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European Rental Housing Framework for the Profitability
Calculation of Energetic Retrofitting Investments

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Factsheets regarding Constellations for Decision Making

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I. Project synopsis

Objectives of the project

The EU directive 2010/31 on the energy performance of buildings (recast) of 19th May 2010 (EPBD recast)¹ sets out requirements regarding the energy performance of new buildings, as well as minimum requirements for the energy performance of existing buildings, building units and building elements that are subject to major renovation (Art. 1 No. 2 (c)). These minimum requirements shall not prevent any member state from maintaining or introducing stronger measures. As a minimum requirement, a “cost optimal level” shall be reached (Art. 14, Art. 2 No.14). The EPBD recast directive establishes the calculation for the “cost-optimal level” of minimum energy performance requirements including a comparative methodology framework, distinguishing between new and existing buildings and between different categories of buildings. Unlocking the barriers to proven economic saving potentials offered by energy efficiency investments in the existing building stock are considered crucial for meeting European energy efficiency targets. This is especially important for rental housing, which represents the majority of the multifamily housing stock in most participating countries.

Although the calculation methodology established within the EPBD framework suggests that in general, retrofitting investments are financially viable within given cost conditions, there is no sufficient energy investment.

One reason is the limitation of the methodology framework to the financial perspective of the owner-occupier, thus neglecting other relevant stakeholder groups such as the rental housing sector.

A set of market failure mechanisms summarised under “split incentives’ barriers” are obstacles for investment in the rental housing sector. Split incentives may not only arise from the factual separation of investor and beneficiary (landlord-tenant disincentive), but also from asymmetrical risk exposition during the refinancing period (temporal disincentives) or from free rider problems (landlord-landlord dilemma) within owners’ associations.

¹ http://www.eceee.org/policy-areas/buildings/EPBD_Recast/EPBD_recast_19May2010.pdf

Article 19 of the EU directive 2012/27 on energy efficiency of 25th October 2012 states, that “Member States shall evaluate and if necessary take appropriate measures to remove regulatory and non-regulatory barriers to energy efficiency, without prejudice to the basic principles of the property and tenancy law of the Member States, in particular as regards the split of incentives between the owner and the tenant of a building (...)” with a view to ensuring that these parties are not deterred from making efficiency-improving investments that they would otherwise have made by the fact that they will not individually obtain the full benefits or by the absence of rules for dividing the costs and benefits between them (...).²

Therefore, the essential challenge for improving the attractiveness of investments within the rental housing industry will be the removal or mitigation of investment barriers. To date there is no standardised methodology for calculating the profitability of refurbishment investments, not even within the property valuation standards of individual countries.

Objective I: profitability assessment in the rental housing sector

RentalCal’s first objective is to develop a comparable methodology for the profitability assessment of energy efficient retrofitting investments in the rental housing sector. This methodology needs to incorporate given national cost levels (investments and operational costs) and efficiency improvements on the one side. On the other side it needs to consider returns (rental and appreciation returns of “green value”) as well as technical, legal and financial framework conditions (construction costs, capital costs, taxation e.g. depreciation allowances, legal status of contract rents etc.).

Objective II: Improving the transparency of investment conditions

Due to a lack of supranational competencies in the housing sector, there is a lack of systematic and comparable assessment of the level of current investment barriers in EU countries and their impact on the renovation rate in the rental housing stock. Moreover, satisfactory information is not even available on the level of a mere qualitative assessment of specific issues like the handling of landlord-tenant-disincentives within national rental statutes.

² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:en:PDF>

Therefore, the second objective of RentalCal is to provide comparable and transparent information on the profitability of energy efficiency investments that can be used both for the assessment of investment decisions, and for the comparative analysis of existing barriers in the private rental housing stock of participating countries. Within this objective, the technical, legal, financial and institutional framework conditions for energy saving investments in the rental housing sector of selected European member states will be analysed. Furthermore, the project emphasises the cross-national comparative analysis of the profitability calculation of energy retrofitting investments. In this context, RentalCal aims to contribute to a harmonisation of the methodologies and calculation standards in the field of profitability assessments for energy retrofitting investments in the existing housing stock.

Objective III: disseminate knowledge on green value issues in the rental housing industry

RentalCal specifically aims to prepare the ground for investment in the existing rental housing stock. In this sense, the development of a theoretical framework can ultimately help change the behaviour of property investors and ought to have great impact for climate change adaptation in the real estate industry. The immediate beneficiaries of our output are landlords and property investors who will be better informed regarding the feasibility of a proposed investment. With this approach RentalCal is significantly targeting the business case for energy efficiency retrofitting which is extremely important. In doing so, the proposed project provides insights into the pricing of energy efficient buildings that stakeholders can use to assess the enhancement of asset values and understand the market mechanisms. This will ultimately strengthen the financing and attractiveness of sustainable energy investments.

The RentalCal Consortium

RentalCal is an international research project funded by the European Union under the H2020 framework that links together eleven partner organisations - universities, public research institutes, and practitioners in the field of real estate economics, housing policy and energy efficiency.

The RentalCal consortium partners represent housing markets from eight EU member states (Czech Republic, Denmark, France, Germany, Great Britain, Poland, Spain and the

Netherlands), each with a distinct regulatory and socioeconomic framework for housing provision. RentalCal's consortium members cover a majority share of EU's largest rental housing markets with a total of about 33 million dwellings in the private rental sector, with about 46 % of it built in 1980 or earlier.

II. The scope of WP 4 in the general project context

The objective of work package 4 is to identify actor groups that are relevant for the project and to analyse and describe them regarding their individual or institutional targets, motivations, behaviours, preferences, capacities, knowledge, level of organisation and so forth. Then, a typology is created to sort the different actors according to their characteristics and their legal forms. This typology is intended to apply consistently for all participating countries and the constellations that can usually be found are entered per country. Additionally, further target groups for the project's results are identified.

Another objective of work package 4 is the identification and description of constellations in which the different investor groups interact with the other actor groups that are identified and how they contribute to the decision making progress. This work package identifies investor type dependent lacks of capacities and gaps in the information distribution process and provides advices to policy makers how to mitigate these barriers for investments into the energy efficiency of rental dwellings.

The results of work package 4 are presented in the following deliverables:

- D4.1: Report with 8 country specific sections, containing relevant parameters of decision taking related to energetic retrofitting investments in the rental housing stock with a comparative descriptive analysis and data sets where applicable.
- D4.2: Report with 8 country specific sections, with a descriptive analysis and classification of rental housing market ownership structures and stakeholders in each participating country, with a comparative descriptive analysis and data sets where applicable.
- D4.3: Report with 8 country specific sections, description of constellations for decision taking regarding energetic retrofitting investments in the housing stock, with a comparative descriptive analysis and data sets where applicable.

III. Interrelation with other work packages

When it comes to the assessment of different aspects of energy efficiency refurbishments in rental housing, there are several perspectives within the RentalCal framework: One perspective focuses on differences among nations (or even different regions within one coun-

try), like different climate or market environments. The second one emphasises buildings, like different construction designs, heat transition coefficients or heating systems. Another important perspective emphasises on investors. Landlords / investors in energy efficiency refurbishments differ substantially in terms of professionalism, skills, knowledge, capacities, preferences and behaviour. There is no comparison between a natural individual landlord owning few type I or type II dwellings located in different co-ownership multi-storey lots and a large housing company founded at the beginning of the 20th century owning and managing thousands of dwellings.

As the creation of a typology of investors is one central objective of WP4, for many topics that belong to different work packages, there are overlaps with WP4, because many properties within other WPs depend substantially on the actors' types. For example, the national building stocks that are surveyed within WP2 are to be differentiated by the building owners' investor types. Tax laws, accounting requirements or tenancy laws as the topics of WP3 might depend on the investors' legal form and consequently, the work package's results should be differentiated by them. Different investor types have various preferences how to finance investments and many public funding programs might not be available to every kind of legal form, so these results of WP5 should be made dependent on the WP4 actor typology. Moreover, as the categories, values and ranges of the actor typology enter the tool mechanics in WP6 and as different investor types exhibit different demands regarding the presentation of performance indicators within the results of the calculation tool to be created within work package 6, both the tool's input and output side benefit from WP 4's findings. Candidates for testing of the calculation tool (WP 7) are to be selected from the target groups identified in WP 4. When it comes to the dissemination of results and information of potential users of the tool in WP9, it might also be reasonable to address investors from different groups differently, as it might fit their levels of organisation and knowledge best. Those connections are also presented in figure 1:

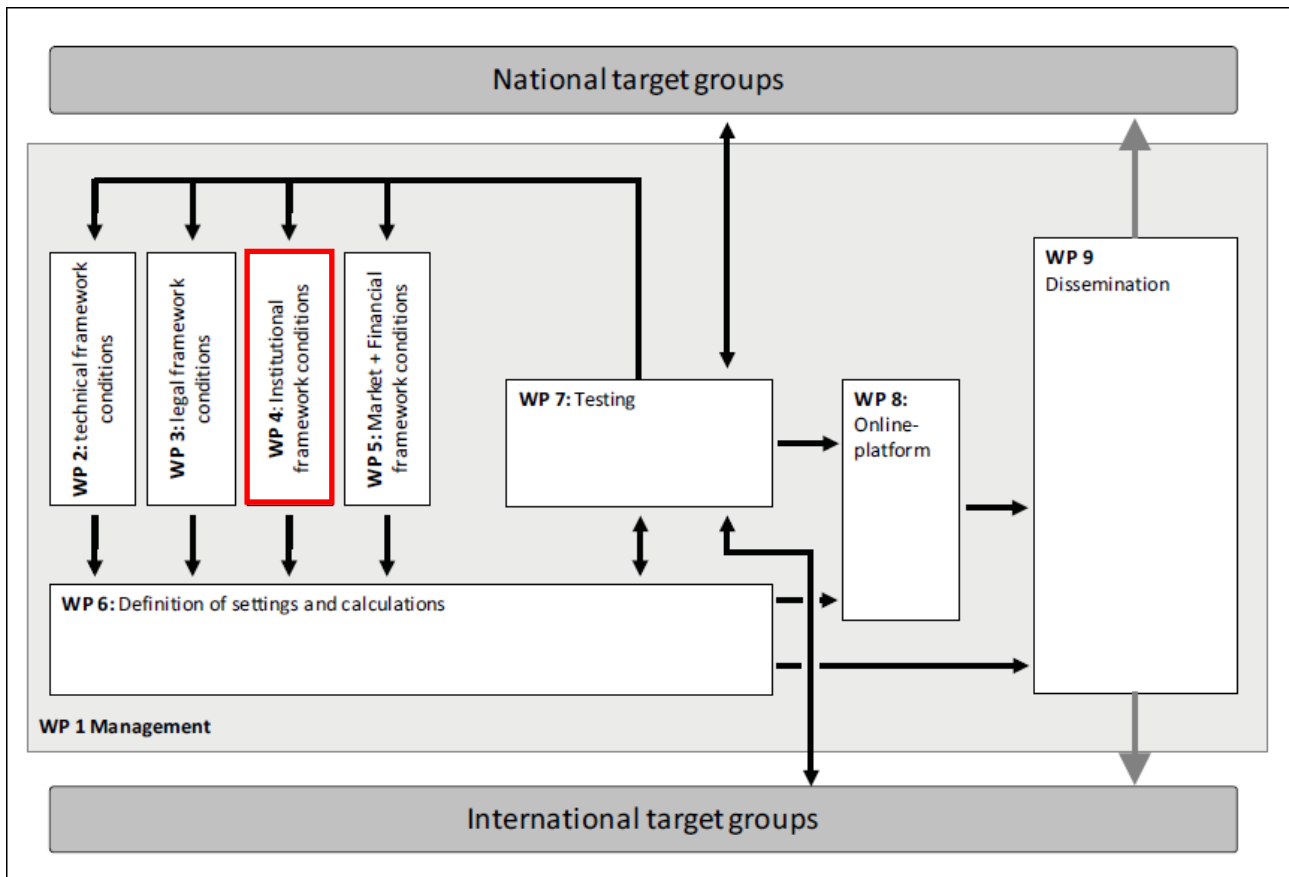


Figure 1: Work package flow chart

Also, as deliverable 4.1 provides for the investors' parameters of decision making and deliverable 4.3 for the constellations for decision making, it is recommended to look at the actor typology first and then assess decision parameters in deliverable 4.1. Finally, the investor and stakeholder types identified in D4.2 and the parameters from D 4.1 form the decision making environment examined in deliverable 4.3.

1 Overview on research efforts of deliverable 4.3

1.1 Current state of research

To improve the energy efficiency of a housing unit requires the investor to coordinate with, depending on the context and its type, a more or less large number of groups of stakeholders.

First, on the demand side, between landlord and tenant, or with other owners in case of co-owners' building with rented dwellings; and then the supply side, with suppliers of technical solutions, facilities and services for energy efficiency and finally the companies that perform the building works and will maintain and operate the housing unit after works to guarantee actual energy savings.

