THIRD DOLOMITE CONFERENCE ON GOVERNANCE OF CLIMATE CHANGE AND SUSTAINABILITY

REDESIGN GREEN POLICIES IN A post 1.5 c WORLD

BUILDING RENOVATION IN EUROPE

Analysis and proposal of incentive measures

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TRENTO

17-19.10.2024

DOLOMITE CONFERENCE

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Agenda

DOLOMITES VISION CONFERENCE CLIMATE CHANGE

Our project tackles the challenge of **revitalizing** interest in the **Green Agenda**, with a focus on reducing the environmental footprint of **Europe's aging buildings**. By rethinking **financial and behavioral incentives**, we aim to spark broad adoption of **energy-efficient renovations**.

Problem Setting

Barriers and Deterrents

Overview of types of barriers hindering renovation initiatives

Technological Solutions

Typical technologies implemented for energy-savings and retrofitting purposes

Behavioral Economics

How cognitive biases influence the adoption and large scale consensus around these initiatives

Best Practices

Referencing a successful renovation prototype as a benchmark for comparison with other initiatives

Problem Solving

Proposed Incentive Framework

Country cluster-based analysis and incentive proposal

Strategic Reccomedations

Tailored strategies for each cluster

Action Steps

Drafting an implementation plan for project feasibility and scalability

CBA & Proposal Evaluation

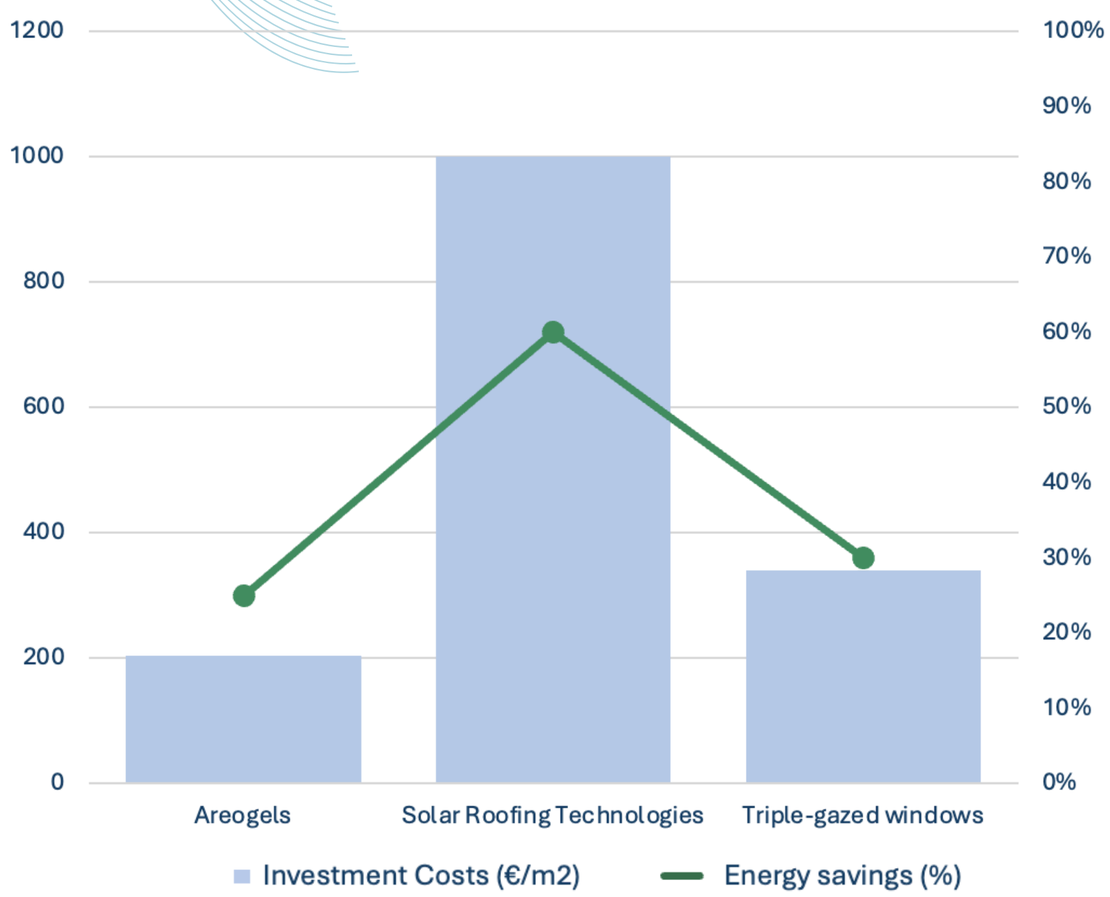
Mixed-methods Cost-Benefit Analysis and ex-ante evaluation

Problem Setting

Barriers and Deterrents

Cost Concerns	Upfront Investment + Maintenance
Technological	Complexity of advanced systems
Infrastructural	Existing building stock incompatibility
Knowledge deficiencies	Lack of awareness and expertise
Behavioural	ST mindset + Reluctance
Political	Compliance and administrative complexities

Technological Solutions



Problem Setting

UE provided several **funding mechanisms** throughout the years, 4 of which currently ongoing targeting energy conversion, decarbonisation, technical assistance and private capital flow.

