dreeam
scaling energy renovation

FEASIBILITY SCAN OF LOW-COST FINANCING FOR NZE RENOVATION IN THE RESIDENTIAL HOUSING
D5.1

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement no 680511. This document does not represent the opinion of the European Union, and the European Union is not responsible for any use that might be made of its content.

D5.1

PROJECT INFORMATION	
Project acronym	DREEAM
Grant agreement number	680511
Project title	Feasibility scan of low-cost financing for NZE renovation in the residential housing

DOCUMENT INFORMATION	
Title	D5.1
Version	1.1
Release date	21/08/2019
Work package	WP5
Dissemination level	Public

DOCUMENT AUTHORS AND AUTHORISATION	
Lead	Bax&Company
Contributor(s)	-
Reviewed by	EnergyPro, RISE
Authorised by	Chalmers

EXECUTIVE SUMMARY

Even in the current low-interest environment, financing conditions for deep renovation of affordable homes has a major impact on project's cost-benefit, and payback. Financing an average €25.000 deep renovation at 2,5% with 15 year maturity leads to over €10k in interests – adding 30% to the actual investment. Even if the split incentive can be overcome, it pushes back break-even, and causes periodic energy savings to be lower then loan payment - a negative business case.

The scale of the challenge becomes apparent at portfolio level. Achieving deep renovations for a housing provider with 8k unit would require over €22M in investments and €14M in interest. A larger city like Rotterdam (NL) with 300,000 dwellings under mixed ownership would require over €3Bn in investments, at a mixed rate of 2.5% incurring total interest payment would reach €1,9Bn for 20-year maturities, and €3,2Bn in case of 30 year maturities.

Private lenders offer up to 50bp rate discounts if project could be labelled as green. Most favourable (public-backed) systems offer rates around 1,5 - 2%, at maturities of over 30 years. Cost of financing drops to 20% of lifetime costs, and periodic energy savings could be higher than loan payments.

For housing providers, the key is to establish a baseline on home quality, and intended improvements to unlock lower rates and reduce weighted average cost of capital. More value lies in setting up scaled renovation programmes. Large housing providers or collaborations, or cities that coordinate investments of over €50M in energy investments, could benefit from financial special purpose vehicles at interest rates of around 2%, with operational cost covered by technical assistance programmes such as EIB-ELENA.

Promising are a new generation of public-private collaborations that aim to unlock many billions in low-cost, long term financing fits for deep renovations for smaller scale local programmes, aggregating at national or EU level.

TABLE OF CONTENTS

dreeam
scaling energy renovation

PART I
INTRODUCTION AND APPROACH

BACKGROUND

The European Commission estimates that 40% of the EU's total energy consumption and 36% of its CO_2 emissions are related to the residential and commercial building sector. The European energy renovation rate is still low, around 1% per year; most of the EU housing stock is older that 30 years and characterized by poor energy performance and high energy demand. In order to reach the European energy saving target of 30% by 2030, approximately 70 to 180 million dwellings will need to be retrofitted requiring a high volume of investments in the whole residential sector.

Standard renovations are usually designed for a specific building and follow a "component-replacement" approach, such as improving roof and wall insulation, replacing windows and inefficient heating systems, whose associated investments are usually recovered in 5 to 10 years. More ambitious renovations, including renewable energy generation and better energy management technologies may take more than 30 years to pay back. Building owners from cities and from the social housing sector look to further reduce the cost of energy efficiency investments by enhancing energy efficiency savings and applying financial instruments which can provide additional incomes (e.g. European funds) or finance the investment with favourable conditions. Indeed, in the case of social housing, the costs cannot usually be recovered by increasing rents since these are usually regulated by national or regional policies; consequently, low-cost financing instruments are needed to finance multi-building energy efficiency renovations.

APPROACH

Step 1: explore with housing providers and network organisations the sources for renovation financing;

Step 2: desk research to collect available information.

Step 3: interviews with financial institutions about current green financing practices and energy efficiency investment in the residential real estate.

Step 4: Identification of innovative low-cost financing trends and practices for energy efficiency renovations.

Step 5: Impact analysis and recommendations, for typical housing providers, and non-governmental organisations

dreeam

scaling energy renovation

PART II
THE COST OF FINANCING ENERGY EFFICIENCY RENOVATIONS

EXAMPLE TYPICAL DEEP RENOVATION

Country	Type	Typical deep renovation	Investment	Monthly energy bill reduction
UK	Terraced	D to B	€23,900	€64
DE	Flat	E to D	€50,000	€12
IT	Flat	E to B	€56,032	€57
NL	Terraced	G to B	€51,450	€229
SE	Flat	D to A	€15,785	€31
PL	Flat	E to B	€5,079	€17

Buildings vary widely, across countries, types and period of construction. National systems for measuring energy consumption and energy quality are incomparable. Inherently, renovation technology solutions vary widely, as do their cost and impacts in terms of energy saved and energy costs saved.

The DREEAM project has worked with housing providers across Europe to assess deep renovation options for typical building types.

Deep renovations – achieving 2-4 label step improvements, cost between €15-50k per flat, saving €12-60 per month, and €20-50k per terraced house, saving €60-225 per month. The price of energy is an all-determining factor in cost/benefit of renovations

See Bax&Company replication programme scenario analysis for renovation, and https://dreeam.eu/get-involved/.

THE COST OF FINANCING RENOVATION

Country	Financing Conditions	Total cost of financing	Cost as share of renovation
UK	2.3%	€9,552	28%
DE	1.5%	€6,016	19%
IT	2.6%	€10,887	30%
NL	1.25%	€4,962	17%
SE	2.0%	€8,184	25%
NL-2015	5.1%	€23,228	48%
UK-2015	4.75%	€21,405	46%

Sources: Housing Europe (2018) Financing of Renovation, THFCorp.com

In an attempt to demonstrate the impact of interest rates on renovation costs, we use an average cost of a deep renovation project of €25,000. This is too high for Eastern European flats, and too low for north-western European terraced houses – but a reasonable comparable.

In the current low-interest rate era, social/affordable housing can be financed for periods of 20 years or longer. Average rates vary from 1.25% to 2.5%, depending on country and market model. The rates are a historic low; merely 5 years ago, rates were 2-3% higher, a 50% drop.

In countries with low rates, interests add about 20% to the cost of renovation, in high-rate markets up to 30%. Historical averages would lead to a 50% increase.

Every 100 bp reduction in interest rates reduces life-time costs of borrowing by €3,928, or 14% of the total cost of the renovation

CHALLENGE FOR HOUSING PROVIDERS

Portfolio upgrades of often dated stock require significant financing, quickly reaching €20 to €200M per organisation

DE ALLIANTIE, NETHERLANDS

Affordable housing provider managing over 60,000 dwellings in central Netherlands.

Typical dwellings are pre-1980's terraced houses with gas heating

Scale	Shallow Renovation (eg 1960's label G to C)		Deep renovation (eg pre-1945 label G to B)	
	Investment €	Saving €/m	Investment €	Saving €/m
Dwelling	€20,589	€59	€51,450	€229
Portfolio	**€300M**	**€760k**	**€1,800M**	**€900k**

CITY OF WARSAW, POLAND

The municipal housing agency manages about 8,000 dwellings.