Besides this social and technical process, the question of the financing appears rapidly if the investor needs external resources or to benefit from loan with 0% or reduced interest rate. Then banks become an essential stakeholder and part of the process.

Each of these relationships can lead to a "split incentive" and generate transaction costs discouraging investor types to invest in energy efficiency.

The history of the energy efficiency policies led in the last decade in E.U. countries can be read as the progressive effort to get a deeper understanding of the constellations of decision and overcome the obstacles related to the constellations.

We will see in the following parts of the D.4.3 that the professional and institutional landlords have more or less the information, the knowledge and the competence to decide and plan their energy retrofitting investments. Owning large housing stocks with a homogenous ownership, they have capitalised their past experience and their relations with the other stakeholders to decrease their transaction costs. It's more crucial to focus on the hard core of the problem, the constellation mostly in need of assistance, the private natural landlords owning few dwellings dispersed in different multi-family buildings with mixed occupancy.

Some obstacles have been identified directly in relation with the constellations of decision:

1.1.1 The tenant-landlord dilemma

In some constellations, like that between a private natural landlord who rents its few dwellings, one party (the landlord) has no interest to bear the investment costs as it is the other party (the tenant) that could benefit without having to bear any additional cost. On the oth-

er side, as long as the utility costs will be paid by the tenant, the landlord has no incentive to make investments improving the energy efficiency.

The tenant itself is also a disincentive to carry out major energy retrofitting. Even if it wishes to retain this property over a long period and invest in energy, the lease is signed for a shorter guarantee period (in France, e.g. for three years) and is not immune from having to leave in the event of sale; it couldn't benefit from a return on investment that is lasting for a long term period. The use of the housing caused by the realisation of thermal improvement works will not benefit him. Due to the specific and irreversible nature of this type of investment he can't leave taking away the new equipment (double glazing, boiler, insulation). Even if the impact of a rent increase is neutral and the investment would pay for itself before it leaves the unit it occupies, it may not wish to benefit the owner, the so-called "prisoner's dilemma", especially if the owner has no will to financially participate³.

In large rental housing estates in co-ownership, the heterogeneity of households and divergent interests resulting coupled to the specificity of co-ownership, make the process extremely complex: the modus operandi of the energy retrofitting in co-ownership buildings and the occupying household requirements lead to give precedence to the individual over the collective and the short term over the long term⁴ (Braye, 2012).

Historically speaking, policy makers have allowed rent increases or savings sharing to overcome the tenant-landlord dilemma very soon (2008-2012).

1.1.2 The credit limits

As shown in the D.4.1., the average loan-to-value ratio lies between 80 and 85%. In many EU countries, the banks apply a debt-to-incomes ratio of one third. In addition, above a certain limit of age, banks are restricting the access to credit, especially to long term loan.

³ The "prisoner's dilemma is not only conceptual. In France the possibility for the tenant to subscribe an eco-loan exists. In 2015, 23.000 eco-loan have been subscribed, zero eco-loan subscribed by a tenant. Regarding the "landlord-tenant" dilemma, only 7% of the eco-loan concerns the private rented sector, 92% the owner-occupiers. "Bilan statistique eco prêts à taux zero émis en 2015, sgfgas 2016, pp 13-17.

Available at https://www2.sgfgas.fr/presentation/Stats/EPZ/EPZ_Bilan_de_production.pdf

⁴ Braye D., (2012), *Prévenir et guérir les difficultés des copropriétés. Une priorité des politiques de l'habitat*. ANAH.

In the case of rented dwelling units in large co-ownership buildings, the constellation of the decision makers ten years ago was clear. The decision required each owner to individually subscribe a loan, the process could be endless.

Property managing firms had no social, financial and technical competences to assist the process. Their key role in providing information, initiating the energy retrofitting or subscribing a collective eco-loan was not yet on the radar display of the policy makers.

1.2 Central questions to be answered in D 4.3

D 4.3 focuses on the following questions:

- a) What are the roles and constellations of the individual investor and stakeholder types when it comes to decision making in every country? Where does information flow?
- b) How do the respective methodologies (e.g. of profitability calculation) interrelate with given situations?
- c) How are decisions processed in the light of the economic and legal framework from WP 3 and WP 4?
- d) Are there exemplary situations that can be analysed separately?
- e) How do decision makers handle conflicting targets (e.g. climate/environmental protection vs. affordable living space)?
- f) What are the main problems, barriers and disincentives that keep potential investors from taking energy efficiency refurbishment measures and how are they / should they be addressed?

1.3 Procedure

First of all, in 2015, WP4 leader and sub-leader, notably DELPHIS, IWU and KIT, developed a questionnaire to understand the different national situations which covers the reality of the private rented housing stock in the participating countries. Many quantitative and qualitative questions were asked about what might condition the investors' decision making processes as their market shares, the investor types to select in the scope of Rental-Cal, market share per selected investor type, the tenants' mobility, the typology of the dwellings (number of rooms), the role and the impact of the other stakeholders... The investor typology differentiates actors both by the type (professionalism, organisation and motivation) and the type of relations they have with their different stakeholders. The diver-

sity of relations depends mainly on the specific levels of information, knowledge and capacities of each investor type.

This diversity which appears clearly in the figures 2 and 3 and in tables 1, 2 and 3 was difficult to document in many countries due to the lack of objective data. For this reason, the investigations led in the D.4.3 are mainly based on experts' appreciations and analysis of the statistics rather than studies and scientific literature.

As shown in D.4.1 and D.4.3 in the participating countries, the private rented housing segment owned by the private natural landlords is often the most important share of the private rented sector. Its delay in the implementation of the energy efficiency policies compared with the other private rented housing segments should be analysed also from the point of view of the analysis of the roles of the stakeholders, the information flows and the constellations for decision-making.

In the country section, partners have investigated, which type of relations are relevant in their country and which investor types they exert influence on. For the same reason, these investigations are based on experts' appreciations rather than studies and scientific literature.

2 Results

2.1 Analysis of roles, information flows and constellations for decision making – overview and discussion

Two main types of constellation of decision making have been identified: the constellation of a corporate decision maker and the constellation of a private natural landlord.

2.1.1 The constellation type of professional corporate decision maker

The general type is described below; it consists of four circles. According to the size of the company, the limit between the internal departments and services and the external services may vary.

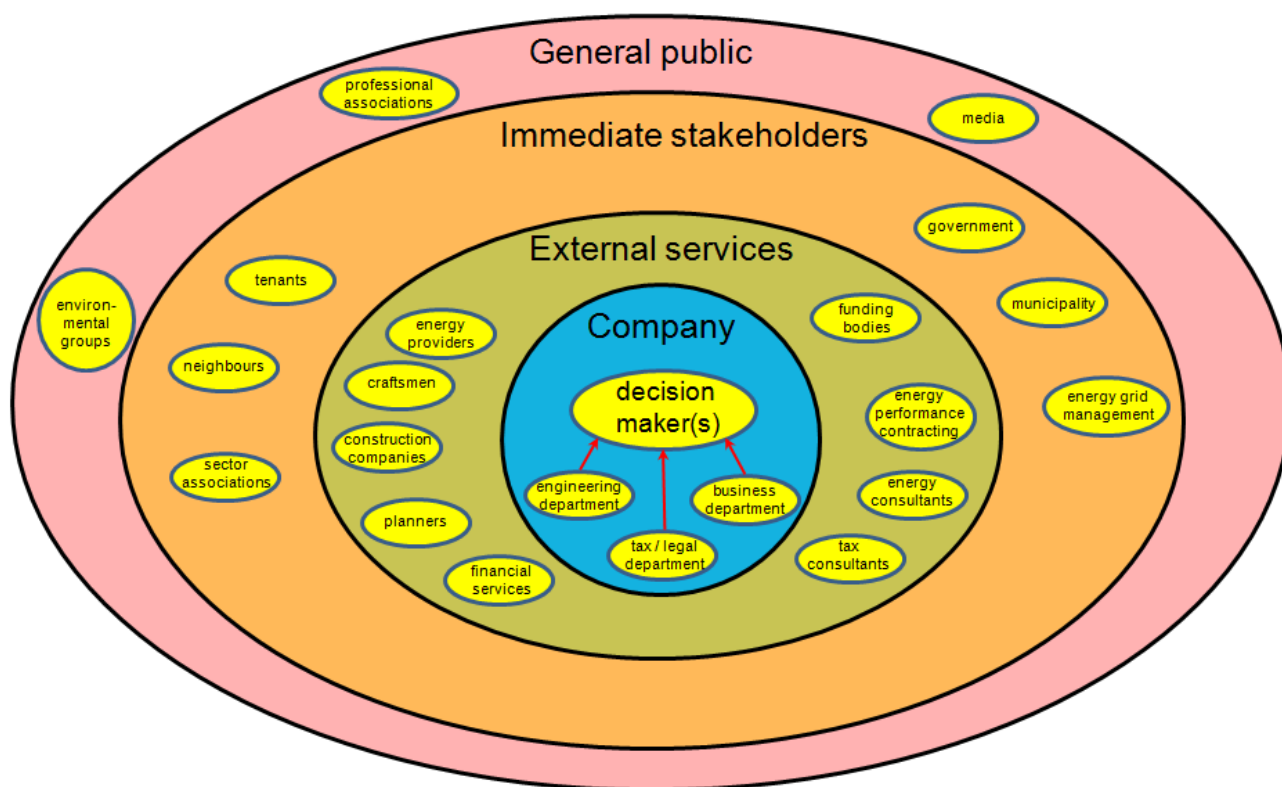


Figure 2: Constellations for decision making – corporate decision maker

In the largest companies, four main departments exist:

- The housing management department in charge of the commercial relations with the tenants.

- The technical department in charge of the new developments, the extraordinary maintenance and the running maintenance of the existing housing stock.
- The direction of the finances and the administration in charge of the accounting, the financing, the legal and fiscal aspects plus the general means (Information system, offices...)
- The human resources department in charge of the personnel.

The variation of the limits between internal services and external services may concern the fiscal and legal services, the different competences of the technical department in terms of engineering. In some countries, the technical repairs and the energy supply which can be operated by internal services.

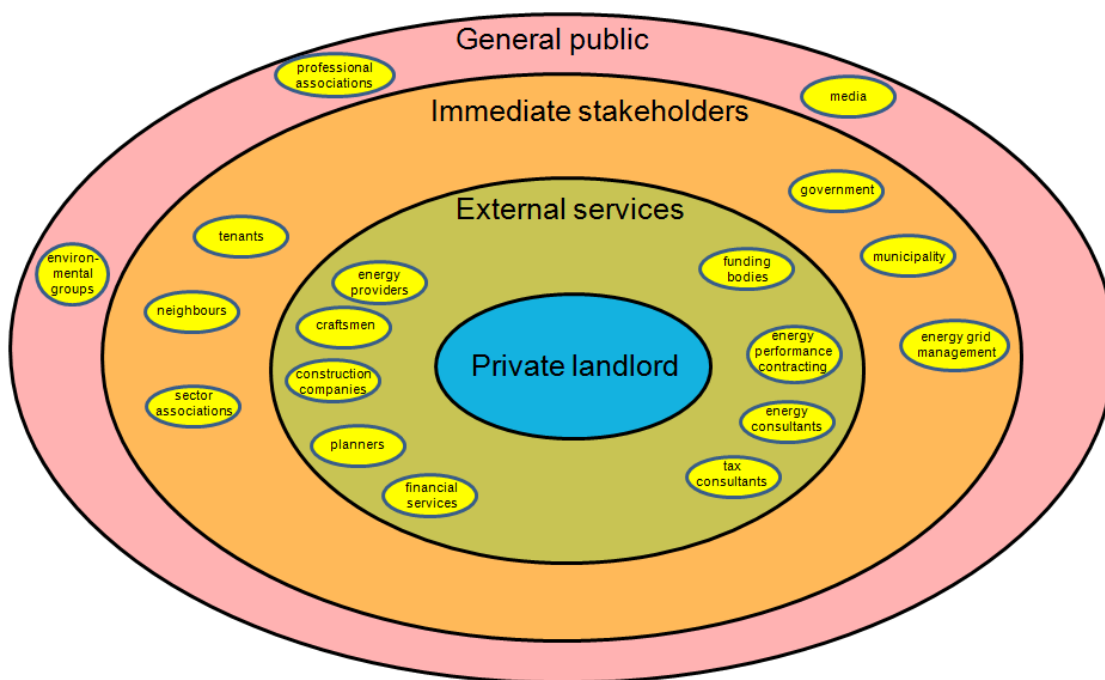


Figure 3: Constellations for decision making – private landlord

The natural landlord is alone, even its housing management for the smallest ones is often subcontracted to property managing firms which manage the housing estates in co-ownership lots. These property managing firms play a key-role as they ensure both the technical management and the commercial management of the dwelling units.