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EUROPEAN STRUCTURAL AND INVESTMENT FUNDS

INVESTEU

Life

horizon europe

ELENA – European Local ENergy Assistance

FINANCIAL INCENTIVES

- Grants & Subsidies
- Tax credits
- Subsidized loans
- PPPs

Behavioral Economics

COGNITIVE BIASES

- loss aversion
- framing effects
- status quo bias

PROSPECT THEORY

"individuals weigh potential losses more heavily than equivalent gains"

FRAMING THE CONSEQUENCES OF INACTION

is nudges towards closing the gap between incentives measures setting and action. Adapt policy design accordingly.

Designing incentives around loss avoidance +40% retrofitting adoption compared to gain-framed incentives

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Problem Setting

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Policy Evaluation

CRITERIA	WEIGHT
Environmental effectiveness	30%
Political Feasibility	30%
Dynamic cost-effectiveness	25%
Equity and Faireness	10%
Enforceability	5%

Weighted Average

LETTER GRADE-SCORE	
AAA	9.1-10
AA	8.5-9.0
A	8.0-9.4
BBB	7.0-7.9
BB	6.0-6.9
B	4.0-5.9
CCC	Below 4.0

Paris Olympic 2024 Renovation

Dual-fold focus: reduce CO2 emission while creating a lasting legacy

- cutting **50% of CO2 emission** with respect to London/Rio games
- renovate **95% of event venues**

Financed through **PPPs (>3B€)**

A

LEADING PROTOTYPE Freiburg's Urban Retrofitting

Goals: generating energy savings and cutting 30/50% of heating consumption

- **positive sum-energy** housing
- boosted **renovation rate by 30%** in 5 years
- **public engagement** and support

Financed through **PPPs**

AA

UK's Green Houses Grant

Result: intervention on merely **47.5K** houses (less than 8% of the original scope)

- **poor** execution
- **lack of skilled labor** in the supply chain
- **inadeguate** funding

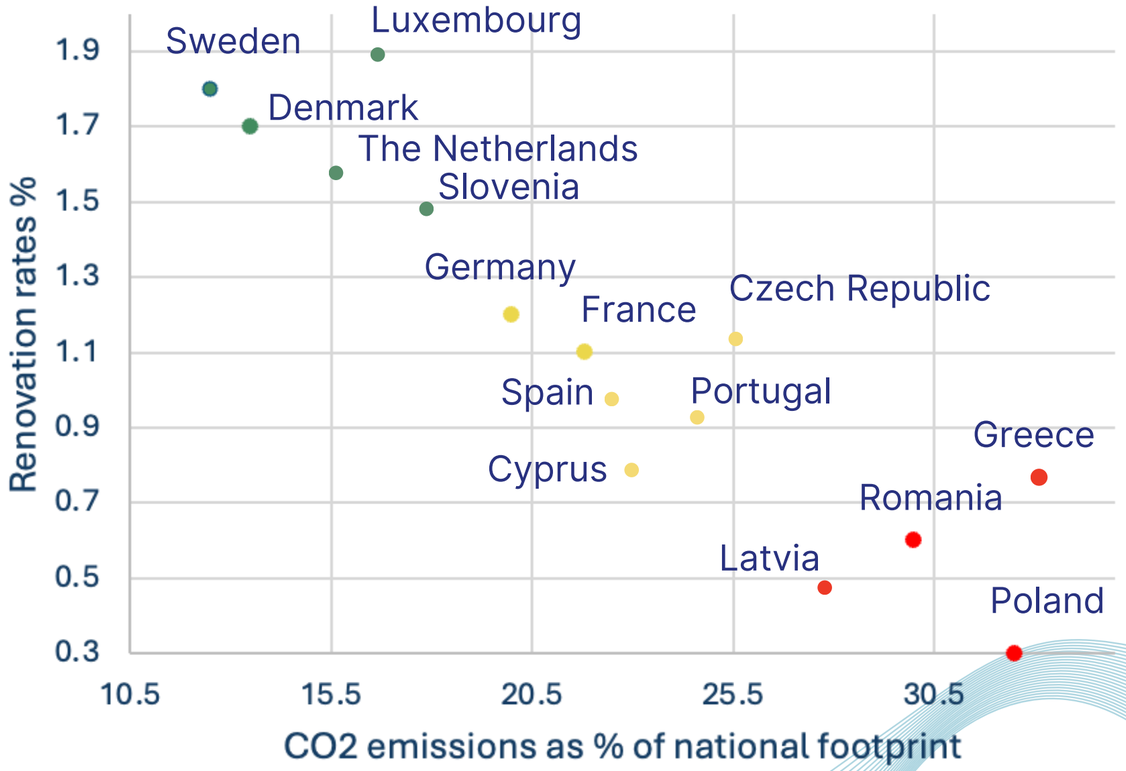
B

Proposed incentive framework

Countries are grouped into Green, Yellow, and Red clusters This allows us to **tailor financial incentives** to each country's specific progress and needs, **maximizing the effectiveness** of renovation efforts.