Typical dwellings are pre-1966 High-rises linked to district heating

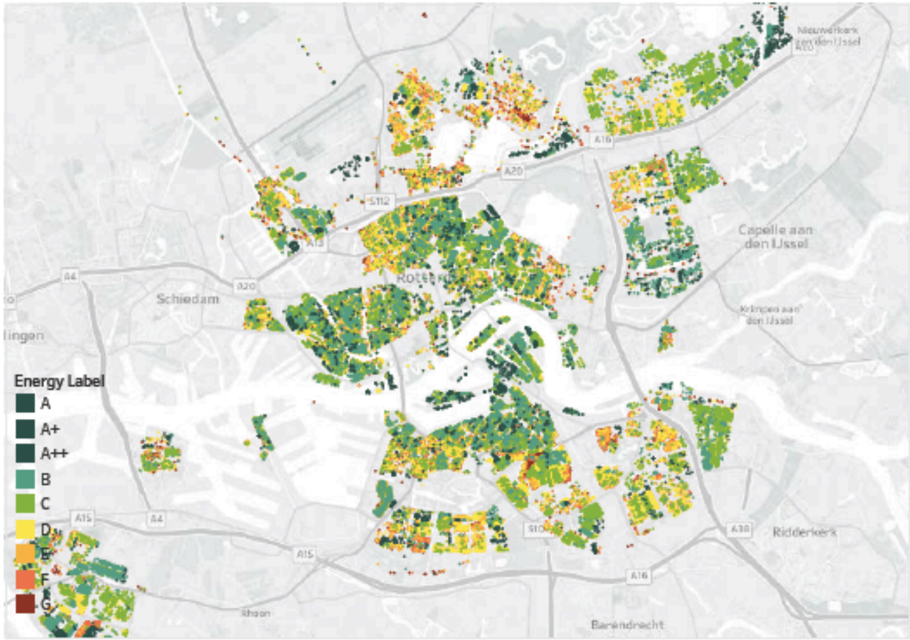
Scale	Shallow Renovation (eg label E to C)		Deep renovation (eg Label E to B)	
	Investment €	Saving €/m	Investment €	Saving €/m
Dwelling	€3,830	€14	€5,079	€17
Portfolio	**€14.2M**	**€56.4k**	**€21.9M**	**€86.9k**

CHALLENGES FOR CITIES

The Dutch municipality aims to be climate neutral by 2050. The stock of over 300,000 dwellings is comprised of mostly post-war label C/D terraced and high-rise dwellings. Currently, about 0,05% of the stock is energy neutral.

Reaching a modest label B on average would require over €3Bn in investments, and, at 2.5% rates about €1,9Bn interests for 20-year maturities, or €3,2Bn for 30-year maturities.

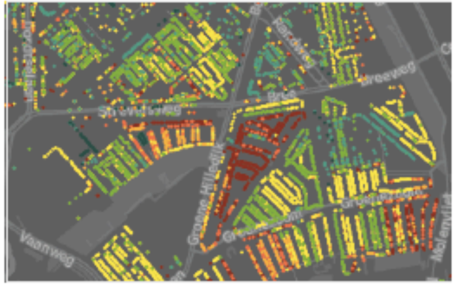
ROTTERDAM, NETHERLANDS



Energy Labels

Energy Label	Buildings	% of Total
A++	83	0.03%
A+	60	0.02%
A	23,872	7.67%
B	39,040	12.55%
C	112,742	36.24%
D	73,471	23.62%
E	29,707	9.55%
F	18,217	5.86%
G	13,873	4.46%
Grand Total	311,065	100.00%

Sample Detail



dreeam

THE IMPACT OF COST OF FINANCING

Country	Type	Typical renovation	Investment	Monthly bill reduction	Interest rate	Total interest (20y)	Total payback (years)	Payback over interest only (years)
UK	Terraced	D to B	€23,900	€64	2.3%	€5,939	39	8
DE	Flat	E to D	€50,000	€12	1.5%	€7,905	402	55
IT	Flat	E to B	€56,032	€57	2.6%	€15,884	105	23
NL	Terraced	G to B	€51,450	€229	1.25%	€6.725	21	2
SE	Flat	D to A	€15,785	€31	2.0%	€3,380	52	9
PL	Flat	E to B	€5,079	€17				

The cost-benefit analysis is highly influenced by energy bill savings, a factor of energy cost in a country.

In countries with low energy cost, a deep renovation does not have positive payback within the technical life of renovations (30 years); easily surpassing 50 years. The interest component alone could take 20+ year to earn back.

In high energy cost countries, payback of renovations take 20-50 years. The cost of borrowing typically takes around 10 years.

dreeam

THE SCALE OF THE FINANCE CHALLENGE

COST/BENEFIT

Overall, deep energy renovation is typically not cost-efficient within the economic life of individual technologies, especially when energy is cheap (low cost district heating, or subsidized).

Still, financial viability is significantly influenced by cost and loan maturity. The lowest-cost models, building on public-sector backing and direct financing, reach 100-150 base point discounts, and 10 year additional maturity (30 years instead of 20).

- 100bp rate reduction reduces to total life-time cost of renovation by 10%
- Extending maturities from 20 to 30 years reduces periodic (eg annual) pay back by 30%, reducing the gap between energy bill reduction and cost of amortization

FINANCE NEED

Whilst none of the scenarios analysed allowed reaching energy neutrality (the EC policy aim), these indicative calculations show the scale of the finance challenge.

	Small Provider (1-10k)	**Large provider (>10k)**	**City**
Investment	€25-250M	€100M – 1Bn	>>€1Bn
Total cost of financing	€5-50M	€20 - 200M	>>€200M

At an aggregate level, the financing need to cover the buildings transition towards energy-neutral buildings, based on a €25k average investment for Europe's 100.000.000 dwellings is a staggering €3,125 trillion.

This analysis does not touch upon technical issue such as loan-to-value limits, or the split incentive issue and the complexities of recovering initial investments – or the more general social issue as affordable living.

dreeam

scaling energy renovation

PART III
THE RENOVATION FINANCING LANDSCAPE

DEEP RENOVAITON FINANCING OPTIONS

Sources of large-scale financing for affordable housing providers depends mostly on national funding models.

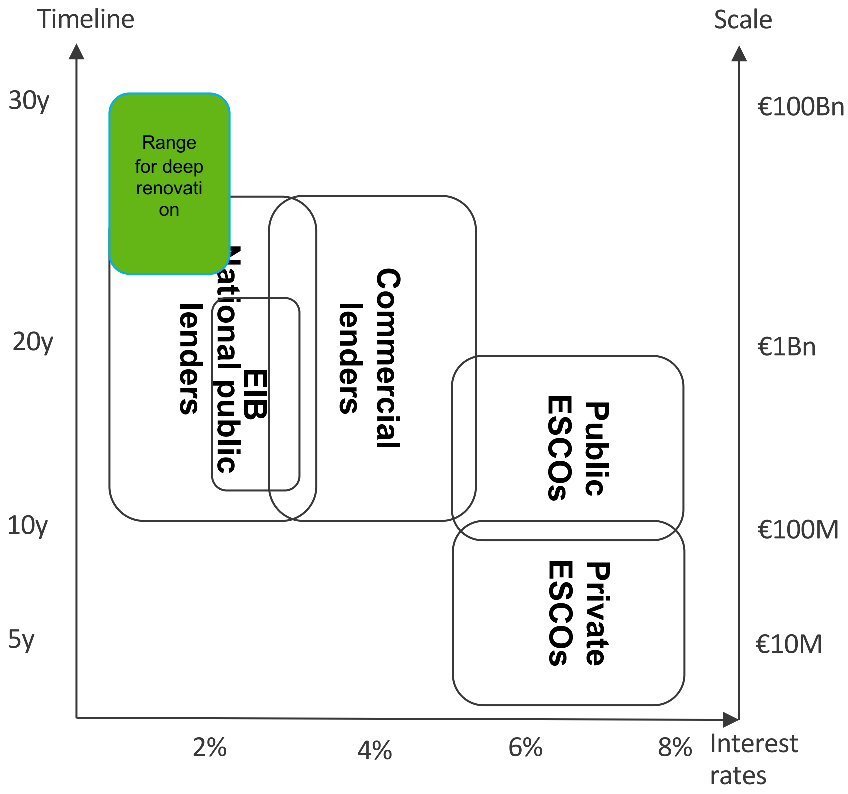
- (National) public funding
- Blended (national) public-private financing

Other models only over small parts of the market

- Blended (European) public-private financing
- Energy service companies

Private-only models do not reach the necessary scale and low cost of financing required. ESCOs mostly serve shallow renovations, whilst commercial lending through routes such as green bonds could effectively allow for shallow/medium renovations, at medium scale.

