



7 August 2025

# Terms of Reference

## Pre-feasibility study and regulatory recommendations for geothermal district heating in Ukraine

### 1. Introduction

As Ukraine advances its recovery and EU integration, decarbonizing the heating sector is essential, as it is a key target in the National Energy and Climate Plan. Heating accounts for a significant portion of Ukraine's energy consumption, especially in the residential sector, highlighting the importance of energy-efficient and sustainable solutions. In cooperation with the State Agency for Energy Efficiency and Energy Saving of Ukraine, this initiative will support the development of a pre-feasibility study to integrate geothermal heat pumps into the district heating system of Starokostiantyniv (Central Ukraine). To promote the wider adoption of geothermal technology, the project will also develop recommendations to eliminate key regulatory barriers, including excessive taxation on well drilling. The results will be shared through a best-practice publication and a public discussion. This will offer insights from the study and international experience to inform future efforts across Ukraine.

### 2. Background and rationale

This assignment is commissioned by the Netherlands Enterprise Agency (RVO) on behalf of the *Climate and Energy Response Facility* ([CERF](#)). CERF, a program commissioned by the Netherlands' Ministry of Foreign Affairs and implemented by RVO, works with Dutch diplomatic missions in almost 40 countries to ensure a just and inclusive green energy transition. The goal is to contribute to accelerated climate change mitigation and adaptation activities in these countries. CERF focuses on sectors where Dutch expertise adds value to climate-related challenges.

Ukraine's energy sector is undergoing a critical transformation as the country rebuilds and progresses toward EU integration. One of the most pressing challenges lies in the heating sector, which remains both socially sensitive (it is heavily subsidized and access is politically a crucial topic of discussion) and highly energy intensive. Past dependence on imported gas and coal has left Ukraine vulnerable to recurring energy crises. As part of the "build back better" approach, the country must adopt modern, sustainable technologies that reflect international best practices and strengthen long-term resilience. District heating, which serves much of Ukraine's urban population, holds considerable potential for modernization. Surface geothermal heat pumps, which have been used successfully in European and American systems, offer an efficient, low-emission and sustainable solution that aligns with Ukraine's National Energy and Climate Plan (NECP).

Although geothermal heating is still underdeveloped in Ukraine, it presents a viable alternative to fossil fuels and supports progress toward climate neutrality.

Project's Contribution to Larger Ongoing Efforts:

#### 1. Supports EU Integration and NECP Goals

Geothermal systems directly contribute to achieving the targets of Ukraine's National Energy and Climate Plan (NECP) and alignment with the EU Green Deal. They help reduce GHG emissions, increase renewable energy penetration, and improve energy efficiency — all key EU requirements.

## 2. Advances Decentralization and Energy Security

By enabling local, distributed heating solutions, geothermal systems reduce dependence on centralized fossil-fuel-based infrastructure and imported energy resources. This aligns with Ukraine's push for decentralized energy resilience.

## 3. Contributes to Municipal Resilience and Recovery

As many district heating systems were damaged or are outdated, geothermal retrofits offer a viable modernization pathway. These systems can be integrated into urban recovery planning, enabling municipalities to offer reliable and affordable heating to residents, even in times of crisis.

## 4. Fulfills International Best Practice

Countries like Germany, Sweden, and the Netherlands have already proven the feasibility of geothermal integration into district heating. Ukraine, by adopting this now, leverages proven technologies and avoids locking in carbon-intensive solutions.

### **3. Purpose of the assignment**

The goal of the assignment is to create basis for scaling up one of the main ways of heat sector decarbonization in Ukraine.

The purpose of this assignment is to:

- Use the best available international experience to apply the technology to Ukraine - prepare a pre-feasibility study for the technology application in the town of Starokostiantyniv.
- Create a basis for technology scale-up by sharing key aspects of the pre-feasibility study with relevant stakeholders.
- Create a proper regulatory environment for scaling up by proposing a clear roadmap for improvement and organizing consultations (among other activities. For more detail, we refer to component 3 under assignment description and activities.)
- In general, raise awareness about use of surface geothermal technology for district heating as it is quite unknown in Ukraine.

The project also includes a best-practice publication and a public discussion to present findings, share international experience, and identify policy measures—such as eliminating excessive taxes on well drilling—that can enable broader adoption. Ultimately, this initiative will contribute to reducing carbon emissions, increasing energy independence, and supporting the sustainable recovery of Ukraine's heating sector.

