



Risk reduction for Building Energy Efficiency investments

Publications of the EEnvest project

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Author	Cristian Pozza, Eurac Research cristian.pozza@eurac.edu
Contributor	Marco Bailo, Eurac Research
Quality reviewer	Tatiana Loureiro, R2M Solution
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Table of Contents

DOCUMENT INFORMATION	2
1 INTRODUCTION	4
2 EENVEST PUBLICATIONS	5
2.1 Proceedings papers	7
2.2 Open access peer-reviewed paper	10
2.3 Articles in external communication channels	11
2.4 Contribution to sister projects' publications	16
3 CONCLUSIONS	17

1 INTRODUCTION

Publications are part of the dissemination strategy of the EEnvest consortium partners to reach out relevant stakeholders and disseminate the project results. Therefore, scientific publications and articles on magazines have been targeted and tailored to different stakeholders.

Therefore, real estates and asset managers have been targeted mainly by short news, easier to grasp in local language, and focusing also on sustainability aspects. Building professionals have been targeted with a more detailed level of information, focusing on technical risk and in local language. Investors as financial institutions, retail banks, investment advisors, insurers have been contacted directly, by other more effective means such as emails carrying specific content (presentations, outcomes from analysis of our demo cases) and 1:1 follow-up. News have been issued by Advisory Board members through their channels and network. The scientific community has been targeted through an open access paper in English language, the presentation of the results in scientific conferences and the publication of the proceedings of these conferences.

During the first half of the project the following actions have been carried out:

- Scientific partners published proceeding papers in order to share with the scientific community the theoretical approach to risk models and calculations.
- Some news items have been issued on online sectoral magazines, by project partners or supported by AB members, to raise the attention and create an interest around the EEnvest ambitions, mainly by real estates and asset managers.

During the second half of the project the project partners implemented the following actions:

- Once mature, results related to the de-risking framework have been published on a Peer-Review journal to get validation from scientific community
- Specific news and articles have been issued on online sectoral magazines, to raise the interest about EEnvest results and tools available, mainly by real estate, asset managers and building professionals.

Clustering activities with synergistic EU funded projects led to the publication of joint proceedings papers, with the aim to describe to the scientific community how their complementary actions from different projects can compose under a more comprehensive ecosystem for supporting Energy Efficiency investments.

The EEnvest's Consortium is committed to open science and a good data management, using the FAIR Principles as guidance (Findable, Accessible, Interoperable, Reusable). That is why from early on in the project's life we created the EEnvest's community¹ within Zenodo repository. All open access publications derived from EEnvest are available at the Zenodo Community.

The following chapters provide an overview of the publications realised in the project gathered per type of publication.

¹ EEnvest's Zenodo Community on the URL: <https://zenodo.org/communities/eenvest>.

2 EEnvest publications

The table below lists all the publications realised within the whole project duration:

Title of the publication	Authors	Peer reviewed
Framework for evaluating financial impacts of technical risks related to energy efficient renovation of commercial office buildings	Annalisa Andaloro, Graziano Salvalai, Gabriele Fregonese, Linda Tso, Giulia Paoletti	No
Integration of Finance in Energy Efficiency	Tatiana Loureiro, Cristian Pozza, Filippos Mexis, Sergio Olivero, Csaba de Csiky, Andrea Bogi	No
De-Risking Energy Efficiency Investments through Innovation	Tatiana Loureiro, Marta Gil, Rachel Desmaris, Annalisa Andaloro, Charikleia Karakosta, Stefan Plesser	No
Studio della metodologia per la riduzione del rischio tecnico-economico negli investimenti di riqualificazione energetica: il progetto EENVEST (Technical and economic risk reduction methodology for Building Energy Efficiency investments: the EENVEST project)	G. Salvalai, G. Paoletti, M.M Sesana, A. Andaloro	No
De-Risking the Energy Efficient Renovation of Commercial Office Buildings through Technical-Financial Risk Assessment	Annalisa Andaloro, Graziano Salvalai, Gabriele Fregonese, Linda Tso, Giulia Paoletti	Yes
Due diligence tecnica nei progetti di riqualificazione energetica (Technical due diligence in building energy efficiency projects). (3868 views)	Cristian Pozza, on InGENIO	No
Come valorizzare i rischi tecnici negli interventi di riqualificazione energetica (How to get value from risk management in building energy efficiency projects). (6000 views)	Cristian Pozza, on InGENIO	No
Proyecto EEnvest: metodología basada en los beneficios múltiples para movilizar inversiones en proyectos de rehabilitación energética (news, 296 views)	Jorge Solé Muntada, on Ecoconstrucción	No
Promoting investments in energy efficiency for buildings through the EEnvest's framework (news, 883 views)	Eurac Research, on Construction21.org	No
Prelios SGR: rinnovata certificazione LEED Platinum per immobile sede IFAD (news)	Marketscreener.com	No
Prelios Integra: sede IFAD, case study UE progetto EEnvest (news)	MonitorImmobiliare.it	No
Prelios Integra: intervento su sede IFAD case study progetto EEnvest della UE (news)	Trend-online.com	No

