giga
regio
factory

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Quality Control Plan

Updated to 30/09/2025

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I. Goals of the quality plan

1. Value of the monitoring methodology

The monitoring methodology and quality assurance plan are part of the tasks T1.1 and T1.3 within the Work Package 1 (Project Management and coordination). As described in the LIFE Giga Regio Factory (LIFE GRF) Application Form, the goal of the two tasks is:

"The PC will also prepare, validate and follow-up a quality control plan consisting in procedures and templates for the periodical reports from the WP leaders and for the deliverables' structuration."

"A quality control plan will be defined to ensure all the data are managed properly and are following both national legislation and the General Data Protection Regulation (GPDR)."

The monitoring methodology and quality assurance plan are presented in this document by the Life Giga Regio Factory consortium to demonstrate the commitment to maintaining and guiding progress and quality of deliverables within Life Giga Regio Factory it of all involved project partners.

This is to fulfil the deliverable D1.3 as written in the Application form during the development of the project. The quality control plan aims to respect GPDR and Intellectual Property right when creating, collecting, and managing data from literature reviews, external project reports, personal data of partners and stakeholders over the course of WPs as well as to describe actions required at each phase of the project to assure that outputs conform to pre-determined requirements. Quality control focuses on outputs/deliverables quality achieved within each semester of LIFE Giga Regio Factory.

2. Objectives of GRF

The general aim of the LIFE Giga Regio Factory (Life GRF) project, based on the EnergieSprong approach, is to democratize access, for as many people as possible, to high-performance, fast, high-quality, attractive and comfortable renovations, based in particular on new methods of industrializing renovation, and on specifications based on requirements for results rather than means.

Three Energiesprong market development teams currently operating in Europe (FR, DE, IT) form the backbone of this Life Giga Regio Factory consortium and they will be joined by partners in BE to scale up there.

Life GRF project aims at reducing the cost of Net Zero deep energy retrofit. Indeed, market share for Net Zero deep energy retrofit needs to be massively increased and for that they need to cost less. LIFE GRF project is about working on this cost reduction by better organising batch of aggregated demand, better developing industrialised mix of prefab solutions and thinking the next stage of industrial progress, when scaling the demand will lead to building Giga factories for it in each EU region.

With the initial movement initiated in NL, the aim was to activate markets in a "domino manner" by focusing first on the biggest EU markets: Germany, UK, France and Italy. As well as creating a giant market potential to trigger better solutions and investment, these markets represent a wide range of buildings and climate typologies. Obviously, these markets are open to solutions from all EU, and the idea is that solutions that are developed will disseminate rapidly in all the other EU countries. LIFE GRF focus in 2 existing markets France & Germany to support them reaching a next level, we will kick start 2 emerging markets: Italy and Belgium. UK being out of the UE and Netherlands quite advanced yet, efforts in these countries where the Energiesprong Movement is active have not been included in such a proposal but connection to these countries, as well as with the State of NY, USA and with Canada, where EnergieSprong market development activities are active, will take place for replication efforts.

Increasing the renovation rate is an absolute must to reach the 2030 and 2050 ambitions. Initiatives at all levels are taken to reach this goal. The European Member States have adopted long term renovation strategies and obligations to renovate existing buildings are appearing everywhere in Europe. Also important landlords as in the case of public and social housing are planning and undertaking important renovation works. It the case for instance in the Walloon Region of Belgium where a plan to renovate by 2030 the 55,000 public housing units that have not yet been renovated is adopted, based on optimised administrative and budgetary mechanisms, allowing the work to be carried out quickly. Life Giga Regio Factory builds on the teams' existing knowledge and progress, to accelerate the improvement of offers for net zero energy retrofits that meet the needs and trends of tomorrow taking the best of industrialization workflow process to drive their cost down by more than another 25%. The project focusses on support technology and industrial solutions development to better retrofitting homes.

3. Targeted impacts of the project

A complete list of the targeted impacts is described in the **Application Form for the LIFE Giga Regio Factory project**. For the sake of conciseness, this chapter only contains a synthesis of the main targeted impacts declined in the Grant Agreement. **A review of theses impacts has been done for the deliverable "Impact monitoring plan" in order to be more precise.**

Portfolio impacts

		Targeted impact at the end of the project	**Targeted impact 5 years after the end of the project**
Development of deep energy retrofit	Industrial capacity (annual)	500 to 1000 housings per region	2000 to 2500 per region
	Number of net-zero energy retrofits	12 000	80 000

Investment impacts

Net-zero energy retrofits, as described by the EnergieSprong approach, must implement a renewable energy installation up to the residual consumption of the dwelling. Therefore, the 12 000 net-zero energy retrofits will result in an annual renewable energy production of 65 GWh. In terms of financing, approximately 180 million euros will be invested in renewable energy production. 5 years after the end of the experimentation, with 80 000 net-zero energy retrofits, we expect an annual renewable energy production of 415 GWh and 1200 million euros of financing.

