



Deliverable Report

Project Title:

Solar-Biomass Reversible energy system for covering a large share of energy needs in buildings

Project Acronym:

SolBio-Rev

Work Package 1

Deliverable 1.3

“Data Management Plan”

Responsible for Deliverable:

National Technical University of Athens (NTUA)

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Publishable executive summary

The SolBio-Rev project is a H2020 funded project that aims at developing a flexible energy system suitable for building integration based on renewables for covering a large share of energy demand (heating/cooling/electricity) in a cost-effective manner. The proposed configuration is based on solar, ambient and bioenergy, while it is suitable to be installed in various building types and sizes without any geographical restriction.

This report is an initial Data Management Plan (DMP) report. It outlines how data are collected or generated by the SolBio-Rev project, in terms of how it will be organized, stored, and shared. It specifies which data will be open access and which will be confidential within the consortium, as far as it is possible to do so at this stage. The report has been developed following the Horizon 2020 guidelines (EC DG R&I, 2017) with additional guidance from the joint OpenAIRE and EUDAT webinar “How to write a Data Management Plan” (OpenAIRE and EUDAT, 2019).

This Data Management Plan will have to be updated in conjunction with the progress of the research: datasets characterisation will be fine-tuned, and potentially their publication level will have to be adapted accordingly. An update of the various datasets might be required at month 12 of the project, when the Exploitable Result Table will be precisely defined (D 8.3).

Acronyms and Abbreviations

AA	Acronyms and Abbreviations
CA	Consortium Agreement
DL	Deadline
EC	European Commission
EU	European Union
GA	Grant Agreement
OA	Open Access
ORDP	Open Research Data Pilot
PC	Project Coordinator
PO	Project Officer

Glossary

Open Access (OA): Open Access provides researchers, businesses and citizens with improved and free of charge online access to EU-funded research results, including scientific publications and research data. The objective of the open access policy is to optimise the impact of publicly-funded scientific research, both at European level Horizon 2020 and at the member state level.

Open Data: Open data refers to the idea that certain data should be freely available for use and re-use. Open data policy is linked with open research data policy since both are publicly funded data or their data results from public funding. Therefore, in principle, the data should be openly accessible and re-useable.

1 Introduction

1.1 Aims and objectives

This Data Management Plan (DMP) outlines how data collected or generated by the project will be organised, stored and shared. It specifies which data will be open access and which will be confidential within the consortium, as far as it is possible to do so at this stage.

1.2 Relations to other activities in the project

All partners contribute to the implementation of the Data Management Plan across the other work packages according to their particular activities. This way the data generated by the development of the SolBio-Rev technologies will be used in other Work Packages, using the structures and standards described in the DMP.

1.3 Report structure

The report begins by outlining its purpose, intended audiences, and the process for ongoing development. Section 2 outlines the concepts of open access publishing and open access data in scientific research. Related issues such as a classification for project datasets and an overview of copyright licensing for open access are then discussed. Each project dataset is then described in detail in Section 3, using a standardised template.

1.4 Contributions of partners

As coordinator NTUA has developed a Data Management Plan with input to the dataset descriptions from the respective Task Leaders.

2 Approach to data management

This report has been developed following the Horizon 2020 guidelines (EC DG R&I, 2017) and the joint OpenAIRE and EUDAT webinar “How to write a Data Management Plan” (OpenAIRE and EUDAT, 2019).

2.1 Data availability and open access

Open access (OA) is understood as the free, online provision of re-useable scientific information to other users. There are many good reasons to make the data and findings from publicly funded research openly available to the research community, the commercial sector and civil society.

As the “Guidelines to the rules on Open Access to Scientific Publications and Open Access Research Data in Horizon 2020” (EC DG R&I, 2017) outline, more open access to scientific publications and data serves a number of purposes. It will (i) improve the quality of research by building on a stronger body of existing work, (ii) increase efficiency of research by reducing duplication of effort, (iii) bring innovations to market quicker by reducing barriers to information flow, and (iv) enhance the transparency of scientific progress. There is also the economic and ethical principle that information that has been paid for with public money should not have to be paid for again when it is required for use by other researchers, industry, or citizens.

