Developing methodologies for the integration of low-grade energy sources into high-temperature district heating networks

D1.4

Data Management Plan

Date 20.11.2023
Doc. Version 01

Document Control Information

Settings	Value
Deliverable Title	Data Management Plan
Work Package Title	WP1 – Project Management
Deliverable number	D1.4
Description	A general project management tool guidance with an explanation of the internal project management tools, templates, processes, roles, and responsibilities
Lead Beneficiary	CREARA
Lead Authors	CREARA – Gabriel García Hernandez
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Submitted by	Juan Varo López
Doc. Version (Revision number)	1
Sensitivity (Security):	Public
Date:	21/02/2024

Document Approver(s) and Reviewer(s):

NOTE: All Approvers are required. Records of each approver must be maintained. All Reviewers in the list are considered required unless explicitly listed as Optional.

Name	Role	Action	Date
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Document history:

The Document Author is authorised to make the following types of changes to the document without requiring that the document be re-approved:

- Editorial, formatting, and spelling
- Clarification

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Changes to this document are summarised in the following table in reverse chronological order (latest version first).

Revision	Date	Created by	Short Description of Changes
01	23.11.2023	CREARA – Gabriel García	
02	28.11.2023	CREARA – Juan Varo	
03	16.01.2024	EP – Galina Ivanova	
04	10.02.2024	CREARA – Gabriel García	

Configuration Management: Document Location

The latest version of this controlled document is stored in Deliverables

Nature of the deliverable		
R	Report	x
DEC	Websites, patents, filing, etc.	
DEM	Demonstrator	
O	Other	

Dissemination level		
PU	Public	x
CO	Confidential, only for members of the consortium (including the Commission Services)	

Acknowledgement

This report forms part of the deliverables from the LIFE Low2HighDH project which has received funding from the European Union's Programme for Environment and Climate Action (LIFE) under grant agreement No 101120865. The Community is not responsible for any use that might be made of the content of this publication.

Project Summary

Low2HighDH - Developing methodologies for the integration of low-grade energy sources into high-temperature district heating networks is a project funded under the Programme for Environment and Climate Action (LIFE). This collaborative effort involves 8 partners from 7 European countries, combining diverse expertise to provide comprehensive technological and financial solutions and effectively integrate low-grade and waste heat sources into real district heating sites.

During its lifetime, the project will support 30 high-temperature district heating sites in Lithuania, Poland, and Slovakia. The goal is to implement low-grade or waste heat technologies by highlighting their advantages and offering an investment plan aligned with the criteria for 'efficient district heating and cooling' outlined in the Energy Efficiency Directive within a 10-year timeframe. The support to heating site owners/managers includes initiating and managing at least two requests for proposals (RFQs) to select suppliers for implementation.

The project explores various low-grade renewable energy sources, such as solar thermal, low-temperature geothermal, and heat pumps, with the latter considered the enabling technology. Being electrically driven, heat pumps can utilise renewable electricity from sources, such as wind and photovoltaics. The project aims to generate and disseminate capacity-building materials to be used by other high-temperature district heating sites or stakeholders. This includes a portfolio of technical and financial solutions tailored to different situations.

To facilitate active engagement, dissemination, and replication, the project establishes a wide network of stakeholders across the three case study countries and beyond. This network includes three national stakeholder communities, 30 local liaison groups, and a project-wide Ambassador community. Low2HighDH is expected to trigger EUR 454 million in investments in sustainable energy, replacing 1 TWh/year of fossil fuels and abating 291 thousand tons of CO_2 emissions.

Low2HighDH is one of four projects responding to the EU's call to support the integration of low-grade renewable energy or waste heat in high-temperature district heating.

More information on the project can be found at: http://www.low2highDH.eu.

Copyright

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Introduction

The main objective of the Low2HighDH Data Management Plan is to define the data to be collected, as well as its format and the procedures that will be applied for the collection, processing, production, and storage of said information within the project. Policies for data sharing, protection, ethics, privacy, confidentiality and IPR protection are also set out. The DMP includes information about the following areas:

- Management of research data pre- and post-project conclusion.
- Types of data collection, processing, or generation.
- Approaches and benchmarks for data gathering.
- Intentions regarding data sharing or open access.
- Protocols for data storage, including post-project completion.