Prelios Integra: intervento su sede IFAD case study progetto EEnvest della UE (news)	Requadro – Real estate information network	No
Prelios Integra partecipa al progetto EEnvest finanziato da Horizon2020 (news)	Realestateonline	No
Book: QUEST technical manual	Giulia Paoletti, Cristian Pozza - contribution to QUEST project manual	No

In the following paragraphs, a more detailed description of each publication is provided together with the link to the publication.

2.1 PROCEEDINGS PAPERS

This paragraph lists all the proceedings papers realised by the EEnvest project partners.

Title of the publication	Framework for Evaluating Financial Impacts of Technical Risks Related to Energy-Efficient Renovation of Commercial Office Buildings
Authors	A. Andaloro, G. Salvalai, G. Fregonese, L. Tso, G. Paoletti
Name of the journal or magazine	MDPI Environmental Sciences Proceedings: The 9th Annual Edition of Sustainable Places (SP 2021)
Partner organisations involved	Eurac Research, Politecnico di Milano, SINLOC Sistema Iniziative Locali
Type of publication	Open Access Proceeding paper
Date of publication	22/12/2021
Peer reviewed	No
DOI or other identifier	https://doi.org/10.3390/envirosciproc2021011032
Link to publication	Environmental Sciences Proceedings Free Full-Text Framework for Evaluating Financial Impacts of Technical Risks Related to Energy-Efficient Renovation of Commercial Office Buildings (mdpi.com). https://zenodo.org/record/5807221#.Ytq6LS8IOAI
Abstract	Energy efficiency in the building sector is a priority of the EU Commission to achieve carbon neutrality by 2050. Renovation of the existing buildings, which are currently responsible for approximately 40% of EU energy consumption and 36% of the greenhouse gas emissions can lead to significant energy savings. This paper presents the EEnvest calculation method for evaluating the financial impacts of technical risks related to energy-efficient renovation of commercial office buildings. The evaluation method aims to increase investors' confidence and boost investments in the renovation of the existing building. Through a series of Key Performance Indicators (KPI), the technical and financial risks impact is evaluated. The results are strictly connected to building features, climatic conditions, solution sets and mitigation measures specific to the building energy efficiency project.

Title of the publication	Integration of Finance in Energy Efficiency
Authors	T. Loureiro, C. Pozza, F. Mexis, S. Olivero, C. de Csiky, A. Bogi
Name of the journal or magazine	MDPI Environmental Sciences Proceedings: The 9th Annual Edition of Sustainable Places (SP 2021)
Partner organisations involved	R2M Solution, Eurac Research
Type of publication	Open Access Proceeding paper
Date of publication	23/11/2021

Peer reviewed	No
DOI or other identifier	https://doi.org/10.3390/environsciproc2021011007
Link to publication	Environmental Sciences Proceedings Free Full-Text Integration of Finance in Energy Efficiency (mdpi.com) https://zenodo.org/record/5734342#.Ytq68C8IOAI
Abstract	This paper collects information and exchanges among 5 synergistic EU funded projects, aiming at providing innovative solutions that together compose into a wider ecosystem, to mainstream investments in energy efficiency projects. Projects shared contributions on: project quality management; technical/financial due diligence and de-risking; sustainable finance; citizen/crowdfunding; contracting and securitization.

