



# Introducing **ENGAGE:** A Solution for EU Taxonomy Compliance

14 July 2023



Co-funded by the  
European Union



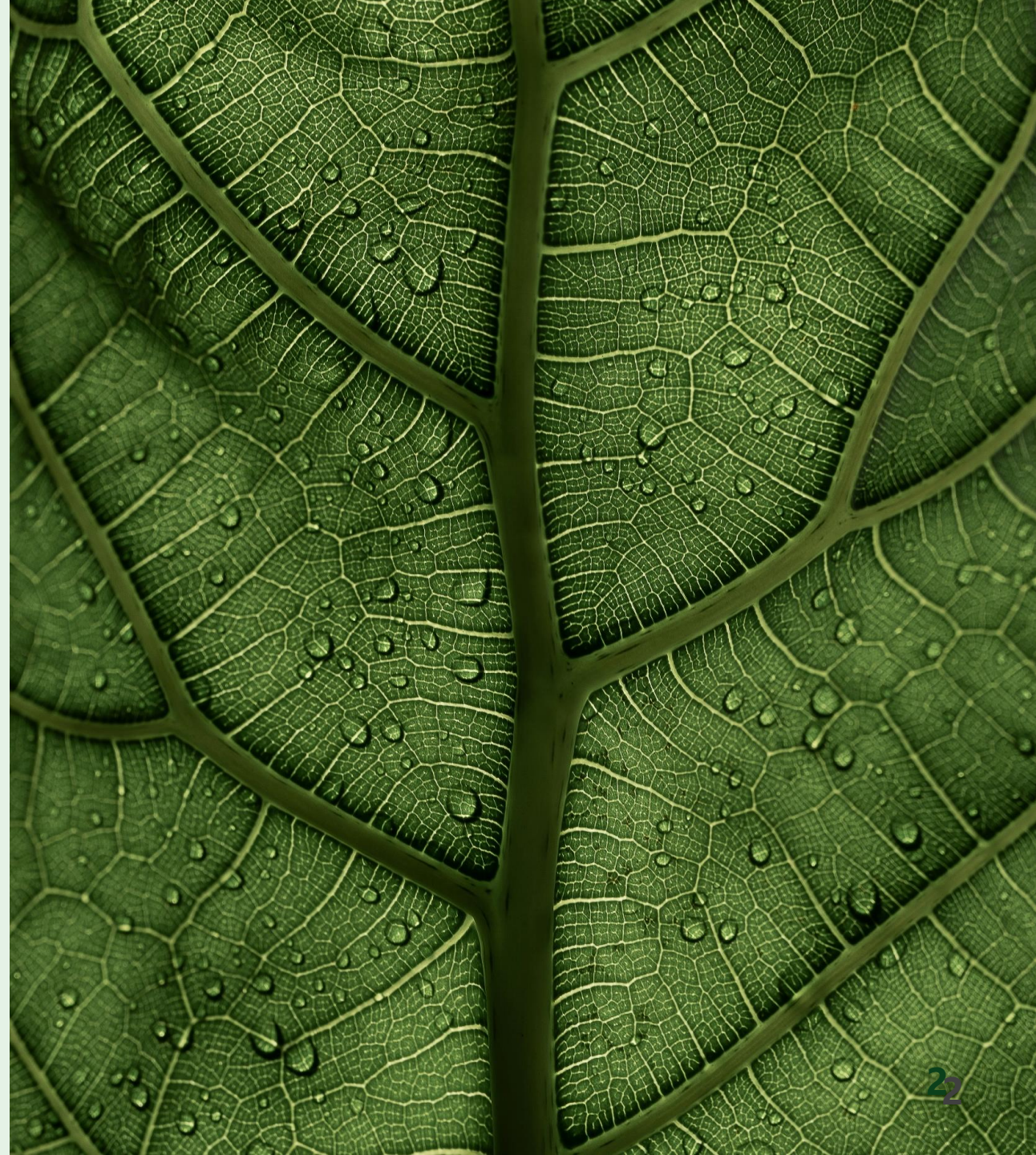




# Introduction

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Marco Angheben, European DataWarehouse







# ENGAGE Description

- **Name:** Engage for ESG activation investments (ENGAGE)
- Co-funded by the European Union with a LIFE grant
- **Duration:** 1 November 2022 – 31 October 2025
- Six consortium partners across Europe
- **Scope:** ENGAGE aims to provide a data disclosure format solution for mortgage funding and home renovations, encompassing the key European ESG regulations.