### **4. Assignment description and activities**

#### Component 1: Pre-Feasibility Study for Geothermal Integration in Starokostiantyniv

##### Objective:

The study will determine the technical and economic feasibility of implementing geothermal technology at the optimal boiler house, which will be selected during the project. The goal is to determine the optimal engineering solution and the main sustainable, financial, and economic indicators that justify the chosen solution.

##### Key Tasks:

1. Select the most suitable boiler house in Starokostiantyniv for the pilot.
2. Assess technical conditions (ground temperature, space availability, grid connection) for geothermal system integration. Also, assess the potential environmental impact.
3. Identify the most cost-effective (CAPEX, OPEX) and practical engineering solution, including key financial indicators, financial and economic model of the geothermal system and its impact on district heating tariffs.
4. Recommend a viable investment structure (public/private, PPP, etc.) based on the findings.

5.Ensure the study is developed in cooperation with an experienced European partner, applying international best practices and adapted to Ukraine’s local context.

**Expected Output:**

A comprehensive pre-feasibility report that provides an evidence base for attracting investment and launching the pilot.

**Component 2: Knowledge Consolidation and Sharing**

**Objective:**

To develop practical guidelines based on the pilot that will enable other municipalities and district heating companies to assess and adopt geothermal solutions.

**Key Tasks:**

1. Draft technical, economic, and regulatory guidelines based on the pre-feasibility findings.
2. Organize a knowledge-sharing session(s) with other local communities, key public and private stakeholders. Attention to gender representation is encouraged during these session(s).
3. Disseminate the guidelines in accessible formats for utilities, community leaders, and national experts.

**Expected Output:**

A practical guideline document and outreach event(s) to facilitate replication and broader application of geothermal technologies.

**Component 3: Regulatory Streamlining and Policy Development**

**Objective:**

To identify and help remove regulatory and fiscal barriers to the deployment of geothermal heating in Ukraine.

**Key Tasks:**

1. Conduct a gap analysis of current legal, fiscal, and administrative obstacles at subnational and national level.
2. Make a concrete regulatory and financial proposal to improve the current regulatory framework (new or amendment) that will support the development of geothermal projects that reduce carbon emission.
3. Draft legal recommendations and outline concrete policy documents to institutionalize solutions in alignment with EU standards.
4. Propose a clear roadmap for improvement of the institutional and regulatory framework for the development of geothermal projects, at sub national and national level.
5. Organize consultations with relevant NGOs, companies, ministries, regulators, and parliamentary committees.

**Expected Output:**

A set of actionable legal and policy recommendations, informed by stakeholder dialogue, to facilitate geothermal market development in the district heating sector.

**5. Deliverables and Timelines**

Project duration: 6–9 months (indicative), with the possibility of extension depending on stakeholder engagement and policy development cycles.

Deliverables	Timelines
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Start project	Mid-October 2025
1. Pre-Feasibility Study for Geothermal Integration in Starokostiantyniv	3 months after signing the contract
2. Knowledge Consolidation and Sharing	6 months after signing the contract
3. Regulatory Streamlining and Policy Development	9 months after signing the contract

## 6. Method of working and communication

- The contractor will report directly to the Contracting Authority (RVO and EKN Ukraine), who will act as the primary contact for all technical and administrative matters.
- The contractor will work closely with national and local stakeholders.
- Monthly coordination calls (online) will be scheduled with the project team to review progress and address issues. The project team will consist of RVO, EKN Ukraine and the contractor.
- Interim presentations will be required at key milestones to share preliminary results.
- All written communication, reports, and presentations shall be delivered in English. The outputs of the 3 components described in chapter 4 shall be delivered in English and Ukrainian.
- The contractor must be capable of conducting interviews and meetings in Ukrainian or with interpretation support.
- Communication materials for stakeholder outreach should be clear, technically sound, and accessible.

### Project management in detail:

At the beginning of the assignment, the contractor will present to RVO and EKN Ukraine:

- Detailed planning for the 3 components, indicating milestones and the timeline for the achievement of expected results.
- An agenda for progress meetings. This will include:
  - i. kick-off meeting;
  - ii. monthly coordination calls. After completing a component, the contractor will present the findings for the embassy and RVO.
  - iii. a closing meeting at the end of the assignment where the contractor will present the findings of the project.

The contractor, in coordination with the relevant project partners, EKN Ukraine and RVO will define a fixed day/time for the meetings, save the date in agendas and will prepare the minutes.

