Energy efficient Mortgages Action Plan (EeMAP) Initiative
Specific benefits from energy efficiency (EE) in households

- Reduced emissions
- Improved human health
- Local employment
- Improved community appearance
- Local spending
- Reduced unwanted mobility
- Fewer energy subsidies
- Higher property values

Specific benefits from energy efficiency (EE) in households include reduced emissions, improved human health, local employment, improved community appearance, local spending, reduced unwanted mobility, fewer energy subsidies, and higher property values.
How can banks play a game changing role in improving Energy Efficiency?

In the EU 28 there are...

- 510 million people
- 247 million dwellings
- 7498 MFIs and 188,109 branches
- More than 350 million live under their own roof
- More than 220 million dwellings were built before 2001

On average each branch serves around 2,700 people

Private financing

...of which

This initiative has huge potential!

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List of Banks Involved in EeMAP initiative

- ABN Amro
- BNP Paribas
- ING
- Münchener Hypothekenbank
- UniCredit
- Crédit Foncier de France
- Barclays
- Berlin Hyp
- Crédit Agricole CIB
- Volksbank Bozen
- Caja Rural de Navarra
- Cooperative Central Bank Cyprus
- NIBC Bank N.V.
- Obvion Hypotheken
- Crelan
- BBVA
- JP Morgan
- Banca Monte dei Paschi di Siena
- Fannie Mae
- DBS Bank Singapore
- Japan Housing Finance Agency
- HSBC
- KBC
Objective & Underlying Business Case

The **ultimate objective** is a pan-European private bank financing mechanism, based on a standardised approach, to encourage energy efficient improvement by households of the EU’s housing stock by way of financial incentives linked to the mortgage, and in this way support the EU in meeting its energy savings targets.

Independent from, but complementary to, public funds or tax incentives

**Underlying business case**

- Increased loss mitigation capacity
- Enhanced loan-to-value via green value
- Lower probability of default
- Reduced capital charges

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Underlying risk parameters impacted by EE

Retrofitting impacts positively on property value ensuring wealth conservation & loss mitigation by preventing “brown discount”

EE leads to a reduction in the impact of energy costs to income, reducing borrowers’ probability of default
Incentive Chain

**Borrower:**
- Lower energy bills
- Energy Efficiency Behaviour
- Lower interest rate on mortgage for energy efficient property
- Free capital for retrofitting

**Issuer/Originator:**
- Access to funding cost advantages
- Increased loss mitigation capacity
- Lower capital requirements as a result of lower PD
- Reputational benefits

**Investor:**
- Diversification of investor portfolio
- Allocation of energy efficient investment buckets
- Green added value vs brown discount

**SME/ Real Economy:**
- SMEs active in the retrofitting of buildings and dwellings to become more energy efficient
- Juncker Plan

**Society:**
- Reduction in energy consumption
- Wealth conservation
- Reduction in greenhouse gas emissions

**Government:**
- Pan European plan to stimulate energy efficient investment in residential property
- Improvement of existing housing stock
- Compliance with 1997 Kyoto Protocol – COP21
- Access to quantitative & qualitative database on energy efficient mortgages & covered bonds

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EE Impact on Properties?

Every time a house moves up a notch in energy performance, its price gets around the same boost that it would from an extra 10-15 m² in size.

**EE jump = Gain of €24,000 over 30 years:**
- A renovated house that moves from an ‘E’ to a ‘B’ notch in its energy performance certificate (EPC) will save an estimated €24,000 over 30 years according to an analysis of 365,000 house sales in Denmark last year.

**EE notch = €5,400/€7,400 for an average 100 m² property:**
- Each one-notch energy improvement from G-A is worth between €5,400-7,400 to an average 100 m² property according to a Copenhagen Economics Study for the Danish Energy Agency.