The aim is to make research data findable, accessible, interoperable, and re-usable. The data management plan describes in detail the procedures to ensure that the data management process complies with national and EU legislation.

The Data Management Plan (DMP) remains a dynamic document and will undergo updates as required throughout the project duration (at least at month 18, according to the GA).

List of Tables

List of Acronyms and Abbreviations

Abbreviation	Definition
GA	Grant Agreement
WP	Work Package
ESCOs	Energy Service Companies
HT DHC	High Temperature District Heating and Cooling
RFQs	Request for quotation
EU	European Union
C&D	Communication and Dissemination
RES	Renewable Energy Sources
LOAs	Lines of Action
GDPR	General Data Protection Regulation
EDPB	European Data Protection Board

Data summary

Throughout the Low2HighDH project, data is gathered and produced at multiple junctures. The strategies for data management will evolve progressively to align with the nature of the undertaken tasks, ensuring adaptability to cater to the demands of both the project team and broader stakeholders.

Investments plans for the implementation of low-grade or waste heat technologies in Lithuania, Poland, and Slovakia are seen as a key instrument for stakeholders (municipalities, ESCOs, investment companies, etc). The support to the HT DHC owners/managers includes supporting them on the launch and management of requests for quotations (RFQs) to select the most relevant suppliers to undertake the implementation activities, which will be done at least twice throughout the project.

In the initial phases of the project, the primary aim of the data collection process is to develop an assessment of the national ecosystem within each participating region (i.e: various data types and management structures existing). This is crucial to understand how the project should be framed to encompass the ownership structure of each specific country into a standardised methodology. This evaluation aims to ascertain their potential contribution to the modelling of district heating networks. As a result, the project team will be able to delve into the realm of technical feasibility, identifying the scope of what's achievable. This exploration has guided the identification of necessary adaptations within the tool's design and the associated guidelines to effectively integrate data originating from diverse sources.

For these tasks, the Data Manager is essential, which must ensure that an appropriate data management is developed and used within the project. This responsibility includes the necessary steps to protect the privacy of personal data, gathering the data required to establish a comprehensive data management plan (DMP) and ensuring that the data-related activities are implemented in alignment with the DMP.

The following points describe deliverables that will require data acquisition and transmission mechanisms, so these are the areas where the focus should be on the quality of the information and the collection process:

- Characterization of high-temperature DH systems [PU]
- Technical Solutions Portfolio [PU]
- Financial Tools Portfolio [PU]
- Stakeholder community set up recommendations [PU]
- Final publishable report [PU]
- Local replication roadmaps [PU]
- Policy recommendations [PU]
- Call for applications [PU]

- Investment plan collection [SEN]
- After-LIFE Conservation Plan [SEN]

Therefore, to gather all the necessary information, different mechanisms will be utilised for each of the tasks, all of which should adhere to a clear, secure, accessible, and replicable protocol:

Method	Task	Description for collection process and kind data	Responsible partner
Desk research	T.2.2	Report including a technical, financial & regulatory analysis of high temperature DH networks in the target countries	UNIPARTHENOPE
	T2.3	Define the financial and investment framework and the set of financial schemes/tools that will be used to implement the technical solutions	GNE
	T.6.4	After-LIFE Conservation Plan and Implementation	CREARA
Round tables	T3.3	Collecting the highest number of opinions from the stakeholders involved in the subject matter or in the countries concerned, and comparing these opinions to generate synergies and a common path	CREARA
	T6.5		
Interviews	T6.5	Interviews to gather first-hand information from relevant market actors to better define the local context in the target countries.	CREARA
	T3.1	Bilateral ramp-up meetings to understand the specificities of each case study and tailor the support to their needs, in an achievable manner based on the project's resources.	All partners
	T3.3		CREARA
Surveys	T2.2	It is an efficient and cost effective method to gather important insights from stakeholders and industry experts within the relevant regions	UNIPARTHENOPE
	T2.3		GNE
	T3.3		CREARA
	T6.5		CREARA