Due date: one week after the contract is granted.

### **Presentation of findings**

The contractor at the end of the assignment will present the results of the project:

- Internal for the embassy and RVO during the closing meeting.
- External for the relevant government bodies of Ukraine.

For this, the contractor will prepare a power point in Ukrainian and in English.

Due date: 9 months after signing the contract.

## 7. Contractor profile

The methodology for implementing the shallow geothermal project in Starokostiantyniv will be grounded in a practical, investment-oriented approach. The contractor will be expected to not only conduct a robust technical assessment but also identify and incorporate best available practices in

building thermal energy networks and integrating them with existing district heating systems. The final output must go beyond a typical study, resulting in a clearly structured, actionable document tailored for potential investors and partners—demonstrating technical feasibility, regulatory pathways, and project readiness. Strong stakeholder mapping and engagement will be central to the process, including active collaboration with local authorities, technical experts, and the community. The contractor must demonstrate proven capacity in stakeholder analysis, public communication, and contextual understanding of the local institutional and social landscape to ensure effective knowledge-sharing and alignment with local priorities. This will help build trust, increase visibility of local capabilities, and generate momentum toward implementation.

To deliver the objectives of this assignment effectively, the ideal contractor will be a consortium or organization that brings together Ukrainian leadership and European technical expertise in geothermal heating, investment planning, and stakeholder engagement.

The selected contractor must demonstrate the following characteristics:

#### 1. Local Leadership and International Technical Partnership

- There is a strong preference for a consortia where the lead applicant has an established local presence in Ukraine, together with sectoral expertise, and strong connections with local authorities and stakeholders.
- An international partner organization must be actively engaged, possessing a strong track record in delivering investment-grade feasibility studies for shallow geothermal systems, particularly in connection with district heating. Familiarity with EU standards and regulatory frameworks will be considered an advantage.

#### 2. Strong Understanding of Ukraine's Energy Context

- Proven knowledge of Ukraine's district heating system, energy market reforms, and decarbonization priorities.
- Ability to operate within Ukrainian regulatory frameworks and work with public authorities.

#### 3. Stakeholder Engagement and Policy Influence

- Track record of multi-stakeholder engagement across public institutions, utilities, local governments, and the private sector.
- Experience in working with Ukrainian communities on energy-related initiatives, including local energy planning, capacity building, and citizen engagement. This local presence and cultural understanding will be critical for ensuring community support, enhancing transparency, and anchoring the project in local realities.
- Ability to build consensus and translate technical work into actionable policy recommendations, including legal and fiscal incentives for geothermal deployment.

#### 4. Public Outreach and Local Capacity Building

- Experience in developing and implementing public information and awareness campaigns in the energy sector.
- Demonstrated capacity to communicate technical solutions clearly to non-specialist audiences.
- Experience with local energy planning, training programs, and community engagement, particularly in Ukrainian municipalities.

#### 5. Team Composition

The consortium is expected to include, at minimum :

- A project lead with strong local knowledge of Ukraine’s energy infrastructure, and has experience in clean energy or district heating modernization.
- An international engineering or advisory firm with geothermal-specific expertise and international project references. Experience working within EU regulatory and technical frameworks is strongly preferred, as it supports alignment with Ukraine’s EU integration trajectory.
- Legal and policy advisors familiar with Ukrainian regulatory reform and EU approximation processes.
- A communications expert or organization skilled in awareness campaigns and stakeholder outreach.

### **8. Budget and payment**

The maximum available budget for this assignment is EUR 100,000, inclusive of all local taxes (including VAT). Proposals exceeding this ceiling will not be considered.

Payments will be made in three tranches, subject to the timely submission and written approval of deliverables by the Contracting Authority:

Installment	Description	Amount
1st payment	Upon contract signing and submission of inception report and work plan	30%
2nd payment	Upon submission and acceptance of the draft pre-feasibility study	40%
Final payment	Upon submission and approval of all final deliverables, including guidelines and policy recommendations	30%

All payments will be made in EUR or UAH via bank transfer to the contractor's designated account, typically within 30 days of invoice receipt and approval. The second payment needs to be made at the latest at December 1<sup>st</sup> 2025, unless parties agree otherwise in writing.

### **12. Applicant and Contact**

The Applicant for this assignment is RVO (in cooperation with the Embassy of the Kingdom of the Netherlands in Ukraine).