Title of the publication	De-Risking Energy Efficiency Investments through Innovation
Authors	T. Loureiro, M. Gil, R. Desmaris, A. Andaloro, C. Karakosta, S. Plesser
Name of the journal or magazine	MDPI Proceedings: The 8th Annual International Sustainable Places Conference (SP2020)
Partner organisations involved	R2M Solution, Eurac Research
Type of publication	Open Access Proceeding paper
Date of publication	23/12/2020
Peer reviewed	No
DOI or other identifier	https://doi.org/10.3390/proceedings2020065003
Link to publication	Proceedings Free Full-Text De-Risking Energy Efficiency Investments through Innovation (mdpi.com). https://zenodo.org/record/4446803#.Ytq4Cy8IOAI
Abstract	Three Horizon 2020 projects, EEnvest, Triple-A and QUEST, are exploring innovative approaches to de-risking energy efficiency investments, focusing on how to render those investments attractive to the financial sector. EEnvest aims to develop a platform in order to contribute to the risk reduction for building energy efficiency investments, Triple-A focuses on enhancing at an early stage the investment value chain of energy efficiency projects and, finally, QUEST aims to improve the quality of management investments in energy efficiency.

Title of the publication	Studio della metodologia per la riduzione del rischio tecnico-economico negli investimenti di riqualificazione energetica: il progetto EENVEST (Technical and economic risk reduction methodology for Building Energy Efficiency investments: the EENVEST project)
Authors	G. Salvalai, G. Paoletti, M.M Sesana, A. Andaloro

Name of the journal or magazine	Colloqui.AT.e 2020 Proceedings
Partner organisations involved	Politecnico di Milano, Eurac Research
Type of publication	Open Access Proceeding Paper
Date of publication	10/12/2020
Peer reviewed	No
DOI or other identifier	ISBN 978-88-96386-94-1 https://doi.org/10.5281/zenodo.6798945
Link to publication	Studio della metodologia per la riduzione del rischio tecnicoeconomico negli investimenti di riqualificazione energetica: il progetto EENVEST (polimi.it): https://www.iris.unina.it/retrieve/handle/11588/858015/444827/Colloquiate_2020_Nicolella_Scognamillo_Vitale.pdf https://zenodo.org/record/6798945#.Ytq7nS8IOAI
Abstract	<p>The Energy Efficiency Directive (EED) (Directive 2012/27/EU) and the revised Energy Performance Building Directive (EPBD) (Directive 2018/844) both contain technical prescriptions for increasing Europe's building stock energy performance. However, the greatest challenge to reducing total energy use in buildings lies increasing the renovation rate from the current 1.2 % per year to 3 %, without compromising on quality and effectiveness of technical upgrade measures. One of the main barrier that prevents massive market uptake of renovations is the lack of confidence due the unknown technical and financial risks associated with the process. The perception of risk surrounding building renovation operations is an important driver in most of energy efficiency related financing operations and thus requires through investigation. The EEnvest project (Risk Reduction for Building Energy Efficiency investments), funded under the European Commission Horizon 2020 framework, proposes a combined risk evaluation framework to close the risk awareness and financial gap in the building renovation value chain, providing verified and standardized technical-financial information on a large set of cost and revenue sources related to energy efficiency renovation operations. The main objective of EEnvest project is to secure investors' trust in energy efficiency actions for existing buildings in commercial sectors, mainstreaming energy efficiency financing thanks to a structured framework for technical and financial risk evaluation. The paper frames the overall project presenting the preliminary studies regarding the development of a sound and replicable technical risk evaluation framework for energy efficiency actions focusing on the renovation of commercial office buildings.</p>

2.2 OPEN ACCESS PEER-REVIEWED PAPER

One open access peer-reviewed paper has been published by Eurac Research, SINLOC Sistema Iniziative Locali and Politecnico di Milano. The paper was published in gold open access in the MDPI Sustainability journal, and it has been archived in a public repository.

Title of the publication	De-Risking the Energy Efficient Renovation of Commercial Office Buildings through Technical-Financial Risk Assessment
Authors	A. Andaloro, G. Salvalai, G. Fregonese, L. Tso, G. Paoletti
Name of the journal or magazine	MDPI Sustainability
Partner organisations involved	Eurac Research, Politecnico di Milano, SINLOC Sistema Iniziative Locali
Type of publication	Open Access peer-review paper
Date of publication	17/01/2022
Peer reviewed	Yes
DOI or other identifier	https://doi.org/10.3390/su14021011
Link to publication	Sustainability Free Full-Text De-Risking the Energy Efficient Renovation of Commercial Office Buildings through Technical-Financial Risk Assessment (mdpi.com). https://zenodo.org/record/6536142#.Ytq7XC8IOAI
Abstract	Energy efficiency in the building sector plays a key role in supporting European and global commitments against the current climate crisis. A massive adoption of deep renovation measures would allow a global reduction of energy need up to 36%, based on estimations. However, the market for building renovation is still limited, due to uncertainties associated with risk evaluation. This paper aims to suggest a method to evaluate the financial impacts of technical risks related to energy efficiency investments. Key performance indicators (KPIs) necessary to evaluate the investment risk associated with energy renovation have been defined based on an analysis of the correlation between technical and financial risks, and their originating factors or root causes. The evaluation has been carried out thanks to the EEnvest tool: a web-based search and match platform, developed within the EEnvest collaborative research project funded by the European Commission (EC). This evaluation methodology has then been applied to a case study, an office building located in Rome, for whom an energy efficient renovation project was already in place to reduce energy needs. The investment risk of the renovation project is calculated for two different scenarios: with and without risk mitigation measures being applied during the design, installation and operation phases. The results show the different technical and financial risk trends of these two scenarios, highlighting the benefits obtained by the implementation of mitigation measures.