**EUROPEAN**  
DATAWAREHOUSE

ESMA-designated Securitisation Repository and Eurosystem repository for ABS & pools of additional credit claims



IT company, developers of software solutions for the financial sector



Università  
Ca'Foscari  
Venezia

Pioneer university in sustainable finance programmes and research

**UCI**

Specialist entity in sustainable financing for mortgages and loans in the Spanish market. Leader of the Spanish pilot

**woonnu**

Innovative sustainable mortgage loan originator in the Dutch market. Leader of the Dutch pilot



Experts in ensuring compliance of new technologies with legal and ethical standards



# Energy Efficiency for the EU Building Stock

In the EU's 27 countries there are...



**445**  
million people



**Buildings account for  
40% of EU energy use  
& 36% of GHG  
emissions**



**247**  
million dwellings



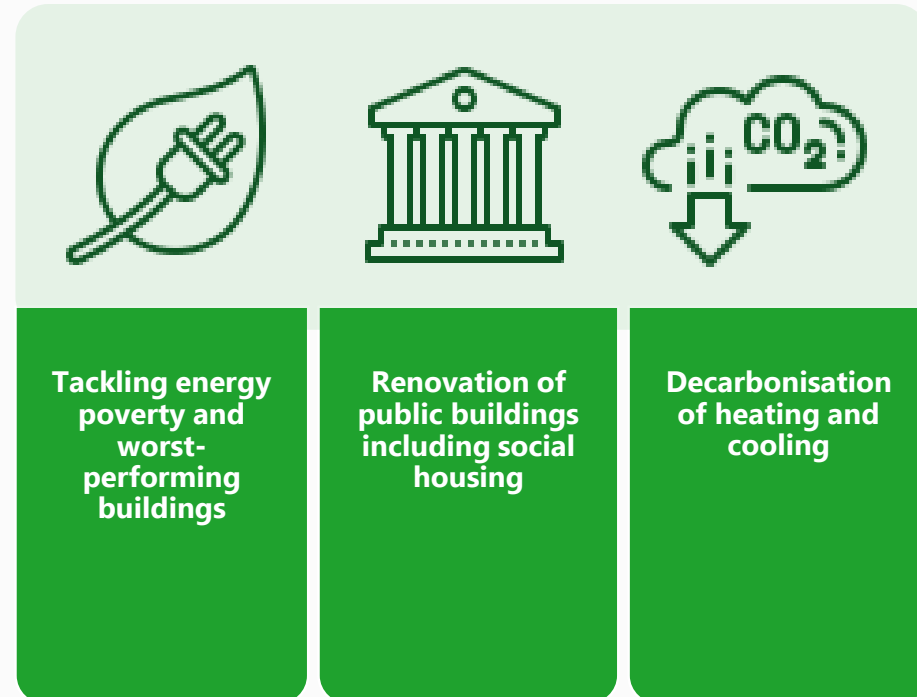
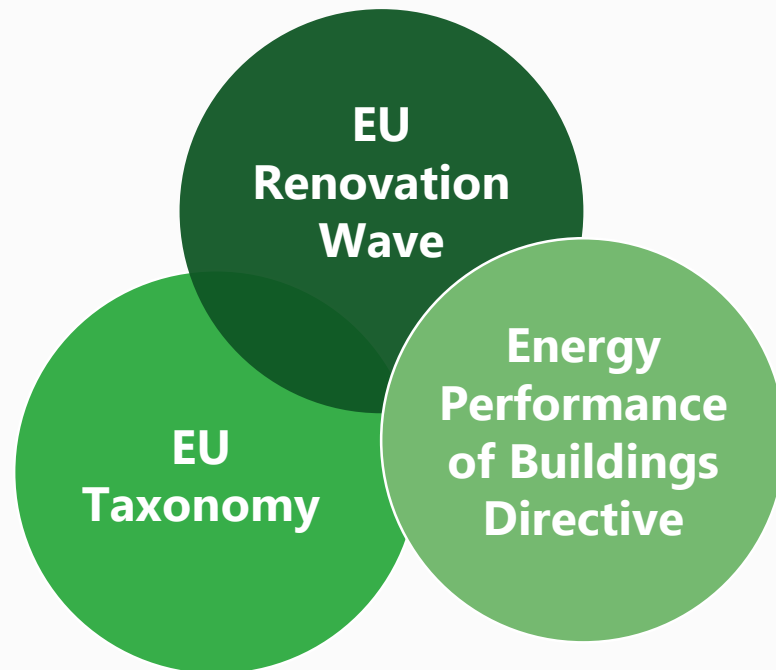
**> 220 million of  
which were built  
before 2001**