In order to optimally support the decision makers, there is a need to understand what kinds of information sources support them in these constellations. Do we expect the average decision maker to personally (P) have the information, knowledge and capacities to assess the energy concept (the holistic understanding of energy sources and flows in the building and how they are changed by a given measure) for the building and potential measures without additional support or do we expect him/her/them to require external services (E)? Does an organisation have a (specialised) department (D) that has the specific information and the decision maker(s) can obtain it from there? Or have these capacities already been out-sourced (O)?

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Cross country comparison: decision situation of different investor types
Fact sheet name	Investors' capacities according to their type – energy concept and assessment of the energy efficiency measures

Table 1: Assessment of different investor groups' capacities – energy concept and assessment of the energy efficiency measures

Variables	private land- lords	housing coop- eratives	social housing firms	municipal hous- ing companies	housing com- panies	institutional in- vestors	other
Czech Rep.	E	D/O/E	D/O/E	D/E	D/O/E	D/E	P/E
Denmark	E	E	D/E	D/E		E	
France	E	-	D/E	D/E	-	D/O/E	-
Germany	E	P/D/E	P/D/E	D	D	D/O/E	D/E
Netherlands	E	-	O/E	-	-	O/E	-
Poland	E	E	E	E			
Spain	E	-	-	D	P-D	D/O/E	-
UK	E	-	D	D	D	D/O	-

1st case: Private natural landlords

In all participating countries, regarding the energy concept and the potential energy efficient measures, private natural landlords require external services. Regarding the technical matters, they have personally no information, knowledge and capacities.

2nd case: Housing cooperatives, social housing firms, municipal housing companies and housing companies

Their core business is to provide an affordable and comfortable housing. These investors manage daily the running maintenance and the operation of large housing stocks. They have a precise knowledge of their actual energy consumption as they charge their tenants with the heating and domestic hot water costs. They have generally a technical department in charge of the investments and the extraordinary maintenance which has a precise knowledge of the energy concept and the potential energy efficient measures, of their corresponding economic and technical impacts. As these departments are also in charge of the refurbishment projects and to organise the tenders, generally they only subcontract to energy consulting firms and architects the detailed design of the project and the corresponding specifications to be included in the technical books when organising the tenders to select the building companies. It's rather an assistance to mastery of work of specifications, choice of the solutions and on site project management.

An additional important point: Their departments have generally developed social competences to negotiate with tenants a rent increase or a savings sharing.

3rd case: Institutional investors

More financially oriented, except in some cases the R.E.I.T., these investors generally subcontract the daily management of their estates to property managing firms. They do not have direct relations with their tenants. As they own housing stocks which are geographically more dispersed, this investor type has a significant higher need of technical outsourcing and external resources. Withdrawn from the D.4.2 figures and past changes in their investment choices, the quantities of their housing stock remains marginal.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Cross country comparison: decision situation of different investor types
Fact sheet name	Investors' capacities according to their type – tax and legal aspects

Table 2: Assessment of different investor groups' capacities – Tax and legal aspects

Variables	private land- lords	housing coop- eratives	social housing firms	municipal hous- ing companies	housing com- panies	institutional in- vestors	Other
Czech Rep.	P/E/O	D/O/E	D/O/E	D/O/E	D/O/E	D/O/E	P/O/E
Denmark	P/E	P/E	D	D		D	
France	E/P	-	D	D	-	D	
Germany	P/O/E	P/D/E	P/D	P/D	P/D	D	P/D/O/E
Netherlands	P/E/O	-	P/D/O	-	-	D	-
Poland	P/O/E	D/O	D/O	D/O	D/O		
Spain	P/O	--	D/O	D	D/E	D/E	--
UK	E/P		D	D	D	D	

1st case: Private natural landlords

As shown in D.4.1, in many countries, tax and fiscal incentives are considered by private landlords as being the 1st motivation to invest in rental housing estates. It demonstrates the particular attention paid by private landlords to fiscal and tax aspects. Nevertheless, no country mentions a sole “P”. The levels of information and knowledge private landlords reached is partial and not self-sufficient. They need an additional external support from the other stakeholders to have a global understanding of these incentives and to calculate their benefits.

2nd case: Housing cooperatives, social housing firms, municipal housing companies and housing companies

These investors have generally a strong financial department to control the economic balance of the investment before their validation. All the fiscal and tax aspects (e.g. V.A.T.-reduced rate, tax on properties, tax on benefits, depreciation...) are already included in the calculation of the profitability of the rental residence before and after the retrofitting works to measure the evolution of the rental yields. Before the “green light”, the acting out, the economic balances are validated either at the top level by the executives or by the board. The expertise varies according to the housing stock size, in the smaller enterprises there is a need for some outsourcing when special situations occur, in the largest none whatsoever.

3rd case: Institutional investors

Mainly financially oriented, the main objective of this investor type is to get the highest rental yields. The fiscal optimisation is an entire part of their core business especially when banks or insurance companies propose to their richest customers financial packages with a tax exemption plan designed to strengthen the financial viability of their investments.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Cross country comparison: decision situation of different investor types
Fact sheet name	Investors' capacities according to their type – accounting, cost estimate of measures, economic analysis

Table 3: Assessment of different investor groups' capacities – accounting, cost estimate of measures, economic analysis

Variables	private land- lords	housing coop- eratives	social housing firms	municipal hous- ing companies	housing com- panies	institutional in- vestors	Other
Czech Rep.	P/E	D/O/E	D/O/E	D/O/E	D/O/E	D/O/E	P/O/E
Denmark	O/E	O/E	D	D		D	
France	P/E/O	-	D	D	-	D	
Germany	P/O/E	P/D/O/E	P/D/O/E	P/D	P/D	P/D	P/D/E
Netherlands	P/E/O	-	P/D/O	-	-	P/D	-
Poland	P/D/O/E	P/D/O/E	P/D/O/E	P/D/O/E	P/D/O/E		
Spain	P	--	D/O	D	D/E	D/E	
UK	E/O	-	D	D	-	D	-

1st case: Private natural landlords

There is a need to differ the “amateur” which manages few dwellings directly or with the assistance of a property managing firm from the natural landlord which has created a legal form to own and manage its housing assets. In the first case, it is not mandatory to have an accounting. In the second case, the accounting for fiscal reasons is mandatory and subcontracted, the landlord mobilises an external resource. Both use mainly the “gross return method” or a “profit-cost comparison method” for their calculations. Their economic analysis rarely integrates the tax and fiscal aspects and remains basic. The differentiation in the calculation between technical and fiscal depreciation is also rarely done so they haven’t got a clear idea about the actual profitability of their investments. They need assistance to develop a complete economic analysis starting from realistic values (VoFI, NPV...) which could favour their acting out.

2nd case: Housing cooperatives, social housing firms, municipal housing companies and housing companies

As they have to edit thousands of rent receipts monthly, their internal audit departments have specific routines to control the process of cash receipt. Their information system is huge and well equipped with the necessary reporting tools.

Each residence has its individual financial and economic balance sheet to follow the evolution of its rental yield and to react rapidly in case of economic degradation.

Organising countless tenders and investing millions of euros yearly, the technical departments in charge of the investments and the extraordinary maintenance have precise cost estimates of the energy efficiency measures. If the costs are overestimated and endanger the economic balance of the residence, then the call for tenders is declared fruitless.

The precision of the cost estimate depends on the annual volume of the investments; the smallest companies are more in need of outsourced economists of building.

3rd case: Institutional investors

More financially oriented, owning and managing stocks which are more dispersed geographically, this investor type has a significant higher need of technical outsourcing and external resources. Cost estimate of energy efficiency measures is generally outsourced to economists of building.

2.2 Analysis of selected situations

We select two exemplary situations corresponding to investor types playing a significant role in the private rented housing sector:

2.2.1 A private landlord owning few housing units dispersed in different housing estates in co-ownership lots

Stakeholders:

1. General coordination and information:
 - The *property managing firm* will have to coordinate the different stakeholders and to obtain a majority approval from the co-owners' assembly.
 - In some cases, the *municipalities* have developed an office to inform and advise the owner-occupiers, the property management firms and the private landlords about the technical, legal and fiscal aspects of the energy retrofitting.
 - In the best case, the public authorities have organised *networking of all stakeholders* with a unique contact point.
2. Technical aspects
 - The private landlord has no preliminary idea about the technical solutions and their costs.
 - The property managing firm has a basic level of internal competences; it selects the *energy consulting firm*.
 - The energy consulting firms will have to collect all the existing data regarding the existing energy efficiency to get an energy audit and to propose two or three energy technical packages with different levels of cost estimates (low, medium and high).
 - The energy consulting firm specifies the technical solutions and organises the call for tenders to select the *building companies*.
3. Economic, financial and fiscal aspects.
 - The energy consulting firm presents cost estimates resulting from the call for tenders and the property management firms individualise the costs for each private natural landlord.
 - Due to the lack of knowledge about the fiscal situation of each private natural landlord and/or co-owner, the property management firms will propose a collective fi-

ancing plan. The calculation method is a basic general profit/cost comparison in the best cases, the payback being rarely calculated.

- If the landlord is willing to get an individual financial and fiscal analysis, it will have to contact other stakeholders e.g. the municipal information office which uses a net-net return calculation method or the banks asking for a reduced rate loan.
- Regarding the financing, the private landlord is informed by the property managing firm about the subsidised or reduced rate credits. The negotiation with the banks will be individual.
- In the best cases, the possibility of collective eco-loan subscribed collectively by the co-ownership exists, the property managing firms negotiates it.

4. Social aspects:

- Each private natural landlord may individually negotiate a rent increase with its tenants.
- In the best cases, there is a possibility of public guarantee to overcome the different credit limits. The public municipal information may assist the concerned private landlords and/or co owners.

2.2.2 A self-sufficient professional corporate landlord (a cooperative or municipal company owning and managing a large stock of rental housing estates with a homogenous occupancy)

Stakeholders:

1. General coordination and information:
 - The company coordinates the different technical stakeholders, manages the different processes and tries to obtain a majority approval from the tenants to apply a rent increase.
2. Technical aspects:
 - The company has developed its own energy concept, pre-selected the technical solutions and due to recent refurbishments, precise cost estimates are already available in its data base. A precise and global energy performance is targeted (x kwh/m²/year) for the residence.
 - The technical department has a high level of internal competences (engineers, technicians...), it selects the energy consulting firm.

- The energy audit being mandatory for large housing companies, all the existing data regarding the concerned estates are already available. The energy consulting firm specifies and organises the call for tenders to select the building companies. It's rather an assistance to mastery of work of specification and optimisation of the technical solutions, project engineering and site project management.
 - The call for tenders is organised internally.
 - The energy retrofitting is only a part of global refurbishment. If the aesthetic appearance of the facade is modified, an architect is hired who will coordinate all the engineering and the building companies under its responsibility.
3. Economic, financial and fiscal aspects:
- Regarding the past depreciations, they are set aside in the accounts and used to finance the refurbishments.
 - Each residence has its individual financial and economic balance sheet, the technical department follows the evolution of its rental yield and adapts the level of its investments and maintenance in order to avoid any degradation of its profitability.
 - The financing of the investments is annual and global. It's not related to a specific estate. The debt is permanently managed and in the best cases, due to its rating, the company is capable to issue bonds. In their calculation, the company takes the existing average interest rate plus a safety margin corresponding to an anticipation of expected interest rates.
 - The calculation methods used are VoFI and/or NPV, all technical (depreciation and maintenance) and fiscal aspects (tax on properties) are included. The term for the calculation corresponds to an average lifetime of the investments.
4. Social aspects:
- Supported by the housing management department, the technical department associates the tenants' association in the preliminary phase of the project to collect the tenants' demands and needs and conceive the project.
 - Meetings are organised up to the approval of the rent increase.
 - The rent increase is not seen as a major source of financing but mainly as an extra. Asset value, decreases of the mobility and the vacancy rates are seen as more significant impacts, these rates are always included in the VoFI calculation.

2.3 Handling of conflicting targets

Conflicting targets between stakeholders appear often when the individual logics prevail on the collective ones, the two opposite exemplary situations illustrates it.

2.3.1 A private landlords owning few housing units dispersed in different housing estates in co-ownership lots

1. General coordination and information:
 - The property managing firm or the condominium board will have to coordinate the different stakeholders and to obtain a majority approval from the co-owners' assembly. So it's a key factor to target each private landlord, convince it and get its individual approval. As the process should increase its transaction costs, the property managing firms rarely implement it. Regarding the condominium boards, their social competences in this matter are close to zero or in the best case, basic.
 - Due to the heterogeneity of the occupancy, the conflicts between individual owners are difficult to solve. The process is so complex it's no use to increase this complexity by asking tenant for a contribution.
2. Social aspects:
 - Each private natural landlord may negotiate individually with its tenants a rent increase. In case of conflict, the bargaining is abandoned.