Best in class examples of financing structures for large-scale deep renovation of housing offer loans at 30y+ maturity and very low rates of <2%. These are government-backed instruments, mixing financing from national European public and private sources.



dreeam

LONG-TERM, LOW-COST: NEF, NL

Technically not aiming at social housing, but rather affordable housing for collectives (home owner associations), and individuals is the extension of the Dutch NEF; the national energy savings fund.

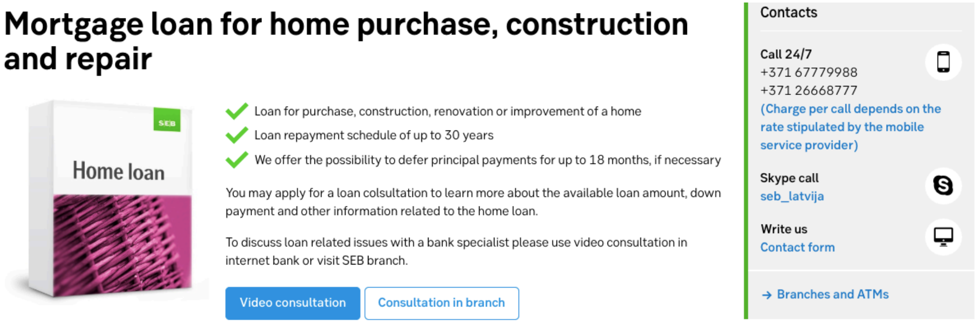
- Collaboration between the Dutch government, the Dutch National Investment Fund, commercial lenders, and home owner representatives
- 30-year loans, rates in the range of 1.75-2.25%
- **Loans connected to the dwelling (object),** rather than to the owner. Repayment would be balanced through energy bill savings. And crucially; the loan would be transferrable with the sale of the dwelling, and not associated with income or age of the owner/tenant. **Renovation becomes bankable.**

https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/klimaatakkoord/klimaatakkoord.pdf

LONG-TERM, LOW-COST : ALTUM, LV

Reflecting the Latvian housing market structure ALTUM provides home improvement loans to privatised Home Owners Associations

- Blends EU financing with national financing and guarantees, and commercial financing
- A distinctly market oriented service that offers centralised financing and loan processing, but competitive market outreach though collaborations with several commercial banks
- 30-year loans, rates in the range of 2-3%



https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/klimaatakkoord/klimaatakkoord.pdf

NEW MODEL [CONFIDENTIAL]

In cases where national low-cost, long term funding is not yet available, this international entity is developing a financing package that would be offered to regions and cities – the bodies most active in accelerating home renovation – though Special Purpose Vehicles

- Blends commercial financing, with EU and national financing, and local guarantees, in SPVs with access to over €100M each

- A distinctly localised service aligned with local authorities' needs, in northwestern Europe

- 30-year loans, rates in the range of 2-3%

https://www.klimaatakkoord.nl/binaries/klimaatakkoord/documenten/publicaties/2019/06/28/klimaatakkoord/klimaatakkoord.pdf

dreeam

scaling energy renovation

PART IV
RECOMMENDATIONS FOR HOUSING ASSOCIATIONS ACROSS EUROPE

RECOMMENDATIONS

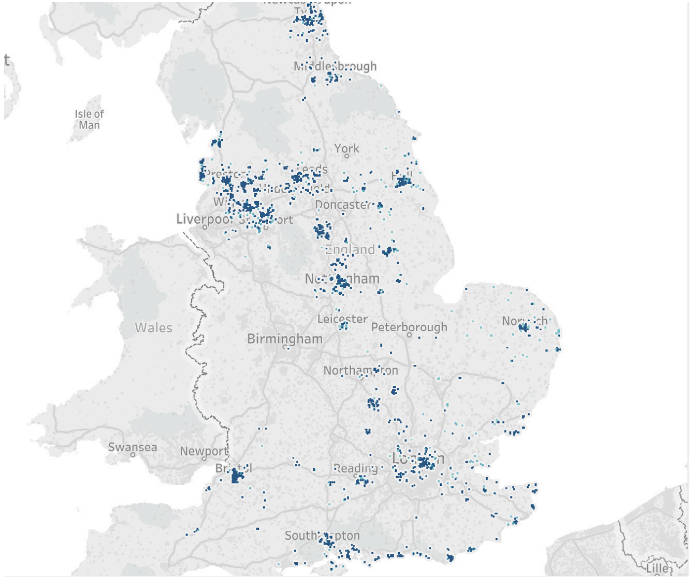
- Scaled renovation programmes, where sustainability and long-term ambitions are integrated in housing provider strategies can unlock lower-cost financing
  - Data collection on dwelling performance pre-and post is a requirement. National or EMF approaches are a good starting point
  - Larger cities and housing providers now benefit from EIB-ELENA Technical Assistance grants, covering €1-2M in programme preparation costs

- Novel green finance instruments and products allow reducing interest rates
  - By 25bp through commercial green finance arrangements
  - By 50-100 bp through European blended programmes (EIB)

- Several international experiments aim to create location- or organisation-specific special purpose vehicles.
  - Mostly for cities with policy drive and in-house expertise

CASE STUDY: PLACES FOR PEOPLE

- Present in **200** Local Authorities in the UK
- Managing over **148,000** households
- **52,038** affordable rented homes



Places for People currently invest about **£5m** per year in energy efficiency renovations.

Average monthly bill reduction for a terraced house upgraded from D to B is about 60 £ /month.

	Interest rate	Total interest (20y)	Total Monthly Payment	Savings
Current	2.3%	1,242,563£	26,010£	-
Potential	1.5%	790,544£	24,127£	**452,019£**

Assumptions

- Average interest rate for the UK housing associatios: 2.3%
- Potential interest rate has been referred to the minimum interest rate (from NL): 1.25%

dreeam

scaling energy renovation

ANNEX
SELECTED EU GREEN FINANCING OFFERS AND INITIATIVES

Based on interviews

ING BANK (NL)

"The real estate lending community can be a real impetus for change"
Head of Commercial Real Estate

37 million clients in **40** countries.

ING manages **€846Bn** in assets

€5Bn of net operating income in 2017

Drivers for Action

- **Added value services** based on understanding of the client's needs are crucial for competitiveness
- **Portfolio risk**. Financing a green and renovated portfolio increases options and value of distressed loans, high-quality real estate is is associated with lower-risk clients.
- Working with green products is seen as in line with market trends, thus **showing market leadership**
- Green finance is particularly relevant for an **emerging market segment**; social housing providers. Due to policy changes, commercial lending will play a larger role.