Source: European Commission

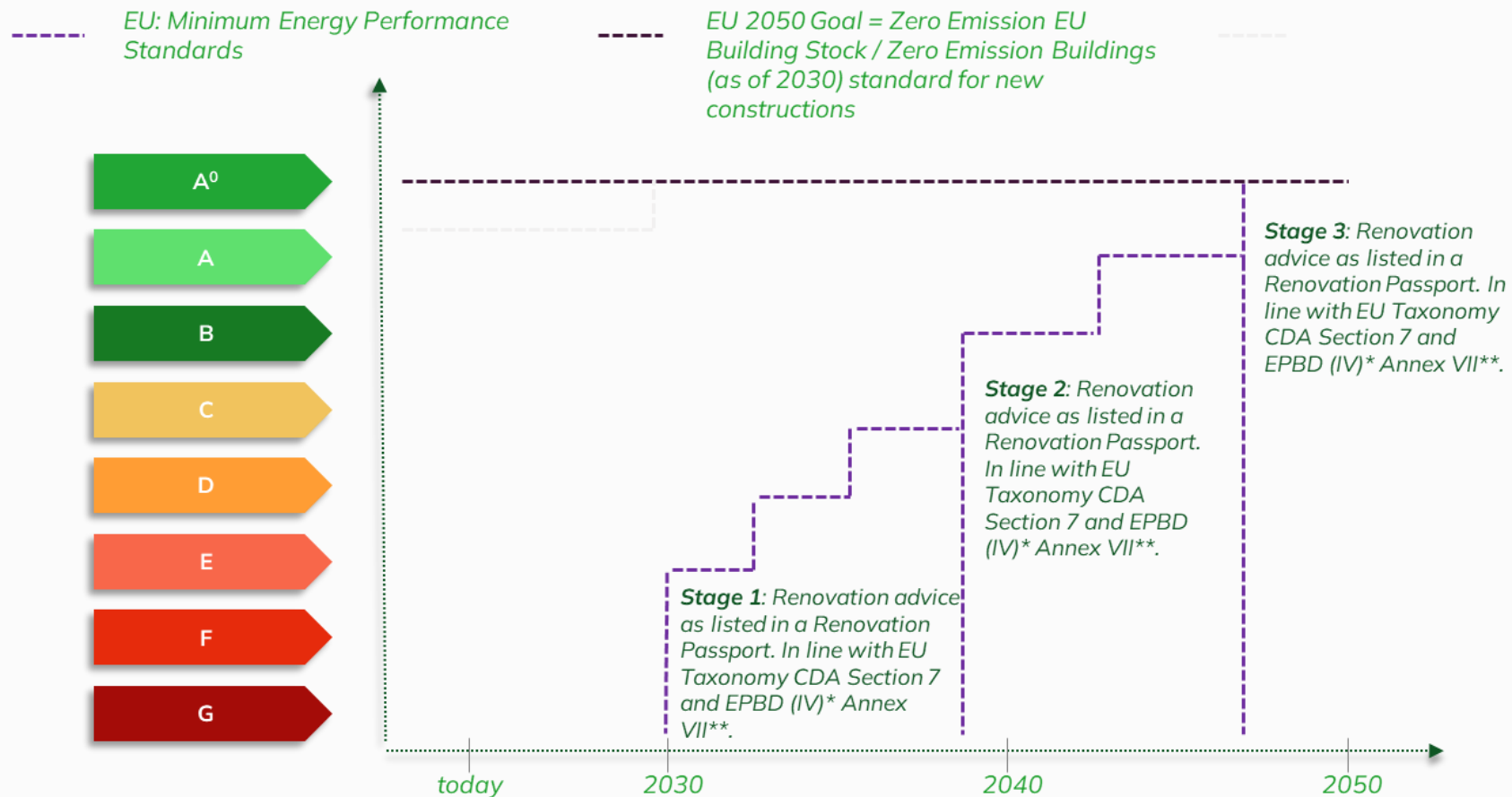


# Energy Efficiency Regulations





# Reaching the EU 2050 Zero Emission Building Stock Target



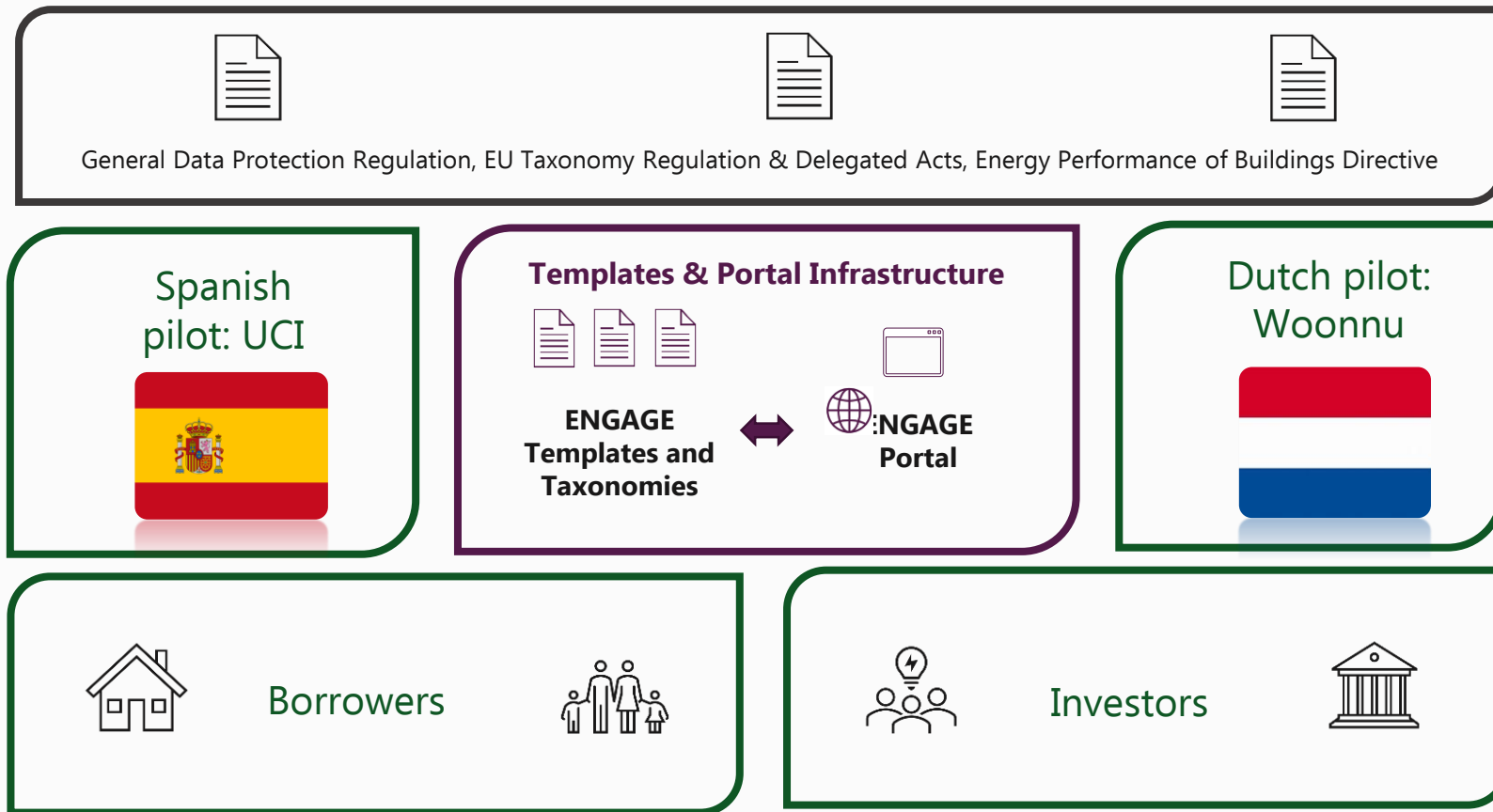
\* Which aligns with MEPS (Article 9) and national building renovation plan (Article 3).

\*\* Annex VII of EPBD IV: Comparative methodology framework to identify cost optimal levels of energy performance requirements for buildings and building elements.