**Correlation between EE and sale price?**
- A European Commission assessment in 2013 found that in Vienna, a one-notch EPC improvement corresponded with an 8% rise in the sale price. In Flanders (BE), the equivalent of a one-notch upgrade was found to trigger a 4.4% rise in property value, while for Marseille and Lille (FR), the figure was 4.3%.
Broader Perspective

**Better Risk Management:**
- Lower Credit Risk: Due to reduced probability of default and loss given default
- Lower Asset Risk: Due to “green value” and protection against “brown discount”
- Lower Performance Risk: Due to robust assessment of EE improvement ensuring lower energy consumption and ”green value”

**Financial Stability:**
- Increased due diligence for consumers, issuers and investors
- De-risking of banks' balance sheets and management of non-performing loans
- Enhanced transparency and pricing in the market

**Jobs and Growths:**
- Improvement in private investment in EE improvement via retrofitting
- Support for SMEs and contribution to job agenda under Junker Plan
Methodology - Financing mechanism

- Key challenge: to incentivise energy efficient investment in existing dwellings, which constitute bulk of EU housing stock.

- Based on a set of EE indicators, lenders could offer:
  - **New Builds**: Discount in interest rate for new builds with energy rating A+/A or B;
  - **Existing property**: Discount in interest rate according to improvement in energy rating of property between D and A/A+

\[
\text{x\%} - \Delta_D, \text{x\%} - \Delta_C, \text{x\%} - \Delta_B, \text{x\%} - \Delta_A, \text{x\%} - \Delta_{A+}
\]

Conventional Mortgage

Energy Efficient Mortgage

\[
x\%: \text{ mortgage interest rate}
\]

EE delta: $\Delta_{A+} > \Delta_A > \Delta_B > \Delta_C$
EE Renovation advisor (EEA) to advise on:
1. Necessary EE renovation
2. Complementary funding sources (subsidies)

Before EE Renovation

Mortgage application

Ex ante Valuation of property

Qualified SME selected by bank to carry out EE renovation

EEA certifies EE renovations in line with EE requirements

EE Renovation

SME carries out EE renovation, guaranteeing performance

EE Top-up provided directly to SME

Ex post valuation of property

After EE Renovation

Bank grants preferential interest rate on mortgage based on EE/smart meter

Mortgage granted & EE top-up provided directly to SME

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EE & Mortgage Lending & Covered Bond Value Chain

Incentive for investor: Portfolio diversification & capital relief for CBs

Incentive for bank: Capital relief for EE mortgages, preferential treatment in relation to capital floor, NSFR & leverage ratio

Role of European Commission: recognition of lower risk of EE mortgages in respect of PD & LGD or CRR

Incentive for borrower: In addition to lower energy bills, increased property value (vs. "brown discount") & lower interest rate

This diagram reflects the financing of both: (i) the acquisition or construction of new property and (ii) the acquisition and renovation of existing property.

For the financing of the acquisition/construction of new property, the diagram moves directly from Step 2 to Step 4 and Step 4 to Step 5. In this case, the bank requires evidence of the superior energy efficiency of the property at Step 2.

1. Prospective borrower application for (EE) mortgage
2. Ex ante valuation of property (at bank’s instruction)
3. Assessment of EE of property by EE expert (at bank’s instruction) & provision of EE renovation recommendations
4. Granting of EE mortgage by bank
5. Renovation of property by specialised SME/insurance of performance risk
6. Post-renovation audit by EE expert & delivery of proof of energy performance to bank
7. Ex post valuation of property (at bank’s instruction)
8. Granting of preferential interest rate to borrower by bank
9. Tagging of EE mortgage in bank portfolio
10. Inclusion of EE mortgage in covered bond (CB) cover pool (senior unsecured liability)
11. Issuance of EE CB (or other debt instrument) by investor
12. Purchase of EE CB (or other debt instrument) by investor

Household benefits:
- Lower energy bills
- Increased property value (protection against brown discount)
- Preferential financing conditions
- Improved household health & well-being