GHG emission reduction and energy efficiency impacts

	Project-end value	5 years beyond Project-end value
Reduction of greenhouse gas emissions in tons of CO2 equivalent per year (tCO2.eq/year) triggered by the project	15 000	100 000

Increasing energy skills and development of new attractive energy models

	Project-end value	5 years beyond Project-end value
Primary Energy Savings in GWh/year triggered by the project	165	1000
Final Energy Savings in GWh/year triggered by the project	140	900
Renewable Energy generation in GWh/year triggered by the project	65	415
Number of market stakeholders trained with increased skills and competencies on energy issues due to the project	350	3000

Economic and social impacts

	Project-end value	5 years beyond Project-end value
Number of jobs created (in FTE)	6500	35 000
Number of people out of fuel poverty	16 000	100 000
Reduction of retrofit costs (%)	25	-
Reduction of the implementation time of renovation	4	-

Governance impacts

	Project-end value	5 years beyond Project-end value
Number of legislation, policies or strategies created/adapted at any governance levels due to the project	10	40

Communication, Replication, Dissemination and Exploitation of Project Results

Communications will aim to encompass all relevant actors to make project results visible and clear to the public following a two-tier set up: communication activities will be focused on project level and on the level of communicating the implementation of GRF, whereas activities will ensure that good practices developed by the project will be taken up by other relevant bodies and professional actors.

In addition, the goal of the GRF dissemination strategy is to raise interest from the above audiences by demonstrating the value added through its implementation in terms of cost, quality, impact or social opportunities. The main aim is to create awareness and to boost knowledge transfer regarding the importance of "industrialized net-zero energy retrofit potential" among citizens, tenants, local authorities, stakeholders, social housing organizations, property owners' associations, SMEs, large enterprises, industries, financial institutions and public bodies.

The communication around LIFE Giga Regio Factory is the key factor to ensure the replication and upscaling of the project. Indeed, non-involved stakeholders (business parks, local authorities and companies) are expected to appropriate the learnings and methods from the LIFE GRF project to develop their own energy transition. Therefore, a communication objective has been set in order to make sure the replication and upscaling of the project reach their objectives:

	Project-end value	**5 years beyond Project-end value**
Number of stakeholders reached through media and events during the project	5 000	10 000

4. Deliverables

The following table indicated each deliverable planned in the Application Form for the LIFE Giga Regio Factory project:

Deliverable N° (continuous numbering linked to WP)	Work Package N°	Deliverable Name	Description (including format and language)	Due date (month number)	Type
D1.2	WP1	Gender action plan	Electronic document in English, for Consortium members.	M1	R — Document, report
D1.3	WP1	Quality control plans	Electronic document in English, for Consortium members.	M2	R — Document, report
D1.4	WP1	Data management procedures	Electronic document in English, for Consortium members, , with a clear arborescence.	M4	DMP — Data Management Plan
D1.5	WP1	Risk monitoring plan	Electronic document in English, for Consortium members.	M4	R — Document, report
D1.6	WP1	Impact monitoring plan	Impacts will be reported in the LIFE KPI webtool during the project. => This document is the global report explaining the strategy of impact monitoring	M4	R — Document, report
D1.7	WP1	Extract of the project data from the LIFE KPI webtool	Extract of the project data from the LIFE KPI webtool	M9	DATA — data sets, microdata, etc
D1.8	WP1	Updated extract of the project data from the LIFE KPI webtool	Updated extract of the project data from the LIFE KPI webtool	M30	DATA — data sets, microdata, etc
D1.9	WP1	Technical progress report	A short progress report which will allow the Agency to have a dialogue on the advancement of the project and solve any concerns that may arise on both sides	M9	R — Document, report

