



RentalCal Tool – Profitability Calculation Software for the Assessment of Energy Refurbishments of Rental Housing

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RentalCal: the outcomes

- A transnational database about important framework conditions
- A profitability assessment methodology and tool
- Knowledge dissemination and stakeholder involvement

A web based application for the profitability analysis of energy related retrofits in rental housing

- Provide transparency on the profitability of individual energy efficiency retrofits for different target groups
- Consider given national levels in costs (investments and operational costs) and efficiency improvements
- Focus on rental cash flow modeling with green premium or other energy efficiency related rent increase
- Including subsidized funding, detailed tax/depreciation assessment, user specific investment horizon and user specific assumptions on future dynamics of prices and rents

RentalCal tool: the scope



- Target group specific use cases
 - Data base assisted quick feasibility check (partly based on building typologies from www.tabula.eu)
 - Detailed manual entry for individual case assessment
- The RentalCal tool offers an international comparative perspective
 - Data base on model building energy performance, national tax, rent setting and operating cost bearing regimes for 8 EU-member states included
 - the tool is now offered in seven European languages

RentalCal tool: the workflow

- Information section
 - introduction and structure overview
 - video tutorial
- Input section with
 - 16 input modules for data entry (location, property, energy consumption, investment costs, financing...)
 - 'assisted mode' for data base assisted quick feasibility check
 - 'freehand mode' for individual case assessment
 - submodules for detailed input of primary energy and CO2 factors, detailed energy prices and exit yield estimation
- Output section with
 - KPIs from investors, tenant and environmental and resource perspective
 - Information on additional non-monetary impacts
 - printable output reports

RentalCal tool: the workflow



Input Modules

Property, Investor,
refurbishment, finance, tax
and depreciation, rent and
operation costs

Database guided
User provided

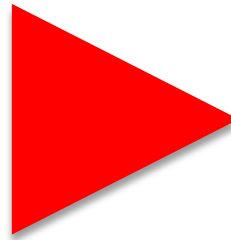
RentalCal tool: the workflow



Input Modules

Property, Investor,
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operation costs

Database guided
User provided



Profitability Analysis

Dynamic calculation using
VoFI (Visualization of
Financial Impact)
methodology

Complex Case
Differentiations

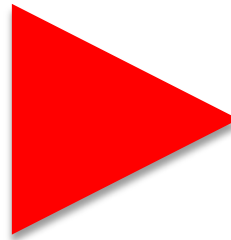
RentalCal tool: the workflow



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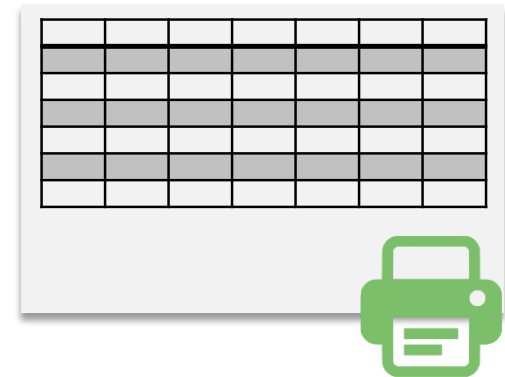
Database guided
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Profitability Analysis