\*\*\* EPC scale as proposed in EPBD IV council proposal



# ENGAGE: The High-Level Concept





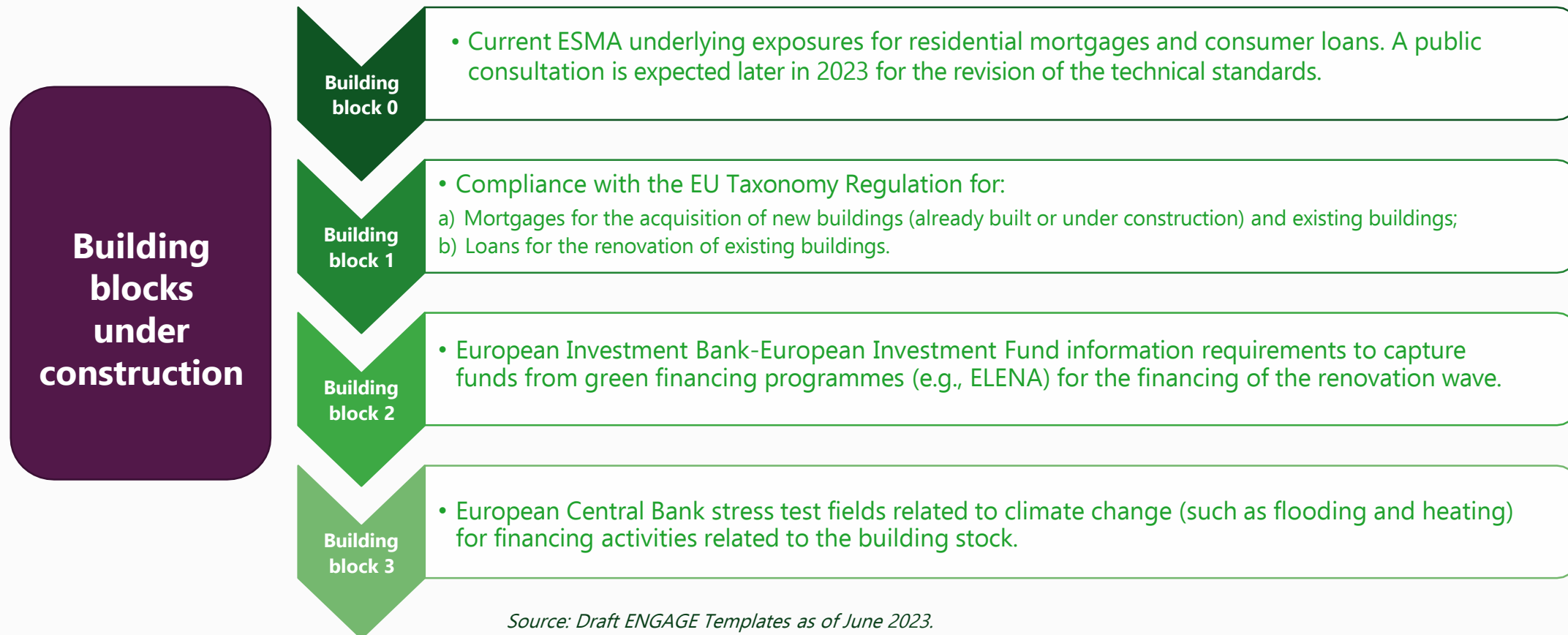


# ENGAGE Templates

- ENGAGE will leverage the existing ESMA technical standards on disclosure requirements currently under revision, and more specifically:
  - Annex 2: Underlying exposures – residential real estate
  - Annex 6: Underlying exposures – consumer
- Additional fields that will be added across sections (under consideration):
  - **Documentation:** minimum social safeguards, ESG information, EU Green Bond Standard adherence.
  - **Assets - Collateral:** Energy Performance Data (EPC) including emissions and consumption, EPC issuance date, climate risk related information.
  - **Liabilities:** use of proceeds.