D2.1	WP2	Prefabricated renovation solutions library (classified and characterised with common indicators)	Electronic document in French, Italian, German and English about solutions, to be disseminated.	M9	R — Document, report
D2.2	WP2	Database files: (csv.) List of opendata library (.pdf)	Electronic documents in English, for Consortium members.	M12	DATA — data sets, microdata, etc.
D2.3	WP2	Analysis of industrial reno. potential in each country	Electronic documents in French, Italian, German and English, for Consortium members.	M18	R — Document, report
D2.4	WP2	Benchmark of chargeable data & report of social housing org.	Electronic documents in French, Italian, German and English, for Consortium members.	M21	R — Document, report
D2.5	WP2	Methodology that help identify relevant building for collective Buy-in scheme	Electronic document in French, Italian, German and English about solutions, to be disseminated.	M25	R — Document, report
D2.6	WP2	Tool functional requirements	Electronic document in French, Italian, German and English about solutions, to be disseminated.	M25	R — Document, report
D3.1	WP3	Benchmark and analysis tool	Electronic document in English, for Consortium members	M4	R — Document, report
D3.2	WP3	Training Kit on EnergieSprong with a library of resources	Electronic document in French, Italian, German and English to be disseminated	M7	DEC — Websites, patentfilings, videos, etc
D3.3	WP3	Mapping of the off-site actors in Europe	Electronic document in French, Italian, German and English to be disseminated	M18	DEC — Websites, patentfilings, videos, etc
D3.4	WP3	Technical standard Documents	Electronic document in French, Italian, German and English to be disseminated	M28	R — Document, report
D4.1	WP4	Benchmark and analysis	Electronic document in English, for Consortium members	M4	R — Document, report
D4.2	WP4	Diagnostics files (tables .xls and analyses .pdf)	Electronic document in English, for Consortium members	M6	R — Document, report

D4.3	WP4	Business plan tools	Electronic document in French, Italian, German and English, for Consortium members & participant to WP4	M12	R — Document, report
D4.4	WP4	Coaching sessions about the financial support needed	Electronic document in French, Italian, German and English, for Consortium members & participant to WP4	M17	R — Document, report
D4.5	WP4	Training Kit on large-scale industrialization with a library of resources	Electronic document in French, Italian, German and English to be disseminated	M28	R — Document, report
D4.6	WP4	Manual guide composed by all previous deliverables	Electronic document in French, Italian, German and English to be disseminated	M28	R — Document, report
D5.1	WP5	Communication and Dissemination Plan (C&DP)	Written document in English	M6	Written document in English
D5.2	WP5	Project Web pages	Project web pages for existing websites of EnergieSprong Market Development Team in France, Germany, Italy	M6	Project web pages for existing websites of EnergieSprong Market Development Team in France, Germany, Italy Project web site in Belgium
D5.3	WP5	Communication and Dissemination material	Project web site in Belgium	M6	Poster, kakemono
D5.4	WP5	Final publishable report	Poster, kakemono	M28	Final report presenting the key results, main lessons learnt, and recommendations for the future
D5.5	WP5	Exploitation and Replication plan (E&RP)	Final report presenting the key results, main lessons learnt, and recommendations for the future	M18	Written document in English
D5.6	WP5	Design note for non-profit structure beyond the project	Written document in English	M6	Written document in English

II. Data management

The exploitation of the project results and the impact monitoring will be based on an extensive data management, including a sound and evolutive baseline and a proper monitoring of the data acquired during the project. This quality control plan aims to ensure all the data will be managed properly and will follow both national legislation and the General Data Protection Regulation (GPDR). This plan will be comprised of different rules and procedures to access, modify, or add data related to:

- Intellectual property rights (IPR) or other data brought by the partners for the project.
- Data created or collected within the project, such as literature reviews or other project's reports.
- Personal data of partners, stakeholders, target groups and end-users: different sets of enlightened consents will be defined, and a logbook of signed consents will be monitored.

1. General Data Protection Regulation (GPDR)

The European regulation follows on from the French Data Protection Act of 1978 and strengthens citizens' control over the use that can be made of their data. It harmonises the rules in Europe by providing a single legal framework for professionals. It allows them to develop their digital activities within the EU based on user trust. Any organisation, regardless of its size, country of establishment or activity, may be affected. Indeed, the GDPR applies to any organisation, public or private, which processes personal data on its own behalf or not, as long as it is established on the territory of the European Union, or its activity directly targets European residents. The GDPR also applies to processors who process personal data on behalf of other organisations.