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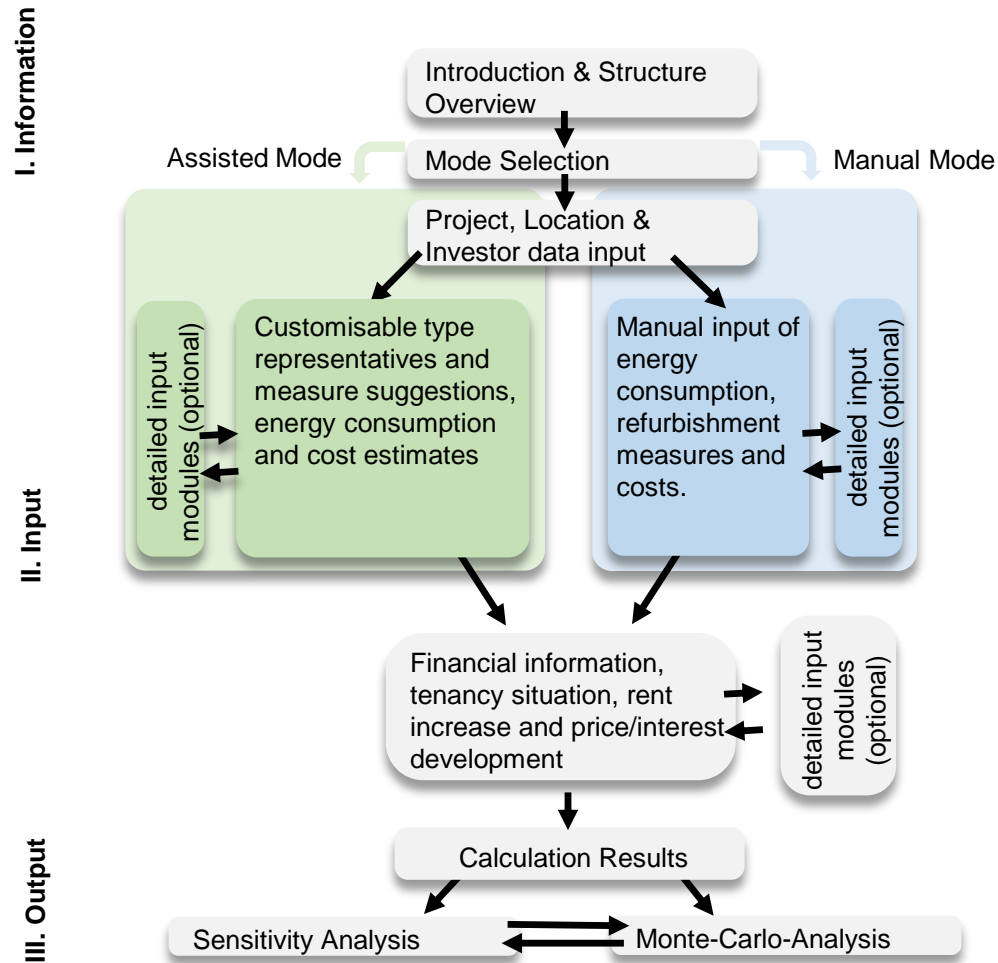


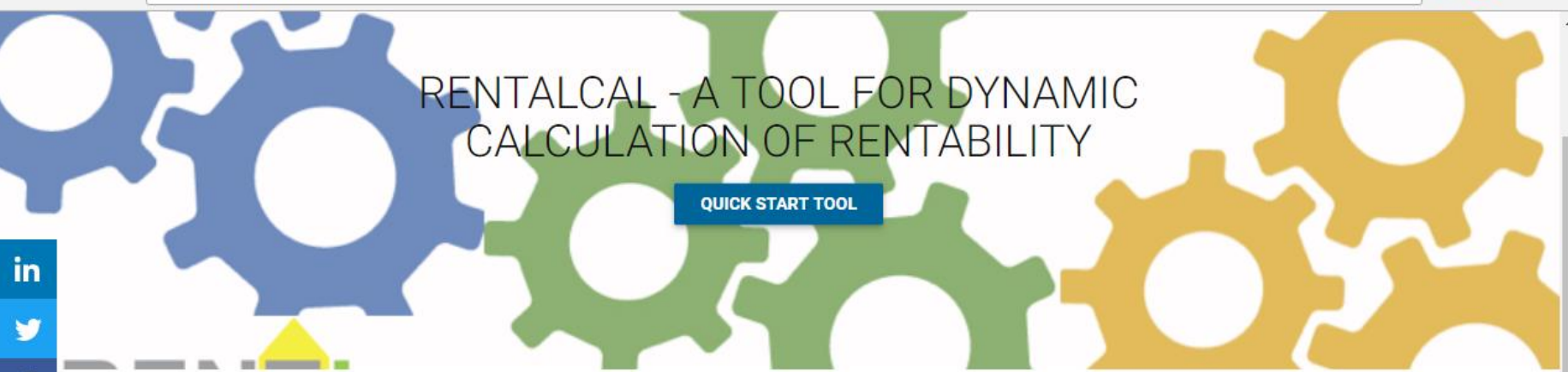
Reporting Modules

Multiple KPIs
Break even assessment
Risk analysis

Target group specific
output

RentalCal tool: the workflow





QUICK START TOOL



Welcome to the RentalCal tool - Rentability Calculation of Energy Efficiency Investments



European perspective

RentalCal provides useful information on the overall status of energy efficiency retrofitting in the EU.

