

SERA

Institute for
Sustainable Energy and
Resources Availability

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TIMEPA[✓]

Setting the scene: Making use of data repositories for generating renovation roadmaps

Requirements, scope and methods

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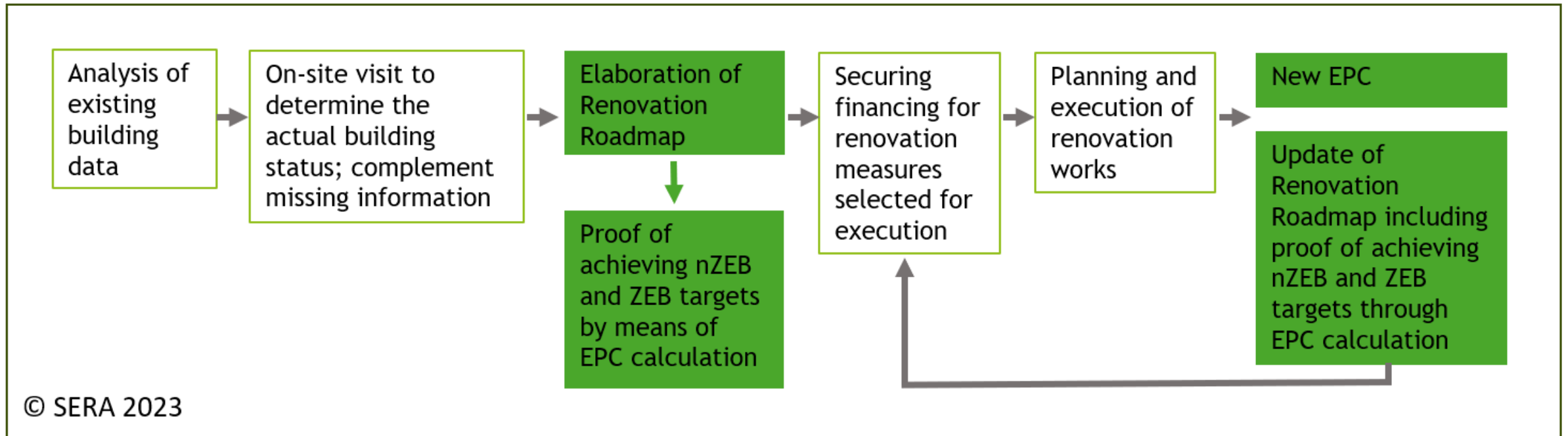
TIMEPAC International Workshop 21.11.2023

Next Generation EPC - TIMEPAC

- The energy performance certificate (EPC) contains recommendations for improving building energy efficiency, but these are often not specific enough and their implementation is unclear during the 10-year validity period of an EPC.
- In contrast, **renovation roadmaps are tailored to a building** and specify the necessary measures in the right order **to achieve the nearly zero energy building standard in the medium term and the zero-emission building standard in the long term.**

→ increase the renovation rate

Renovation Roadmap is part of the Renovation Passport: achieving the target of nZEB and zero-emission building



How to develop an effective Renovation Passport in an efficient way – Timepac guideline document

The TIMEPAC guideline supports the discussion in the following directions:

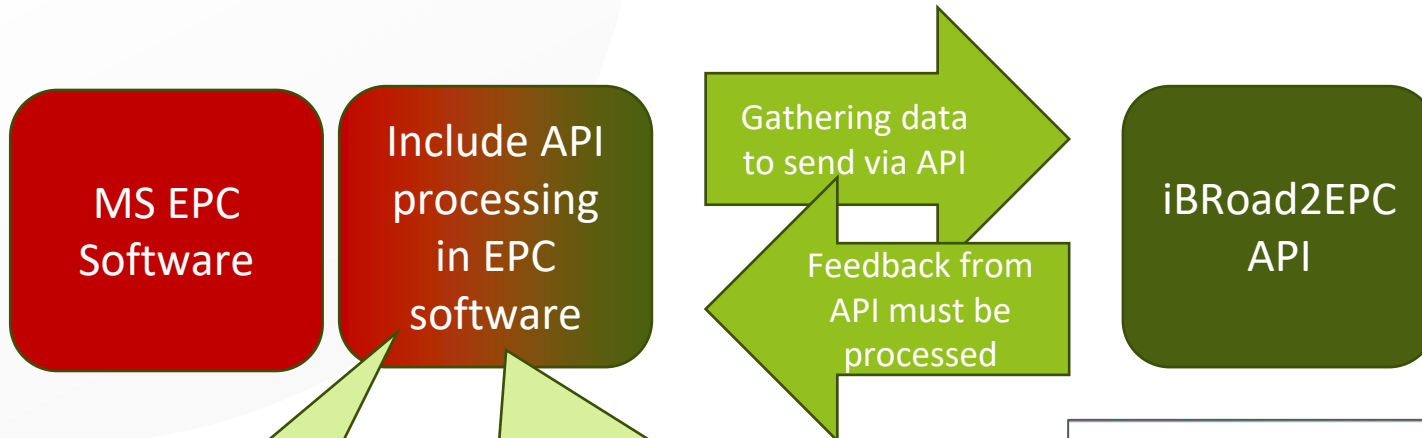
- Making use of data repositories
- Tracking the implementation of renovation measures