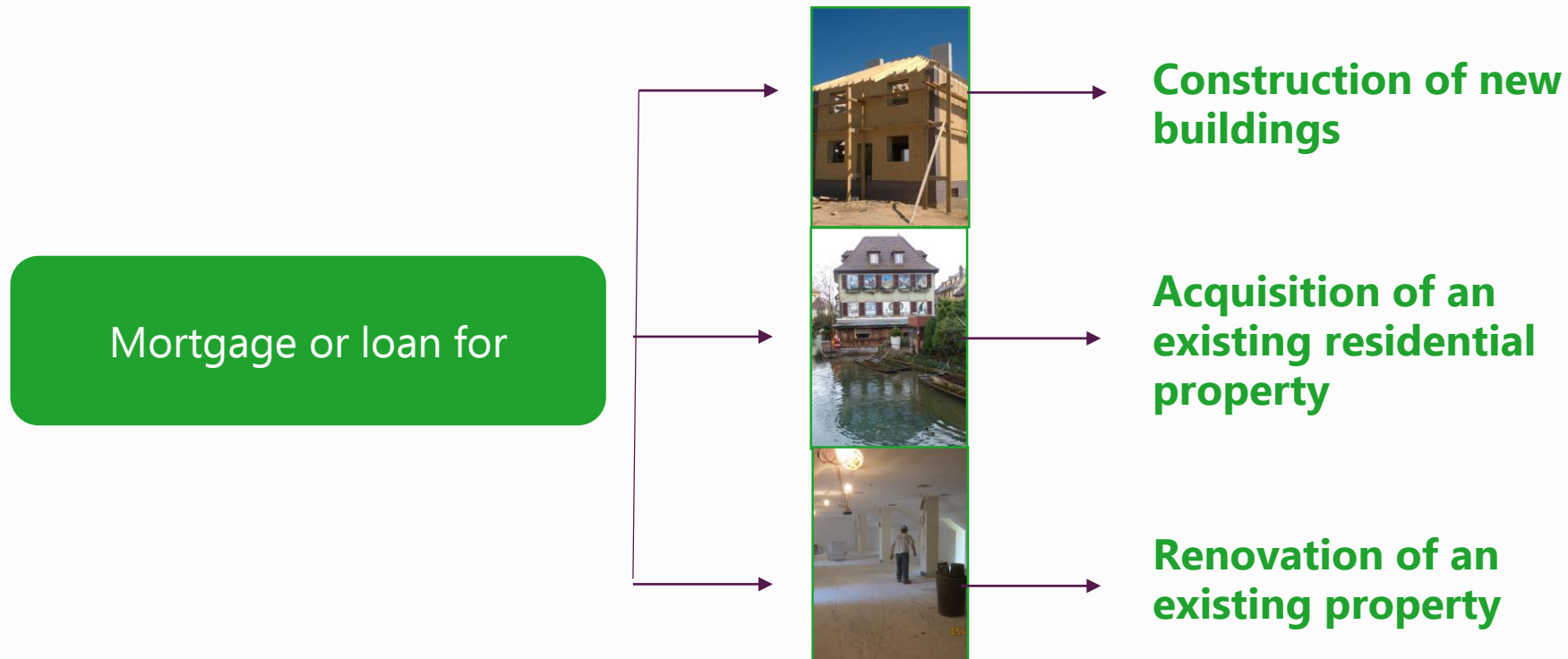


# Current ENGAGE Templates Logic





# Proposed Structure for the EU Taxonomy Building Block



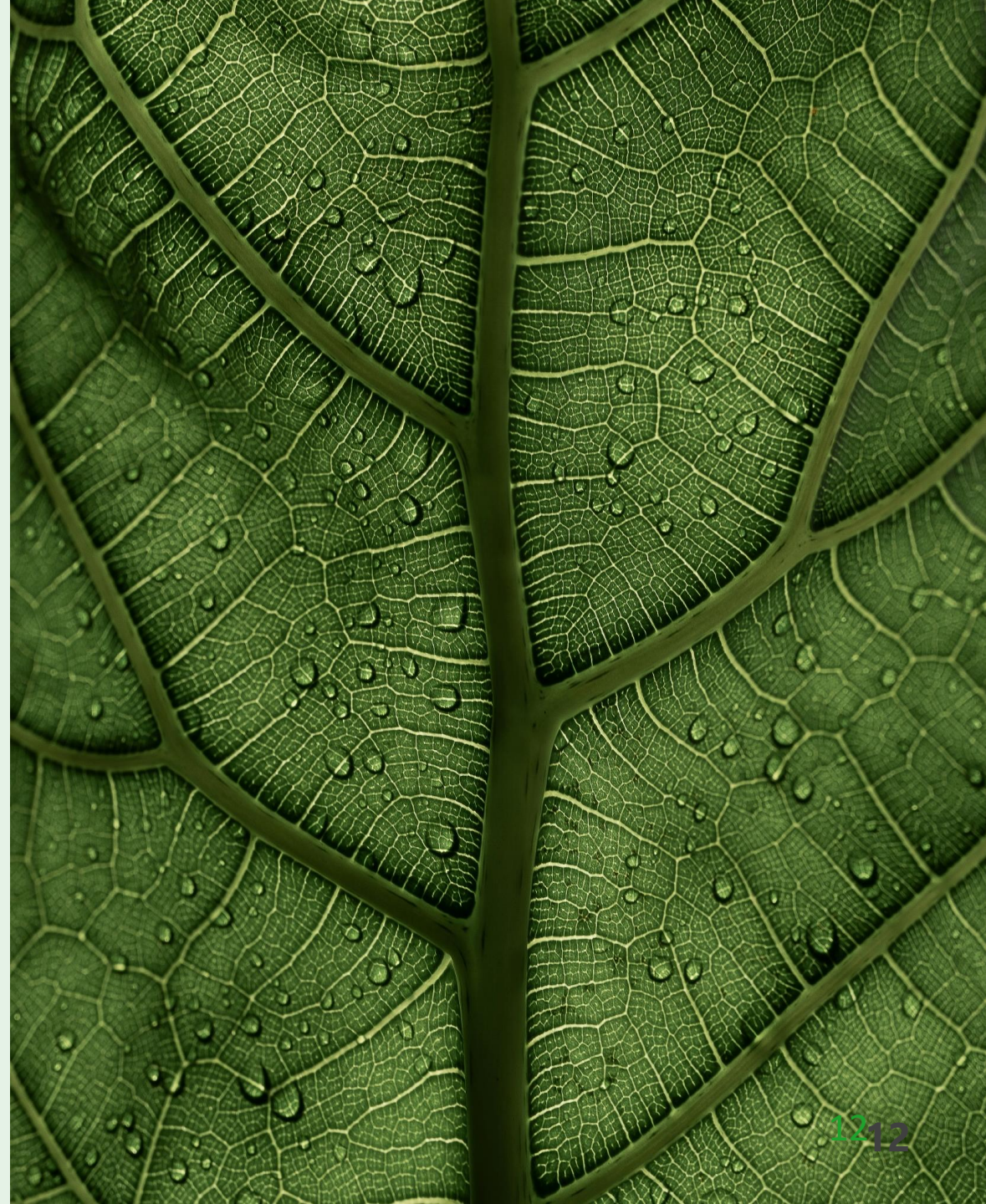




# Enhancing Home Mortgage Credit Risk through the EU Taxonomy

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Michele Costola, Ca' Foscari University





# Energy Efficiency & Mortgage Default

- The literature has started to investigate the relationship between the **energy efficiency** of residential buildings and the **credit risk** of home mortgages, and evidence of this relationship does exist.
- Findings show that attribute “energy efficiency” improves the risk models in predicting the probability of default (Billio et al., 2021; Billio et al., 2022; Guind and Korhonen, 2022).
- Three potential channels:
  - **Personal Traits** of the borrowers captured by the choice of an EE building (e.g., Environmental Awareness);
  - Improvements in building performance that help free up a borrower’s **disposable income** (lower utility bills);
  - The positive effect on the dwelling value and thus on the **loan-to-value ratio**.





# Measuring the Probability of Default

- The probability of default for a borrower can be estimated using information that incorporates various factors, including borrower's information and other controls such as the geographical area, real estate data, and macroeconomic variables.
- Energy efficiency data has recently been included as well. For instance, if we consider the logistic regression:  $P(\text{Default}) = \text{logit}^{-1}(\beta_0 + \beta_{EE} \cdot EE + \beta_X \cdot X + \beta_Z \cdot Z)$
- Where:
  - EE represents the energy efficiency data,
  - X represents the borrower's information,
  - Z represents other control variables, and
  - $\beta_0$   $\beta_{EE}$   $\beta_X$   $\beta_Z$  are the estimated coefficients.