2.3.2 A professional corporate landlord (a cooperative or municipal company owning and managing a large stock of rental housing estates with a homogenous occupancy)

1. Landlord/tenant conflict:
 - The company will have to coordinate the different stakeholders and to obtain a majority approval from the tenants to apply a rent increase. A soft social engineering lowers the level of the conflict. The increase of the indoor comfort and to demonstrate that it's a "win-win" situation between the landlord and the tenant is sufficient. The calculation method and the calculation of the tenants' gains itself are mandatory as the rent increase is a substantial modification of a contract with a promise.
2. The technical and economic optimum:

- Each residence has its individual financial and economic balance sheet, the technical department adapts the level of its investments and maintenance. The economic dimension prevails.
 - Some conflicts may occur regarding the definition of the parameters when there is a need to increase the level of the investments. Does the investment have to be profitable each year or for the whole period of amortisation? Which horizon applies for the calculation, the end of the financial or the technical amortisations? In the NPV method, to include the value of the assets or to do not (nothing / the value of the bare land / the commercial value of the building?)
3. Social aspects:
- The rent increase is calculated in order to avoid any future conflict, the future energy performance is systematically underestimated to avoid any trouble and to preserve reliable relations with the tenants' associations.

2.4 Barriers, disincentives and best practices

2.4.1 Barriers and disincentives

There is a clear distinction to be done between the natural private landlords and the professional institutional investors, the municipal profit companies or cooperatives being often the most important institutional investors in the private rented stock in the participating countries.

There is no investment barrier or disincentive for institutional and professional investors. As they have defined clear objectives in their strategic asset management plans for an 8 to 10-year period, and maintenance planning for the midterm (4-5 years), they have regular refurbishments deployed annually. Consequently, they are either in regular contacts with the stakeholders they need (e.g. designers, engineers, building works companies, banks, ...). Their institutional customers (B2B) being the municipalities, they are in daily relation with and they are seen by municipalities as a leverage to implement their environmental policies. The largest companies have not only internally integrated a high level of competences in their departments of finance or in the departments in charge of the technical investments, but they are also well informed by their professional unions about the legal and

tax framework and by their professional associations about the state of the art of the techniques.

On contrary, there is a great difference to the natural landlords (non-professional and professional) which represent in all participating countries (see D.4.2) either the most important part (FR, ES, UK, DE) or a significant (CZ, DK, PL, NL) part of the private rented housing stock.

1st barrier: The structure of the ownership in condominiums

The first main barrier is the structure of the ownership of the stock owned by natural landlords. Most of the natural private landlords are non-professional and own between one and two dwellings. These dwellings are usually spread into multi-family buildings (70%), thus mixed with owner-occupiers in co-ownership lots in condominiums. The ownership is totally fragmented. It is much more difficult to get the consent of a majority of owners having different level of incomes, ages and motivations about the measures of energy efficiency, their financing and the distribution of costs.

Furthermore, their high mobility makes the tenants absolutely not interested by an improvement of the energy efficiency if it's conditioned by a rent increase. The calculation horizon is too different.

2nd barrier: A lack of capacities and competences

The second consequence of this structure of ownership is a clear lack of capacities and competences.

The natural private landlord is not in regular contact with the other stakeholders of the sector. Its investments are punctual.

3rd barrier: Weaknesses of the stakeholders in providing the relevant information and assistance

On the other side, the different stakeholders of the sector are also fragmented and not well organised to compensate the private natural landlords' lack of competences in providing the relevant information. There is often a multiplicity of contact points (banks, local public, information office, energy engineers and designers...), the building sector being rarely associated. As a result, the difficulties met by the private landlords and the condominium associations to have a global and coherent view of the technical, financial and fiscal solutions and opportunities prevail. A similar assumption can be made concerning the phases of feasibility studies and implementation of the energy efficiency measures.

4th barrier: The role of the associations of property co-owners- (Condominium boards and property managing firms)

The condominium associations are often managed by an assigned administrator or a property managing firm which facilitates the concentration of information, capacities and competences in decision making, but there are still problems: oftentimes, condominium association administrators or property managing firms are pure administrative entities. They do not have the technical knowledge to assess the building's energetic condition and which improvements a retrofit might mean for its shareholders. Moreover, they might not be able to appropriately evaluate the solutions proposed by the energy consulting firm and the retrofit's overall profitability.

Until recently, the essential role of the associations, condominium boards and property managing firms was often neglected by public policies until recently.

5th barrier: The difficulties for the private landlords to select skilled technical experts and building companies to design and lead the renovation

Private landlords and their condominium associations are punctual customers. They do not have a capitalised experience. How to select the engineering firms and the building companies, do these stakeholders have the competences and the capacities to hold their promises in terms of energy efficiency?

Until recently, the professionals of the building sector were not coordinated and their qualification not guaranteed by the public authorities.

2.4.2 Best practices

2.4.2.1 A common territorial / local platform for all stakeholders

In 2014, as an answer to the barriers mentioned above, in the frame of the law about the energy transition, the French Government has voted for a new law which creates common territorial platforms for the energy renovation of the private housing stock at the administrative level of cooperation between municipalities.

These platforms aim specifically at informing and supporting the private owners (owner-occupiers and private landlords) in their project of energy renovation.

The platform which operates as a unique "guichet" (point of contact) for the natural private owners has the following objectives:

1. To mobilise all the public and private stakeholders (designers and building companies, banks distributing the eco-loan and the other sources of financing, local public authorities informing about the fiscal aspects and subsidies, property agents and managing firms...) in a unique point of contact and information.
2. To stimulate the private owners' demand and facilitate their acting out.
3. To contribute to the structuration of the technical offers proposed by the professionals of the building sector and to their agreement in the frame of the Label "RGE" ("Reconnu Garant de l'Environnement") in order to increase the quality of the technical offer and its realisation.
4. To involve the bank sector and mobilise the public and private financing to propose a relevant financing to the private owners and develop a financial engineering.

This objective of the "platform" is not only to provide information but also to create networking between the different stakeholders, to solve the problems above mentioned as barriers and to support the whole process of energy renovation.

Two paths are proposed to private natural owners and condominiums in terms of support:

1. **An "easy" path:** the natural private owner or the condominium's administrator manages each step but it is supported and oriented by a qualified network of professionals in defining its project and its financing, in selecting a qualified and recognised professionals of the building sector (Label "RGE") to realise the works and monitor their realisation up to the final acceptance of the works which gives the opportunity to receive a subsidy up to 1500 €/dwelling after works.

This subsidy in large estates covers the main part of the design and engineering costs as it represents between 5 and 7% of the average total cost per dwelling.

2. **An "integrated" path;** the natural private owner validates each step but entrusts the realisation of its project to the platform or to a third party powered by the platform which is in charge of the whole process of the realisation including its financing, if need be.

This second option is a clear alternative which compensates the lack of capacities and competences of the private natural landlords.

Similar approaches exist in the United Kingdom as shown in the Deliverable 4.2.

2.4.2.2 To target the associations of co-owners (condominiums) and property managing firms in the renovation of multi-family buildings

Starting from the 1st January 2017, in France, any multi-family building in co-ownership should have realised a Global Technical Diagnosis, which should include a mandatory collective E.P.D.

A chart signed in 2015 between the French government and the most important unions of co-owners' associations and managing firms specifies the following. If the building is classified in E, F or G then it will be mandatory for the association of co-owners and their property agents to promote the energy renovation and the realisation of the bunches of works in the General Assembly of its condominium.

The unions of co-owner associations and property agents are associated to the governance of the territorial platforms.

2.4.2.3 To open the possibility of eco loan for any private landlord, to give the capacity to subscribe collective loan for and to adopt the rule of simple majority in the decision making process

In some countries (ES), the possibility to subscribe eco-loans (0% interest rate) is conditioned by the level of income. It's a brake. On contrary, in France, any private landlord can subscribe.

In Germany (2007) and in France (2013), there is the possibility for the associations of co-owners or for the property managing firm to subscribe a collective loan in the name of the association. In both countries, the rule of the simple majority is applied. It simplifies the process of decision.

2.5 Summary

Starting from two investor types, the “amateur” and the professional, the private natural landlords and the corporate landlords, the investigations led in the frame of the D.4.3 have highlighted the existing differences in the constellations of decision making.

In all participating countries, the statistics confirm the delays incurred by the private natural landlords⁵ in the energy retrofitting of their assets. These investigations have shown not only the mixed occupancy and the conflictual situations which prevail in the condominium associations and consequently, the complexity of the renovation process but the fragmentation of the other stakeholders which are supposed to provide information, assistance and guarantees.

2.5.1 Conclusions and recommendations for policy makers

1. There is an emergency to specifically target the condominiums with mixed occupancy (owners-occupiers / tenants) and mixed ownership (owners-occupiers / private natural landlords).

The lack of knowledge and competences (boards of condominiums and property managing firms) should be compensated by a proactive approach of the stakeholders at the local level. The local public authorities have the legitimacy to organise an intersectoral networking which will aim at providing information but also a technical assistance to lead the process and guarantee the final results to the private landlords. A “unique” contact point versus the fragmentation of the condominiums. The French example of the territorial platform for the energy renovation should be adapted and transferred in other EU countries.

2. This operational framework should be completed by legal constraints for any multi-family buildings in co-ownership to specify a deadline for the realisation of Global Technical Diagnosis which should include a mandatory Energy Performance Diagnosis of the housing estate. If the building is classified in E, F or G it should be mandatory for the board of the condominium or the property managing firm to pro-

⁵ e.g. in France the ratio owner-occupiers' stock / private rented stock is at 3,5:1, the ratio of subscription of eco loan between the two sectors is at 10:1, Bilan statistique eco prêts à taux zero émis en 2015, sgfgas 2016

mote an energy renovation plan and the realisation of bunches of energy efficiency works agreed in the national legislation in the next General Assembly of co-owners.

3. To avoid financial conflicts in the condominiums, we will recommend to follow the Danish example of the cooperatives. After the end of the loan payment of a new housing estate, an amount comparable to the amount of the annuity continues to be paid by the private landlord and is set aside by the cooperative in its accounts to finance any future extraordinary maintenance. A significant level of provisions is always available. At minimum the amount of the depreciation should be set aside in the accounts.

2.5.2 Conclusions and recommendations for the tool development (WP6)

The development of the RentalCal tool will have to address the professional landlords and the private natural landlords.

How to address these two target groups and their corresponding stakeholders?

1. The natural private landlords could be addressed individually (as a significant percentage of the rented stock consists also in single family houses) and collectively through the boards of condominiums or the property managing firms.

Regarding their stakeholders (in the 1st rank energy consulting firms, municipal information office and banks), they should be addressed too, e.g. by the networks of stakeholders like the French territorial platform or similar bodies.

When the use is individual, taking into account the levels of competences, knowledge and data, the user interfaces of the tool should be very simple, data being pre-entered as far as it is possible. When the stakeholders are addressed as users, it could integrate more parameters and more complex calculation methods.

The interfaces of the tool should be also pedagogical, a way to facilitate the acting out of the private landlords.

2. The professional and institutional investor types have already all the necessary internal competences. Generally, they only subcontract to energy consulting firms the design of their project before issuing tenders and awarding contracts to building companies.

So the tool could be used in the phase of the internal pre-feasibility study, when there is a need to make a first simple assessment of the future refurbishment pro-

ject. Due to these existing internal competences, less data could be pre-entered and the selected calculation method more complex

2.5.3 Conclusions and recommendations for dissemination (WP9)

When developers decide to invest in new housing estates, there are generally three criteria: the location, the location and the location.

Regarding the dissemination, it's a similar sentence: the stakeholders, the stakeholders ...and their professional associations.

3 Country report section

3.1 Czech Republic

3.1.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Czech Republic
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 4: Czech Republic – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing co-operatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	E			D/O/E			D/O/E		
tax framework	P/E/O			D/O/E			D/O/E		
legal framework	E			D/E			D/E		
accounting	P/E/O			D/O/E			D/O/E		
measure cost estimate	P/E			D/E			D/E		
economic analysis	P/E			D/E			D/E		
sources	assessment by STU-K 2016			assessment by STU-K 2016			assessment by STU-K 2016		

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Czech Republic
Fact sheet name	Assessment of different investor types' capacities

Table 5: Czech Republic – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:		other investor types	energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers		
energy concept	D/E			D/O/E	D/E				P/E	
tax framework	D/O/E			D/O/E	D/O/E				P/O/E	
legal framework	D/O/E			D/E	D/O/E				P/O/E	
accounting	D/O/E			D/O/E	D/O/E				P/O/E	
measure cost estimate	D/E			D/E	D/E				P/E	
economic analysis	D/E			D/E	D/O/E				P/E	
sources	assessment			assessment	assessment				assessment	

	by STU-K 2016			by STU-K 2016	by STU-K 2016				by STU-K 2016	
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3.1.2 Investment barriers and disincentives in the private rental housing sector

3.1.2.1 Partial renovation approach

For individual investors and non-professional investors, renovation of their buildings is usually a progressive, small-steps process. Due to the high up-front investment costs of comprehensive renovations, usually these investors renovate buildings in a priority-based fashion. For example, individual investors usually would prioritise what elements need upgrade (e.g. normally windows are a priority) and make a partial renovation. Subsequent improvements of the building envelope or the building systems would be usually procured in stages over a period of certain years, not all at once.