Targets and approach

- The ambition is to only finance a ´green´ portfolio, from 2030. This is currently defined as included label A and B.
- To develop the market, ING offers favourable conditions are offered: a discount up to 20 base points on interest rates.
- There is relatively **little data available** centrally on financed real estate. Energy labels are collected, but technical details of building quality are typically not known.
- An online tool integrated in the client dashboard shows estimated energy costs and savings options, based on generic models for building type and consumption.
- For larger renovations, the bank offer free energy scans and information on available subsidies.
- ING aims to pro-active larger clients in assessing in preparing renovation options. A back-office team in charge of product development, supported by technical specialist would provide required information to regional sales offices

ING BANK (NL)

Company strategy

Source: *screenshot of dashboard. Example for a not real client*

Client dashboard on energy savings

Energy scan free tool for ING clients to quickly assess energy perfomance improvements and related energy savings

LLOYDS BANK (UK)

"The real estate lending community can be a real impetus for change"
Head of Commercial Real Estate

LLOYDS BANK

1Bn committed to Green Lending Initiative.
£444Bn provided in loans and advances
£4.4Bn statutory operating profit in 2018

Drivers for Action

- Desire to demonstrate **market leadership,** showing a clear organisational sense of purpose
- Creating a market for **future financing opportunities** in which they will have a **leadership position.**
- **Managing regulatory risk-**clear link shown between sustainability, default risk and value in commercial real estate
- **Enhancing borrower relationships-** Green lending builds trust with borrowers. Can also alert borrowers to risks and opportunities r.e sustainable development
- **Minimum Energy Efficiency Standards Act**
- Organisation wide approach across business units to ensure more forward-looking sustainability strategy
- Increasing **interest,** and pressure, from **shareholders, investors, regulators and rating agencies**

Targets and approach

- **£2 bn** pledge to help real estate clients improve their buildings' energy efficiency and cut their carbon emissions.
- margin discount on loans of up to **20 basis points**, with the cost reduction funded from the £2 bn.
- Supporting borrowers that meet a set of criteria woven into their agreements, depending on how much energy efficiency they can achieve.
- The process of applying for a green initiative-backed loan begins with an **assessment using a bespoke score-card** that was developed with independent consultant Trucost. The scorecard evaluates borrowers in two discrete areas: the sustainability performance of their assets and the sustainability strategies of their businesses.
- Taking into account of how regulatory, financial, operational and reputational risks are minimised, focusing on energy intensity data, green certification such as BREEAM or LEED, and exposure to regulation such as Minimum Energy Efficiency Standards.

LLOYDS BANK (UK)

Company strategy

Source: https://resources.lloydsbank.com/insight/clean-growth-financing-initiative/

LLOYDS BANKING GROUP LAUNCHES £2BN CLEAN GROWTH FINANCE

14 May 2018

- New £2bn scheme offers discounted finance to Commercial Banking clients investing in a lower carbon future
- Lloyds Banking Group increases total lending commitment to £3bn in its ambition to support UK businesses to grow sustainably*

Scorecard for green loans

ASSESSMENT CRITERIA FOR LLOYDS BANK'S GREEN LENDING SCORECARD

PROPERTY'S SUSTAINABILITY CREDENTIALS

- Energy Intensity
- Green Certification e.g. BREEAM, LEED
- Exposure to MEES
- Carbon mix of energy supplies

BORROWERS' SUSTAINABILITY CREDENTIALS

- Corporate targets
- Sustainability certification programmes
- Sustainable management practises
- Occupier engagement strategies

Source: Beyond Risk Management, April 2017 – Better Buildings Partnership

ECONOMIC BOARD UTRECHT (NL)

¨Connecting funding to buildings instead of owners significantly improves deep retrofit renovations¨
Manager financial instruments

EBU
ECONOMIC BOARD UTRECHT

35 Triple Helix partners active in **province of Utrecht.**

€5,9M Own contribution to sustainability investments 2017

€250M enabled sustainability investments in 2017

Drivers for Action

- Number of **households in province of Utrecht grows** until 2050 with 42%.
- **Strong urbanisation** in the province, people moving from countryside to cities.
- Main challenges exist for **affordable and sustainable housing**, clean air, waste streams, etc.
- Municipality of Utrecht aims to become **climate neutral** by 2040.

Targets and approach

- The Econonomic Board of Utrecht (EBU) provides, as a regional develop management agency, **financing opportunities** for initiatives that contribute to the sustainability strategy of the province of Utrecht.
- EBU actively brings together **experts, business and public authorities** to support the development of **sustainability projects** contributing to **economic development**.
- Example is **renovation programme** where **€4M funding** is provided to unlock **€600M of deep retrofit renovations** by Home owner associations by 2022. The funding is focused at business case preparation and technical designs.

ECONOMIC BOARD UTRECHT (NL)

Economic Board Utrecht

Regional agenda 2013-2020: Green, Healthy and Smart

- Societal challenge = economic opportunity
- Strategic agenda:
  - green economy
  - Life sciences & health
  - Service innovation
- Private commitment (businesses)
- Scalable
- Reinforcement profile region

Economic Board Utrecht (EBU)

Focus Areas

- Healthy living (care & medical, life sciences)
- Green economy (various sectors)
- Smart services (ownership → usage)

Dominant sectors

- business services
- knowledge-intensive services

Growth areas

- creative industry
- life sciences
- sustainability

a unique cooperation between business communities, authorities, knowledge and social institutes to further strengthen the regional economy and spur innovations

Source: internal presentation from EBU

ABN AMRO (NL)

¨Financing sustainable companies require new credit structures and knowledge of specific risks¨.
Head of Sustainable Finance Desk – ABN AMRO

7 million clients in **14** countries.

BNP Paribas manages **€381Bn** in assets

€9Bn of net operating income in 2017

Drivers for Action

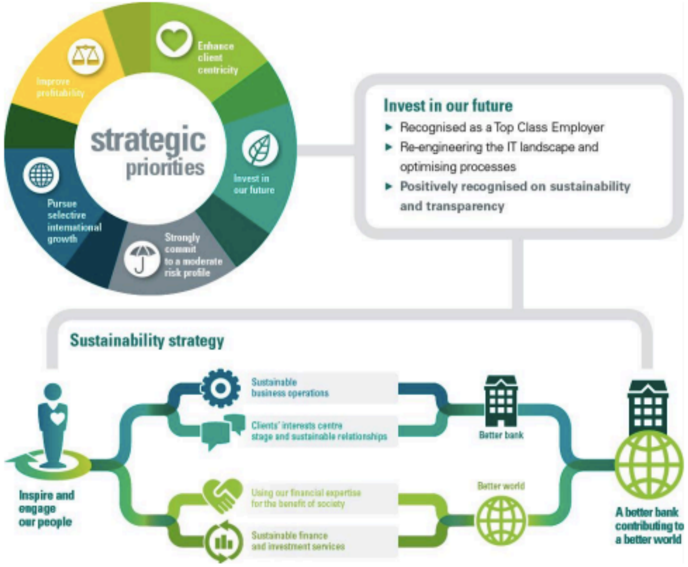
- **A 'pull'** in the market for sustainable & circular solutions/deals. For 80% of clients sustainability is an agenda topic.
- Currently **52% of clients engaged in sustainability**, 25% already active
- **Large growth opportunity**, estimated market potential for SMEs in NL – Energy transition: EUR 14bn (2019-2030) – Circular transition: EUR 7bn (yearly)
- **Risk profile** of clients engaged in sustainability is better

Targets and approach

- ABN AMRO strives for an **inclusive approach** rather than excluding business relations on the grounds of a lagging sustainability performance.
- **A sustainability desk** where account managers, risk specialists and financial specialist support companies to realice sustainable projcects better and faster.
- **Sustainble risk framework** which sets out the conditions under which ABN AMRO engages with clients, suppliers and investors.
- **Main targets** are:
  - Finance 1 billion euros in circular assets,
  - Finance 100 circular loans,
  - Cut CO2 emissions by 1 million tons.