2.3 ARTICLES IN EXTERNAL COMMUNICATION CHANNELS

This paragraph lists all the publications in external communication channels, such as sectorial magazines online, published about the EEnvest project with the collaboration of the EEnvest project partners.

Title of the publication	Due diligence tecnica nei progetti di riqualificazione energetica
Authors	Cristian Pozza
Name of the journal or magazine	InGENIO
Partner organisations involved	Eurac Research
Type of publication	Article
Date of publication	15/07/2022
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	Due diligence tecnica nei progetti di riqualificazione energetica (ingenio-web.it)
Abstract	The article describes the PQSAT, innovative tool for carrying out the Desktop Due Diligence giving as output a project quality score and labelling, as well as recommendations for improving weakness. The rationale is that a good quality energy efficiency project has higher success probability in getting to the expected objectives than a lower quality project. The article describes the methodology and its application to Italian demo case.

Title of the publication	Come valorizzare i rischi tecnici negli interventi di riqualificazione energetica
Authors	Cristian Pozza
Name of the journal or magazine	InGENIO
Partner organisations involved	Eurac Research
Type of publication	Article
Date of publication	08/07/2022
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	La valutazione dei rischi tecnici associati ad un progetto di riqualificazione energetica (ingenio-web.it)

Abstract	Adequate risk management in the design of energy efficiency projects has a positive impact on the quality of the project and helps reducing financial risks. It is certainly not an easy opportunity to take and often overlooked. The H2020 EEnvest project has developed tools to quantify technical risks and plan the most appropriate mitigation actions in the design, implementation and operational phases.
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Title of the publication	Proyecto EEnvest: metodología basada en los beneficios múltiples para movilizar inversiones en proyectos de rehabilitación energética
Authors	Jordi Solé Muntada
Name of the journal or magazine	Ecoconstrucción
Partner organisations involved	Ecrowd
Type of publication	News
Date of publication	15/06/2022
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	https://www.ecoconstruccion.net/articulos-online/proyecto-eeninvest-metodologia-basada-en-los-beneficios-multiples-para-movilizar-invers-X5oNm
Abstract	This article introduces EEnvest approach towards sustainability of energy efficiency investments and EU Taxonomy, and reports about alliance between the two consortium partners (Ecrowd, GNE Finance) aimed to accelerate participatory financing projects with social and environmental impact through loans of up to €500.000, boosted by EEnvest results.

Title of the publication	Promoting investments in energy efficiency for buildings through the EEnvest's framework
Authors	Eurac Research
Name of the journal or magazine	Construction21.org
Partner organisations involved	Eurac Research
Type of publication	News
Date of publication	06/07/2021
Peer reviewed	No
DOI or other identifier	N.A.

Link to publication	Promoting investments in energy efficiency for buildings through the EEnvest's framework (construction21.org)
Abstract	This article introduces project's ambitions and promotes the mid-term conference

Title of the publication	Prelios SGR: rinnovata certificazione LEED Platinum per immobile sede IFAD
Authors	Editorial board of the magazine with contributions from Eurac Research and Prelios staff
Name of the journal or magazine	MarketScreener
Partner organisations involved	Eurac Research
Type of publication	News
Date of publication	20/04/2021
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	Prelios SGR : rinnovata certificazione LEED Platinum per immobile sede IFAD (marketscreener.com)
Abstract	This article talks about the outcomes of green certification process that led to LEED Platinum re-certification after the energy retrofit investment. Having LEED certified portfolio is of great importance for portfolio value and reduce risks of stranded assets.

Title of the publication	Prelios Integra: sede IFAD, case study UE progetto EEnvest
Authors	Editorial board of the magazine with contributions from Eurac Research and Prelios staff
Name of the journal or magazine	Monitorimmobiliare.it
Partner organisations involved	Eurac Research
Type of publication	News
Date of publication	05/08/2020
Peer reviewed	No
DOI or other identifier	N.A.

