Introduction to the ROB ERV-Tool

Evaluation of Energy Efficiency Measures in the Residential Sector

Vincenzo Bianco & Federico Scarpa University of Genoa

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Objectives of the RenOnBill Tool

The RenOnBill Tool aims to:

- Simplify the estimation of energy savings for "*non-technical users*" (e.g. users with financial background)
- Provide an adequate degree of flexibility for "*technical users*" (e.g. energy engineers)
- Develop a complete financial analysis by including a probabilistic approach
- Bundle investments for an overall evaluation

Development of quite a flexible tool adequate for *technical* and *non-technical* users in the development of complex analyses of energy renovation interventions for the residential sector

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When to use RenOnBill Tool

- Analysis of a large number of investments related to Energy Efficiency measures in residential buildings
- Definition of optimal investment portfolios (e.g. in terms of NPV, energy savings or other possible indicators)
- Estimation of the energy efficiency and investment potential in a given area
- Definition and estimation of policies for residential buildings refurbishment
- …

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Innovative Approach

Usually energy efficiency calculations are developed on the basis of a deterministic approach, but the ***sources of uncertainty*** are numerous (i.e. climatic conditions, unprecise technical data, cost of energy, etc.), therefore a ***probabilistic analysis*** is more adequate.
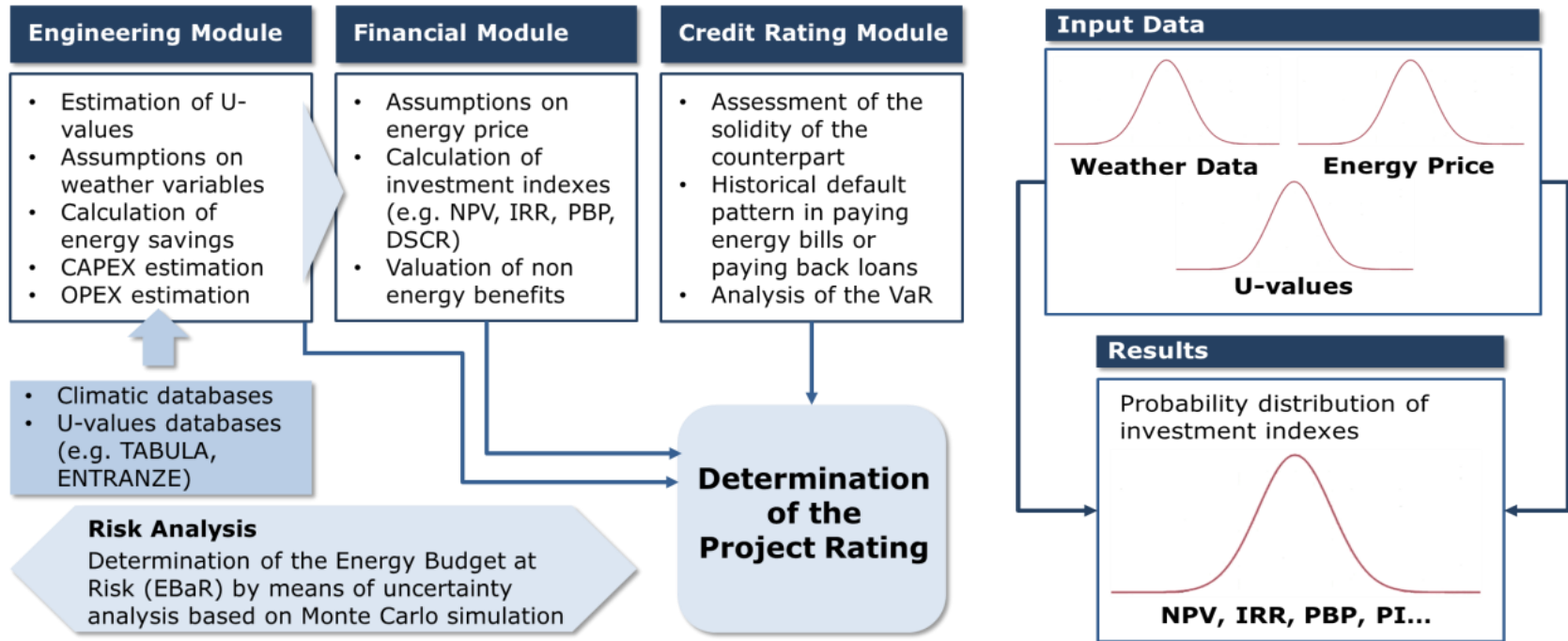
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Probabilistic Calculation

