



TERMS OF REFERENCE

Job title:	National consultant to conduct a national study on Installed Heat Pumps – Stock, Capacity, and Renewable Energy Contribution
Duty Station:	Republic of Moldova, Chisinau
Reference to the projects:	(01001727) “Greening the future and advancing rights and stability”
Contract type:	Individual Contract
Assignment type:	National Consultant
Contract duration:	March 2026 – August 2026
Expected workload:	50 wd

1. BACKGROUND

The Republic of Moldova is committed to accelerating the transition to a low-carbon, energy-efficient economy as part of its obligations under international and European frameworks. The country’s energy sector remains heavily dependent on imported fossil fuels, with total primary energy supply relying on 67-80% imports, predominantly natural gas and oil. Heating and cooling account for a significant portion of final energy consumption, particularly in the residential sector, where outdated buildings and inefficient systems contribute to high energy intensity and persistent energy poverty affecting approximately 30% of households.

The Law No. 10/2016 on Renewable Energy Sources establishes the legal foundation for promoting renewable energy technologies, including heat pumps, as a means to increase the share of renewables in heating and cooling. The law transposes key elements of the EU Renewable Energy Directive (RED), sets national targets, and provides mechanisms for incentives, certification, and market development of renewable heating solutions such as air-source, ground-source, and water-source heat pumps. It emphasizes the need for reliable data on installed capacity, performance, and renewable energy output to monitor progress and inform policy.

The Integrated National Energy and Climate Plan (PNIEC 2025-2030), approved in early 2025, explicitly identifies heat pumps as a priority technology for achieving the binding target of 42.5 renewable energy in gross final energy consumption for heating and cooling by 2030. The plan estimates that heat pumps could contribute up to 2.3% of the overall renewable heating target and allocates resources (approximately USD 180 million) for promotion, market development, and barrier removal. PNIEC requires annual monitoring and reporting of renewable energy deployment, including detailed statistics on installed capacity, seasonal performance factor (SPF), equivalent full-load hours, and renewable energy supplied, in line with Energy Community and European Commission’s tool “Short Assessment of Renewable Energy Sources” (SHARES) reporting obligations.

As an EU candidate country (status granted in 2022) and Energy Community Contracting Party, Moldova is progressively aligning with the EU acquis, including:

- RED III (Directive (EU) 2023/2413) – requiring indicative trajectories for renewables in heating/cooling and annual increases of at least 1.1% from 2026;
- Energy Efficiency Directive (EED, recast 2023) – mandating assessments of high-efficiency heating technologies;
- Energy Performance of Buildings Directive (EPBD, recast 2024) – promoting heat pumps in renovation strategies and minimum energy performance standards.

To comply with these obligations and prepare accurate reporting for SHARES (the tool used for tracking renewable energy shares), calculation methodology described in the GD No. 74/2025 regarding the approval of the Regulation on the calculation of energy consumption from renewable sources, Moldova requires up-to-date, disaggregated statistics on the heat pump

market. Currently, data gaps exist regarding installed stock, performance metrics (SPF), operating hours, and renewable energy contribution across different technologies and climate zones. The IEA Roadmap “Ramping up Heat Pumps in Moldova” (December 2025) estimates annual imports of heat pumps at approximately USD 5 million (2023), with potential growth of 17% by 2030, but highlights the lack of systematic national monitoring.

The current study will be developed in the support of the Ministry of Energy and the National Center for Sustainable Energy (CNED), within the project “Greening the Future, Advancing Rights and Stability”, financed by Denmark and implemented by UNDP, as part of the Just Energy Transition (JET) portfolio.

2. OBJECTIVE AND EXPECTED OUTPUTS

Overall Objective

The overall objective of this assignment is to conduct a comprehensive, disaggregated, and reliable assessment of the heat pump market in the Republic of Moldova. This study will generate essential data and analysis to support evidence-based policymaking, national reporting obligations under the Integrated National Energy and Climate Plan (PNIEC 2025-2030), the updated Nationally Determined Contribution (NDC 3.0), and Energy Community commitments, as well as alignment with EU acquis (RED III, EED, EPBD) in the context of Moldova's EU candidacy and accession process.