# Energy Efficiency Data (I)

- The measurement of energy efficiency data in default studies has primarily centred around the **Energy Performance Certificate** (EPC) rating classes.
- The current approach, which primarily focuses on EPC **rating classes**, if available, provides a general indication of a property's energy efficiency. However, it may not capture the **nuanced differences** that exist within each class.
- To overcome this limitation, the **EU Taxonomy** offers an opportunity to improve the data collection by considering more **granular information** in a revised the template.



# Energy Efficiency Data (II)

- By incorporating additional factors, a more **comprehensive and accurate assessment** of energy efficiency can be achieved.
- This enhancement of energy efficiency data is not only relevant for research purposes but also has significant implications for the **financial industry**, including **banks, financial intermediaries**, and other stakeholders.
- In the financial industry, accurate assessment of **default risk** is crucial for making informed lending decisions.



# Energy Efficiency Data (III)

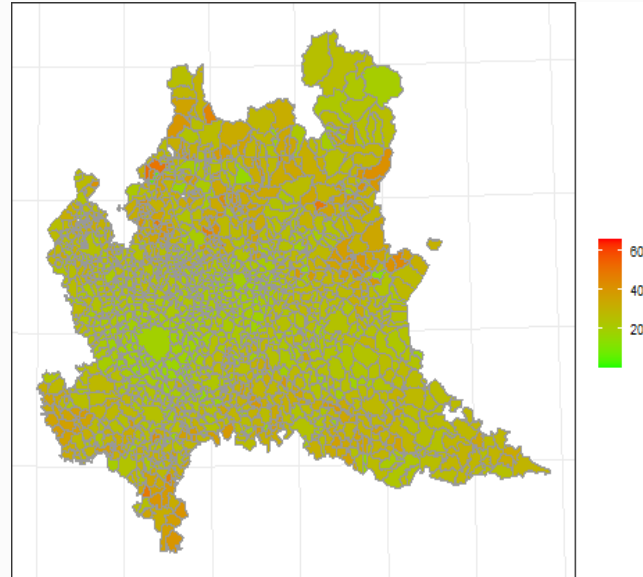
- Incorporating more detailed energy efficiency data can provide a **better understanding** of the underlying **risk associated** with mortgage loans.
- By considering granular energy efficiency information, financial institutions can **refine their risk models** and develop more accurate default probability estimates. This, in turn, enables them to make more precise pricing decisions and effectively manage their loan portfolios.
- Improved data collection and standardized frameworks, such as the EU Taxonomy, facilitate **comparability across studies** and enhance the industry's ability to assess default risk associated with energy efficiency.