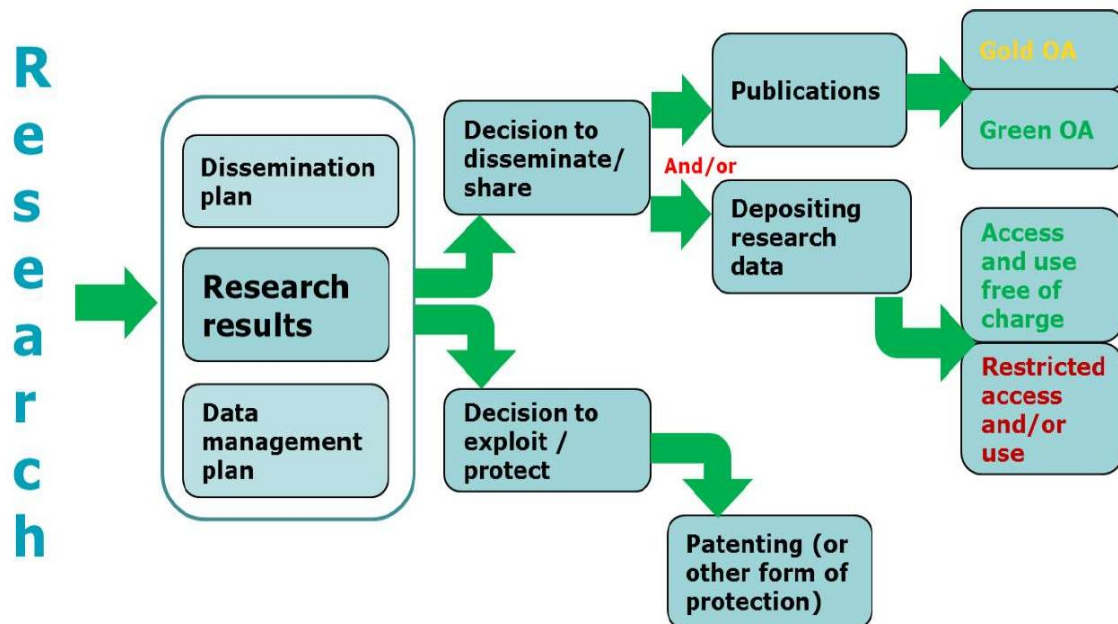


Figure 1: Open access to scientific publication and research data in the wider context of dissemination and exploitation (Reproduced from EC DG R&I (2017) H2020 Programme Guidelines on Open Access to Scientific Publications and Open Access Research Data in Horizon 2020)

As outlined above, the first decision to be made in research dissemination is whether to publish research findings or to protect some aspects for commercial exploitation. The datasets outlined in the next section of the report, present outputs and processes that will determine the path for different aspects of the SolBio-Rev project. This work will have input from the dissemination and exploitation activities of Work Package 8, which is led by DBC. The process will involve patent search, the clarification of each partners’ legitimate interests in relation to the project outputs, and the introduction of IPR agreements between partners prior to dissemination of findings. The Dissemination and Exploitation plan (D8.1, month 6) and Exploitable results table (D8.3, month 12) will clarify these findings and ultimately lead to the final Exploitation strategy concluded in the partner exploitation agreement (D8.8) at the close of the project in month 48.

2.1.1 Classification of Data Availability

Data availability is therefore categorised at this stage in one of three ways:

Open	Data that is shared for re-use or that underpins a scientific publication
Consortium	Confidential data that is accessible to all partners and the Stakeholder Advisory Board (SHAB) – to be defined by month 12 - but retained within the consortium
Private	Data that is maintained by an individual partner for their own purposes.

Much of the data gathered by the project regards new knowledge creation; it is therefore likely that much of the data is categorised as Consortium or Private. However, the project

will seek to openly disseminate its research findings, except in cases where there are defined exploitable outcomes, privacy concerns or there will be a high administrative burden for a dataset or limited worth to other users. The two main aspects of this dissemination approach are **open access to scientific publications** and open access to research data. Each is considered in the following sections.

2.1.2 Open Access Publishing

Open access publishing is essentially defined as the free availability of peer-reviewed scientific publications for any user. There is no single legal definition in the context of H2020 but the SolBio-Rev Grant Agreement specifies that each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to its results. In particular, it must:

(a) as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;

Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.

(b) ensure open access to the deposited publication — via the repository — at the latest:

- (i) on publication, if an electronic version is available for free via the publisher, or
- (ii) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.

(c) ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.

The bibliographic metadata must be in a standard format and must include all of the following:

- the terms “European Union (EU)” and “Horizon 2020”;
- the name of the action, acronym and grant number;
- the publication date, and length of embargo period if applicable, and
- a persistent identifier.

To achieve this, we will use both “green” and “gold” open access routes. “Green” open access, or self-archiving, is the release of a final peer reviewed manuscript through an online repository, possibly after an embargo period, whereas “gold” open access relates to open access publishing.

The SolBio-Rev consortium is committed to ensuring that the outputs of its research are readily accessible and will use the online repository and portal of NTUA (<http://dspace.lib.ntua.gr>). This facility can host academic outputs - i.e. journal articles, conference papers and book chapters – and keep them indefinitely accessible and discoverable in the mode of “green” open access publishing.

2.1.3 Open Data

According to the SolBio-Rev project Grant Agreement open access to research data is not generally applicable.

There are four main aspects of open data summarised in the acronym FAIR (Force 11, 2018):

Findable	Data has a unique, persistent ID, located in a searchable resource, and documented with meaningful metadata
Accessible	Data is readily and freely retrievable using common methods and protocols, metadata is accessible even if the data is not
Interoperable	Data is presented in broadly recognised standard formats, vocabularies and languages
Re-useable	Data has clear licences, and accurate meaningful metadata conforming to relevant community standards and identifying its content and provenance

Within the management structure, the Management Board will be responsible for data management. The types of data generated in the SolBio-Rev project are:

1. Technical specifications of the prototypes and demonstration sites.
2. Simulation parameters & results related to the prototypes in various environments & operating conditions.
3. Performance characteristics related to the lab and field testing of the components and system.