The TIMEPAC guideline was developed as follows:

- Renovation projects were assessed by the consortium partners based on the methodological approach of the BPIE study.
- Energy modelling and certification tools used in the partner countries and offered by project partner CYPE, were applied to create Renovation Roadmaps that include the different renovation steps and the energy performance achieved in each case.

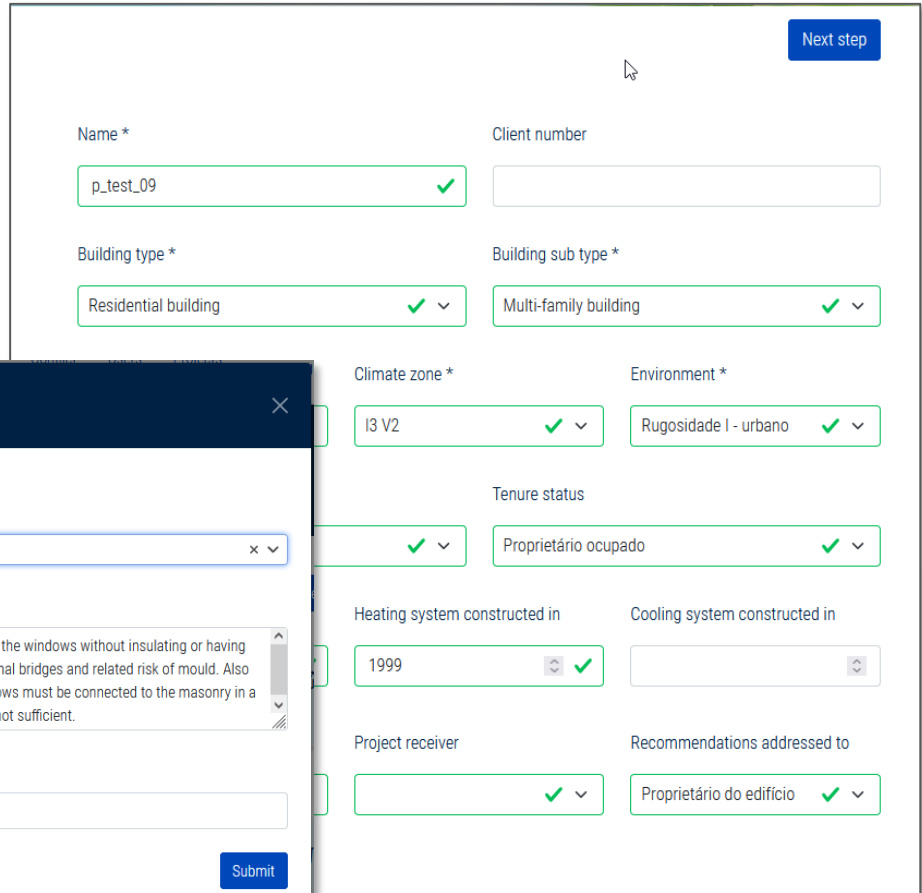
Conclusions were drawn and based on the findings a guideline was developed.