For large housing co-operatives, municipal and institutional investors this is usually not a barrier. Their investment plans would include comprehensive renovation projects, even at district levels, which would result in better economies of scale.

3.1.2.2 Lack of capacities and competences

For individual and non-professional investors, even if they plan a comprehensive renovation project for their properties, they will face a steep learning curve. These renovation projects are probably done once in a generation, so the lessons learned from previous renovations will probably be undocumented and the knowledge will be lost in the meantime. These investors usually try to do every non-technical activity by themselves to save costs, and hire external services for specific temporary assignments.

Larger housing co-operatives, municipal and institutional investors are probably better prepared for such situations as they usually count with specialised departments or they have long-term relationships with external contractors. Specialised departments often include facility management and construction procurement and supervision, while other services are usually externally hired if they don't have the required competences. On the other hand, even well organised large institutional investors might suffer from lack of knowledge in specific areas related to the renovation process, such as special tax incentives, financing opportunities and ever changing energy requirements.

Another area where non-professional investors lack knowledge is in service contracting. Lack of knowledge in the availability of advantageous contracting alternatives for comprehensive renovations might affect the quality and price of the renovation project. Energy

performance contracting (EPC) in the Czech Republic, for example, is rather underdeveloped in the private housing sector but it is quite developed for institutional investors especially in the commercial and public building sector. Of course, the EPC providers or Energy Services Companies (ESCOs) also need large scale projects for profitability, normally at district level, which sometimes is difficult to achieve.

3.1.3 Policy options and innovative approaches

3.1.3.1 Subsidies for comprehensive renovation

The success of certain state subsidies and grants relies in discouraging the partial renovation approach (1st barrier). For example, one of the most important Czech subsidy schemes, Nová zelená úsporám (New Green Investment Scheme), includes one comprehensive approach with the requirement of achieving the non-renewable primary energy class EpN.A. On the other hand, it also offers subsidies for partial renovation approaches where only minimal technical characteristics of renovated elements are required.

Another, more far-reaching approach would be the implementation of a framework that would encourage comprehensive renovation, for example combining Energy Performance Contracting (EPC) with subsidies. For the Czech Republic, this scenario has already been reviewed by the CombinEs project (CombinES, 2014). In fact, the growth of Energy Services Companies (ESCOs) is remarkable in the tertiary sector, but as the report acknowledges, the residential sector faces barriers regarding its distributed ownership structure. Thus, a more flexible framework that would encourage subsidies combined with the EPC approach, possibly at district levels with complex mixes of ownership structures, would be an innovative approach in the residential (and rental) sector. This approach would also help to reduce the gaps between the capacities and competences of small private investors and larger institutional investors.

3.2 Denmark

3.2.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Denmark
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 6: Denmark – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing co-operatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	O/E	E	O	O			D		
tax framework	O/E	E	O	O			D		
legal framework	O/E	E	O	O			D		
accounting	O/E	E	O	O			D		
measure cost estimate	O/E	E	O	O			D		
economic analysis	P/E	E	P	P			D		
sources	SBI 2008:01						EXP: 2016		

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Denmark
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)

Table 7: Denmark – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:		other investor types	energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers		
energy concept	D	D	D		E	E	E	E		
tax framework	D	D	D		D	D/O/E	D/O/E	D/O/E		
legal framework	D	D	D		D	D/O/E	D/O/E	D/O/E		
accounting	D	D	D		D	D/O/E	D/O/E	D/O/E		
measure cost estimate	D	D	D		O	D/O/E	D/O/E	D/O/E		
economic analysis	D	D	D		D	D/O/E	D/O/E	D/O/E		

sources	SBi 2008:01				SBi 2008:01					
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3.2.2 Investment barriers and disincentives in the private rental housing sector

40% of private house owners are private persons, who have property as savings or income. They only own 14 % of the total amount of private properties. Others typically do the administration, but they know the tax framework and the legal framework.

36% of private house owners are professionals and they own 52% of properties.

18% of properties are owned by pension funds and other investment funds.

7% of private house owners are private foundations, and they own 10% of the properties.

Professionals own the main part of the properties. They typically have a strategy for the property including a plan for the maintenance.

They are well informed on legal questions and do the administration themselves. The small private owners mainly out-source the administration or hire external advisors.

Barriers for landlords (private individuals or companies).

Private individuals pay individual income tax and companies pay company tax, and both can offset interest charges, maintenance and operation costs.

In Denmark, the small investors have a higher net return (4%) than professionals, due to a combination of higher rent income and a lower property value. This higher performance is partly achieved, because the small investors hold significantly less maintenance costs, so that the yield can be achieved by a deterioration of the properties. This is perhaps why the total return for small investors is less than for the professionals' due to smaller gains. The net return has been quite low in the larger cities (1.4%), while it has been high in the smaller towns (7.5%). This is due to a combination of both higher net income (as a result of significantly less maintenance) and lower property values. All in all, the total return has been slightly higher in small cities.

3.2.3 Recommendations for policy makers

What is influencing energy retrofitting?

In the Danish energy supply system 80 % of the households are getting their heating and hot water from District Heating. It is of great importance for the incentives, how much 1

kWh costs, and what does it cost to save 1 kWh. It is obvious that if the property owner can make a positive calculation, it is a good investment - otherwise not.

It's the municipalities who are in control of the District Heating. There is relatively high fixed share of the price, but it varies from 30 to 60%. The property owner will have to pay this share independently of the energy savings.

Example: At the present tariff structure it does not pay from an economic point of view to invest in energy conservation in e.g. the municipality of Taarnby. This is the case both when the landlord can borrow money on a 20-year basis at 4% p.a. and 6% p.a. From a socio-economic point of view (40-year discount period and 4% (the discount rate request of the Danish Ministry of Finance) it does not pay either. It would pay at 2% in discount rate and within a 40-year discount period.

If we imagine a tariff reform, where all fixed tariffs are changed to variable tariffs, then it pays to invest in many cases, but still not in all. So - it could be a solution to introduce 100% variable prices.

The conditions for loan financing are rather positive for the time being. Else (or if it changes), it would be important with better opportunities for low interest (2-3%) and long-term loans (30-40 years).

Especially in the country districts there are difficulties with loan security. This sends investors and property owners to the unregulated loaning market with higher interests - and thereby no incentive for extra investments in energy savings. This would not be the situation with increased access to public guaranties.

Subsidies from the energy supply companies for energy savings are p.t. too low to finance a deep energy renovation (3-5 % of investment costs). To reach the Danish energy policy aims, reducing heat loss from houses with 40-50% per m² before 2050, it would be necessary to increase the subsidies to 10-15% (financed by the energy supply companies).

Different political initiatives have been taken to educate energy consultants. But the availability of energy consultancy is not sufficient. Still consultants are renovating a lot of properties without

education in energy efficiency. It's important to improve the availability of energy consultancy - eventually by linking the use of an energy consultant to recommendation 2, 3 and 4 (a consultancy report makes it possible to achieve 2, 3 and 4):

- Better opportunities for low interest (2-3%) and long term loans (30- 40 years)
- Increased access to public guaranties
- Increased subsidies of 10-15% financed by the energy supply companies

Overall at present the public subsidies for energy renovation are too limited.

3.3 France

3.3.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: France
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 8: France – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing co-operatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	O/E	E	O				D		
tax framework	O/E	E	O				D		
legal framework	O/E	E	O				D		
accounting	O/E	E	O				D		
measure cost estimate	O/E	E	O				D		
economic analysis	P/E	E	P				D		

23.08.2016

sources	ANIL 2014						DELPHIS 2016		
Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making								
Section of report	Country report section: France								
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)								

Table 9: France – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:			energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers	other investor types	
energy concept	D	D	D		O					
tax framework	D	D	D		D					
legal framework	D	D	D		D					
accounting	D	D	D		D					
measure cost estimate	D	D	D		O					

economic analysis	D	D	D		D					
sources	DEL&COOP 2016									

3.3.2 Investment barriers and disincentives in the private rental housing sector

There is a clear distinction to be done between the natural private landlords and the professional institutional investors, the municipal profit companies being the most important institutional investors in the private rented stock (2%).

There is no investment barrier or disincentive for institutional investors (except the new legislation about the withdrawal of the asbestos which may cause an impact on their available cashflow by significantly increasing the technical renovation costs). When this type of investors refurbishes its housing stock, they invest an average of 35.000€ per dwelling, half of this amount is allocated to energy efficiency works, the other part being allocated to other works of renovation (e.g. compliance with the electric standards). As they have defined clear objectives in their strategic asset management plans for a 10-year period, they have regular refurbishment activities deployed annually. Consequently, they are either in regular contacts with the external competences they need (e.g. designers, engineers, building works companies, banks...) or for the largest companies, they have internally integrated these competences in the department of finances or in the department in charge of the technical investments.

The number of eco-loans consumed by the institutional investors reflects this existing state (from 33.000 dwelling units (2013) to 57.000 dwelling units (2015)). It represents almost 1% of the total housing stock owned by the institutional investors annually. The energy efficiency issue is systematically integrated in their refurbishment operations. Most of these investors plan by 2024 to not have any asset classified in E, F or G anymore and an average global performance varying between 120-140 kwh/(m²-year).

On contrary, there is a great difference between institutional investors and natural landlords (non-professional and professional) who represent 95% of the private rental housing stock in France.

3.3.2.1 The structure of the ownership in the private rental stock.

In 2014, 30.000 eco-loans were consumed by private natural persons. 27.000 by the owner-occupiers and 3.000 by private rental landlords. Thus, the ratio of refurbished dwellings for “natural private landlords / owner-occupiers” is 1/10 and the same ratio for “natural private landlords/institutional investors” is even worse at 1/20.

The first main barrier is the structure of the ownership of the stock owned by natural landlords. 84% of the natural private landlords are non-professional and own between one and two dwellings. These dwellings are spread into multi-family buildings (70%), also mixed with owner-occupiers in co-ownership lots in condominium blocks. Furthermore, there is a high mobility of tenants (60% occupy their dwelling for less than four years) so tenants are absolutely not interested by sharing 50/50 with their landlord the energy savings as it is nevertheless legally allowed. As this sharing implies to be valid an agreement between the two parties, this agreement is almost never reached.

3.3.2.2 A lack of capacities and competences

The second consequence of this structure of ownership is a clear lack of capacities and competences.

The natural private landlord is not in regular contact with the other stakeholders of the sector. Its investments are punctual.

3.3.2.3 Weaknesses of the sectorial stakeholders in providing the relevant information

On the other side, up to 2014, the different stakeholders of the sector were not well organised in providing the relevant information to private landlords. There was a multiplicity of contact points (banks, ADIL, engineers and designers...), the building sector being rarely associated. As a result, the difficulties met by the private landlords to have a global and coherent view of the technical, financial and fiscal solutions and opportunities were dominant. Their lack of capacities and competences was not compensated.

So, it's more efficient to promote an information directly connected with the main motivations of the natural private landlords:

1st motivation: Tax incentives

Any negative change in the tax regulation which is a mix of tax subsidies and tax deduction directly impacts the decision to invest. In 2014, there were 312.019 eco-loans for individuals, 10% of this volume was consumed by private landlords and 90% by owner-occupiers. A negative change in the tax framework occurred in 2014, the immediate result was a decrease by 3,9% of the total volume of eco-loans. Instabilities in the legal and tax frameworks are clear disincentives.

2nd motivation: Financing opportunities

To favour an easy understanding of the relation between the financing (the eco-loan) and the types of works to get the relevant amount of eco-loan is a key point (92% of the eco-loans are linked with bunches of works and not with a targeted global energy performance of the building).

3.3.2.4 The importance of the associations of property owners (or condominium boards) and the property agents was neglected

70% of the private rental stock owned by natural private landlords is located in multi-family buildings mixed with owner-occupiers in co-ownership lots. This fact increases the complexity of the decision making process. The role of the associations and condominium board was neglected, the role of the property management firms and their agents too. Up to 2014, there were no collective eco-loans but only individual eco-loans.

3.3.2.5 The difficulties for the private landlords to select skilled technical experts and building companies to design and lead the renovation

Up to 2014, the professionals of the building sector were not coordinated and their qualification wasn't guaranteed. The label R.G.E. ("Reconnu Garant de l'Environnement") for the qualification of the building enterprises is now mandatory if the private landlord is willing to benefit from the eco-loan, the tax deduction and the public subsidies.

3.3.3 Policy options and innovative approaches

3.3.3.1 The creation of the territorial platform for the energy renovation of the private housing stock ("Plateforme territoriale de Rénovation Energétique de l'Habitat Privé", 2014)

In 2013, the law "Plan de Rénovation Energétique de l'Habitat" (PREH) decided by the government and voted by the parliament has defined the following objectives: to renovate 120.000 dwelling in the social housing sector and 380.000 in the private housing stock (owner-occupiers and private natural landlords) annually, starting in 2017.