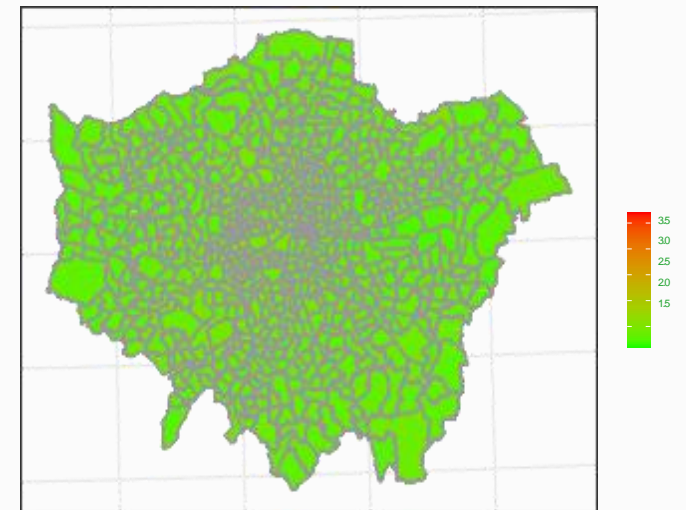
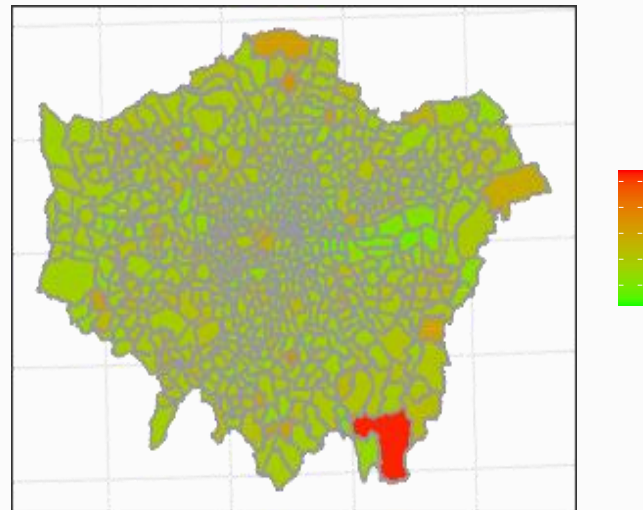
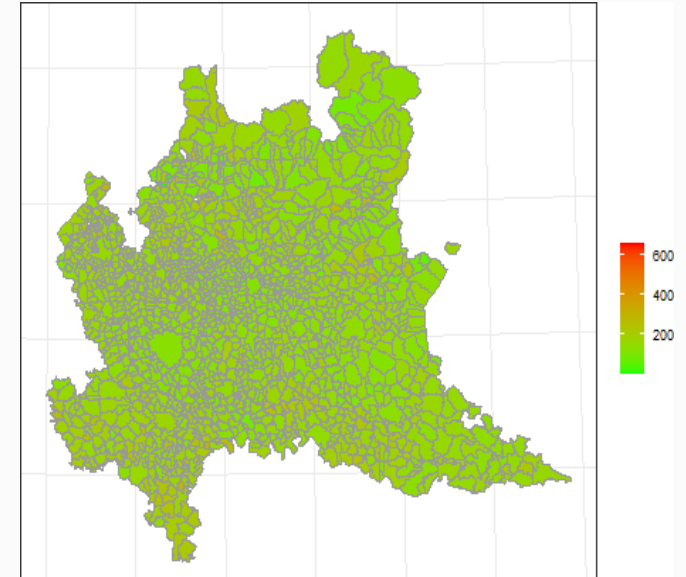


# ENGAGE Scenario Analysis

Actual



Forecast based on ECP data





# Conclusions

- The inclusion of **energy efficiency information**, such as the **Energy Performance Certificate (EPC)**, can provide valuable insights into the underlying risk associated with the properties.
- The **EU Taxonomy** presents an opportunity to enhance the **credit risk** measurement incorporating more detailed and granular data.
- Incorporating additional factors, such as specific energy-saving measures and building characteristics, can lead to a more **comprehensive and accurate assessment** of energy efficiency.
- Improved energy efficiency data will benefit the **monitoring activity** of the existing European building stock and will have significant implications for the **financial sector**, enabling better **risk management** and **lending decisions**.



**Website:**

[engage4esg.eurodw.eu/](https://engage4esg.eurodw.eu/)



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