2. Intellectual Property Rights (IPR)

Intellectual property rights divided into two main areas:

- Copyright and rights related to copyright that covers the protection of rights of authors of library and artistic work. There is a social purpose of protection of copyright and related rights is to encourage and reward creative work.
- Industrial property can be itself divided into two other areas:
    - Protection of distinctive signs that includes trademarks and geographical indications with the aim to stimulate and ensure fair competition and to protect consumers, by enabling them to make informed choices between various goods and services.
    - Protection of innovation, design and creation of technology (inventions, industrial designs, and trade secrets). The social purpose is to provide protection for the results of investment in the development of new technology, thus giving the incentive and means to finance research and development activities.

Over the course of LIFE GRF project, an open-source tool for the qualification of housings in order to better qualify them and developing smarter aggregation strategy will be developed. In addition, hundreds of stakeholders will be embarked on to take part in the project (citizens, owners, etc.), therefore the aim of this Quality Control plan is to ensure that data from technologies used for analysis as well as personal data will be entirely protected throughout the project and beyond.

III. Indicators

The quality indicators are meant to follow up the advancement of the mission and its outputs in comparison with the objectives defined above. Each semester, the complete set of indicators will be measured and compared with its expected value to identify and tackle any delay or insufficient result.

- **Project objectives**

The quantified objectives of the LIFE GRF project listed in this document provide a comprehensive set of indicators for the respect of the project objectives. As the projects outputs can only be truly evaluated at the end of the project, the indicators will only be evaluated on a qualitative scale concerning the compliance of the advancement with the final objective: not-on-track, on-track, in advance and beyond the objectives.

#	Indicator	Targeted objective
I1.1	Number of products launched into the marker	15 construction companies developing 3 industrialized type offers each (with application document and typical initial offer) and 50 products / processes methods launched by other actors
I1.2	Number of factories and industrial tools implemented	2 beta-tester + 2 others
I1.3	Number of deep net-zero renovation	50 projects of 200-250 housings
I1.4	Investment energy advancement	720 million € of committed investments
I1.5	GHG emission reduction advancement	15 000 tCO2.eq/yr expected GHG emission reduction based on the committed investments
I1.6	Primary energy savings advancement	165 GWh/yr expected primary energy savings based on the committed investments
I1.7	Final energy savings advancement	140 GWh/yr expected final energy savings based on the committed investments
I1.8	Renewable energy generation advancement	65 GWh/yr expected renewable energy generation based on the committed investments
I1.9	Energy training advancement	350 market stakeholders trained with increased skills and competencies on energy issues due to the project
I1.10	Jobs creation advancement	6500 expected jobs created in FTE based on the investment decisions
I1.11	Quality buildings advancement	200 employees working in companies which committed to investment decisions for higher quality buildings
I1.12	Governance advancement	10 legislation, policies or strategies created
I1.13	Communication advancement	5000 stakeholders reached through media and events during the project

- **Timeline**

Respecting the planning is a key success factor as a delay for a given task may affect the rest of the project. The following set of indicators measure any delay in the deliverable production:

#	Indicator	Description
I2.1	On-time completion ratio (%)	Percentage of deliverables that were intended to be produced in each semester, versus the actual finished deliverables
I2.2	Cumulated delay (months)	Sum of the number of months of delay for all non-delivered deliverable

- **Cooperation of the consortium members**

A quality cooperation between the 12 members of the LIFE Giga Regio Factory consortium is mandatory for the quality of the project. Indeed, each member works in a different sector and has specific knowledge and experience. Every task requires the combination of those different assets to succeed.

Those cooperation indicators are qualitative and estimated on the following scale by each member of the consortium: insufficient, neutral, satisfying.

#	Indicator	Description
I3.1	Communication	Each consortium member can communicate its opinion and share its advancement and possible blocking points
I3.2	Work organization	The work organization (staffing and meetings) is compatible with each consortium member availability and constraints
I3.3	Knowledge	Each consortium member can share/receive its knowledge and experience on every relevant topic

IV. Quality of deliverables

► Methodological approach

Role of each partner per WP:

- **The Project Coordinator – PC:** is the legal entity leading and representing the Consortium in relation with CINEA coordinator. The PC shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the Grant Agreement.
- **The Work Package (WP) Leaders:** are the Parties responsible for the implementation of each one of the 5 Work Packages set out in the Grant Agreement.
- **The Contributors:** are the Parties contributing as experts for specific tasks, that will challenge the methodology and tools developed during the project. Key contributors are the contributors that have a higher budget.