	Green	Yellow	Red
Progress	Advanced	Moderate	Low
CO2 emissions	<15%	15-25%	>25%
Renovation rate	>1.5%	0.8-1.5%	<0,8%
EPC rating	Mainly ≥ C	Mainly ≥ D	Mainly E or F

Clustering of Countries Based on Renovation Metrics

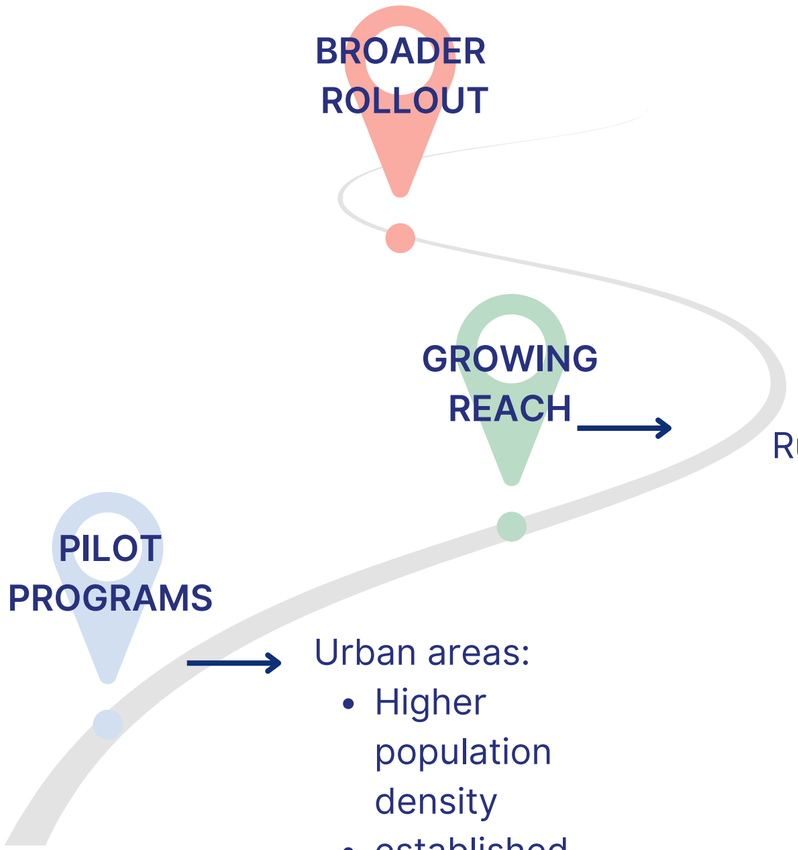


Proposed incentive framework

To ensre success, funding must be made accessible through clear **communication** on incentives, engage **local communities** and **sustainability groups**, and set high **binding** targets paired with **adaptive mechanisms** to respond to changes like energy prices.

CLUSTER	GRANTS	TAX INCENTIVES	SUBSIDIES	OTHER MECHANISMS	COMMUNICATION STRATEGIES
Green	Up to 50% for deep renovation	None	Partial support	Green bonds, private investments	Social norms based messaging, collective responsibility
Yellow	50-70% for low income households	Yes	Partial support	PPPs	-
Red	75-90% for low income households	Yes	Full support for mandatory renivations	Penalties for non compliance	Loss avoidance messages and focus on health benefits / alleviation of energy poverty

Action Steps



Urban areas:

- Higher population density
- established infrastructure

Rural areas nearby:

- lower income on average
- limited access to funding
- tailored approach to overcome local obstacles

CBA ratio = $\frac{\text{Total energy savings}}{\text{Country deficit}}$

- 2.44
- 2.89
- 2.90

All clusters show potential for energy savings relative to their deficits , but the **Yellow and Red Clusters** offer more favorable ratios, making **energy-efficient renovations more economically viable** compared to the Green Cluster.

Secondary Positive Spill-over effects for:

- Costruction Industry
- Renewable energy firms
- Green building material firms
- Professional services sector
- Eco-tourism

Business and job opportunities for economic growth

Opposers, as fossil fuel based businesses could be involved over time through the promotion of business model conversion programs

Further suggestions

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GOOD GOVERNANCE SYSTEMS

Accountability

Stakeholders ensure responsibility and better project outcomes.

Transparency

Public availability of renovation data.

Community engagement

Involving local populations increases adoption rates and a sense of ownership.

Efficiency

Good governance reduces waste, enhances efficiency, and ensures optimal use of funds.

NEIGHBOURHOOD LEVEL INVESTMENTS

Economies of Scale

Bulk procurement reduces renovation costs per unit.

Enhanced Impact

Boost in energy efficiency across entire urban areas.

Social Cohesion

stronger social bonds and collective sustainability goals.

Solutions for the Manifest

Data-Driven Transformation

Integrates rigorous data analysis into the approach to create evidence-based solutions

Divide and Conquer

Cluster countries based on specific metrics to propose customised incentives that maximise learning curve effects while reducing implementation time

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THANK YOU!

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