Link to publication	Prelios Integra: sede IFAD, case study UE progetto EEnvest Monitorimmobiliare.it
Abstract	This article talks about ambitions from EEnvest project about cooperation with Prelios Integra and actions on IFAD demo building.

Title of the publication	Prelios Integra: intervento su sede IFAD case study progetto EEnvest della UE
Authors	Editorial board of the magazine with contributions from Eurac Research and Prelios staff
Name of the journal or magazine	Trend online
Partner organisations involved	Eurac Research
Type of publication	News
Date of publication	05/08/2020
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	Prelios Integra: intervento su sede IFAD case study progetto EEnvest della UE (trend-online.com)
Abstract	This article talks about ambitions from EEnvest project about cooperation with Prelios Integra and actions on IFAD demo building.

Title of the publication	Prelios Integra: intervento su sede IFAD case study progetto EEnvest della UE
Authors	Editorial board of the magazine with contributions from Eurac Research and Prelios staff
Name of the journal or magazine	Re2 – Real Estate information network
Partner organisations involved	Eurac Research
Type of publication	News
Date of publication	05/08/2020
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	Prelios Integra: intervento su sede IFAD case study progetto EEnvest della Ue - Requadro

Abstract	This article talks about ambitions from EEnvest project about cooperation with Prelios Integra and actions on IFAD demo building.
Title of the publication	Prelios Integra partecipa al progetto EEnvest finanziato da Horizon2020
Authors	Editorial board of the magazine with contributions from Eurac Research and Prelios staff
Name of the journal or magazine	RealEstateonline
Partner organisations involved	Eurac Research
Type of publication	News
Date of publication	24/07/2019
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	Prelios Integra partecipa al progetto EEnvest finanziato da Horizon2020 (a-realestate.it)
Abstract	This article talks about ambitions from EEnvest project about cooperation with Prelios Integra and actions on IFAD demo building.

2.4 CONTRIBUTION TO SISTER PROJECTS' PUBLICATIONS

Eurac Research contributed to a chapter in a technical manual published by the sister project QUEST.

Title of the publication	Book: QUEST technical manual
Authors	Giulia Paoletti, Cristian Pozza
Name of the journal or magazine	H2020 QUEST/REHVA
Partner organisations involved	Eurac Research
Type of publication	Book chapter
Date of publication	March 2022
Peer reviewed	No
DOI or other identifier	N.A.
Link to publication	https://project-quest.eu/files/quest-technical-manual-quality-management-de-risking-green-investments-in-building-projects_1646908065.pdf
Abstract	EEnvest produces complementary results to QUEST project, by focusing on methodology that connects technical characteristics and risks from an energy retrofit project to the financial performances and risk profile of the investment. EEnvest focuses on the effect of having those mitigation actions (green building certifications and project quality management processes examined in depth by QUEST) in place, then quantifies the added value based on risk mitigation. Other details on EEnvest methodology and tools are given.

3 Conclusions

As shown in chapter 2, a total of 15 publications have been realised by the EEnvest project. One open access scientific paper has been published in a peer-reviewed journal, three proceedings papers have been published in open access and nine news items were published with the collaboration of the consortium partners in different sectorial magazines. Eurac Research wrote a chapter of a technical manual published by the sister project QUEST.

As regards the scientific publication and the proceedings papers, the project partners chose to publish them in open access in order to make them available to the scientific community and to other target groups more effectively.

In order to guarantee the FAIR principles, all the publications derived from the project are stored in the open access repository Zenodo.

Joint proceedings papers and the contribution to the QUEST technical manual have also been a means to enhance cooperation between EEnvest and the other synergistic projects funded by the EU, to pave the way for a wider ecosystem of interoperable tools covering the value chain.

According to a communication tailored to target specific audiences, articles targeting asset managers and real estate have been published in sectorial magazines and conceived as concise publications able to transfer the key elements and focus on the useful results.

Professionals and project promoters active in the building energy efficiency sector have been reached through effective insights on specific topics and tools of direct relevance for them and linked to local normative and best practices.

Real estate and asset management companies will be reached further in the coming months, i.e. Prelios is going to talk about positive impact of EEnvest methodology and results into their workflow in a seminar scheduled on September 2022 (<https://www.ilqi.it/convegni/220908c04>), thus reaching main sectorial companies from Italy.