The data management plan establishes how this approach will be realised in practice. Project datasets for dissemination will be open access by default, at the very least to validate scientific publications. However, not all of the project work packages will produce datasets that are intended for public dissemination; much of the data created and stored during the project is for internal management and communication within the consortium only.

Project exploitable results are identified early in the project and it is already foreseen that some partners will protect results via patent applications (e.g. NTUA). This identification and patenting will make clear what information/data cannot be disseminated. Instead, **in the event of a decision to disseminate/share the results**, data will be generally treated as follows: results related to data that support the dissemination, exploitation and future branding of the SolBio-Rev will be treated with **GOLD open-access**. Instead, **results that are related to competitive aspects** for the future development and exploitation of the results (component pricing, process and integration knowledge, etc.) **will be RED (restricted)**.

The project will use the ownCloud client-server software to create the file hosting services needed for the knowledge repository (see section 2.2.1 - the ownCloud server). The treatment of data within the repository for use after the project is described in the next section (along with the distinction between datasets is clearly described in the next chapter "3. Description of project datasets").

2.1.4 Copyright Licenses

When material is widely shared, copyright licences protect the authors of work and grant specific rights to publishers and others to use this work. The European Commission encourages authors to retain their copyright whilst disseminating it as open access. Creative Commons provides legal tools to enable open access in these circumstances, with CC-BY and CC0 enabling re-use by third parties (Creative Commons, 2019).

Where research findings are published in a journal or other scientific outlet there should be consideration of the copyright agreement with the publishers, which may involve an embargo period.

At this initial stage it is not possible to define the copyright arrangement for each project dataset. The most appropriate licensing arrangements for each of the project datasets will be investigated as they are better characterised by their respective work packages as well as by the Knowledge management and IP strategy (D1.2, month 6) and the Exploitable results table (D 8.2, month 12).

2.2 Data Storage & Sharing

The project has four main data storage and sharing facilities according to the type of data and its intended accessibility.

Private	Stored locally on organisational networks and assets, subject to institutional back uppractices
Consortium	NTUA has setup a dedicated ownCloud server which is secure, robust and accessible to all partners. Consortium data will be uploaded to this cloud storage for simple, secure access for all partners(see section 2.2.1 - the ownCloud server).
Open (i,ii)	<p>(i) The project website http://www.solbiorev.eu/ will be the main point of access for the public where all the deliverable reports classified at public dissemination level, as well as scientific publications and open data sets will be available</p> <p>(ii) NTUA open repository (http://dspace.lib.ntua.gr). This facility can host academic outputs, i.e. journal articles, conference papers and book chapters and will make scientific publications indefinitely accessible and discoverable in the mode of “green” open access publishing.</p>

2.2.1 The OwnCloud server

For the needs of the SolBio-Rev project a file sharing platform, that will also serve as a knowledge repository has been implemented by the IT team of NTUA using the ownCloud server software. This platform has similarities in usage with other well-known cloud storage applications such as Dropbox, Google Drive, etc. However, a key difference is that

ownCloud is hosted in a private server running Linux software in the premises of LSBTP and it will be administrated and customized by the NTUA team.



Figure 2: OwnCloud key principles (Source <http://owncloud.com>)

ownCloud is a suite of client–server software for creating file hosting and back-up service, with the primary characteristic being that the Server Edition of ownCloud is free and open-source, and thereby allowing anyone to install and operate it on a private server (Figure 2).

The ownCloud Web Interface

With ownCloudserver, users can see and download all the shared files as well as upload new files online from any internet browser (supported web browsers: Firefox 14+, Chrome 18+, Safari 5+ IE11+) based on the access privileges set by the server administrator. By default, the ownCloud web interface will open to user's Files page. Navigating through folders is as simple as clicking on a folder to open it and using the browserback button to move to a previous level. The present structure of the SolBio-Rev shared folder as seen through the web interface is illustrated in Figure 3.