ABN AMRO (NL)

Company strategy



Eligibility green bond issuance

Residential mortages

- We followed the European Performance of buildings directive
- Recently built residential housing
- 25% more efficient than highest label

Commercial real estate

CO2 emission reduction of

30%

of average renovation portfolio

Minimum individual CO2 reduction of

20%

Transformations require a minimum

"A"

Energy label

Source: ABN AMOR Leadership and sustainability
https://ncd.nl/wp-content/uploads/2016/05/Presentatie-Richard-Kooloos-ABN-AMRO.pdf

dreeam

BNP PARIBAS (FR)

"Today, we have reached a tipping point where "doing good" is also economically beneficial"
CEO Real Estate Investment Management

30 million clients in **72** countries.

€1.960Bn assets managed

€43Bn of net operating income in 2017

Drivers for Action

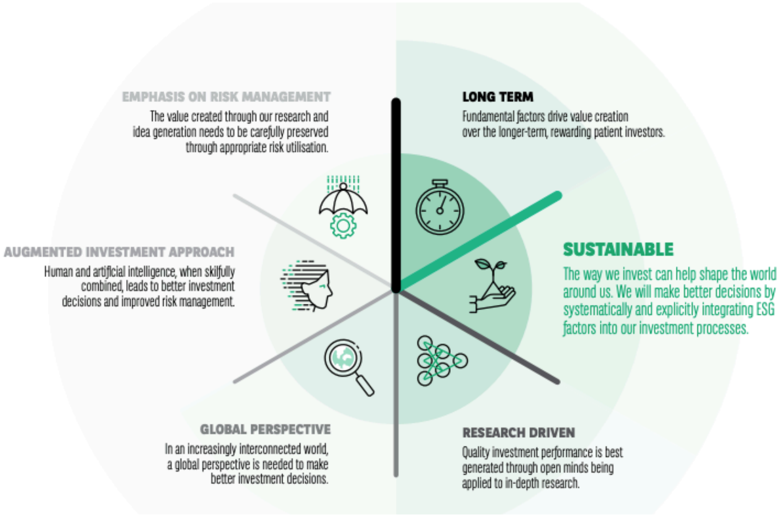
- **Growing importance among clients** regarding e.g. Sustainable Bonds. Labelled Sustainable Bonds are appealing, not just to the small but growing dedicated green funds, but also to the broader 'responsible' investors.
- **Financial Inclusion:** Attracting new generations of clients
- **Diversification of products and services:** A sustainability profile has helped to win new types of business. One client wanted it to build a syndicate of sustainable banks for a deal, while others are changing their business models.

Targets and approach

- Numerous **new Green financing solutions** such as Green debt solutions for Corporates including advisory. Market participants are largely finding common ground on three basic requirements: 1. environmental, social, governance (ESG) performance of the issuer. 2. A commitment to use the proceeds towards environmental and/or social projects. 3. A structuring and reporting process that is in line with the Sustainable Bond Principles.
- **Export Finance for Green Assets.** advising, structuring and arranging medium- to long-term financing solutions. The green asset financing solutions include: LED lighting, Refrigerated displays, Roof top HVAC solutions, Refrigeration compressor, Heat exchanger, Furnace, Power, Electric & Natural gas trucks and cogeneration.
- **Strengthening supply chains** and mitigate, for example, associated social and environmental risks, enables to reduce cost of material inputs, energy, transportation.

BNP PARIBAS (FR)

Company strategy

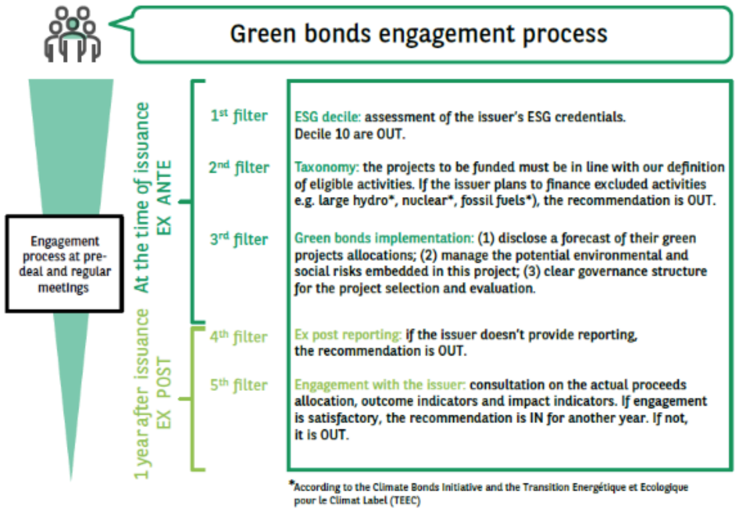


BNP PARIBAS

The bank
for a changing
world

Source: *https://investors-corner.bnpparibas-am.com/investment-themes/sri/sustainable-investing-bystanders/*

Cient engagement process for green financing



https://investors-corner.bnpparibas-am.com/investment-themes/sri/sustainable-investing-bystanders/

CEB BANK (FR)

"The greatest potential for energy savings in Europe lies in the improvement of existing building stock but access to finance remains a barrier to a faster renovation pace"
Director for trust funds and donor relations

€3.9Bn in loans for social projects in 2018

41 member states as shareholders

Approved **30** Climate Action projects since 2017

Promoting the values and principles of the Council of Europe

Drivers for Action

- Founded by 8 member states of the Council of Europe in 1956 to **bring solutions to social problems**
- Helping achieve **UN´s sustainability goals** is the major driver
- Challenges regarding demographic shifts and climate change will aggravate the negative trend already existing of underinvestment in infrastructure
- They want to insure that all internal operations are aligned with the **Paris Agreement**

Targets and approach

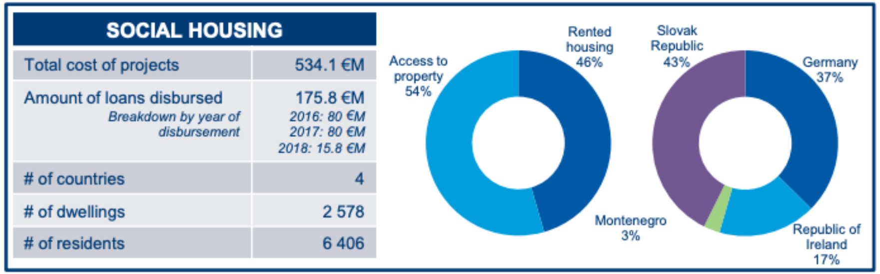
- Only European multilateral development bank with an entirely social purpose
- CEB is committed to leveraging its CSR impact through project quality, efficiency of operations and sustainability of financing via innovative instruments best suited to borrowers' needs
- Provides **tailored financing solutions for projects** with a high environmental impact, including those that may have difficulty attracting investment due to high upfront costs and lower financial returns.
- The CEB applies greenhouse gas emission (GHG) screening to all projects proposed for CEB financing
- CEB has increased their emphasis on projects related to sustainable development, especially related to energy efficiency
- As a non-profit driven institution, the margin on their loans are low and they charge no fees

CEB BANK (FR)

CEB project approvals

Source: Twitter acount of CEB - https://twitter.com/coebanknews

Client dashboard on social housing bonds



SOCIAL HOUSING	
Total cost of projects	534.1 €M
Amount of loans disbursed *Breakdown by year of disbursement*	175.8 €M *2016: 80 €M* *2017: 80 €M* *2018: 15.8 €M*
# of countries	4
# of dwellings	2 578
# of residents	6 406

Source: 2018 Social Inclusion Bond Report - CEB

dreeam

SWEDBANK (EST)

"The EE retrofit loans have been a very stable sector over the years – even the recent economic crisis did not fluctuate considerably the amount of loan applications"
Head of Head of Department, Real Estate and Construction

Swedbank

1Bn committed to Green Lending Initiative.