The study will fill critical data gaps on the current installed stock of heat pumps, their technical performance, and their contribution to renewable energy in heating and cooling. It will be carried out in full compliance with the GD no. 74/2025 for the approval of the Regulation on the calculation of energy consumption from renewable sources, in particular Annex No. 6 (Part A – heating; Part B – cooling) of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025), which establishes the methodology for determining renewable energy supplied by heat pumps based on the indicators Q_{usable} , SPF , η , and the applicable technological eligibility criteria. This will enable Moldova to prepare for SHARES reporting and to accurately monitor progress towards the 42.5% renewable energy target in heating and cooling by 2030.”

Specific Objectives

1. Collect, validate, and analyse quantitative data on five key indicators for each heat pump subcategory, disaggregated by main categories (electrically driven and thermally driven), Eurostat climate zones (colder, average, warmer), and sub-technologies (aerothermal, geothermal, hydrothermal). The collection and validation exercise will be conducted in partnership and with support of UNDP, CNED and Ministry of Energy.
2. Justify Moldova’s most appropriate climate zone classification (likely average climate) based on meteorological data (heating degree days, temperature profiles) and EU/Eurostat practices.
3. Develop robust estimation methods and models to address data gaps, ensuring transparency and reproducibility.
4. Provide a qualitative market analysis, including trends, barriers, opportunities, key players, and policy review with concrete recommendations to accelerate heat pump adoption.
5. Deliver a validated database and reports suitable for integration into national monitoring systems and future SHARES submissions.

Expected Outputs / Deliverables

1. Initial Methodological Report

- Detailed structure of the database
- Methodological framework (definitions, climate zone justification, data sources, estimation models for gaps)
- Preliminary analysis of available data and identified gaps

2. Validated Database

- Excel/CSV database containing the five indicators (installed capacity [GW], capacity with SPF above minimum threshold [GW], equivalent full-load hours [h], estimated average SPF, renewable energy supplied [GWh])
- Disaggregated by:
 - ✓ Main categories: Electrically driven heat pumps; Thermally driven heat pumps
 - ✓ Climate zones: Colder, Average, Warmer

- ✓ Sub-technologies shall be classified in line with Annex No. 6 of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025) and shall cover both electrically driven and thermally driven heat pumps, as follows: (i) Aerothermal heat pumps (air–air, including reversible units; air–water, including reversible units; exhaust air–air; exhaust air–water); (ii) Geothermal heat pumps (ground–air; ground–water); and (iii) Hydrothermal heat pumps (water–air; water–water). For reversible air–air heat pumps, the study will apply a dedicated methodology to estimate the effective utilisation factor in heating mode, in order to distinguish between the theoretical installed capacity and the share that effectively contributes to renewable energy targets in heating. In accordance with the Regulation, renewable energy output will be calculated based on equivalent full load hours (H_{HP}).

3. Technical Evaluation Report

- Quantitative assessment of installed stock, capacity, performance (SPF), operating hours, and renewable energy contribution
- Market trends analysis (sales evolution last 5 years, short- and medium-term forecasts, key producers/distributors)
- Policy review (existing incentives/barriers, alignment with Law No. 10/2016, PNIEC, NDC, EU directives)

4. Final Statistical Study

- Consolidated conclusions on heat pump deployment and contribution to renewable heating/cooling targets
- Recommendations for improved monitoring mechanisms, data collection improvements, and policy measures to accelerate adoption (e.g., incentives, certification, awareness campaigns)
- Preparation of data suitable for SHARES reporting and integration into national systems

3. SCOPE OF THE ASSIGNMENT

This study aims to provide a comprehensive assessment of the current installed stock of heat pumps in the Republic of Moldova, including their technical performance, operational characteristics, and contribution to renewable energy in the heating and cooling sector. The scope focuses on collecting, validating, and analysing data for five key indicators across all relevant subcategories of heat pump technologies, disaggregated by main categories, Eurostat-defined climate zones, and specific sub-technologies. The indicators to be assessed are:

1. **Total installed capacity of heat pumps** (installed thermal capacity), expressed in GW.
2. **Eligible installed capacity**, representing the share of installed capacity that meets the minimum Seasonal Performance Factor (SPF_{min}) threshold as defined in Annex No. 6, Part A of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025), based on the applicable value of the efficiency factor η , with explicit indication of the SPF_{min} and η values applied and their data sources (Eurostat or normative values).
3. **Equivalent full-load hours of operation (HHP)**, expressed in hours, applied in accordance with the methodology set out in Annex No. 6 of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025).
4. **Estimated average Seasonal Performance Factor (SPF)** for eligible heat pumps, calculated in line with Annex No. 6 of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025) and clearly distinguishing between eligible and non-eligible units.
5. **Calculated amount of renewable energy supplied by heat pumps**, expressed in GWh, determined exclusively for eligible heat pumps using the parameters above, in accordance with Annex No. 6, Part A of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025).

Note:

Only heat pumps fulfilling the minimum SPF requirement, as defined by the η -dependent threshold in Annex No. 6, Part A of the Regulation on the calculation of energy consumption from renewable sources (GD 74/2025), shall be considered for the calculation of renewable energy supplied. Installed capacity not meeting this criterion shall be excluded from renewable energy accounting.

Main categories

- Electrically driven heat pumps

- Heat pumps driven by thermal energy

Climate zones (according to Eurostat definitions)

Data will be collected and presented separately for each of the three climate zones:

- Colder climate / Average climate / Warmer climate

Sub-technologies covered in each climate zone

- **Aerothermal energy**
 - ✓ Air-air (including reversible variant) / Air-water (including reversible variant) / Exhaust air-air / Exhaust air-water
- **Geothermal energy**
 - ✓ Ground-air / Ground-water
- **Hydrothermal energy**
 - ✓ Water-air / Water-water

Geographical and sectoral scope

The analysis covers the entire territory of the Republic of Moldova, with a focus on residential, commercial, and public buildings where heat pumps are installed. It includes both existing stock and recent installations (last 5 years), drawing from importers, distributors, customs data, professional associations, prior studies, and estimation models where direct data are unavailable.

Methodological scope

The study will include a dedicated methodological section justifying Moldova’s climate zone classification (likely average climate), documenting all data sources, and explaining estimation methods for data gaps.

Qualitative analysis scope

Beyond quantitative indicators, the study will cover:

- Market trends (sales evolution over 5 years, short- and medium-term forecasts)
- Key market players (producers, distributors, installers)
- Policy framework review (existing incentives, barriers, alignment with EU RED III, EED, EPBD)
- Recommendations for improved monitoring, data collection, and policy measures to accelerate heat pump deployment

Limitations

The scope excludes detailed engineering audits of individual installations, lifecycle assessments, or economic/financial modelling of future investments. The focus remains on aggregated national-level statistics and market overview to inform strategic planning and reporting.

This scope aligns with Moldova’s commitments to increase the share of renewables in heating and cooling to 27–30% by 2030 and supports the Ministry of Energy and CNED in fulfilling their monitoring and policy development roles.

4. KEY ACTIVITIES, DELIVERABLES AND TENTATIVE TIMETABLE

The activities and deliverables expected from each of the three consultants are the following:

Deliverables	Tentative timetable	Number of working days	Language and format
Deliverable 1. Initial Methodological Report with the following tentative structure: <ul style="list-style-type: none"> - Detailed database structure - Methodological framework (definitions, climate zone justification for Moldova, data sources, estimation models for gaps, preliminary analysis of available data) 	April 15, 2026	5	First Word / PDF Ro
Deliverable 2. Validated Database <ul style="list-style-type: none"> - Excel/CSV database with 5 key indicators over the past five years (installed capacity [GW], capacity with SPF > threshold [GW], 	April 30, 2026	15	Word / PDF Ro