In 2014, as an answer to the above mentioned barriers, the French Government has voted a new law which creates the "Plateforme territoriale de Rénovation Energétique de l'Habitat Privé" (The territorial platform for the energy renovation of the private housing

stock) at the administrative level of the EPCI (Etablissement Public de Cooperation Inter-communal), the administrative level of cooperation between municipalities.

These platform aims specifically at supporting the private owners (owner-occupiers and private landlords) in their project of energy renovation.

The platform which operates as a unique “guichet” (point of contact) for the natural private owners has the following objectives:

1. To mobilise all the public and private stakeholders (designers and building companies, banks distributing the eco-loan and the other sources of financing, local public authorities informing about the fiscal aspects and subsidies, property agents and managing firms...) in a unique point of contact and information.
2. To stimulate the private owners' demand and facilitate their acting out.
3. To contribute to the structuration of the technical offer proposed by the professionals of the building sector and to their agreement in the frame of the Label “RGE” (“Reconnu Garant de l’Environnement”) in order to increase the quality of the technical offer and its realisation.
4. To involve the bank sector and mobilise the public and private financing to propose a relevant financing to the private owners and develop a financial engineering.

Two paths may be proposed to private owners in terms of support:

1. **An “easy” path:** the natural private owner manages each step of its path but it is supported and oriented by a qualified network of professionals in defining its project and its financing, in selecting qualified and recognised professionals of the building sector (Label RGE) to realise the works and monitor their realisation up to the final acceptance of the works which gives the opportunity to receive a subsidy up to 1 500€/dwelling after works.
2. **An “integrated” path:** the natural private owner validates each step but entrusts the realisation of its project to the platform or to a third party powered by the platform which is in charge of the whole process of the realisation including its financing, if need be.

This second option is a clear alternative which compensates the lack of capacities and competences of the private natural landlords.

At the beginning of 2016, between 120 and 130 platforms are already operating, by the end of 2017, 650 platforms should be in operation covering all the French territory.

3.3.3.2 The strengthening of the role of the association of co-owners and property managing firms in the renovation of multi-family buildings

According to the law ALUR (March 24, 2014), starting from the 1st January 2017, any multi-family building in co-ownership should have realised a Global Technical Diagnosis which should include a mandatory collective E.P.D. A chart signed in 2015 between the government and the most important unions of associations and managing firms specifies that if the building is classified in E, F or G it will be mandatory for the association of co-owners and their property agents to promote the energy renovation and the realisation of the bunches of works recognised in the frame of the eco-loan in the General Assembly of the concerned association of co-owners.

170 associations have already signed the chart and a training programme available for the associations of co-owners is developed.

Since 2014, the associations of co-owners have the right to subscribe a collective eco-loan distributed by the banks.

The unions of associations and property agents are associated to the governance of the territorial platforms.

3.4 Germany

3.4.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Germany
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 10: Germany – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing co-operatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept		E	E		P/E	P/D		P/E	D/E
tax framework		P/O/E	P/O/E		P/O	P/D		P/D	P/D
legal framework		O/E	P/O/E		P/E	P/D		P/D	P/D
accounting		P/O	P/O		P/O	P/D/O		P/D/O	D/O
measure cost estimate		E	P/E		P/E	P/D/E		P/D/E	D/E
economic analysis		P/E	P/E		P	P/D		P/D	P/D
sources									

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Germany
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)

Table 11: Germany – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:		other investor types	energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers		
energy concept		D/E	D	D	D/O/E				D/E	P
tax framework		P/D	P/D	P/D	D				P/D/O/E	E
legal framework		P/D	P/D	P/D	D				D/E	E
accounting		P/D	P/D	P/D	P/D				P/D	E
measure cost estimate		P/D	P/D	P/D	D				P/D/E	P/E
economic analysis		P	P	P	P				P/D/E	E

sources										
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Germany has one of the lowest homeownership-rates among Europe⁶, while most of the rental dwellings are owned by non-professional private landlords⁷. Most of these landlords possess only one or few dwellings each and derive the main share of their income from other sources than rental income. As a consequence, a large share of the rental dwellings in Germany are held in small-spatial ownership structures by landlords who don't have professional expertise in most of the aspects of an energy retrofit, the subsequent procedures and the calculation of the overall profitability.

3.4.2 Investment barriers and disincentives in the private rental housing sector

When it comes to constellations of decision taking, the largest barriers and disincentives which keep owners of rental residential properties in Germany from investments in the energetic quality of their properties originate from the fragmented ownership structure and the owner's motivations and their state of knowledge, capacities and competences.

In Germany, there are about fourteen million dwelling units in apartment buildings owned by non-professional owners, many of them owner-occupied (3.5 million), but even more (10.5 mio) for rent. Many of these dwelling units are parts of jointly owned condominium associations (Wohnungseigentümergeinschaft) where it is much more difficult to make a decision for an energy retrofit, as there needs to be consent regarding the measures, their financing and the distribution of costs between the different proprietors. In many cases, the condominium associations are managed by an assigned administrator, which facilitates the concentration of information, capacities and competences and decision making, but there are still problems: oftentimes, condominium association administrators do not have the technical knowledge to assess the building's energetic condition and which improvements a retrofit might mean for its shareholders. Moreover, they might not be able to evaluate the retrofit's overall profitability appropriately, especially for those dwelling units that are rented out and might undergo rent increases in the wake of the refurbishment. However, there are also few incentives for these administrators to take on the immense effort to gather all necessary information and to organise the planning, implementation,

⁶ cf. for example <http://de.statista.com/statistik/daten/studie/155734/umfrage/wohneigentumsquoten-in-europa/> [accessed 20 June 2016].

⁷ Schrader 2014, Anbieterstruktur auf dem deutschen Wohnungsmarkt am 9. Mai 2011, GdW.

construction support and financing associated with such an endeavour. Thereby, the financing of investments into energetic quality is particularly difficult for condominium associations if there are no sufficient reserves and external capital is needed: although the public KfW-bank offers generous loans and grants for owners of residential dwellings who plan to perform an energy retrofit, these subsidies are distributed by other banks which might deny condominium associations' applications, e.g. due to lack of collateral or insecure liability. Condominium associations belong to a specific group of legal forms and it has been debated whether they are capable of taking out a loan at all⁸ and how far their liability extends (though there has been some jurisdiction on this issue⁹). As a consequence, condominium associations are in arrears both in modernisation rate and the share of energetic retrofitted buildings in comparison with the overall German residential building stock¹⁰. Even more than condominium association administrators, private landlords oftentimes lack the knowledge, capacity and competences to assess all aspects of an energy retrofit and the evaluation of its profitability. For a non-professional private landlord, it means a disproportionate amount of hassle to gather the necessary information from different experts, like energy consultants, tax consultants or craftspeople, particularly when taking into account that they, unlike large housing companies, make those efforts only for one or few dwelling units.

3.4.3 Policy options and innovative approaches

Some steps have already been taken to simplify decisions for energy efficiency investments and their financing for condominium associations: the 2007 reform of the residential property law improved the condominium associations' capabilities to apply for loans, defined liability more clearly and also rearranged the decision process so that individual owners cannot prevent a retrofit decision against a majority vote¹¹.

⁸ cf. for example <http://www.enbausa.de/finanzierung-beratung/aktuelles/artikel/weg-gesetzesreform-bringt-sanierungsquote-nicht-voran-3491.html> [accessed 20 June 2016].

⁹ Federal Supreme Court BGH 28.09.2012: V ZR 251/11

¹⁰ cf. for example <http://ddiv.de/hp764/Energetische-Sanierung.htm> [accessed 20 June 2016].

¹¹ cf. for example <http://www.brennecke.pro/109298/Was-ist-seit-dem-01-07-2007-neu-im-WEG-Ein-Ueberblick> [accessed 20 June 2016].

Also, some federal states already set up special funding programmes for energy retrofits by condominium associations, but those need to be available in all German states. Another option might be for the KfW to distribute loans directly to condominium associations or to take guaranties for them.

The other main problem that affects both condominium associations (administrators) and private landlords is the enormous hassle to gather information and evaluate energetic refurbishments in the first place. There are already some programmes to subsidise for example a first evaluation by an energy consultant¹², so the initial expenses are lowered, incentivising first inquiries. However, it might be conducive to support the investors' decisions even further, for example by the extension of subsidised consultancy services, like tax consultants or if energy consultants simultaneously offer a qualified profitability calculation.

Moreover, as the initial hurdle for the decision maker is to think about energy retrofit in the first place, maybe an even more proactive approach could be worthwhile, like providing chimney sweepers with a simple tool to make first exemplary calculations and incentivising them to convince homeowners to seek external advice

3.5 Netherlands

3.5.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

¹² see <http://www.bafa.de/bafa/de/energie/energiesparberatung/> [accessed 20 June 2016].

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Netherlands
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 12: Netherlands – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing co-operatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	E	E	E				O/E		
tax framework	P/E/O	P/E	P/E/O				P/D/O		
legal framework	E/O	E	E/O				P/D/O		
accounting	P/E/O	P/E	P/O				P/D/O		
measure cost estimate	P/E	E	P/E				P/D/E		
economic analysis	P/E	P/E	P/E				P/D		

sources										
Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making									
Section of report	Country report section: Netherlands									
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)									

Table 13: Netherlands – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:		other investor types	energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers		
energy concept					O/E					
tax framework					D					
legal framework					D					
accounting					P/D					
measure cost estimate					D/O					
economic					P/D					

analysis										
Sources										

3.5.2 Investment barriers and disincentives in the private rental housing sector¹³

Split Incentives: Investing party incurs costs, while another party benefits. E.g. housing corporation invests in energy efficiency retrofits, the tenant benefits from a better home and a lower energy bill.

Living Expenses: especially corporations and other social tenants cannot afford a rent increase or other investment (Unless properly compensated in total housing cost).

Economic Situation: less disposable income and less consumer spending on renovation is a barrier - trend towards renting versus buying homes.

Incentives: lack of consumer interest; retrofits unattractive; homeowners need to be inspired; Consumers need to prioritise against competing demands for time and money and other desires; There is no perceived added value or need for whole house retrofit.

Core housing stock agreements: Agreements between municipalities and corporations about the minimum amount of affordable homes in an area. Agreements on maximum rents may be a barrier to the investment capacity of corporations. Maintaining homes with low rents, but poor energy performance, may increase housing costs via increasing energy costs. About 95% of the social housing stock has an energy label C or worse

¹³ Energiebesparing en huurverhoging - De barrières voorbij; BuildDesk, m.m.v. Provincie Noord Brabant, 2010, Retrieved from: http://energielinq.nl/uploads/attachment/file/0/10/13_de_barrieres_voorbij-1395930742.pdf

3.5.3 Policy options and innovative approaches¹⁴¹⁵¹⁶

Thinking in (total) housing costs instead of rent expenses creates opportunities to compensate higher rents with lower energy bills¹⁷.

Regulation to enforce ending market failures (Cohen & Winn, 2007)¹⁸: Two market failures are flawed pricing mechanisms, treating fossil fuels as endless sources of energy and externalities (ignoring or not including externalities in the energy price). Addressing these market failures would be a major step in making a competitive environment for alternative renewable energy sources. (Addressing double externality problem.)

Regulation/ price incentive: Higher energy price/ fuel tax will increase financial incentive for retrofit investments.

Policy: Core housing stock agreements, including enforcement of minimum energy label arrangements to reduce the low rent, high energy costs pitfall.

Promotion and communication: Continue to provide information and make retrofit investments attractive with financial incentives¹⁹.

Best practice sharing: info (Dutch) about EE building initiatives²⁰ and a toolbox for financing constructions²¹.

¹⁴ Ministry of Economic Affairs. 2014. Third National Energy Efficiency Action Plan for the Netherlands. Submitted to European Commission (30 April 2014)

¹⁵ <http://www.rijksoverheid.nl/onderwerpen/klimaatverandering/documenten-en-publicaties/rapporten/2013/10/04/klimaatagenda-weerbaar-welvarend-en-groen.html>

¹⁶ <http://www.government.nl/documents-and-publications/reports/2011/02/25/plan-of-action-energy-saving-in-built-environment.html>

¹⁷ <http://www.stroomversnelling.info/>

¹⁸ Cohen, B., & Winn, M.I. (2007). Market imperfections, opportunities and sustainable entrepreneurship. *Journal of Business Venturing*, 22 (1), 29-49

¹⁹ <http://www.meermetminder.nl/>

²⁰ <http://www.rvo.nl/initiatieven/overzicht/27008>

Social promotion campaigns²².