The consortium is organized in three committee for the cooperation and coordination:

- **Project Steering Committee (= PSC):** one representative for each partner. Validate all the items submitted by the WP leaders, and the binding actions that are described in the Consortium Agreement.
- **Tactical level: WP leaders.** Oversee the project organization and define the methodology. Report to the PSC directly and authorized for main decisions (except strategic ones).
- **Operational level:** perform the activities through the methods defined by the tactical level, data collection and results and indicators production. Also involved in the communication and dissemination activities.

Each WP leader is represented by a project manager:

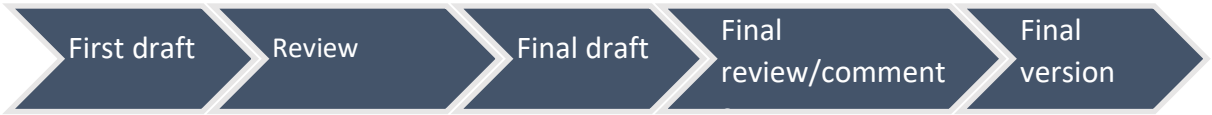
WP1 – Management	Paul Dufraisse – GreenFlex
WP2 – Retrofit tool	Julien Parc – Pouget Consultants
WP3 – Integrators	Rémi Soulisse – GreenFlex
WP4 – Giga Factory	Rémi Soulisse – GreenFlex
WP5 – Communication	Yulia Firsova - GreenWin

► Review of the deliverables

As part of the quality assurance, the LIFE GRF consortium will conduct a quality review based on the draft version of deliverables to be produced. This quality review will be done using the same template as used for the final quality report, where relevant, as well as providing direct feedback on the project deliverable. The purpose of the quality review is to guide the partner(s) producing the deliverable to consider quality markers, project output indicators, and project objectives and sub-objectives when executing the final version of a deliverable.

The quality review will be submitted in the timeline requested by the given project partner(s) per deliverable to review and provide comments on a given draft deliverable output.

As part of this process, there will also be peer-review by project partners. The goal is to formalize this review process, so that it occurs on a timelier basis. The suggested timeline for quality and peer-review is as follows:



$T_{deadline}$-6 weeks (min.)	**$T_{deadline}$- 4 weeks (min.)**	**$T_{deadline}$- 2 weeks (min.)**	**$T_{deadline}$-1 week (min.)**	**Final version** is **uploaded to internal platform**
Partner(s) upload/email first draft of deliverable output a minimum of 6 weeks before the final deadline of the implementation plan	GRF consortium provides quality feedback based on quality control report template Partners provide focused, in-depth feedbacks on content soundness, readability, etc.	Partner(s) take feedback from the quality and peer-review to produce a final draft	Partners provide final comments on final draft	

This process can be lightened for specific deliverables:

- **For internal deliverables,** only the members of the concerned work package may be involved in the first and final review
- **For shorter deliverables** (<10 pages), the timeline of the review process can be shortened

The goal of the quality review per (designated) deliverable is to ensure that each deliverable is at a level where it is functional and beneficial to the next stage of project work. For example, if a project deliverable directly contributes to the development and progress of another, the quality review would be an intermediary step to ensure that what has been produced meets not only the description of what was to be produced per the AF, but also the current needs for next steps to be taken in the project.

The advantage of a quality report per deliverable is that it allows each responsible Work Package Leader to receive direct feedback and support from the Lead Partner per deliverable. It also contributes to monitoring of the overall project progress and allows the LIFE GRF consortium to best assess & inform on how best to adapt to current challenges in the project and better support Work Package Leaders. This can also produce updated risk management & assessment throughout each semester of the project.

► Diffusion of the deliverables

As part of the project, the consortium wishes to make available the deliverables that serve the ecosystem. To do so, the consortium wishes to follow the following steps:

- First make available the most important deliverables for companies and donors in the languages of the different countries
- Then make the deliverables available to CINEA in a generic way and in the languages described in the grant agreement.

V. Progress monitoring update

The progress monitoring update aims at following the compliance of the LIFE GRF project with the defined objectives. The progress monitoring update relies on the semi-annual quality reports.

The quality reports occur at M15 et M30 of the project. The quality reports will be prepared in advance of the submission of the joint project-level progress reports, to provide additional input for the production of detailed and accurate project-level progress reports. The quality reports will include the evaluation of every indicator described in this document.

For each quality indicator not meeting its expected value, an action plan will be described in the quality reports that will include:

- Actions to correct any deviation, if required
- Actions to ensure that the inconvenience will not happen in the next stages of the LIFE GRF project.