<p>equivalent full-load hours [h], estimated average SPF, renewable energy supplied [GWh])</p> <ul style="list-style-type: none"> - Disaggregated by main categories (electrically driven / thermally driven), climate zones (colder / average / warmer), and sub-technologies (aerothermal, geothermal, hydrothermal) <p>The collection and validation of data will be conducted in partnership and with support of UNDP, CNED and Ministry of Energy.</p>			
<p>Deliverable 3. Technical Evaluation Report</p> <ul style="list-style-type: none"> - Quantitative assessment of installed stock, capacity, performance (SPF), operating hours and renewable contribution - Market trends analysis (sales evolution 5 years, forecasts, key producers/distributors) - Policy framework review (existing incentives/barriers, alignment with Law No. 10/2016, PNIEC, NDC, EU directives) 	June 30, 2026	20	Word / PDF Ro / Eng
<p>Deliverable 4. Final Statistical Study</p> <ul style="list-style-type: none"> - Consolidated conclusions on heat pump deployment and contribution to renewable heating/cooling targets - Recommendations for improved monitoring, data collection mechanisms, and policy measures to accelerate adoption - Preparation of data suitable for SHARES reporting and integration into national systems 	July 31, 2026	10	Word / PDF Ro / Eng

Note: Deliverables and the final timeline can be amended or specified for the purpose of the assignment.

INSTITUTIONAL ARRANGEMENTS

The timeframe for the work of the Consultants is planned for the period March 2026 – July 2026, with the contract validity extended until August 31, 2026.

The assignment shall be performed in close coordination with the UNDP Project Team, under the guidance and supervision of the Project Manager, and in close liaison with the National Center for Sustainable Energy.

For the duration of the assignment the Project will provide the Consultant with the necessary information and materials for the fulfilment of the assignment. All communications and documentation related to the assignment will be in **Romanian and/or English**, unless specifically agreed otherwise.

5. FINANCIAL ARRANGEMENTS

The contract will be structured as a lump-sum agreement, with all costs payable upon completion of the deliverables at the end of the contract period. Payments will be disbursed upon submission and validation of the final deliverables by the Project Manager.

6. QUALIFICATIONS AND SKILLS REQUIRED

Academic Qualifications:

- University degree (or higher) in Mechanical Engineering, Energy Engineering, Environmental Engineering, Statistics or other fields relevant to renewable energy technologies and heat pumps.

Professional Experience and Technical Competencies:

- Minimum of 7 years of professional experience in the energy sector, renewables, heating technologies, statistics, heat pumps, or energy efficiency market analysis.
- Proven experience in conducting or leading at least 3 market studies, technical assessments or data collection exercises related to heat pumps, energy efficiency, renewable energy technologies or heating/cooling systems.

- Demonstrated ability in at least 2 contracts, to collect, validate and analyse energy performance data (e.g., capacity, SPF, operating hours, renewable energy output) using estimation models where direct data are incomplete.
- Strong knowledge of the national regulatory framework in the field of renewable energy and energy efficiency (including Law No. 10/2016 on Renewable Energy Sources, PNIEC 2025-2030, and relevant EU directives such as RED III and EPBD).
- Proven experience in working with or for public institutions (e.g., Ministry of Energy, National Center for Sustainable Energy) or international organizations on energy-related projects will be considered a strong asset.
- Excellent analytical, writing and presentation skills in Romanian and English; working knowledge of Russian will be considered an asset.

7. DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSALS

Interested individual consultants must submit the following documents/information to demonstrate their qualifications:

- Signed and filled-in Offeror's letter to UNDP confirming interest and availability for the individual contractor (IC) assignment, incorporating Financial proposal in Annex 2 (in USD, specifying a total requested amount per working day, including all related costs, e.g. fees, phone calls, fuel, etc.). Annex 2 to the Offeror's letter, incorporating the Financial Proposal, shall be filled in mandatorily and includes the detailed breakdown of costs supporting the all-inclusive financial proposal;
- Proposal (Motivation Letter): explaining why they are the most suitable for the work, including previous experience in similar Projects (please provide brief information on each of the above qualifications, item by item, including information, links/copies of documents for similar comprehensive studies);
- Duly updated CV with at least 3 references.

Important notice: The applicants who have the statute of Government Official / Public Servant prior to appointment will be asked to submit the following documentation:

- a no-objection letter in respect of the applicant received from the Government, and;
- the applicant is certified in writing by the Government to be on official leave without pay for the entire duration of the Individual Contract.