3.6 Poland

3.6.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

²¹ <http://www.rvo.nl/initiatieven/overzicht/27227>

²² www.sire.nl

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Poland
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 14: Poland – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing co-operatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	E	E	E	E			E	E	E
tax framework	P/E/D/O	P/E	D/O	D/E/O			O/E	D/E/O	D/E/O
legal framework	P/E/D/O	P/E	D/E/O	D/E/O			O/E	D/E/O	D/E/O
Accounting	P/E/D/O	P/E	D/E/O	D/E/O			O/E	D/E/O	D/E/O
measure cost estimate	P/E/D/O	P/E	D/E/O	D/E/O			O/E	D/E/O	D/E/O
economic analysis	E/D/O	D/O/E	D/E/O	E/O			O/E	E/O	E/O
Sources									

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Poland
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)

Table 15: Poland – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:		other investor types	energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers		
energy concept	E	E		E	E				E	P
tax framework	D/O/E	D/O/E		D/O/E	D/O/E				D/O/E	O/E
legal framework	D/O/E	D/O/E		D/O/E	D/O/E				D/O/E	P/E
accounting	D/O/E	D/O/E		D/O/E	D/O/E				D/O/E	O/E
measure cost estimate	D/O/E	D/O/E		D/O/E	D/O/E				D/O/E	P/O/E
economic analysis	O/E	O/E		O/E	O/E				O/E	P

sources										
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3.6.2 Investment barriers and disincentives in the private rental housing sector

The facts about the private rental housing in Poland are as follows:

- 4 % of dwellings are rented based on market prices (EU28 average=19%)
- 12% of dwellings are rented for rents below the market level (EU28=11%)

The rental housing has one of the smallest shares in the housing sector:

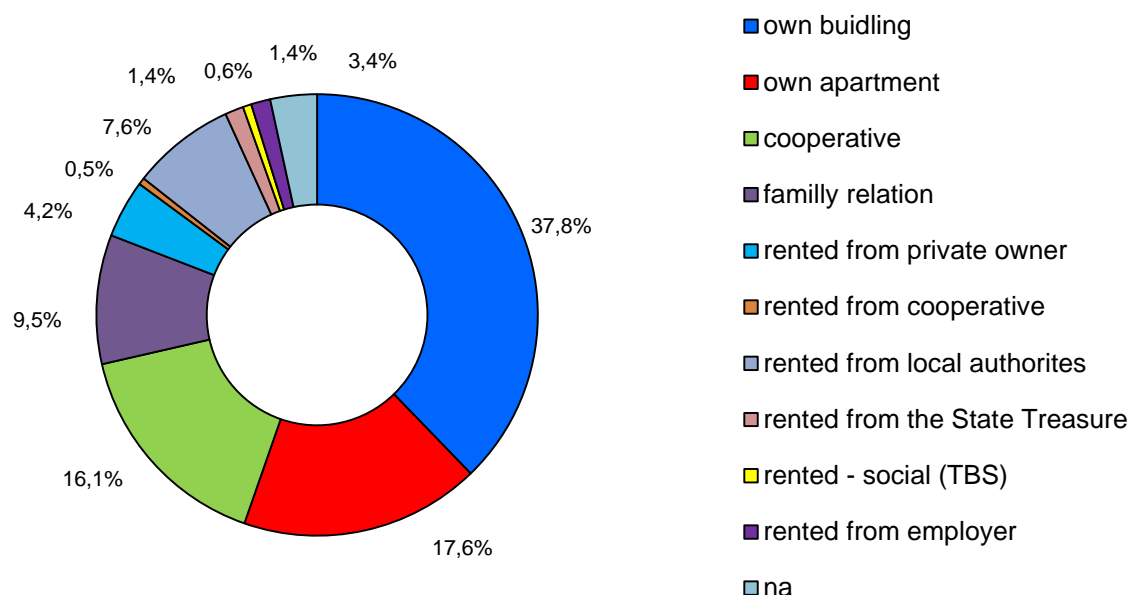


Figure 4: Poland – distribution of dwelling ownership

Source: National Census 2011

This situation is caused by the Polish relevant housing policy development described below:

- 1945-1989: after second world war losses, industrialisation and urbanisation caused centrally-steered construction of large settlements by housing co-operatives and enterprises in order to assure low-cost dwellings, being in co-operative, municipal or state institution and enterprise ownership.
- 1990 – the transition of Poland towards market economy caused large scale privatisation of the dwellings located in the municipal and other buildings, which became

the form of condominiums, while the housing co-operatives survived rather as facility managers of existing housing stock.

The role of extension of the housing stock based on increasing demand on dwellings has been undertaken by private developers, which construct the multifamily buildings in order to immediate sale of dwellings to private persons, who form automatically the condominiums.

- 1995: rental dwelling's state programme (called TBS, implemented by municipal special purpose companies) for low income families, available for households, whose monthly disposable income doesn't exceed 1,3 of regionally typical salary; 93 000 dwellings so far, next 30 000 during commitment by BGK bank running the special fund
- 2014: Rental Dwelling's Fund of BGK – commercial fund for institutional creation of new dwellings for rental purposes, fully equipped and located in good urban areas (approximately 300 dwellings so far)
- 2016: 03 June -Government's announcement about new programme for construction of low-cost buildings for rental purposes exclusively, with buy-out option by tenants

Only support scheme to refurbishment of social housing is, since 1998, related to thermal refurbishment of buildings.

Thermal refurbishment Fund (1998-2008):

- the program provided a 25% subsidy to the loan extended for owners of buildings (home-owners associations, co-operatives, private ones, public – municipally owned, special social purposes with not limited ownership) for up to 80% of total cost of thermal refurbishment measures
- the precondition was to achieve at least 25% energy savings through measures to be financed, confirmed by the energy audit

Thermal refurbishment and renovation Fund (2008-):

- the program provides a 16% subsidy to the loan extended for owners of buildings (condominiums, co-operatives, private ones, public – municipally owned, special social purposes with not limited ownership) for up to 100% of total cost of thermal refurbishment measures
- the subsidy cannot be higher than 2-years heating cost savings
- the precondition is to achieve energy savings through measures to be financed, at least 25% confirmed by the energy audit, in the case of renovation of buildings constructed before 1961 the subsidy accounts to 15% of total renovation cost, by minimum of 10% of energy savings, confirmed by renovation audit, renovation measures of common spaces are also eligible

The results of the financing scheme are presented below:

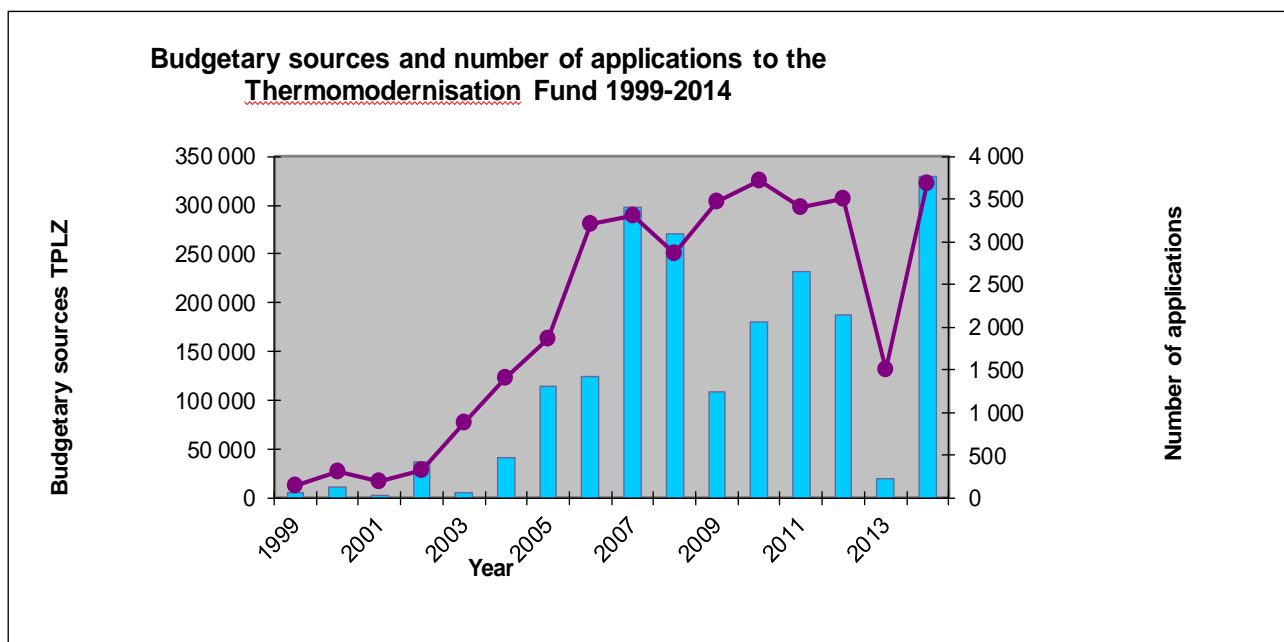


Figure 5: Poland – budget and applications to thermomodernisation fund

Source of data: Bank Gospodarstwa Krajowego, own calculations

Table 16: Poland – thermomodernisation fund figures

Item	Figures
Number of buildings subsidised	32 473
Subsidies awarded value (total)	1,774 billion PLN (0,442 billion €)
Total investment value	11,124 billion PLN (2,649 billion €)
Subsidy per building	54 630 PLN (13 000€)
Total investment value per building	342 562 PLN (81 562€)
Yearly heat cost savings generated thanks to subsidies	0,796 billion PLN (0,199 billion €)
Average interest rate of loans (2014)	5,26%
Market coverage in % of buildings	8% (yearly 0,5-0,8%)
Share of thermal refurbishment subsidies (2014)	73%
Share of renovation subsidies	27%
Share of subsidies for HOAs	55%
Share of subsidies for co-operatives	35%
Share of subsidies for others	10%
Cost of energy use reduction (2015)	100 PLN/GJ (25€/GJ)

Source of data: Bank Gospodarstwa Krajowego, own calculations

Relevance for private rental housing:

The private owners of buildings are eligible to use the support scheme, but they don't use it frequently, because lack of good cases:

The association is involved into RentalCal steering committee and declared to participate in testing and dissemination of the RentalCal tool among its members

The energy efficiency issue will be presented November 2016 by NAPE team to the participants of yearly congress of the „Dwellinger”

there are further discussions how to promote the RentalCal results in this milieu.

3.6.3 Policy options and innovative approaches

Policy options:

As the above mentioned financing scheme has been proven for non-rental housing stock, it is worth to underline it's adequacy to the private rental housing. This could be done by state owned banks.

Secondly, for the private landlords, who are renting their dwelling, a kind of tax deduction instrument as well as promotion of modern rent contract should be maintained by the state authorities.

Innovative approaches:

There is one crowd-funding initiative aimed at investing in rental dwellings, renovate them and rent commercially – 350 dwellings so far

2012, the landlords' association „Mieszkanicznik” („Dwellinger”) was founded, which has over 1 200 members and acts to civilise the rental market in order to make it more transparent, fair and to take care on technical conditions of the rented stock.

3.7 Spain

3.7.1 National decision taking arena and typical constellations

The rental market in Spain accounts for around 14% of rental units used as permanent house over the total stock (Census 2011 gives 13.5% and EU-SILC gives 10.9% as average between 2004-2012). Most of rental units' owners are households who own their main house and other units which are offered in rent. In the private rental market, the number of

societies or professional landlords renting housing units sum up around 7-8% of the total stock in rent, a figure including rental units paying under the market price-rent (3%) which are considered public houses (although some could be given by families to their members or companies to workers as a part of the salary). There is also a non-negligible share of the stock used for free (7.6% measured in Census 2011, or 6.3%, EU-SILC, 2004-2012) which is also a part of units used to cover social needs. All those data refer to the use of a principal house, a concept which includes only those units used as a permanent house by a household. It does not include those units rented less than one year which are part of other short-time rental market (including tourist or student units).

The share of stock in the private rented market is, in consequence, around 13% of the total principal stock. The main part of such stock is owned by private households who manage the tenancy on their own or through professionals (real estate managers or brokers) and a smaller part is owned by families or investors (both institutional and financial) who manage the rent with a more business perspective. Public houses in rent are, in its major weight, owned by the government (local, regional or national) or transferred to long-term rent contracts to people in poverty.

The described structure is changing since the Global Financial Crisis started. Due to the developers' bankruptcy in the top of building cycle, full buildings (mostly in main Spanish capitals like Madrid, Barcelona or Valencia) were sold to real estate companies who are currently managing the units in rent, in a sign of starting-transformation process to approach the rental market model in other European countries. In a similar process, buildings being collateral assets of distorted credits were assigned to the SAREB – Management Company for Assets Arising from the Banking Sector Reorganisation (<http://www.sareb.es>) and sold to real estate investment funds or directly managed.

In consequence, Spanish current rental market is still dominated by individual owners and real estate managers, and, in larger cities, by institutional investors and financial institutions. The relevant parameters to assess the investors' behaviour and their decisions are shared among those two extreme investor figures. Public houses used to cover social purposes and belong to public institutions, so that retrofitting investment decisions should be taking place in the political decision arena and public budget should account for them.