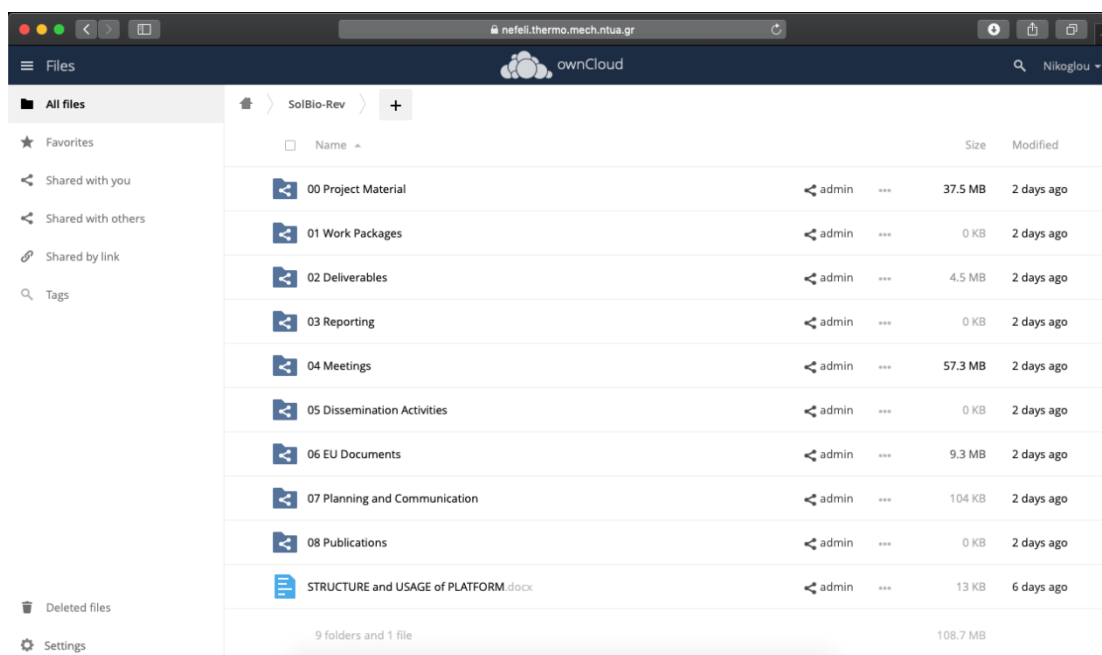


Figure 3: The ownCloud web interface of the SolBio-Rev shared folder.

The ownCloud Desktop Client

Apart from the Web Interface there is also a convenient and user-friendly ownCloud client software so that the user can keep all files at her/his computer or smart phone and have them automatically synchronized. This way the user can just add the files to be uploaded in this folder and all other sharing users will automatically see these files on their computers.

3 Description of project datasets

Datasets are numbered according to their primary work package and task number, as laid out in the Description of the work packages. For example, the dataset of Task 1.1 is named "Dataset 1.1".

The description of the datasets below is based upon the Horizon 2020 Initial DMP template provided by the UK's Digital Curation Centre (DCC) via the web resource DMP Online <https://dmponline.dcc.ac.uk/>

Below there is a dataset template presented, describing the fields used to describe a dataset.

WP / Task & Data Manager	Work Package and/or Task numbers related to the dataset, and the Data Manager who takes responsibility.
Dataset reference / name	Dataset number and name
Availability	Private, Consortium or Open

Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Keyword(s) that categorize data to make it linked/searchable
Data set description	Data description, origin, nature, scale, if it underpins a publication, useful to, existence of similar data, possibilities for reuse.
Standards	Reference to existing standards in topic area governing data collection, aggregation, storage and sharing.
Data sharing	How the data will be shared, identification of repository, existence of embargo period if any, identification of software or tools necessary for reuse.
Archiving and preservation (storage/backup)	The procedure for long-term preservation, length of preservation, an estimation of costs and how this will be covered.

3.1 WP 1

There are no research datasets expected to be generated by WP1 activities.

3.2 WP 2

3.2.1 Dataset 2.1 Specific climate considerations and building typological classification

WP / Task & Data Manager	Work Package 2, Task 2.1 Josep Argelich (UDL)
Dataset reference / name	2.1 / Specific climate considerations and building typological classification
Availability	Open (i)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Building typologies, building classification, climate considerations, technological performance and/or features
Data set description	This data set refers to Task 2.1 - Specific climate considerations and Building typological classification . It includes the characterization of the climatic zones that correspond to south/central/north Europe, and the classification of the typologies of different building types, in order to identify potential adopters of

	the developed system.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf Information about climates and building typologies will be included in D2.1 - Definition of climate and building typologies , at Public dissemination level. Therefore, it will be publicly available on the SolBio-Rev project website.
Archiving and preservation (storage/backup)	The data set will be stored by UDL in its own server as well as in the project ownCloud platform.

3.2.2 Dataset 2.2 Generic energy system development

WP / Task & Data Manager	Work Package 2, Task 2.2 Valeria Paolmba (ITAE)
Dataset reference / name	2.2 / Generic energy system development
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Energy system, sizing, operational modes
Data set description	This data set refers to Task 2.2 - Generic energy system development . It includes the definition of generic energy system for SolBio-Rev technology in different EU climatic zones and of different building typologies and the design/sizing and operational specifications for each component.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf Information about technical and market codes will be included in D2.2 - Generic energy system development at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored in the project ownCloud platform.

3.2.3 Dataset 2.3 Development and Lab testing of the cascade chiller with heat pump

WP / Task & Data Manager	Work Package 2, Task 2.3 Andrea Frazzica (ITAE)
Dataset reference / name	2.3 / Development and lab testing of the cascade chiller with heat pump
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	EER, Cooling, Heating, Energy savings
Data set description	This data set refers to Task 2.3 - Development and lab testing of the cascade chiller with heat pump . It includes the sizing, schematics and lab testing of the cascade chiller coupled to the heat pump under realistic operating conditions.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .xls Information will be included in D2.3 - Cascade chiller with heat pump at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored in the project ownCloud platform.