£444Bn provided in loans and advances

£4.4Bn statutory operating profit in 2018

Drivers for Action

- **Added value services** to cover the services the previously were covered by the Fund Kredex, that is energy audits costs, technical designs and other similar technical assistance; it was stated by the bank that a small incentive is required in order for home owners to take up retrofits.
- **Portfolio risk** is not considered to be a drive for supporting EE retrofits.
- Working on issues related to sustainability is not seen as necessary from CSR perspective.
- Green financing is not yet recognized as a marketable product.

Targets and approach

Swedbank has been supporting private home owners and housing cooperation's together with Kredex for **up taking energy efficiency retrofits** over the past decade. In July 2018 due to the limited funds from the Kredex the bank was willing to explore alternative pathways how to incentives the owner communities to invest in EE and, thus improve the rate of the retrofits in the market. They were willing to take up the TA assistance support role of Kredex, but not move further than that. Nonetheless, by September 2018 Kredex announced to have found new funding to be available, thus bank did not consider to have the need to continue to explore alternative options.

KREDEX

Fund KredEx was founded in year 2001 by the Ministry of Economic Affairs and Communications. KredEx is a financing institution helping Estonian enterprises and Estonian people to improve their living conditions, offering loan guarantees with state guarantee among other for solutions aimed at energy efficiency.

Estonia

Overview of Swedbank loan conditions for renovation in combination with KREDEX support

Finantseerimistingimused

	Renoveerimislaen (KredExi toetusega)	Korteriühistu laen
Laenu sihtotstarve	KredExi toetuse tingimustele vastavad renoveerimistööd	Kõik kaasomandiga seotud renoveerimistööd
Omafinantseering	alates 30 % (toetus)	alates 0%
Lepingutasu	0,5% summast	1% summast, min 195 EUR
Minimaalne korterite arv elamus	6 korterit	
Laenusumma	Minimaalne summa 20 000 eurot. Maksimaalne summa sõltub KÜ asukohast ja maksevõimest (täpsem info laenuspetsialistilt)	
Tagasimakse graafik	Tervikrenoveerimisel kuni 20 aastat, üksikud tööd kuni 15 aastat	
Tagatis	Põhitagatis: varaliste õiguste pant korteriühistu liikmete kohustustele. Vajadusel lisatagatis: KredExi käendus.	
Taotlemise etapid	▸ KredExi toetusega seotud renoveerimislaen	
Taotlus	Renoveerimislaenu taotlus	Korteriühistu laenutaotlus

Source: https://www.swedbank.ee/business/finance/capital/aptbuilding?language=EST

GRUPPO BANCARIO COOPERATIVE ICCREA (IT)

"Sustainability is a key driver in Iccrea's activities"
Coordinator of international relationship and Sustainable Banking

Gruppo Bancario Cooperativo Iccrea

750.000 members BCC (Cooperative Credit Bank)

4,2m clients

142 local banks

Drivers for Action

- Iccrea Banking Group is the central Cooperative Credit Institute in Italy.
- Sustainability it is a key driver in the group strategy and policies.
- As **first Italian local cooperative bank**, Iccrea Banking group claims to be the **model for a sustainable bank.**
- BCCs aims to position themselves as main players in the **territorial development and involvement of the local communities, supporting the local economy and sustainable growth**.

Targets and approach

- Iccrea Baking Group is currently developing a unique and ambitious **sustainability strategy** to be implemented by all 142 local banks, in line with the European Commission's Action Plan: Financing Sustainable Growth.
- The Group has committed to develop the **new generation of green products and financing solutions**.
- In 2018 Iccrea BancaImpresa has financed renewable energy projects with an overall capacity of 6,5MW (15m €).
- Provision of loans products focused on supporting the development of bioenergy.
- The Group has refurbished their portfolio of buildings to reduce overall energy consumption and carbon footprint.
- Seen the relevance of Energy Efficiency, the Iccrea Group is looking at new opportunities for the development of green services promoting building refurbishment.

GRUPPO BANCARIO COOPERATIVO ICCREA (IT)

A local cooperative and sustainable bank

Client dashboard on social housing bonds

Source: Gruppo Bancario Cooperative Iccrea website, Sostenibilità e Politiche di Gruppo https://www.gruppoiccrea.it/Pagine/ChiSiamo/Sostenibilita.aspx

dreeam

BARCLAYS (UK)

"Barclays have lunched a full range of services to support SMEs and investors supporting their sustainability investments"

BARCLAYS

24m customers

£1,13trillion of assets

£ 3,5m net income in 2019

Drivers for Action

- Barclays has positioned itself as the first bank offering corporate clients green products and services to support green investment
- First bank launching a Green Mortage Product in the UK in Apr 2018
- Barclays is one of the 28 banks that collaborated for the development of the UN Environment Finance Initiative Principles
- The bank has committed to invest in low-carbon technologies and improving their EE operations with the target to reduce by 30% their CO_2 emissions.

Targets and approach

- The bank is currently identifying new business lines for UK entity, customers, smaller business clients putting sustainability at the center of their activities.
- Barclays have developed a **Green Product Framework** underlying eligible activities and themes. This is internally used to guide the development of green products targeting specific customers and areas.
- **Green loans** up to £5m are available for businesses to support the investment in energy and sustainability projects for:
  - Renewable energies
  - EE improvements
- In Apr 2018, Barclays firstly lunched a **lower mortage rate** on energy efficiency new build home
- Green asset finance in another core activity to support the transition to a sustainable low-carbon economy

BARCLAYS (UK)

Barclays green bond impact overview

As at 31 December 2017, Barclays' green bond pool contained 1,562 mortgage loans for residential properties with a nominal value of £442.3m. The average carbon intensity for Barclays allocated Eligible Mortgage Asset portfolio is 15.99 $KgCO_2/m^2$, almost 60% lower than the EPC dataset average of 40.40 $KgCO_2/m^2$, with the portfolio generating an annual carbon saving of almost 5,000 tonnes CO_2 or 9.95 tonnes of CO_2 emissions per every €1 million of bond proceeds allocated.

Carbon intensity of Eligible Mortgage Asset portfolio ($kgCO_2/m^2/year$)

1	1-9.99 (12%)
2	10-19.99 (60%)
3	20-24.8 (28%)

Geographical distribution of Eligible Mortgage Asset portfolio

East Anglia	9.16%
East Midlands	4.35%
Greater London	25.74%
North	1.92%
North West	4.48%
South East	36.94%
South West	7.04%
Wales	1.73%
West Midlands	4.93%
Yorkshire and Humberside	3.71%

Source: Barclays Green Bond impact overview

The Green Product Framework

EE in buildings is one of the qualified areas and activities of the Green Product Framework

Themes	Sub-themes	Eligible Activities	Exclusions
Energy efficiency	Commercial and residential buildings (existing and new construction)	• Energy-efficiency improvements in lighting, appliances and equipment • Substitution of existing heating/cooling systems in buildings for cogeneration plants that generate electricity in addition to providing heating/cooling • Retrofit of existing buildings: Architectural or building changes that enable reducing energy consumption • Waste heat recovery improvements • Use of highly efficient architectural designs or building techniques in the construction of new buildings. These techniques should enable reduction of energy consumption for heating/air conditioning, should exceed available standards, and should comply with high energy efficient certification or rating schemes	• Construction of new buildings driven by fossil fuels