Coupling iBRoad2EPC with national software via API (work in progress)



Automatic entry of relevant data from EPC calculation in iBRoad2EPC

Including input fields for iBRoad2EPC



Next step

Name * ✓ Client number

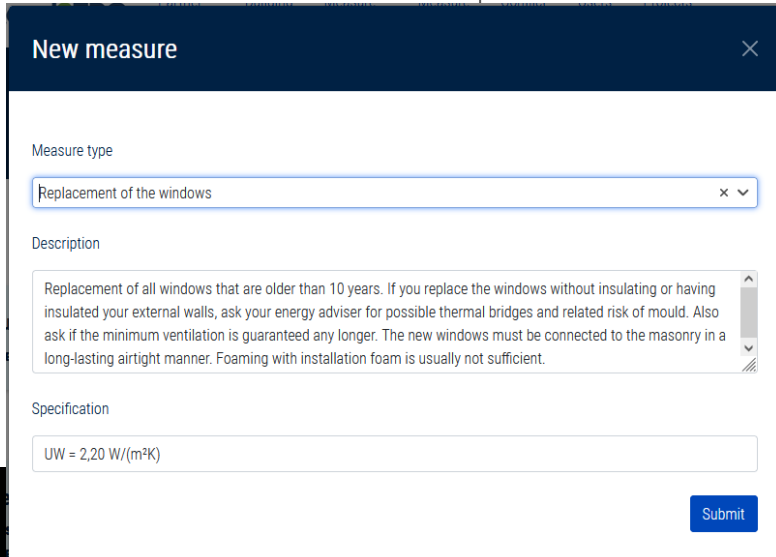
Building type * ✓ Building sub type * ✓

Climate zone * ✓ Environment * ✓

Tenure status ✓