3.2.4 Dataset 2.4 Development and Lab testing of the reversible heat pump/ORC

WP / Task & Data Manager	Work Package 2, Task 2.4 Sotirios Karellas (NTUA)
Dataset reference / name	2.4 / Test results of the reversible HP/ORC operation
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific	Reversible heat pump/ORC, heat pump modification, numerical

Metadata	model, experimental investigation
Data set description	This data set refers to Task 2.4 – Development and lab testing of the reversible heat pump/ORC . It includes the numerical modeling the design and construction of the reversible heat pump/ORC unit, as well as its experimental investigation for the experimental characterisation of the reversible compressor/expander, the production of performance maps under different operating conditions and the validation of the numerical model.
Standards	No standard for this data.
Data sharing	Data format: .xls, .doc, .pdf, The results of the operation of the reversible heat pump/ORC will be included in D 2.4 Reversible heat pump/ORC , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project ownCloud platform.

3.2.5 Dataset 2.5 Development and testing of the solar thermal collectors with TEG

WP / Task & Data Manager	Work Package 2, Task 2.5 Leonard Franke (KIT)
Dataset reference / name	2.5 / Development and testing of the solar thermal collectors with integrated TEG
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Thermoelectric, TEG, Solar Thermal
Data set description	This data set refers to Task 2.5 – Development and testing of the solar thermal collectors with TEGs . It includes data that mainly has three origins: (a) Simulation, (b) Design process, (c) Experimental setup data. The simulation data is related to the simulation of the TEGs and the solar collectors under operation. The nature of the data will therefore be mainly in the form of tables, diagrams, images and documents. The data generated by the design process are related to development of the coupling components of the TEGs to the solar collectors and the heat sink. This will include

	<p>visual datas such as CAD data, drawings, and images.</p> <p>The experimental data are generated by measurements from a testsetup. For the simulation the data will be mainly in the form of tables, diagrams and images.</p>
Standards	No standard for this data.
Data sharing	<p>Data Formats: STEP, IGES, .doc, .pdf, .xlsx, .csv</p> <p>Information about simulation of the operation, development and experimental testing of the solar thermal collectors with TEG will be included in D2.5 – Solar thermal collector with TEGs, at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.</p>
Archiving and preservation (storage/backup)	The data set will be stored by KIT in its own repository as well as in the project ownCloud platform.

3.2.6 Dataset 2.6 Development and lab testing of the biomass boiler for cogeneration

WP / Task & Data Manager	<p>Work Package 2, Task 2.6</p> <p>Maximilian Weitzer (FAU)</p>
Dataset reference / name	2.6 / Development and lab testing of the biomass boiler for cogeneration
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Biomass boiler, CHP, heat exchanger design, exhaust gas recirculation, NOx emissions
Data set description	<p>This dataset refers to Task 2.6 - Development and lab testing of the biomass boiler for cogeneration. The Task includes the development of a modified biomass boiler with an internal heat exchanger for the heat supply of the ORC. Load-dependent exhaust gas recirculation will be applied in order to reduce the NOx emissions.</p>
Standards	No standard for this data.
Data sharing	<p>Data format: .doc, .pdf, .xls</p> <p>Information about the development of the biomass boiler will be included in D2.6–Biomass boiler for CHP operation, at Consortium dissemination level. Therefore, it will be available only at SolBio-</p>

	RevownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by FAU in its own repository as well as in the project ownCloud platform.

3.2.7 Dataset 2.7 Testing of the integrated heat pump-based configuration

WP / Task & Data Manager	Work Package 2, Task 2.7 Sotirios Karellas (NTUA)
Dataset reference / name	2.7 / Test results of the integrated cascade chiller and heat pump/ORC operation
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Cascade chiller, reversible heat pump/ORC, integration, experimental investigation
Data set description	This data set refers to Task 2.7– Testing of the integrated heat pump-based configuration . It includes the integration of the absorption chiller with the reversible heat pump/ORC and the experimental investigation of the whole system for the production of performance maps under different operating conditions, the validation of the numerical model and adjustments of the control strategy.
Standards	No standard for this data.
Data sharing	Data format: .xls, .doc, .pdf, The results of the operation of the reversible heat pump/ORC will be included in D 2.7 Test results of the heat pump-based configuration , at Consortium dissemination level. Therefore, it will be available only at SolBio-RevownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by KIT in its own repository as well as in the project ownCloud platform.

3.3 WP 3

3.3.1 Dataset 3.1 Assessment of user behavioural models

WP / Task & Data Manager	Work Package 3, Task 3.1 Sotirios Karellas (NTUA)
Dataset reference / name	3.1 / User behaviour and building dynamics interaction
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	User behaviour, building dynamics, dynamic modeling, system demands
Data set description	This data set refers to Task 3.1 - Assessment of user behavioural models . It includes the effect of user behaviour on building dynamics. The interaction between user characteristics and the performance of the proposed system in terms of demand will be assessed through dynamic investigation with varying user profiles within EnergyPlus, Trnsys, and stochastic tools in several climatic zones building types.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .tpf Information on occupant-building interaction models will be included in D 3.1 User behavioural model including user-building interaction , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev own Cloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project own Cloud platform.

3.3.2 Dataset 3.2 Development of a control strategy based on users' profile & weather forecast

WP / Task & Data Manager	Work Package 3, Task 3.2 Josep Argelich (UDL)
Dataset reference / name	3.2 / Development of a control strategy based on users' profile & weather forecast
Availability	Consortium

Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Control strategies, energy consumption optimization, model predictive control
Data set description	This data set refers to Task 3.2 Development of a control strategy based on users' profile & weather forecast . It includes the control strategies that adapts to the user's profile and weather forecast using a Model Predictive Control (MPC) system.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf Information about the control strategies will be included in D3.2 – Optimised system control and strategies , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by UDL in its own server as well as in the project ownCloud platform.