From: Barclays Green Product Framework document
https://www.home.barclays/content/dam/home-barclays/documents/citizenship/access-to-finance/Barclays-Green-Product-Framework.pdf

dreeam

dreeam
scaling energy renovation

ANNEX
SUSTAINABLE FINANCING AND INVESTORS EVENTS

BPIE INVESTOR DAYS

22-23 Feb 2016

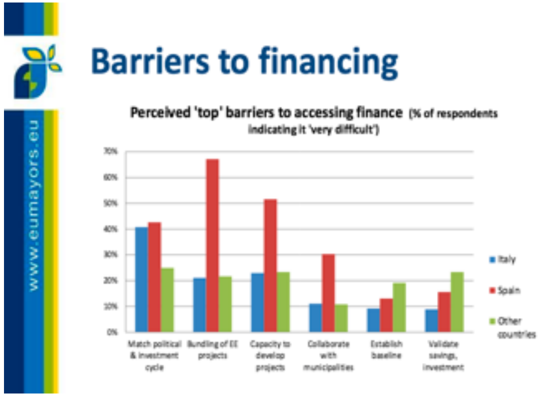
The Investor Days 2016 were organized by BPIE, the International Energy Agency and partners with The Covenant of Mayors, the Climate Alliance and the CITYnvest Project and Investor Confidence Project, among others.

Insights day 1 - analysis of barriers for large-scale energy efficiency renovation, and on recommendations

- The lack of standardization is a major barrier for accessing finance, leading to high transaction cost (ref: Investor Confidence project: www.eeperformance.org)
- Valuation of investments is uncertain, partially due to a lack of standards in valuation and uncertainty between design and measured energy demand reduction
- Investment decisions depend on other drivers then EE, unless regulation changes.
- New financial models like EPC are not widely used due to uncertainties and risk-avoidance by landlords. Other models successful in the US, are not available in the EU.

Insights day 2 - "How to increase deal flow"

- Bundling of projects is key to reach lenders
- The EIB adds that many projects presented lack long-term viability.
- Main ongoing projects regarding financing of energy efficiency investments:
  - ✓ SEAF: Enable the finance of sustainable energy assets by deploying independent, standardised project evaluation and project optimisation tool
  - ✓ CityInvest: Analyse and compare innovative financing models, develop guidance materials on financing for energy efficiency renovations of public buildings



Top barriers to finance EE renovations are:

- matching the political and investment cycle
- bundling several projects
- capacity to develop projects
- collaboration with cities & municipalities
- validation

UNEPFI GLOBAL ROUNDTABLE

26-28 Nov 2018

The UNEPFI Global Roundtable is one of the largest world's events bringing together investors, banks and insurers working on sustainable finance.

UNEP FINANCE INITIATIVE · FINANCE FOR TOMORROW by Paris Europlace · PARIS EUROPLACE

Key insights:

- Green Loans are a key instrument with high potential impact; however, there is the common need to create an increasing awareness on their potential among clients and investors for increasing their uptake.
- Financing institutions and insurers are showing their commitment to mainstream climate finance as a main priority in their core business strategy.
- The UNEP FI's Principles for Responsible Banking were developed by UNEP FI and 28 banks around the World to shaping the future of banking; by adopting this new framework, banks will commit to integrate sustainability within all the business sectors in line with the Paris Climate Agreement and the UN Sustainable Development Goals.
- The UNEP FI has launched the Energy Efficiency Finance Platform to facilitate the sharing of best practices on financing energy efficiency between financial institutions.

1000+ delegates from the sustainable financing sector from **44** countries

140+ speakers

38m views on Twitter

EBU CLIMATE MISSION

2019, March

The KlimaatMissie (Climate Mission) approach is to support housing providers and individual home owners with a 30-year performance guarantee on a 0-energy home.

Key insights:

- Green loans in the Netherlands allow for 30-year payback at about 2% interest rates. Low interest rates are crucial for making 0-energy reach positive cost-benefit. The maturity periods are needed to ensure monthly paymens are lowe than the realistic energy bill savings. Renovations are therefore cost-neutral or positive, even at 0-energy
- Delivering 0-energy at performance guarantee needs reorganisation of the contracting and suppling business. KlimaatMissie works with the regional development agency for the province of Utrecht in the bring over 50 companies from the supply chain together in a joint consumer proposition
- Development of such propositions can be funded through national and/or European subsidies (eg ELENA), after wich the programme could be run without additional public funding

https://klimaatmissienederland.nl/

€75000 investment per household financed in cash-neutral way

50+ companies engaged

300+ dwellings renovated

CKIC 1 MILLION HOMES

2019, March

The EIT Climate-KIC wans to support transitional initiatives around climate adaptation. The first of such triple-helix initiatives focuses on developing a programmes that allows deep renovation of 1 million homes

Key insights:

- Most cities lack the knowledge and tools to develop large-scale (deep) renovation programmes. The focus most often is on one-off subsidised initiatives such as PV panel installation, or district renewal. Main issues are realistic know-how on market engagement (supply and demand), smart use of available public and private funds and financing
- The EIT Climate-KIC is devising an approach that allows cities to develop special purpose vehicles that deliver one-stop-shop approaches to a variety of local home owner segments
- Whereas implementation is tailored to local needs, added value at EU level could be access to finance and contractual forms
- https://benelux.climate-kic.org/join-our-1-million-homes-community/

Climate-KIC

dreeam

REVALUE PROJECT

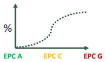
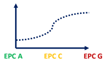
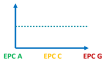
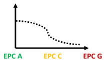
2019, March

The H2020 Project REVALUE aims to enhace the principles of building valuation to better recognise and reflect the potential value of energy efficiency in (affordable) homes). Key partners include RICS and Savills

Key insights:

- Currently, energy efficiency is by lenders and valuation professionals not yet recognised as value driver. These stakeholders do think that on the medium term (5-10 years) markets will start to recognise EE in real estate value, mostly driven by changing market expectations and most importantly; regulations
- There is a positive value in building (energy) renovation; higher comfort, general look & feel of a refurbished unit. These values are reocgnised by the market. EE is a public sector driver (regulation subsidies), whilst investors and tenants look at other building characteristics.
- On the short term, there might be a minor green premium for highly performing dwellings. On the long term, however, a brown discount for underperforming dwellings is more likely.
- https://revalue-project.eu/

REVALUE

	CURRENT No recognition of value	PHASE 1 Green Premium	PHASE 2 Brown Discount	PHASE 3 Stranded Assets
Phase of Market Transition	<1% dwellings with EPC A;	≈10% of dwellings EPC A;	Balanced distribution	≈75% dwellings EPC A or B
Building stock profile All new buildings A or better Renovations towards C-A				
Expected Impact on value	Currently, retrofitting for better energy performance does not provide a guarantee for increased value. Some green premium is observed in specific markets	Once there is some choice of high EE dwelling on the market, a positive value compared to the similar dwellings with lower EE is expected	When there is significant share of EE dwellings in the market the green premium will go down, while brown discount will become more evident.	Changing standards (through regulation or market expectations) will make some dwellings unlettable without major upgrade.

dreeam

INVESTOR CONFIDENCE PROJECT

April 2018

The H2020 ´Investor Confidence Project´ defines a clear road-map from retrofit opportunity to reliable Investor Ready Energy Efficiency. ICP reduces transaction costs by assembling existing standards and practices into a transparent process that promotes efficient markets by increasing confidence in energy efficiency outcomes