Both energy savings and financial calculations are developed with a probabilistic approach and confidentiality levels are determined. The idea is not provide one value for the energy saved or the NPV, but a value plus a confidence bound.
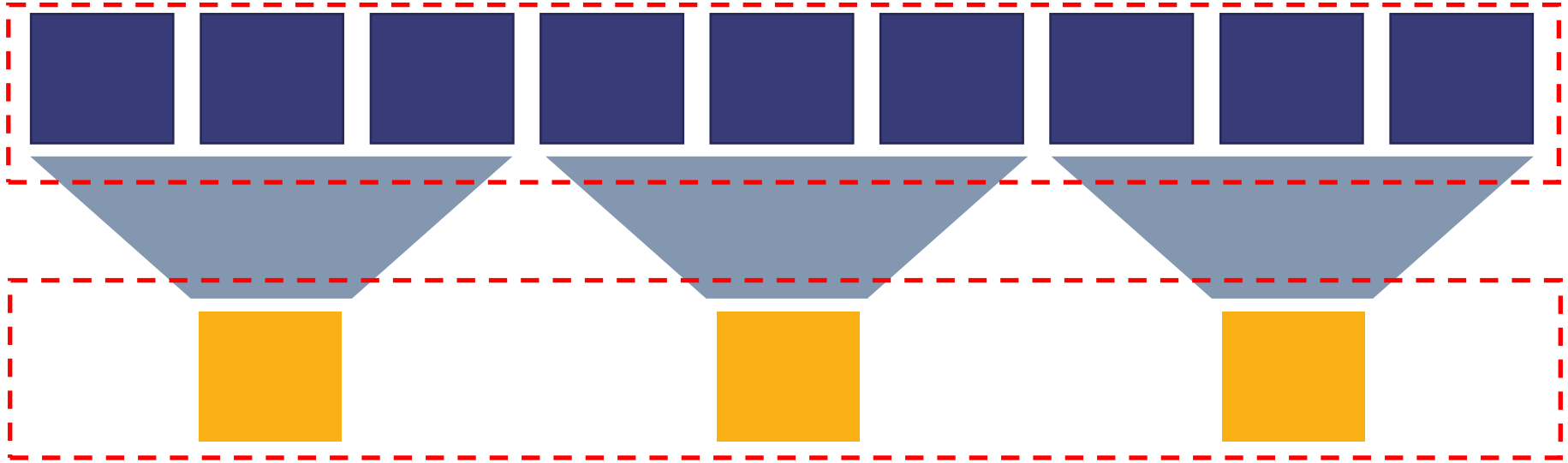
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ERV-Tool Schematic

Engineering and Financial Calculations embedded in one tool

The "archetype" concept

Building Stock

Building Archetypes

Synthesis of the building stock in a limited number of typologies (e.g. per year of construction, technical features, etc.)
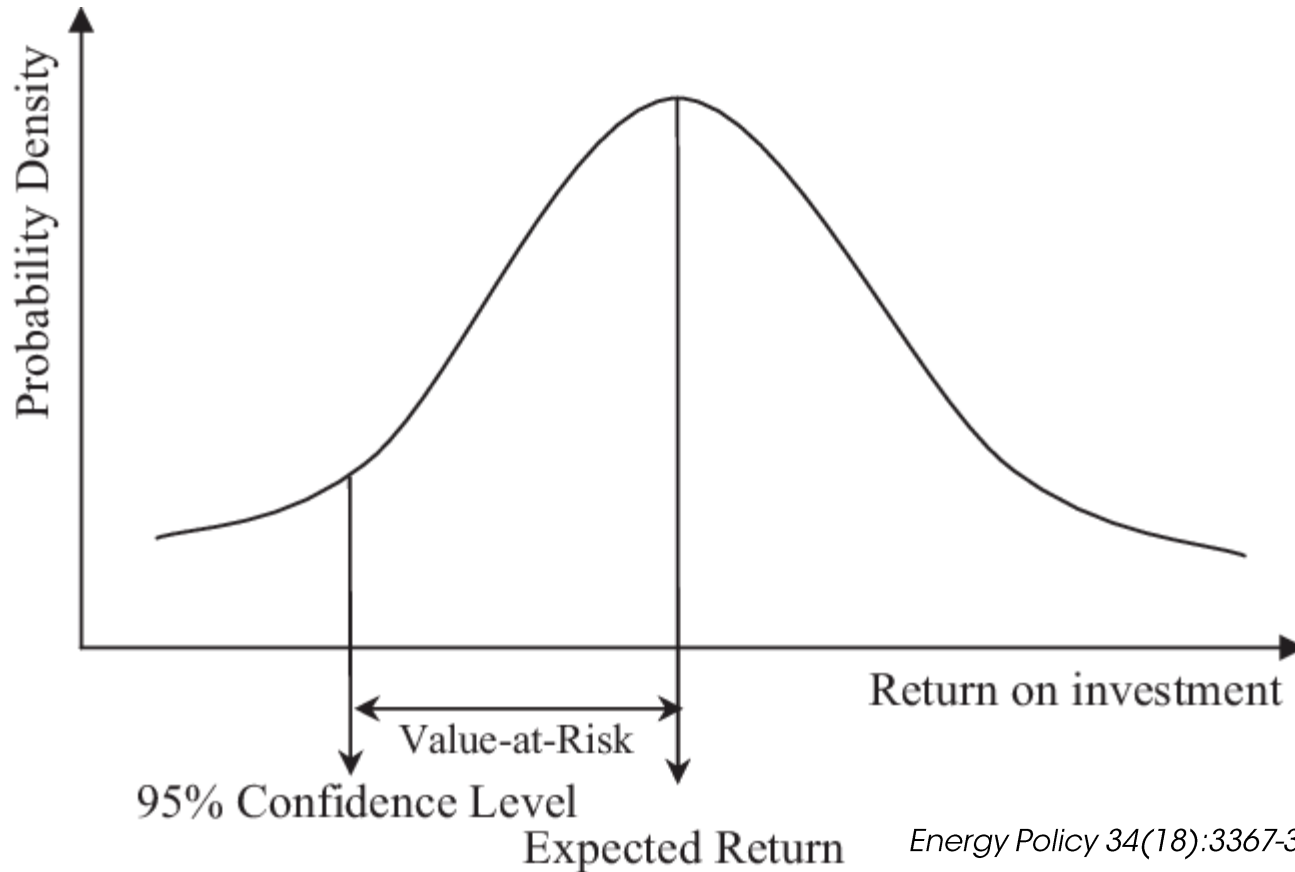
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Data Light Modelling

ERV-Tool allows to describe buildings by using a minimal amount the data to support non-technical users in developing their analyses. On the other hand, a minimal understanding of the main features of a residential building is necessary.

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Value "*at Risk*" Concept

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$$X_{@RISK} = E(X) - X_{5\%}$$

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