3.3.3 Dataset 3.3 Development and test results of a smart control environment

WP / Task & Data Manager	Work Package 3, Task 3.3 Klearchos Chalikakis (TEAVE)
Dataset reference / name	3.3 / Development and test results of a smart control environment
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Control algorithms, controller programming, fine-tuning, lab-testing, simulation, interface, BEMS coupling
Data set description	This data set refers to Task 3.3 Development and testing of a smart control environment . It includes the conversion of control strategies into algorithms, the testing of the developed algorithms for each subsystem under simplified real conditions at lab scale and their fine-tuning.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf,

	Information on the testing of the controller will be included in D 3.3 Prototype smart control environment , at Consortium dissemination level. Therefore, it will be available only at SolBio-RevownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by TEAVE in its own repository as well as in the project ownCloud platform.

3.3.4 Dataset 3.4(a) System simulation for different buildings, climatic and user conditions

WP / Task & Data Manager	Work Package 3, Task 3.4 Sotirios Karellas (NTUA)
Dataset reference / name	3.4 / Simulation results for different buildings, climatic and occupancy conditions
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Numerical platform, EES, user behaviour, dynamic simulation
Data set description	This data set refers to Task 3.4 System simulation for different buildings, climatic and user conditions . It includes the dynamic simulation of the whole system, including user behaviour, for various climatic zones, heating demand profiles and various building types.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .ees The simulation results along with the numerical platform specifications will be included in D 3.4 System performance for different climates and buildings , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project ownCloud platform.

3.3.5 Dataset 3.4(b) European map of SolBio-Rev system sizing

WP / Task & Data Manager	Work Package 3, Task 3.4 Sotirios Karellas (NTUA)
Dataset reference / name	3.5 / European map of SolBio-Rev system sizing
Availability	Open (i)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	European map, SolBio-Rev system sizing
Data set description	This data set refers to Task 3.4 System simulation for different buildings, climatic and user conditions . It includes a European map showing the collectors' surface and heat pump capacity to achieve certain energy share by renewables at each geographical location.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf The sizing of the main components of the SolBio-Rev system across Europe will be included in D 3.5 European map of SolBio-Rev system sizing at each geographical location , at Public dissemination level. Therefore, it will be publicly available on the SolBio-Rev project website.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project ownCloud platform.

3.4 WP 4

3.4.1 Dataset 4.1 Prototype systems design

WP / Task & Data Manager	Work Package 4, Task 4.1 Nikolaos Barmparitsas (DAIKIN)
Dataset reference / name	4.1 / Prototype systems design
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945

Dataset Specific Metadata	System design, prototype, sizing, configuration
Data set description	This data set refers to Task 4.1 Prototype systems design . It includes the sizing and detailed design of the prototype systems in Greece and Germany.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .dwg Information on the prototype systems design will also be included in D 4.1 Design of the two prototype systems , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by DAIKIN in its own repository as well as in the project ownCloud platform.

3.4.2 Dataset 4.2 Production of the prototype main components of the SolBio-Rev systems

WP / Task & Data Manager	Work Package 4, Task 4.2 Nikolaos Barmparitsas (DAIKIN)
Dataset reference / name	4.2 /Production of the prototype main components of the SolBio-Rev systems
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	SolBio-Rev systems, manufacturing, components, configuration, heat pump-based configuration, solar thermal collectors, TEGs, biomass boiler, storage tank, controller
Data set description	This data set refers to Task 4.2 -Production of the prototype main components of the SolBio-Rev systems . It includes all the specifications and drawings for the manufacturing of the main system components like the heat pump-based configuration, the solar collectors with TEGs, the biomass boilers and the controller, for each location.
Standards	No standard for this data.

Data sharing	Data format: .doc, .pdf, .dwg Information on the building prototype main components will also be included in D 4.3 SolBio-Rev prototype systems produced and installed , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by DAIKIN in its own repository as well as in the project ownCloud platform.

3.4.3 Dataset 4.3 Site preparation and commissioning of the prototype systems

WP / Task & Data Manager	Work Package 4, Task 4.3 Maximilian Weitzer (FAU)
Dataset reference / name	4.3 / Site preparation and commissioning of the prototype systems
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Site preparation, commissioning, commissioning tests
Data set description	This dataset refers to Task 4.3 - Site preparation and commissioning of the prototype systems . In this task the two prototype systems will be assembled installed and commissioned at FAU and NTUA. Additionally, the required electrical and hydraulic connections will be installed, as well as the communication connections. The commissioning tests will reach from manual sub-system testing to fully-automated testing.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .xls Information about about the development and commissioning of the SolBio-Rev prototypes in the test-sites will be included in D 4.3 SolBio-Rev prototype Systems produced and installed, D 4.4 Monitoring protocol and evaluation, D 4.5 Extended commissioning test results , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.