Online Application form	T3.1	Specific information from each of the sites to be studied that will allow to assess and score them in order to select the most relevant ones. This will be done using the EC's platform (EU Survey) and the gathered information will not be disclosed.	CREARA
Electronic data exchange	T2.2	For the operation of the Support Facility, technical/financial data on buildings and energy demand/supply systems will be requested from the target group. Data exchange will be organised via secure email.	UNIPARTHENOPE
	T2.3		GNE
Shared folder	All tasks	Primary working method in the day-to-day activities of the project partners	All
Secure emails	T3.1	Emails will serve as the primary means of contacting stakeholders who apply in response to the call for applications	All
All	T5.2	A publishable final report should gather the key results obtained from all the aforementioned information collection mechanisms	EP

Making Data Findable, Accessible, Interoperable, and Re-usable (FAIR)

To ensure data is findable, the work on WP5, Communication, Dissemination, and Cross-EU Synergies, is vital. WP5 led by Europroject aims to amplify the project's influence by actively engaging, communicating, and fostering collaboration among pertinent target groups while leveraging cross-synergies and experiences. The objectives outlined within this work package include:

- Collaboratively devising, implementing, and consistently enhancing a Communication Strategy.
- Crafting and releasing communication and dissemination materials and content aimed at increasing awareness, disseminating project outcomes, and encouraging interactive participation.
- Establishing an ambassador community to advocate for and promote project initiatives.
- Collaborating with existing and concurrent initiatives to actively engage, outreach, and generate impact within District Heating (DH) systems.

Open access to data is essential for the successful Sustainability, Replication and Exploitation of Project Results, for which we need to ensure that the project's outputs will have an appropriate quality standard, so that they remain relevant after the project end and other members of the DH community could use them in case, they are facing similar projects. In collaboration with all partners, EP will design, develop, update and maintain the project's website in English. The website will be translated into all case study partners' languages. All partners will be encouraged to regularly provide relevant information for updating the website with related news, project results, and events.

To maximise the project's impact as well as the consortium's resources, the project will focus on developing a standardised methodology that is interoperable. To do so the project will strive to develop its approach based on generic and well-known parameters, thus enabling replicators in the target countries, or others, to replicate its premises without a significant associated effort. Additionally, this will allow other agents to develop similar methodologies based on the project's premises, generating knowledge using the Low2HighDH's findings or examples as a basis.

In addition, making data re-usable is the main goal of WP6, which aims to ensure that the project's outputs will have an appropriate quality standard, so that they remain relevant after the project end and other members of the DH community could use them in future projects.

The project outlines three main Lines of Actions (LOAs) within its plan:

- Creation of a One-Stop-Shop Service: This initiative aims to provide comprehensive support for DH operators across the EU and beyond, including regions like Serbia, Bosnia, and Macedonia. The service will facilitate strategic, technical, and financial analyses to aid in integrating low-temperature Renewable Energy Sources (RES) and excess heat into

high-temperature networks. CREARA leads the definition of this service, overseeing strategic analysis, while UNIGE and STUBA contribute to technical analysis. GNE will handle the financial analysis and may act as an investor in selected initiatives.

- Establishment of a Network for Integration Promotion: This involves creating a network that encompasses all project partners and ten specific DH sites designated for in-depth study within the project. The network's aim is to advance the integration of low-temperature RES and excess heat into high-temperature DH systems. It will sustain Low2HighDH activities, methodologies, and outcomes by organizing various events such as workshops, webinars, participation in conferences, and producing papers and reports. Additionally, the exploration of collaborations with other projects building upon Low2HighDH outcomes is under consideration.
- Engagement with EU-based DHC Associations: The project plans to engage relevant EU-based District Heating and Cooling (DHC) associations, such as Euro Heat and Power, through bilateral meetings and a roundtable discussion during the project's final conference. These associations serve as pivotal entry points to companies potentially interested in the Low2HighDH project's results and activities outlined in LOAs 1 and 2.

Data security

Within the project's duration, to enhance effective collaboration among partners, data will be exchanged and stored within a project-specific, access-restricted SharePoint hosted by CREARA. Each project partner bears responsibility for the data processed within their private servers, ensuring its protection and implementation of reasonable data security controls to minimise the risk of information leaks or destruction.

Upon the project's conclusion, collected non-personal data will be stored in an appropriate repository to maximise data preservation. Personal data gathered during registration processes (e.g., for webinars) will be deleted once the project concludes.

This data management process aligns with EU legislation, specifically the General Data Protection Regulation (GDPR) (Regulation EU 2018/1725). All participating countries are members of the European Data Protection Board (EDPB), ensuring GDPR protection for the data involved.