Government benefits:
- Pan-European mechanism to stimulate energy efficient investment in residential property
- Improvement of existing housing stock
- Boost to EU energy savings targets and compliance with 1997 Kyoto Protocol – CDP21
- Access to quantitative & qualitative database on energy efficient mortgages & covered bonds

Societal benefits:
- Reduction in energy consumption
- Reduction in greenhouse gas emissions
- Wealth conservation
- Improved air quality
- Reduce costs of healthcare

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EeMAP Pilot Phase: Existing Data Analysis & Operational Test Phase

Phase 1: Analysis of Existing Data:
- Substantiation of business case
- Focus on correlation between EE and LGD & PD

Phase 2: Operational Test Phase:
- Deployment of valuation instructions & EE indicators
- Origination of EE mortgage product
- Potential involvement of EIB/EIF
- Data collection

June 2017 to June 2018
May 2019

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How to solve the ‘chicken & egg’ dilemma

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
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</thead>
<tbody>
<tr>
<td>EE mortgages • collateral</td>
<td>EE bonds • Covered Bonds • Securitisation</td>
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**European Investment Fund (EIF)**

**Investor Demand**

National Promoting Banks: Green Purchase Programs

**European Investment Bank (EIB)**
Covered Bond Label: **Sustainable Covered Bonds**

<table>
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<th>Issuer</th>
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<th>Maturity Date</th>
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<th>Tapped</th>
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<td>22/09/2015</td>
<td>22/09/2025</td>
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<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>2A</td>
</tr>
</tbody>
</table>

(*Please note that the face value of this bond has been converted into EUR values on the 15th of January of the current year (where the exchange rate protocol takes the ECB bilateral exchange rate on the last business day of the previous year) in order to facilitate the comparison across issuances and to increase the overall transparency of the website. Nevertheless, you will be able to check the original currency by directly clicking on the covered bond.*

(**) European Economic Area (EEA) or non-EEA. While all the non-EEA labelled programmes’ quality standards will be fully aligned to the Covered Bond Label Convention, to Article 129 of the Capital Requirements Regulation (CRR) and to the definitions in the Liquidity Coverage Requirements (LCR) with the exception of being based in the EEA, i.e. they will present similar legislative safeguards from a qualitative and supervisory point of view to those in Europe, these bonds will present different characteristics, for example in terms of risk weights. Therefore, non-EEA Labels will be identified on the Label website by using a different graphic solution.

(***) The issuer believes that, at the time of its issuance and based on transparency data made publicly available by the issuer, this bond would satisfy the eligibility criteria for its classification as a Level 1 or Level 2 asset in accordance with Chapter 2 of the LCR delegated act. It should be noted that whether or not a bond is a liquid asset for the purposes of the Liquidity Coverage Ratio under Regulation (EU) 575/2013 is ultimately a matter to be determined by a relevant investor institution and its relevant supervisory authority, and the issuer does not accept any responsibility in this regard.

**Sustainable covered bond.** A Covered Bond Labelled sustainable covered bond is a covered bond that is fully compliant with the Covered Bond Label Convention, and also includes a formal commitment by the issuer to use an amount equivalent to the proceeds of that same covered bond to (re)finance loans in clearly defined environmental (green), social or a combination of environmental and social (sustainable) criteria. Covered Bond Labelled sustainable covered bond programs are based on their issuer’s sustainable bond framework which has been verified by an independent external assessment. The issuer strives, on a best efforts basis, to replace eligible assets that have matured or are redeemed before the maturity of the bond by other eligible assets. Against this background, please note that the EMF-ECBC is currently working on market initiatives which will ultimately define European criteria for energy efficiency covered bonds and sustainability standards.
EeMAP Website: http://energyefficientmortgages.eu/


EeMAP Upcoming Events: http://energyefficientmortgages.eu/?page_id=1016
The Energy efficient Mortgages Action Plan – EeMAP - is an initiative by:

EMF | ECBC

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WORLD GREEN BUILDING COUNCIL

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