Archiving and preservation (storage/backup)	The data set will be stored by FAU in its own repository as well as in the project ownCloud platform.
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3.5 WP 5

3.5.1 Dataset 5.1 Testing of the prototype system in Greece

WP / Task & Data Manager	Work Package 5, Task 5.1 Sotirios Karellas (NTUA)
Dataset reference / name	5.1 / Energy performance of SolBio-Rev system in Greece
Availability	Open(ii)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Prototype, testing, performance, automatic operation, climate conditions, user conditions, Greece
Data set description	This data set refers to Task 5.1 -Testing of the prototype system in Greece . It includes the results of extensive testing at fully-automatic mode in Greece as well as an analysis of the results with respect to energy, environmental impacts and heating costs for heating, cooling and electricity.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .dwg, .xls Information on the energy performance of the SolBio-Rev system will also be included in D 5.2 Energy performance of SolBio-Rev system in Greece , at Public dissemination level. Therefore, it will be publicly available in NTUA open repository.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project ownCloud platform.

3.5.2 Dataset 5.2 Testing of the prototype system in Germany

WP / Task & Data Manager	Work Package 5, Task 5.2 Maximilian Weitzer (FAU)
Dataset reference / name	5.2 / Testing of the prototype system in Germany

Availability	Open(ii)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Prototype testing, containerised prototype
Data set description	This dataset refers to Task 5.2 - Testing of the prototype system in Germany . In this Task the containerised prototype system will be tested for one year at FAU. The tests will be conducted fully-automated. The collected data will be used to fine-tune the system. The contributing partners will support the tests, each focussing on their specific field.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .xls Information about the prototype testing at FAU will be included in D5.3 Energy performance of SolBio-Rev system in Germany , at Public dissemination level. Therefore, it will be publicly available in NTUA open repository.
Archiving and preservation (storage/backup)	The data set will be stored by FAU in its own repository as well as in the project ownCloud platform.

3.5.3 Dataset 5.3 Validation of the simulation tools

WP / Task & Data Manager	Work Package 5, Task 5.3 Sotirios Karellas (NTUA)
Dataset reference / name	5.3 / Validated simulation platform
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Validation, simulation platform, parameters, fine-tuning
Data set description	This data set refers to Task 5.3 -Validation of the simulation tools . It includes the validated simulation platform for the further investigation of the SolBio-Rev system
Standards	No standard for this data.

Data sharing	Data format: .doc, .pdf, .ees Information on the validated simulation platform will be included in D 5.4 Validated simulation platform , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project ownCloud platform.

3.5.4 Dataset 5.4 Technology validation

WP / Task & Data Manager	Work Package 5, Task 5.4 Maximilian Weitzer (FAU)
Dataset reference / name	5.4 / Technology validation
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Technology validation
Data set description	This dataset refers to Task 5.4 – Technology validation . In this Task the processed results of Tasks 5.1 and 5.2 will define the benefits of the SolBio-Rev system in terms of energy share covered. The goal is to reach at least 70 % in both locations. The overall outcome is the technology validation at two diverse climatic zones, reaching TRL 5, and providing concrete evidence of the performance potential of the new energy systems for buildings.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .xls Information about the prototype testing at FAU will be included in D5.5 Technology validation in different climatic zones , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by FAU in its own repository as well as in the project ownCloud platform.

3.6 WP 6

3.6.1 Dataset 6.1 Social acceptance of SolBio-Rev

WP / Task & Data Manager	Work Package 6, Task 6.1 Mari Martiskainen (UOS)
Dataset reference / name	6.1 / User Interview and survey data
Availability	Open(ii)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Users, building managers, building developers, architects, designers
Data set description	This dataset will include interviews and a survey with key stakeholders, collecting their views on the Sol-Bio Rev concept. No previous data that would examine views on Sol-Bio Rev is available. The dataset will be used in Task 6.1 and Task 6.2 (Task 6.2 will not generate any research data).
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf Information about the processed results and main outcomes of the surveys will be included in D6.1 - Surveys outcome report , at Public dissemination level. Therefore, it will be publicly available in NTUA open repository.
Archiving and preservation (storage/backup)	The data set will be stored by UOS in its own repository as well as in the project ownCloud platform.

3.6.2 Task 6.2 Introduction of user and installer needs to the design process

Task 6.2 will not generate any research data

3.6.3 Dataset 6.3 Interaction with policy makers

WP / Task & Data Manager	Work Package 6, Task 6.3 Mari Martiskainen (UOS)
Dataset reference /	6.3 / Policy maker interview data

name	
Availability	Open(ii)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Policy makers, energy policy, energy efficiency policy, renewable energy policy, building and housing policy
Data set description	This dataset will include interviews with policy makers, collecting their views on the Sol-Bio Rev concept. No previous data that would examine views on Sol-Bio Rev is available. The dataset will be used in Task 6.3.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf Information about the user acceptance progress during the project and policy strategies will be included in D6.3 – User Acceptance and policy strategies , at Public dissemination level. Therefore, it will be publicly available in NTUA open repository.
Archiving and preservation (storage/backup)	The data set will be stored by UOS in its own repository as well as in the project ownCloud platform.