Heating system constructed in ✓ Cooling system constructed in

Project receiver ✓ Recommendations addressed to ✓



New measure

Measure type x

Description

Specification

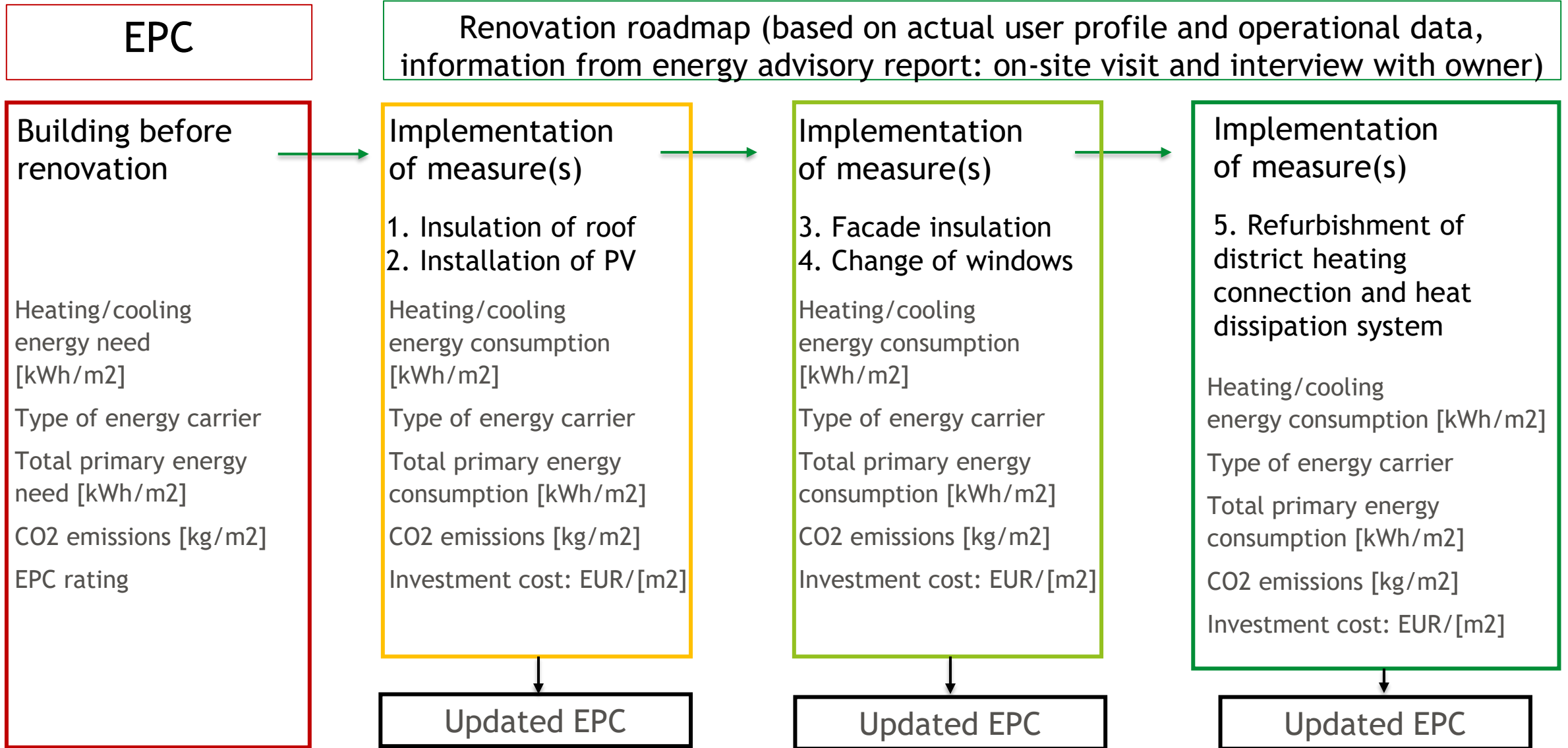
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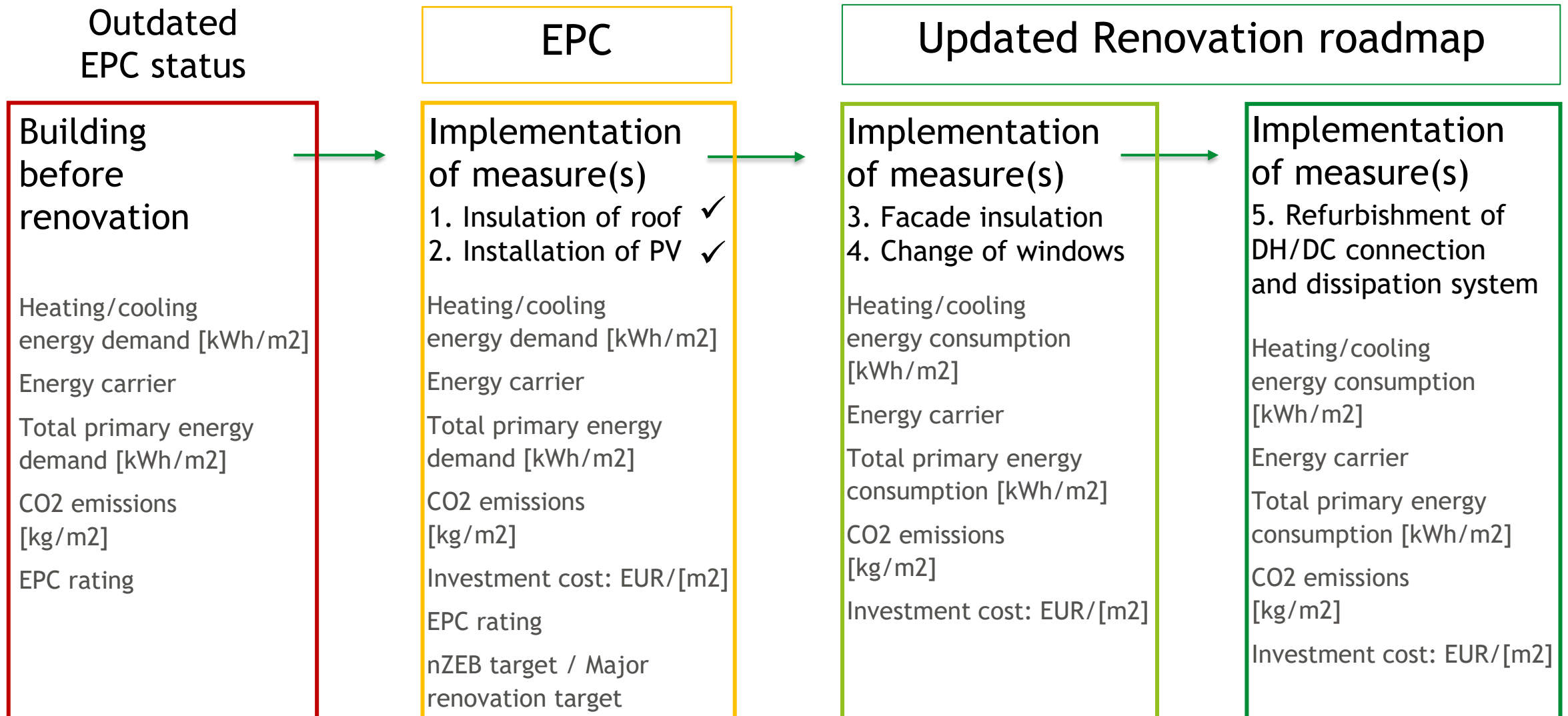
How to develop an effective Renovation Passport in an efficient way