8. EVALUATION

Initially, individual consultants will be shortlisted based on the following minimum qualification criteria:

- University degree (or higher) in Mechanical Engineering, Energy Engineering, Environmental Engineering, Statistics, or other fields relevant to renewable energy technologies and heat pumps.
- Minimum of 7 years of professional experience in the energy sector, with at least 4 years specifically focused on renewable heating technologies, statistics, heat pumps, or energy efficiency market analysis.
- Proven experience in conducting or leading at least 3 market studies, technical assessments or data collection exercises related to heat pumps, energy efficiency, renewable energy technologies or heating/cooling systems.
- Citizen of Republic of Moldova

The short-listed individual consultants will be further evaluated based on the following methodology:

The award of the contract shall be made to the individual consultant whose offer has been evaluated and determined as:

- responsive/ compliant/ acceptable, and
- having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation.
 - Technical Criteria weight – 60% (300 pts);
 - Financial Criteria weight – 40% (200 pts).

Only candidates obtaining a minimum of 210 points will be considered for the Financial Evaluation.

Criteria	Scoring	Maximum Points Obtainable
Technical		
University degree (or higher) in Mechanical Engineering, Energy Engineering, Environmental Engineering, Statistics or other fields relevant to renewable energy technologies and heat pumps.	University degree – 30 pts, Master’s degree – 40 pts, Ph.D. – 50 pts.	50
Minimum of 7 years of professional experience in the energy sector, renewables, heating technologies, statistics, heat pumps, or energy efficiency market analysis.	7 years – 40 pts, each additional year - 5 pts, up to max – 60 pts.	60
Proven experience in conducting or leading at least 3 market studies, technical assessments or data collection exercises related to heat pumps, energy efficiency, renewable energy technologies or heating/cooling systems.	3 assignments – 30 pts, each additional assignment – 5 pts, up to 50 pts.	50
Demonstrated ability in at least 2 contracts, to collect, validate and analyze energy performance data (e.g., capacity, SPF, operating hours, renewable energy output) using estimation models where direct data are incomplete.	No assignments – 0 pts, 2 assignments – 20 pts, each additional assignment – 5 pts, up to 30 pts.	30
Demonstrated knowledge of the national regulatory framework in renewable energy and energy efficiency (including Law No. 10/2016, PNIEC 2025–2030, RED III, EPBD), confirmed through previous professional assignments, analytical reports, publications, or documented involvement in related policy or market analysis work (to be indicated in the motivation letter).	No evidence – 0 pts, 1 assignment/report – 15 pts, each additional assignment /report – 5 pts, up to 30 pts	30
Proven experience of working with or for public institutions (e.g., Ministry of Energy, National Center for Sustainable Energy) or international organizations on energy-related projects will be considered a strong asset.	No assignments – 0 pts, 1 assignment – 20 pts, each additional assignment – 10 pts, up to 50 pts.	50
Excellent analytical, writing and presentation skills in Romanian and English; working knowledge of Russian will be considered an asset.	Romanian – 5 pts English – 5 pts Russian – 5 pts	15
Belonging to the group(s) under-represented in the UN Moldova and/or the area of assignment*	No – 0 pts each group - 5 pts, up to 15 pts.	15
Maximum Total Technical Scoring		300

* Under-represented group in the area of assignment (law enforcement) are women. Under-represented groups in UN Moldova are persons with disabilities, LGBTI, ethnic and linguistic minorities, especially ethnic Gagauzians, Bulgarians, Roma, Jews, people of African descent, people living with HIV, religious minorities, especially Muslim women, refugees and other non-citizens.

Financial	
Evaluation of submitted financial offers will be done based on the following formula: $S = F_{min} / F * 200$ S – score received on financial evaluation; Fmin – the lowest financial offer out of all the submitted offers qualified over the technical evaluation round;	200

F – financial offer under consideration	
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Winning candidate

The winning candidate will be the candidate who has accumulated the highest aggregated score (technical scoring + financial scoring).