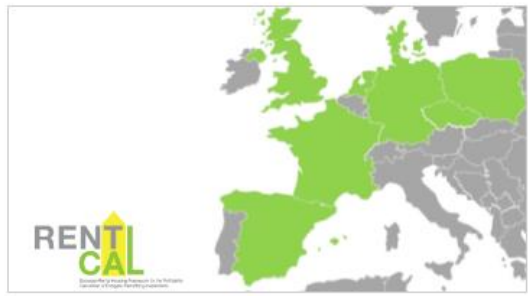
EUROPEAN SECTION



Tool perspective

Direct access to the RentalCal calculation tool. All relevant information is explained in the tool itself.

TOOL PAGE



National perspective

Information on housing market conditions in the participating countries and other tool related content.

COUNTRY PAGES

🚩 Language selection

Investor ○ Property ○ Refurbishment ○ Financing ○ Market ○

Where am I Help

Information

Terms of Service >

Contributors >

Tool structure >

Video tutorial >

Input >

Output >



The RentalCal calculation software was designed for landlords, managers of housing companies/cooperatives, property managers and energy consultants to assess the profitability of energy efficiency refurbishments in the private rental sector.

Profitability Calculation Software for the Assessment of Energy Refurbishments of Rental Housing



Start Calculation 🚀



Information >

Input

Project Data >

Location Data

Investor Data >

Property Description >

Energy Consumption >

Energy Costs >

Cost Summary >

Maintenance Costs >

Depreciation >

Energy Consumption >

Energy Costs >

Financial Information >

Price development >

Tenancy Situation >

Rent Increase Method >

Exit Yield >

Location



This icon indicates the selection of one option from a dropdown list.



This icon indicates default suggestion values which might be overwritten by the user.



This icon indicates the selection of several options from a given set.



This icon indicates the selection of one option from a set.

Location of the Property:



Area Metric:



Square Meters Square Feet

Calculation Currency:



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[Restore default values ⚡](#)

[Continue »](#)



Language selection

RentalCal English

Investor Property Refurbishment Financing Market Where am I [Help](#)**Non-Professional Private Landlord:**

A single person or a small group (e.g. a married couple) who let one or few apartments but do not derive a large fraction of their income from rental income. Investors in this group hold real estate as a "pension" provision or due to „proprietor's pride". Most of the time, they have a direct management without creating a legal person (for the management of the rental flat) and have a close relationship to their tenants. They have no particular knowledge of the real estate sector and have the lowest level of organisation. They do not have experts (e.g. engineers or accountants) within their „operation" but long (to infinite) time horizons, high equity ratios and they are risk averse.

Professional Private Landlord:

A single person or a small group (e.g. a married couple) who let several apartments and derive a significant fraction of their income from rental income. They let apartments for a living and as an investment. They need less external knowledge, but are merely more organised than the non-professional private landlord. Oftentimes, they create a legal person to manage their assets and have also long time horizons but smaller equity ratios and are less risk averse.

Small Housing Cooperative:

A small real estate company, possessing only one or few buildings, that is owned by its members who are simultaneously

Investor Characteristics:

| | | |
|--|--|---|
| Investor Type: | <input type="text" value="Non-Professional Private Landlord"/> | ? |
| Legal Form: | <input type="text" value="Other (or no) legal form"/> | ? |
| Marginal Tax Rate: | <input type="text" value="35"/> % | ? |
| Calculation Period for Profitability Analysis: | <input type="text" value="25"/> years | ? |

[← Back](#)[Restore default values ⚡](#)[Continue →](#)

🗣 Language selection

RentalCal English

Investor Property Refurbishment Financing Market






Where am I Help

- Information >
- Input
- Project Data >
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- Depreciation >
- Energy Consumption >
- Energy Costs >
- Financial Information **>**
- Price development >
- Tenancy Situation >
- Rent Increase Method >
- Exit Yield >