Making use of data repositories

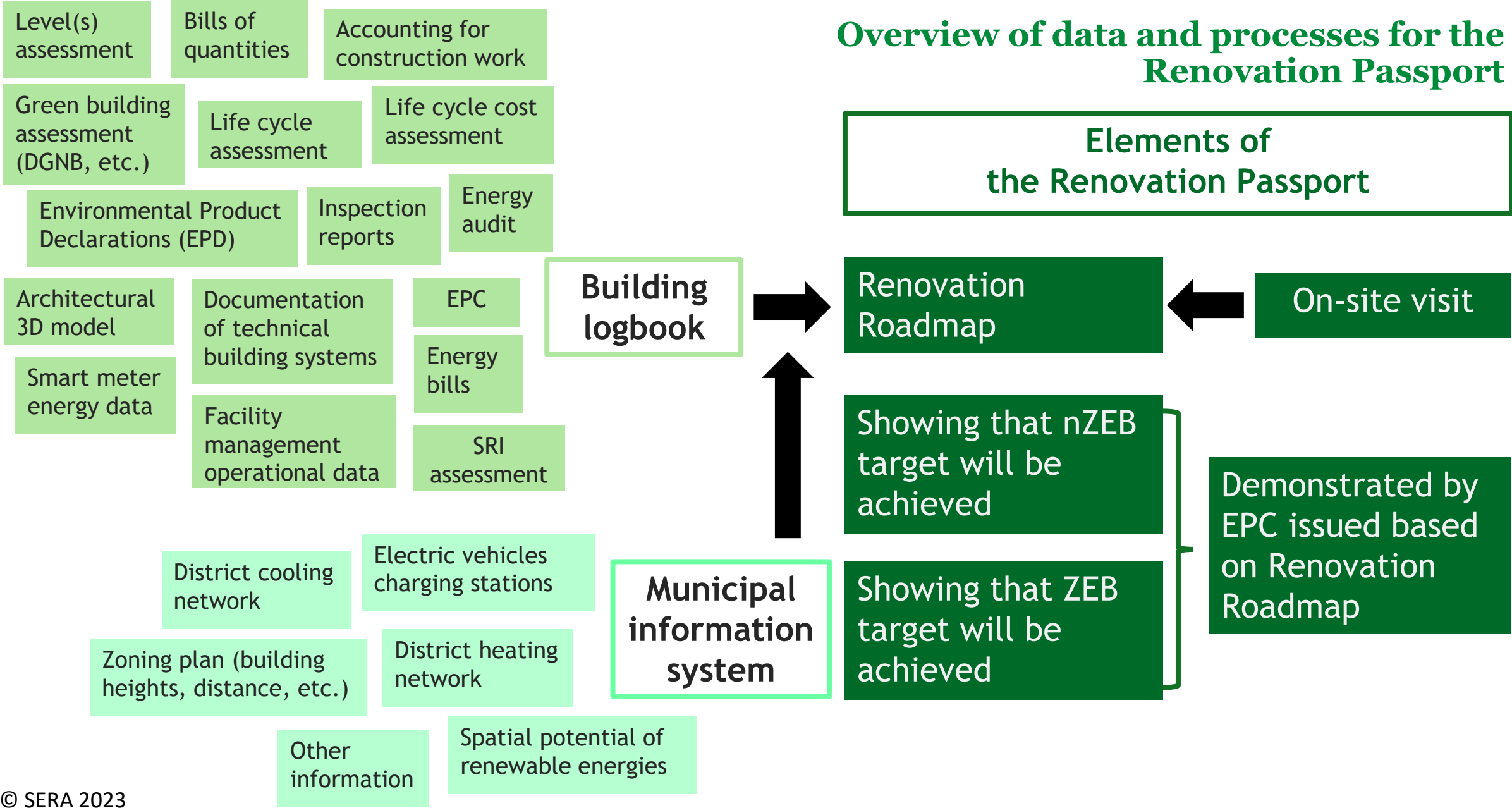
Starting point = EPC | conventional or created by BIM | in terms of building data and energy performance. Renovation Roadmaps are drawn up taking into account additional data such as from on-site visits and energy bills. Example of building specific renovation roadmap:



Measures of a renovation stage are implemented, and an update of the EPC is made. The previous EPC status is “outdated”, the current EPC provides the input into the updated Renovation Roadmap. Ensures that technological and regulatory changes are properly addressed
Example of building specific updated renovation roadmap:



Overview of data and processes for the Renovation Passport



Concept of a building logbook

- *Example 1 - The EPC database environment:* EPCs, Renovation Passports and subsidy applications for a building are stored in the related specific account. The building owner uploads additional information, and give access to this information to third parties (example Province of Salzburg, Austria)
- *Example 2 - A BIM offering software:* Level 3 BIM provides a possibility to store data at the same place and with the option of ensuring up-to-date information. Especially regarding renovations, there is an added value, namely the fact that the architectural model allows to show changes of area and volume that can occur as part of a renovation project (example CYPE BIMserver.center).

Creating an architectural model necessitates an initial investment of effort. Later, the use of the architectural model offers several advantages:

- **Significant improvements regarding quality assurance**, prevention of errors, it can be employed to accurately determine surface types, sizes, and materials used to calculate various indicators including those used for proving compliance with regulatory requirements.
- **Avoids multiple data collections** which are a source of error and a potential vulnerability to manipulation of assessment results.
- Provide a solution when it comes to produce an EPC for the entire building and EPCs for the individual building units at the same time.

How to develop an effective Renovation Passport in an efficient way

Tracking the implementation of measures

Example | Renovation passport in the province Salzburg, Austria | The path towards Nearly Zero Energy Building

Essentially, the recommendations in the EPC are replaced by the specific Renovation Passport. The implementation of a measure is linked to the updating of the EPC and to the updating of the Renovation Passport. Thus, by means of comparisons, the measures and the indicators can be tracked.

EPC existing buildings

EPC Renovation Roadmap

EPC renovation plan



EPC renovation completion
Measures partly implemented



EPC existing building

EPC Renovation Roadmap

Those measures implemented are not included any longer

Automatic check: Is the Renovation Roadmap available?
Will requirements be achieved?