3.7 WP 7

3.7.1 Dataset 7.1 Life Cycle Assessment (LCA)

WP / Task & Data Manager	Work Package 7, Task 7.1 Josep Argelich (UDL)
Dataset reference / name	7.1 / Life Cycle Assessment (LCA)
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	LCA, Life Cycle Assessment, models, SIMAPRO, environmental impact
Data set description	This data set refers to Task 7.1 -Life Cycle Assessment . It concerns the developed LCA models for investigating the environmental

	impact of the proposed solution at building scale
Standards	ISO 14040 (2006) and ISO 14044 (2006)
Data sharing	Data format: .doc, .pdf, .xls, .ilcd Information on the validated simulation platform will be included in D7.1 - Life Cycle Assessment report , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by UDL in its own server as well as in the project ownCloud platform.

3.7.2 Dataset 7.2 Life Cycle Cost Analysis (LCC)

WP / Task & Data Manager	Work Package 7, Task 7.2 Josep Argelich (UDL)
Dataset reference / name	7.2 / Life Cycle Cost Analysis (LCC)
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	LCC, Life Cycle Cost Analysis, Cost Benefit Analysis, LCC, CBA
Data set description	This data set refers to T7.2 - Life Cycle Costing (LCC) . It concerns an analysis based on reference standards regarding energy savings, annual costs and GHG emissions reduction during all stages as well as a detailed evaluation of the cost potential of this technology, as well as of its main parts/components, in order to evaluate its possible competitiveness in a future scenario.
Standards	ISO 15288 (2015)
Data sharing	Data format: .doc, .pdf, .xls Information on the LCC analysis will be included in D7.2 - Life Cycle Costing (LCC) report , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by UDL in its own server as well as in the project ownCloud platform.

3.7.3 Dataset 7.3 Integration of SolBio-Rev system in buildings

WP / Task & Data Manager	Work Package 7, Task 7.3 Lenn Coussement (TECH)
Dataset reference / name	7.3 / Integration of SolBio-Rev system in buildings
Availability	Open (ii)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Building integration, construction advice
Data set description	A detailed study will be conducted in existing buildings that makes it possible for a smooth installation, as well as to exploit as much as possible some parts and components of existing installations in buildings (e.g. heating/cooling appliances, hydraulics, boilers).
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .xls Information on building integration will be included in D 7.3 –System integration procedures and case-studies in ne wand existing buildings , at Public dissemination level. Therefore, it will be publicly available in NTUA open repository.
Archiving and preservation (storage/backup)	The data set will be stored by TECH in its own repository as well as in the project ownCloud platform.

3.8 WP 8

Research datasets expected to be generated by WP8 activities refer only to Tasks 8.6 and 8.7.

On the other hand, all joint **scientific publications** in international journals are at ‘Gold’ open access level so they will be anyway published as **open access** and will also be available on the project website and at the NTUA open repository (‘green’ open access).

3.8.1 Dataset 8.6 Technology roadmap and alternative applications

WP / Task & Data Manager	Work Package 8, Task 8.6 Sotirios Karellas (NTUA)
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Dataset reference / name	8.6 / Technology roadmap and alternative applications
Availability	Open (i)
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Technology roadmap, projected activities, further research activities
Data set description	This data set refers to Task 8.6 -Technology roadmap and alternative applications . It includes a timeline and projected activities of the consortium after the project end, including some identified major tasks that require further research. The roadmap will also deal with the optimised design of the SolBio-Rev system for real-scale buildings and the design modifications to address an even wider addressable market, especially for renovations, with the active involvement of the industrial partners.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf The technology roadmap will be at the same time D 8.7 Technology roadmap and alternative applications , at Public dissemination level. Therefore, it will be publicly available on the SolBio-Rev project website.
Archiving and preservation (storage/backup)	The data set will be stored by NTUA in its own repository as well as in the project ownCloud repository.

3.8.2 Dataset 8.7 Standardisation activities

WP / Task & Data Manager	Work Package 8, Task 8.7 Nikolaos Barmparitsas (DAIKIN)
Dataset reference / name	8.7 / Standardisation activities
Availability	Consortium
Mandatory Metadata	European Union; H2020; SolBio-Rev; GA814945
Dataset Specific Metadata	Standards, regulations, certification, standardisation

Data set description	This data set refers to Task 8.7 -Standardisation activities for future EU wide exploitation . It includes the analysis of existing standards and cooperation with certification bodies to enhance the standardisation and future commercialisation of the system.
Standards	No standard for this data.
Data sharing	Data format: .doc, .pdf, .ees Information on standardisation proposals will be included in D 8.9 - Standardisation activities for future EU wide exploitation , at Consortium dissemination level. Therefore, it will be available only at SolBio-Rev ownCloud platform.
Archiving and preservation (storage/backup)	The data set will be stored by DAIKIN in its own repository as well as in the project ownCloud platform.

3.9 WP 9

There are no research datasets expected to be generated by WP9 activities.

4 References

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5. Force11 (2019) The FAIR Data Principles, <https://www.force11.org/group/fairgroup/fairprinciples>, accessed 15/06/2019.
6. OpenAIRE and EUDAT (2019) How to write a Data Management Plan, webinar and powerpoint resource, <https://b2drop.eudat.eu/index.php/s/pQIUcmLVPb8dcD4>, accessed 15/06/2019.