Ethical aspects

In relation to the data existing in current databases, ethical considerations primarily involve adherence to the licensing terms under which these databases are provided. No additional ethical concerns are identified.

Regarding the survey-derived data, no ethical issues have been identified, as all the data will be collected and analysed anonymously.

Concerning data obtained from interviews or call for applications, the project consortium will establish a common procedure to ensure ethical conduct. Interviewees will be informed outlining the survey's purpose, translated into the local language. Interviewers commit to maintaining confidentiality of interview documentation (notes, recordings). Furthermore, interviewees will be asked for initial consent (GDPR form will be prepared) regarding the potential publication of a person-related summary of interview results.

- Procedure if interviewees agree to publication: Following interview evaluation, a summary is prepared and shared with the interviewee, requesting permission for release. If granted, relevant parts of the interviews are included in the report.
- Procedure if interviewees decline publication: Reports only feature anonymized results that prevent any identification of individuals.

Regarding data obtained from municipalities within the support facility framework, strict measures are in place: data storage and processing occur exclusively on secure drives, without transmission to partners beyond the Low2HighDH consortium, and without any publication.

The project refrains from processing personal data further or engaging in additional processing of previously collected personal data, ensuring compliance with ethical guidelines and data protection regulations.

Appendix 1: References and Related Documents

	Reference or Related Document	Source or Link/Location
1	Low2HighDH project Grant Agreement No 101120865	Low2HighDH Project SharePoint, Reference Documents folder
2	Low2HighDH project Consortium Agreement	Low2HighDH Project SharePoint, Reference Documents folder
3	D1.1. Management Handbook	Low2HighDH Project SharePoint, Deliverables & Milestones
4	D5.1 Communication Strategy	Low2HighDH Project SharePoint, Deliverables & Milestones

Appendix 2: GDPR Privacy Policy Template

LIFE- Low2HighDH Consortium

Effective date: [Date]

1) Introduction

At LIFE- Low2HighDH Consortium, we are dedicated to safeguarding your privacy and adhering to the regulations set forth by the EU General Data Protection Regulation (GDPR). This privacy policy elucidates the methodologies employed in collecting, utilizing, processing, storing, and sharing your personal data. By engaging with our services or furnishing your personal data to us, you implicitly grant consent to the procedures explicated within this policy.

2) Personal data we collect

We may gather diverse forms of personal data from you, encompassing, but not confined to:

- Contact information (name, email address, phone number)
- Demographic details (age, gender, location)

3) Legal basis for processing

We process your personal data relying on the following legal foundations:

- Consent: When you provide your explicit consent for specific processing activities.
- Contractual necessity: When the processing is necessary for the performance of a contract with you.
- Legitimate interests: When we have a legitimate interest in processing your personal data, which is not overridden by your rights and interests.
- Legal Obligations: When the processing is necessary to comply with legal obligations.

4) Purposes of data processing

We process your personal data for the following purposes:

- Implementing LIFE- Low2HighDH activities and fulfilling your requests.
- Communicating with you, including sending pertinent updates and notifications.
- Personalizing and enhancing the work within the project.
- Conducting research and analysis to improve our offerings.
- Adhering to legal obligations in regard to the implementation of LIFE Low2HighDH project.

5) Data sharing and transfers

We may share your personal data with:

- Law enforcement or regulatory authorities, as required by law.

6) Data security measures

We have instituted suitable technical and organisational measures to safeguard your personal data from unauthorised access, loss, or disclosure. These measures encompass data encryption, access controls, and routine security assessments.

7) Your rights

You have the right to access, rectify, and erase your personal data held by us. You may also possess the right to limit or object to specific processing activities. For any inquiries or requests concerning your personal data, please reach out to us using the provided contact information below.

8) Updates to this privacy policy

We reserve the right to update this privacy policy periodically. The latest version will be published on our website, and noteworthy alterations will be communicated directly to you.

9) Contact us

If you have any questions, concerns, or requests regarding this privacy policy or your personal data, please contact us at info@low2highdh.eu .

By engaging in work with us, collaborating, or utilizing our services, you acknowledge that you have read and comprehended this privacy policy and consent to its terms.

10) Signatures