EPC renovation plan



EPC renovation completion
Measures partly implemented



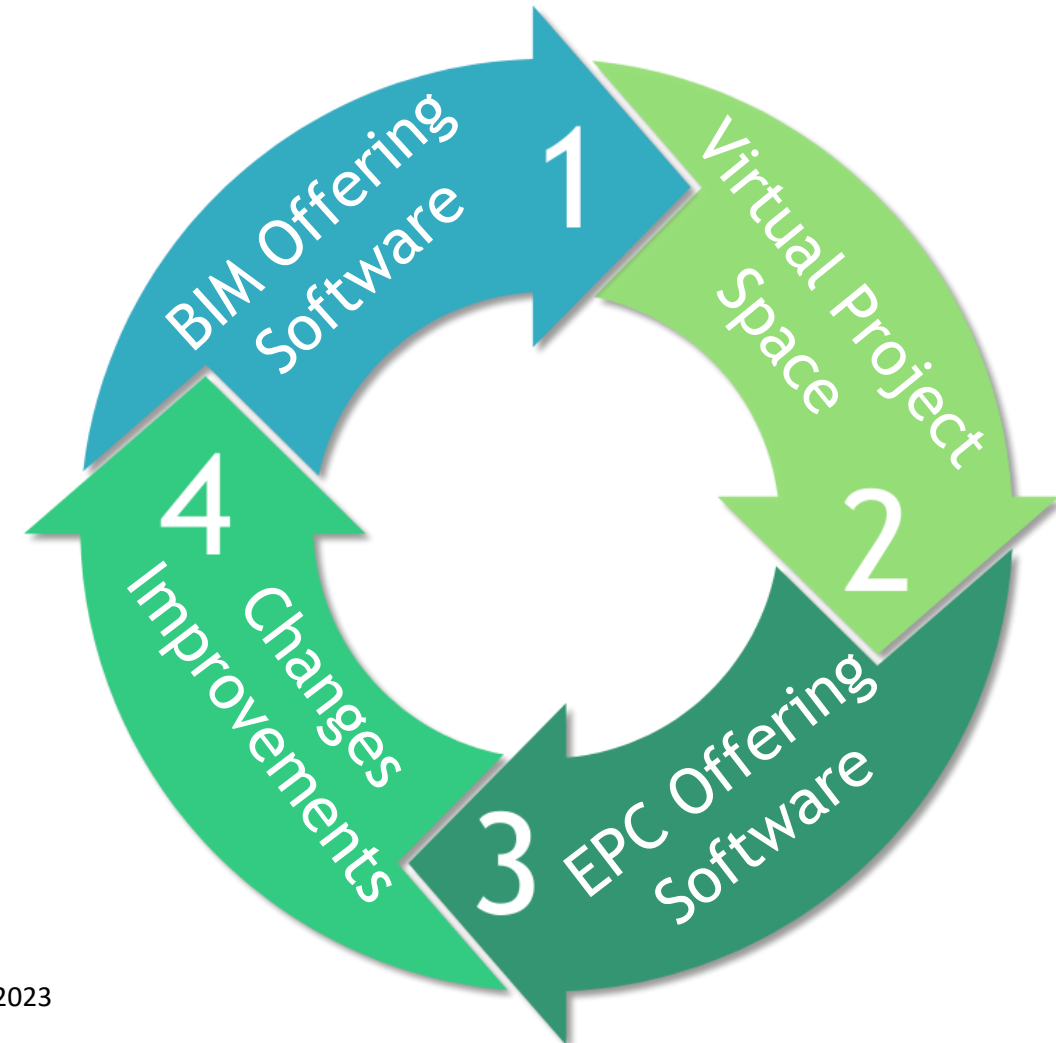
EPC existing building

Tracking the implementation of renovation measures with the EPC database

A BIM based workflow to generate the Renovation Passport in connection with the EPC

- Enabling the implementation of changes to the building model in alignment with the Renovation Roadmap and the generation of a new EPC seamlessly
- BIM-based workflow can serve as an independent method for logging changes to the building, irrespective of the EPC database
- Tracking building refurbishment and verifying achievements

A BIM based workflow to generate the Renovation Passport in connection with the EPC



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Energy audit reports

for tracking the
evolution of
building
refurbishment

- Another possibility of tracing the evolution of building refurbishment is connected to energy audits and energy management systems.
- Energy audit reports contain recommendations how to improve the building's energy performance which can be further developed to form a Renovation Roadmap.
- If an energy management system is in place, it can be used for tracking building refurbishment and verifying achievements.

How to develop an effective Renovation Passport in an efficient way

Key issues

KEY ISSUES

To ensure an effective implementation of the Renovation Passport

- **Keep cost of the Renovation Passport low by using data repositories.** Professionals will use the data to be prepared for the on-site-visit. In this way, the site-visit will be most effective.
- **Ensure latest information on the building status** based on tracking the implementation of renovation measures. It is needed by ESCOs, real estate valuers, and for the national renovation plans.
- **Enable the spatial reference of the information:** A link to regional/municipal plans with information about spatial renewable energy potentials and details of the urban plans is especially important with a view to achieving the zero-emission target.
- **Include financial information and a reference to the Taxonomy Regulation:** Financial information should include a life cycle cost analysis and a statement how the renovation project would be rated against the criteria of sustainable investment according to Taxonomy Regulation.
- **Make the Renovation Roadmap accessible for further renovation planning:** It needs to be clear that the Renovation Passport does not substitute technical and construction planning, but offers the building owner and/or the facility manager an orientation to start such a process.

**If you would like more information,
please visit www.timepac.eu or contact us at
office@sera.global**

Thanks for your attention!