Financial Information

| | | | | |
|--|-------------------------------------|--|------------------------------------|--|
| Energy-related gross investment costs: | <input checked="" type="checkbox"/> | <input type="text" value="121000,00"/> | <input type="text" value="CZK"/> | |
| Debt Portion: | <input checked="" type="checkbox"/> | <input type="text" value="65,00"/> | <input type="text" value="%"/> | <input style="color: green;" type="button" value="?"/> |
| Investor's own Equity amount for the energy investment: | <input checked="" type="checkbox"/> | <input type="text" value="42350,00"/> | <input type="text" value="CZK"/> | <input style="color: green;" type="button" value="?"/> |
| Required debt amount for the energy investment: | <input checked="" type="checkbox"/> | <input type="text" value="78650,00"/> | <input type="text" value="CZK"/> | |
| Expected volume of subsidised loans: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="CZK"/> | <input style="color: green;" type="button" value="?"/> |
| Interest rate of subsidised loans: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="%"/> | |
| Term of the subsidised loans: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="years"/> | |
| Initial payback pause of the subsidised loans: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="years"/> | |
| Repayment bonus (if any): | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="CZK"/> | |
| Remaining Financing volume (market loan): | <input checked="" type="checkbox"/> | <input type="text" value="78650,00"/> | <input type="text" value="CZK"/> | |
| Expected amount of eligible grants: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="CZK"/> | <input style="color: green;" type="button" value="?"/> |
| Repayment method market loan (structure of principal/ interest ratio over time): | <input checked="" type="checkbox"/> | <input type="text" value="Please select an option"/> | | <input style="color: green;" type="button" value="?"/> |
| Individual interest rate on market loan: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="%"/> | <input style="color: green;" type="button" value="?"/> |
| Current borrowing rate fixed or variable: | <input checked="" type="checkbox"/> | <input type="radio"/> fixed <input type="radio"/> variable | | <input style="color: green;" type="button" value="?"/> |
| Current Savings Interest Rate: | <input checked="" type="checkbox"/> | <input type="text"/> | <input type="text" value="%"/> | <input style="color: green;" type="button" value="?"/> |







Language selection

 Investor 
 Property 
 Refurbishment 
 Financing 
 Market 
Where am I [Help](#)

The Return on Equity depicts the central KPI of the whole calculation methodology, as it states which interest is paid to the investor for his investment's own equity. It is therefore more investor-oriented than, for instance, the Return on Investment. One additional calculation will additionally reveal the Return on Equity under the assumption that the property is sold at the end of the consideration period and a Green Exit Sales Premium is realised and the final equity value is therefore further increased.

In addition to the VoFI method, the net present value method is often used to assess profitability. If the profitability of an investment project is calculated on the basis of the same assumptions, the following correlation results between the two indicators Return on Equity (RoE) and Net Present Value (NPV): A RoE of 5% means that the investor achieves a NPV of zero with his investment (assuming the same costs and earnings and the same financing) if the discount rate used within the NPV method is exactly 5%.

Key Performance Indicators (KPIs) – Investor Perspective

| | Total: | Per m ² : | |
|--|---------------|----------------------|---|
| Additional Net Rental Income (annual, first year): | 54992.00 CZK | 423.02 CZK |  |
| Return on Equity (annual, excluding Green Value): | 2.57 % | |  |
| Return on Equity (annual, including Green Value): | 5.56 % | | |
| Payback Period (excluding Green Value): | 39 years | |  |
| Payback Period (including Green Value): | 18 years | | |
| Additional Exit Value (Green Value): | 112797.20 CZK | 867.67 CZK |  |
| Expected Reduction in Vacancy Rate: | 5 % | |  |
| DSCR (Debt Service Coverage Ratio): | 118.25 % | |  |
| Change in non-reimbursable investment | | | |

Language selection

RentalCal English

Investor  Property  Refurbishment  Financing  Market Where am I [Help](#)

The effects of improving the energetic quality of the European rental housing stock go far beyond the immediate reduction of the final energy consumption, decreased heating costs and the reduction of primary energy consumption and GHG emissions.

Improving the energetic performance of the existing building stock is likely to contribute to other impacts and benefits, which are so far often difficult to monetize. This raises the question which benefit can be attributed to which actor and how these benefits could possibly influence the economic approach, respectively be expressed economically.

Additional non-monetary Impacts of the Refurbishment



- Positive impact on local air quality
- Positive impact on indoor air quality
- Positive impact on reliability of HVAC systems
- Positive impact on noise protection (from outside)
- Positive impact on thermal comfort in winter
- Positive impact on thermal comfort in summer
- Positive impact on mould prevention
- Positive impact on inhabitants' health
- Possibly reduced risk of rent reduction
- Positive impact on socio-economic status of the building occupants and prevention of area deprivation
- Positive impact on environment as a result of reduced residential energy usage

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European Rental Housing Framework for the Profitability
Calculation of Energetic Ret rofitting Investments

Contributors



Universitat d'Alacant
Universidad de Alicante



SCHOOL FOR
BUSINESS AND SOCIETY

European Green Cities
Network (EGCN)



International Real Estate Business School
Universität Regensburg



NARODOWA
AGENCJA
POSZANOWANIA
ENERGII S.A.



Karlsruher Institut für Technologie



UNIVERSITY OF
CAMBRIDGE

Department of Land Economy



www.rentalcal.eu

Thank you very much for your attention!

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