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Spain
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 17: Spain – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing cooperatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private land-lords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	E	P	E				--		
tax framework	P/E/O	P/O	P/E/O				--		
legal framework	P	P	P/E				--		
accounting	P/E/O	P/E	P/O				--		
measure cost estimate	P	P	P/E				--		
economic analysis	P	P	P/E				--		
sources									

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: Spain
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)

Table 18: Spain – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	thereof:			energy consultants
		municipal social housing companies	municipal housing companies (for profits)			occasional institutional investors	financial Institutional investors for their own property	financial Institutional investors for their customers	
energy concept	O	O		D/O/E	D/O/E		D/O/E	D/O/E	
tax framework	P/E/O	P/E/O		D	D/E		D/E	D/E	
legal framework	P/E	P/E		D	D/E		D/E	D/E	
accounting	P/O	P/O		D	D/E		D/E	D/E	
measure cost estimate	P/E	P/E		D/O	D/O		D/O	D/O	
economic analysis	P/E	P/E		D/O	D/O		D/O	D/O	
sources									

3.7.2 Investment barriers and disincentives in the private rental housing sector

The private rental housing sector is fully liberalised in Spain, with small regulatory conditions restricting the contract scope. There are no rent constraints (in private homes) what suggest large efficiency on the market. However, the market is very small and homeownership is the predominant tenancy creating a perception of lack on supply in most Spanish cities. In spite of the continuous support to enlarge rent market from the regulation (tax incentives of renting a house to young households and reduce tax for rental income), the rent market has grown only after the Global Financial Crisis when credit constraints appeared and mortgages felt to their historical minimum. The stronger part of the Spanish crisis started in 2011 reducing jobs and increasing dramatically the unemployment, affecting strongly young cohorts until 2014. The start of Spanish economy recovery in 2015 is increasing the demand of units in rent but it is too soon to determine a real recovery.

The potential barriers could be explained classifying them from the demand and the supply point of view.

3.7.2.1 Demand side

1. Taking the economic situation into account, the first barrier for retrofitting investments in the rental sector is the weak demand due to low level of employment. Low house demand together with limited purchase capacity (due to reduction in household income coming from lower wages resulting of the internal competitive adjusts) reduce the incentives for retrofitting from the tenant perspective. Credit constraints (in spite of the government's effort to create special credits to increase the energy efficiency in houses) combined to limited expenditure capacity also affects landlords' (mainly individual owners and professionals) decision to invest in retrofitting specially to face the larger initial costs. Lower income salaries have also other implications on investment incentives which is the perception that investment will never be recovered through a reflection on rents or prices and presents the retrofitting investment as sunk costs.
2. In Spain, there are no estimations of the green premium neither in price or rent, what introduces uncertainty about the potential benefits of retrofitting for investors

and the risk of 'pay-back gap' (Owen, 2006). Lack on research in this area is key to include transparency in the investment decision making process.

3. Credit constraints for retrofitting is the third demand barrier. There is a public scheme of subsidised credits for large installations as well as for small investors but the scope of retrofitting needs in the Spanish stock makes them insufficient. The financial condition to demonstrate repayment capacity to household to grant the loan, due to the current situation, is acting as hard barrier in spite of the low interest rates already applied. In the future, integrated retrofitting investment will require large amounts of funds which may be difficult to obtain with larger financial costs or imperfection in market access to funds (IEA, 2003).
4. Tax incentives have been mostly missing in retrofitting investment until 2016 when it was approved that Municipalities should reduce property tax up to 20% depending on the house energy label. Retrofit investment can be tax deducted as any other investments on housing improvements by firms at the legal amortisation rate. Depreciation rate associated to real estate is long (larger to 10 years) which could act as a barrier as increase the investor's risk with uncertain pay-back scheme.

Individual owners have access to tax deductions in various rates, minimum 10% and max 20% of the total investment a year, depending on the region they live. When the rental contract is for a permanent home, VAT is not applied and up to 60% of perceived rental income can be deducted in the tax burden by individuals in income tax. In the tax-benefits scheme, retrofit is included as other allowed housing cost renovation with fiscal benefits.

Several monetary subsidy plans have been defined by government to improve retrofitting investments. Special (small) grants are given to install small devices (energy efficient boilers) and given to individual landlords. The potential disincentive is that any grant received to invest in retrofitting should be included in income tax as income and then taxed at the marginal rate.

Most of the subsidies are earmarked (thus, given to cover part of a specific installation/device's cost), what suggests that authorities expect to reduce market prices, allowing investment at cheaper costs. But price cannot include such reduction or final price could be increased in the amount of subsidies. This happens in those markets with lack on competence both in installation supplier firms or controlled en-

gine/devices supply. The large price in Spain for retrofitting suggest that this price distortion could be acting as a barrier as well.

5. There is a general perception of the green benefits for life and health among population after an extensive information policy from the government, the adoption of EU green objectives of emission reduction and energy consumption, and the implication of the big energy companies in combating climate change (IDEA, 2015). The increase on energy prices also has contributed to generalise the efficient-energy-society in the Spanish people's mind. However, there are two main barriers for landlords to invest. First is the uncertainty about whether or not the investment will be paid back (as mentioned above). Second is the stock quality: Although the Spanish stock is becoming old (close than 55% was built before the 1970ties) the quality is high, because during the past boom most buildings were renovated. The renovation mostly didn't include energy efficiency measures as the rule requirements were not compulsory. In several cases, the isolation fits the new rules but not in others and there isn't full information showing the new renovation needs. New investment in energy efficiency would require a new house improvement investment without recovery of the previous investment. Information is required to identify the real needs.

3.7.2.2 Supply side

1. Retrofitting costs could be large as it is a new industry and products remain expensive because the production hasn't reached a significant level with economies of scale still non-existent. In technological devices or engines, research is going faster and the reduction in average price could be reached soon due to the huge amount of needs (for instance, in the type of isolation) but now, renovation processes result in an expensive cost which act as barrier.
2. Regulation: The Spanish building code (launched in 2013 and updated in 2015 including new technological advances) includes the obligation to install energy efficient systems and green devices in new buildings. Again, the economic situation with the lower level of development in the Spanish history has diminished the impact of technical regulation on energy efficiency.
It is compulsory in Spain that any new boiler installed is energy efficient and there are incentives to isolation renovation using double glass and other green technique.

However, the limits on payment capacity and uncertainty are stopping landlords to do retrofitting works.

Energy prices are included in this point due to the total energy bill being defined to have a part covering previous cost of network installation, taxes and charge for the energy consumed. Depending on the installed power, the amount of energy payment only varies in the 20-35% of the total energy consumption being the rest as a 'fix' change. This way to calculate the energy bill disincentivises owners and users to invest in energy saving methods as they cannot know (or calculate) the monetary savings resulting from the investment. If saving costs are lower than investment, the market disincentive could stop retrofit investment so that additional measures are needed to incentivise retrofitting.

The policy applied in Spain to incentivise retrofitting is broad and includes supply and demand measures. Mainly from the supply side is the technical regulation about construction and installations which become compulsory as well as minimum requirements for energy installation professionals to guarantee quality. Changing the source of energy towards green sectors from the supply side has been also successful last decade with almost 15% of Spanish energy consumption produced by renewable sources. However, the so-called 'Sun-Tax' (regulation by which all houses with panels installed for their own consumption have to pay part of the bill) is a disincentive to invest in renewable energies.

3.7.3 Policy options and innovative approaches

Regulation have been listed in the tables above and the Spanish Government has defined several measures to fulfil energy saving agreements since the very beginning ('Estrategia de Ahorro y Eficiencia Energética, 2004-2012, Nov 2013, available at

<http://www.magrama.gob.es/es/cambio->

[climatico/legislacion/documentacion/plan_accion_2008_2012_tcm7-12597.pdf](http://www.magrama.gob.es/es/cambio-climatico/legislacion/documentacion/plan_accion_2008_2012_tcm7-12597.pdf) and updated by the Plan de Ahorro y Eficiencia Energética, 2011-2020 (IDAE, 2011).

Results according to EU regulations could be found in

https://ec.europa.eu/energy/sites/ener/files/documents/article7_es_spain.pdf.

Derived from those regulations, Spain has implemented the Energy Certificates (EPC) called 'Certificación de eficiencia energética' in Spanish and created in the Royal Decret

235/2013. The EPC's are compulsory for all buildings and houses transacted, voluntary for public buildings and for other purposes, and gives transparency to the market, allowing to identify the level of energy efficiency. The building code (Código Técnico de la Edificación) has recently included new technological solutions for saving energy, and it is the technical tool used by the government to update construction requirements according to advances in energy efficient technology. On the other hand, the Spanish government tries to incentivise the final demand (landlords, owners, companies) to retrofit buildings through allowing to achieve financial support at better-than-market conditions (for firms, owner communities and large investment) and providing grants for specific purposes (mostly to households and small investment).

New innovative approaches for new regulation to incentivise energy retrofitting which have been proposed and are discussed are:

- Zero-interest loans targeted to low-income consumers to allow for renters' retrofit initiatives.
- Energy improvement programmes in those older and non-adapted stocks as an urban programme (as it was with refurbishing and façade/roof renovation in last decade).
- Eliminate/modify the 'Sun tax' law and incentivise green installations for own energy consumption.
- Maintain allowances or create incentives to green energy consumption. It would act as an incentive for energy producers to increase the low-emission energy sources.
- Strengthen the recognition of energy labels in the tax schemes.
- Develop research about energy and market prices in order to estimate and identify the green premium. This should need to develop databases on energy production and consumption, including household habits and investor perception.
- The government is, through the IDAE institute, developing a platform to introduce costs, energy savings and process information for citizens in order to improve transparency and disseminate the energy savings benefits (see www.idae.es/index.php/id.302/mod.noticias/mem.detalle)

3.8 United Kingdom

3.8.1 National decision taking arena and typical constellations

In the following sheets, participants have evaluated whether different groups of investor types can be expected to have the capacities, knowledge, skills etc. to assess different aspects of an investment decision.

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: United Kingdom
Fact sheet name	Assessment of different investor types' capacities (private and non-professionals)

Table 19: United Kingdom – assessment of different investor types' capacities (private and non-professionals)

Investors' capacities	private land-lords	thereof:		housing cooperatives / housing corporations	thereof:		non-governmental (social) housing	thereof:	
		non-professional private landlords	professional private land-lords		small housing cooperatives	large housing cooperatives		non-profit firms / associations / social housing companies	ecclesiastical housing companies
energy concept	O/E	E	O					D	
tax framework	O/E	E	O					D	
legal framework	O/E	E	O					D	
accounting	O/E	E	O					D	
measure cost estimate	O/E	E	O					D	
economic analysis	P/E	E	P					D	
sources	https://www.urban.co.uk/assets/content/Urban.co.uk%20Landlord%20Survey%202016.pdf								

Report	D 4.3: Fact Sheets Regarding Constellations for Decision Making
Section of report	Country report section: United Kingdom
Fact sheet name	Assessment of different investor types' capacities (municipal and private companies)

Table 20: United Kingdom – assessment of different investor types' capacities (municipal and private companies)

Investors' capacities	municipal housing	thereof:		housing companies	institutional investors	occasional institutional investors	thereof:		other investor types	energy consultants
		municipal social housing companies	municipal housing companies (for profits)				financial Institutional investors for their own property	financial Institutional investors for their customers		
energy concept		D		O	O					
tax framework		D		D	D					
legal framework		D		D	D					
accounting		D		D	D					
measure cost estimate		D		O	O					
economic		D		D	D					

analysis										
sources										

3.8.2 Investment barriers and disincentives in the private rental housing sector

In the UK, the main investment barrier or disincentive to invest in energy efficiency measures is the split incentive problem. This is the case as the retrofit investment decision in rental properties becomes even more intricate in properties for which the costs and benefit accrue to different parties as is typically the case in the rental market. Lease structures are crucial for alignment or misalignment of incentives. Assuming that the rent paid by the tenant is net of utilities and payable according to their individual energy usage, there is no a priori incentive for the landlord to bear the upfront capital investment of energy efficiency measures regardless of the payback period or IRR of the investment. Turning to other investment barriers, the average homeownership duration in the UK is 10 years, from which the payback periods for retrofit investments are likely to exceed the time of actually owning the property. UK energy bills are also not perceived as a significant monthly expense and are relatively affordable compared to other financial obligations, therefore not creating enough of an incentive towards energy saving. There is also a lack of good funding in the UK, including loans with high interest rates, the collapse of Green Deal initiative and the inefficiency of the Energy Company Obligation (ECO) funding available to home owners.

3.8.3 Policy options and innovative approaches

The EPC regulation which hinges on the assumption that the real estate market efficiently capitalises home energy performance into the rental and sale prices of properties is the main policy tool used to reduce the split incentive problem issue and to encourage uptake of energy efficiency in the private rental market. Other government policies currently in place or proposed, include (i) higher taxes on energy and fuel prices, (ii) stamp duty linked benefits, (iii) income tax rebate schemes, (iv) council tax reduction, (v) the establishment of tariffs and subsidies that is fair for both energy efficiency and renewable energy initiatives and (vi) making whole-house retrofits mandatory.

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