Key insights:

- There is no shortage of financing for energy efficiency renovation programmes. Lender and investors however do still speak different languages, making project close an issue.
- Lenders typically have very clear conditions under which they can support renovation projects, taking varying degrees of risk depending on the type of contract. There is however a lack of aggregation of projects, a lack of standard characterisation of renovation projects from a building and energy perspective
- Broad (financial) industry standard practices help both the investor and the financier to simplify assessment processes. These common processes make it easier to assign a certain risk rate to projects – and thus interest rates – but make it also financially viable to assess smaller portfolios

- http://www.eeperformance.org/

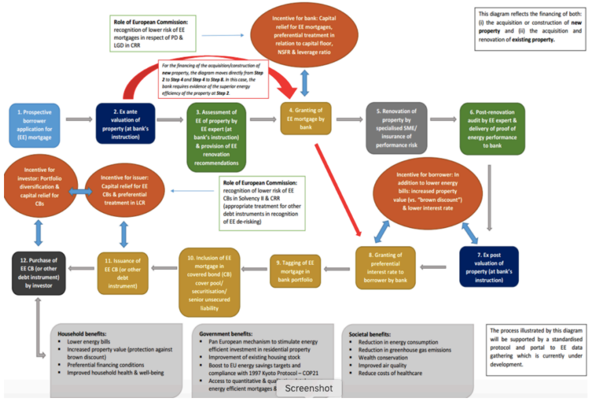
dreeam

The H2020 Project EeMAP (Energy efficient Mortgages Action Plan) brings together a range of financial institutions and lenders on the development of a standardised, pan-European mortgage financing mechanism. supported by a data protocol and portal to collect and access large-scale empirical evidence relating to energy efficient mortgage assets allowing a comprehensive analysis of de-risking energy efficient features.

EeMAP
Energy efficient Mortgages Action Plan

Key insights:

- Within financial institutions there is a clear need to define and understand the impact on energy efficiency on the risk profile of a loan, and on ways to collect relevant data
- For frontrunner banks green tagging help characterise loan risks, unlocking in some cases lower interest rates
- Single point of reference for key data is an important requirement for validation
- https://energyefficientmortgages.eu/



dreeam

ALTUM LATVIA

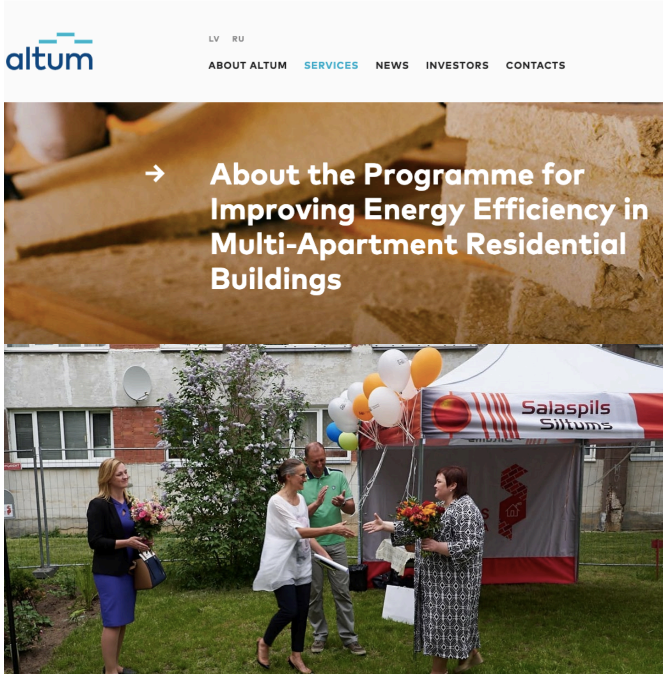
September 2018

ALTUM is a Latvian state-owned development finance institution, which offers state aid for various target groups with the help of financial tools (such as loans, credit guarantees, investing in venture capital funds, etc.). Home renovations are a key market

Key insights:

- ALTUM is heavily backed by the EC. For home renovation purposes, it both funnels low-cost financing as well as subsidies to eligible home owners, in a one-stop-shop environment

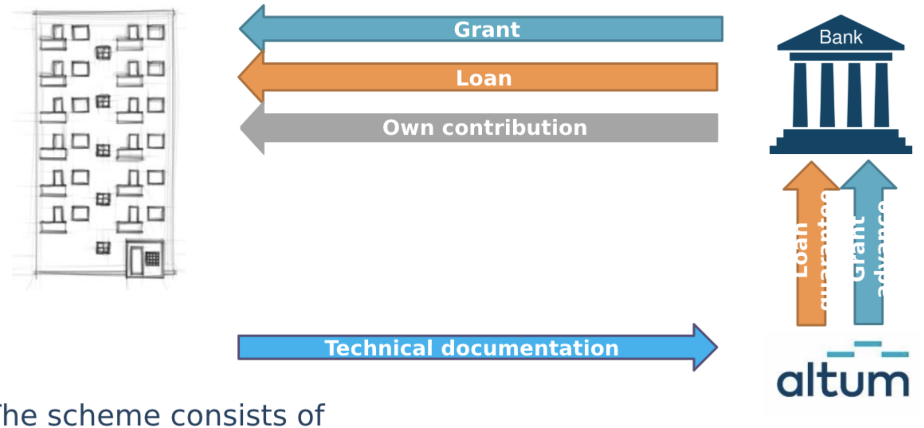
- Locally, it brokered with different commercial banks the development and marketing of consumer oriented home renovation finance products. Several commercial banks blend the ALTUM offering in their commercial proposition.
  - For ALTUM, this results in nation-wide coverage, commercially incentivised market development and the minimisation of direct consumer contact
  - For commercial banks, the collaboration improves the value proposition to customers (better margins), whilst overall promotion and administrative workload is handles by ALTUM



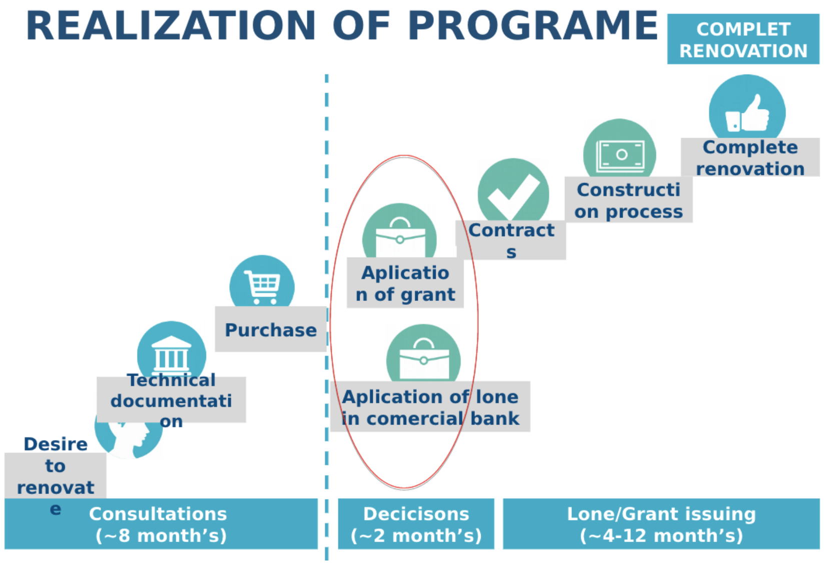
- www.altum.lv

dreeam

ALTUM LATVIA



The scheme consists of
- 2 financial instrument operations (guarantee or loan)
- 1 grant operation (may be combined with FIs)



Source: Altum Latvia internal presentation

dreeam