas and electricity. Therefore, integrating other government and municipal energy subsidy programmes into the EVRF could 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 (SDG 10 — Reduced inequalities):** The evaluation found that the energy compensation was well-targeted, benefiting more the households from the high and very high energy vulnerability categories, with a reduction in income poverty seen across all vulnerability categories. The leave no one behind principle was the basis for the design of the EVRF’s platform: from reaching the poorest households and providing higher amounts of compensation to households in the very high energy vulnerability category, to ensuring that every household in Moldova received compensation (even those who chose not to register received compensation according to the low energy vulnerability category, assigned by default); indeed, the EVRF prioritized inclusivity 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 and simplifying the registration process could ensure better identification, targeting, and enrolment of households in need, including those in lower vulnerability categories.

**Enhancing data governance:** The evaluation leveraged a variety of data sources including Household Budget Survey data, EVRF registration data and national governmental databases. This comprehensive approach to data underlined 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.

**Building internal evaluation capacities:** UNDP’s evaluation demonstrated the importance of robust impact assessment, which led to a comprehensive understanding of the effects of the EVRF. For future evaluations, developing similar mechanisms within 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. The sharing of knowledge and learning could also be facilitated by the collaboration with other EU governments, which has addressed energy poverty. Additionally, while the Moldova use case focuses on a specific regional context of energy dependency and geo-political tensions, there are potential knowledge transfer opportunities to other crisis contexts facing energy shortages where the shortages stem from a different set of reasons (e.g. draught).

**Additional variables for the categorization algorithm:** The evaluation revealed varying impacts of energy compensation 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.

**Energy efficiency and sustainability measures (SDG 13 — Climate action):** While its immediate focus was to help absorb the brutal consequences of the sharp increase in energy prices for an already vulnerable population, the EVRF is equally valuable as an instrument for longer-term interventions. The Rabla scheme, implemented in collaboration with the Agency for Energy Efficiency and the Ministry of Energy, using EVRF data, offers vouchers to almost 50,000 vulnerable families in Moldova to replace old household appliances with more energy efficient ones, as well as vouchers for LED lightbulbs. The soon-to-be implemented pilot project of smart electricity metres for vulnerable households will help promote a more efficient use of electricity for the beneficiaries, as well as alleviate
pressure of the national electricity grid. Such long-term measures contribute towards SDG 1.5: *By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.*

In summary, the evaluation conducted by UNDP Moldova provided critical insights and recommendations for the EVRF, emphasizing the importance of a *more integrated and nuanced approach*, the need for *robust data governance and internal evaluation 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.
References

Legal framework – Energy Vulnerability Reduction Fund

Primary legislation:


Secondary legislation:

Endnotes


3 Income is defined rather broadly in EVIS and is not limited to an official salary — pensions, remittances, welfare, unemployment benefits, disability payments, etc. are all considered as forms of income.

4 https://trecempealb.md