

## International Energy Agency

### Annex 75 | Cost-Effective Building Renovation at District Level Combining Energy Efficiency & Renewables

## Energy in Buildings and Communities Programme

### Workshop on district renovation towards nZEB Vitoria-Gasteiz, Spain – March - 27th 2019

Laboratory for the Quality Control of Buildings, Department of Housing,  
Basque Region Government.

Organizer: Juan María Hidalgo-Betanzos [juanmaria.hidalgo@ehu.eus](mailto:juanmaria.hidalgo@ehu.eus)

Subtask D: Policy Instruments, Stakeholder Dialogue, and Dissemination

#### WORKSHOP SUMMARY AND MAIN FINDINGS

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## 1. Debate highlights

- **Mandatory technical inspections:** Regional government, building managers and architects recommended the obligation of carrying out regular technical inspections in existing buildings. This shall improve not only the detection of security issues, but also Energy Efficiency (EE) and health (moisture & thermal comfort) problems and can be used to motivate holistic renovations in old residential buildings.
- **How to deal with Energy poverty:** It is an important issue depending on social backgrounds. As an example, the Basque Social Housing association (ALOKABIDE) applied a protocol to increase awareness of paying utility bills (electricity, gas, water, ...) and they reduced the amount of unpaid bills. As a result, the social housing company reduced the cost of unpaid bills and put these savings in an energy poverty fund to help very low-income renters paying their utility bills.  
Additionally, there is a difference between disposable incomes. The administration representative explained that, in some cases, the social and family obligations reduce the investment possibilities for renovations.
- **Some ideas to improve the financial issues:** Finance problems are key for the success of district renovations. Solutions should be adequate to different cases and stakeholders. For example, Basque region offers 5 different incentives programs targeting different renovation scales and stakeholder groups. They include economic aids for regional initiatives, municipality, neighbourhoods, multiple-ownership buildings and individual owners. The needed finance models are very different for individual owners or larger organisations, such as social housing or large investors.
- **Neighbourhood Renovation Plans in municipality regulations:** Urban Master Plans were typically oriented to new developments and this local renovation approach is not sufficient. In future, municipality planning should include a global analysis of how to face all the necessary renovations and improvements, in a process that can be designated as Urban Renovation Plans.
- **Management possibilities also in multi-community scale:** In private-ownership buildings, a broader association of buildings can be created in order to simplify the management and the total of the legal process of the renovation. A global process of sets of buildings can balance some of the particular difficulties of one or another typology in a wider approach.
- **Trust, as the key element for successful renovations:** It is not easy to engage society and increase the awareness in the short term. There are increased barriers when there is no trust in the process or between participants and communication. However, the initial lack of confidence can be overwon with 'people on the street'. A good tool can be to install local offices in neighbourhoods to know their main concerns, needs, interest, fears and so on. Another good approach can be a network of neutral energy efficiency advisers (from a social organisation or municipality or NGO), who can inform and advise owners and renters "at home" about heating and electricity problems and user-friendly options to overcome them.
- **Replicability is real:** Results can motivate neighbouring blocks to demand similar measures.

- **Energy efficiency does not have to be the main carrier of a refurbishment.** In some of the examples discussed the main tenants' interest was accessibility and health. If the budget is limited, the neighbours probably will prefer accessibility (elevator installation) before other EE measures. The local government (appear) to steer on that.
- **Consider the user as central in rental housing buildings.** Even though tenants don't make the energy decisions in renovations, their point of view must be considered during the process in order to improve the final energy use and the satisfaction of inhabitants with the renovated building and systems. Users need information and advice how to deal with new systems, i.e. mechanic ventilation or simply to open the windows twice a day, radiant floor operation
- **Prevent gentrification risk.** Deep renovation of an urban areas can potentially force the relocation of current, established residents and businesses. To prevent it, the initial status of renters and landlords should be evaluated in the area, addressing future scenarios and promoting long-term agreements.

## 2. Workshop attendance

- 50 participants from 12 countries
  - 31 ANNEX partners
  - 19 local participants (not included in Annex 75), coming from:
    - 8 public institutions, such as: 2 regional government departments, a regional energy institution, a public housing developer, a social housing rent management and 2 local renovation agencies.
    - 2 research centres
    - 2 professional organizations: architects and building management
    - 3 architecture companies
    - 2 renovation or construction companies
    - 1 building component manufacturer
- The ANNEX75 project is a good resource for arising interest among public and research institutions.
- Other workshop formats should be also considered: a longer activity, or working meeting with inhabitants...

### 3. Event programme and tools

The workshops consisted of 2 round tables, one oriented to the role of administration and another focused on the analysis and comparison of case studies.

As a complementary tool, a web-based questionnaire was prepared in order to collect details. The questionnaire was bilingual in Spanish and English. It was sent before the event to all potential workshop participants, including speakers, ANNEX 75 participants and local administrations and professional associations (architects, engineers, administrators) through an online link, in a Google Forms format.

For further details of the event, in ANNEX 75 website are available the programme, presentations, questionnaire template and some photos.




**Workshop on district renovation towards nZEB**

Project IEA EBC Annex 75 - Cost-effective Building Renovation at District Level Combining Energy Efficiency & Renewables

A chance to share district renovation experiences and discuss the most important barriers and policy instruments for a future nZEB renovation at district scale.

**March, 27th of 2019**  
 Laboratorio de Control de Calidad en la Edificación, del Gobierno Vasco  
 c. Aguirrelanda, 10, CP 01013, Vitoria-Gasteiz.  
 Free registration on this [link](#), hall capacity of 100 p.

9:00 Registration of participants

9:30 Welcome by the organizers and workshop goals

9:45 Presentation of ANNEX 75 project

10:00 **Round table 1: Administration role in building renovation at district scale**

**Basque government's Department of Housing: building renovation strategy**  
*Ainara Sertutxa, Head of Projects, Constructions and Supervisions, Department of Housing, Basque Government.*

**Basque social housing company - ALOKABIDE: social housing building management and 2050 renovation Plan for 7700 dwellings**  
*Carlos Orbea, Technical Manager of ALOKABIDE*

**Building administrator association of Bizkaia: The perspective from building management professionals**  
*Raquel Varona, member of the board of governors of Colegio de Administradores de Bizkaia*

**Architect's association: The perspective from design professionals**  
*Arantxa Garcia, member of the board of governors of Delegación de Gipuzkoa del Colegio de Arquitectos Vasco Navarro.*

11:00 Coffee break

11:30 **Round table 2: District renovation case studies analysis and best facilitation tools**

**SmartEnCity project - Vitoria-Gasteiz: new biomass DH in Coronación**  
*Savik Grisabeña, Innovation and sustainability department of VISESA*  
*Alberto Ortiz de Elguja, Head of Innovation, sustainability and energy services of VISESA*

**CITYFIED project – Valladolid, new biomass DH in Torrelago**  
*Ana Quijano, Researcher at Energy Department – Foundation CARTIF*

**ZenN project – Eibar, social housing district renovation in Mogel**  
*Esther Zarrabeitia, Head of Urban planning and rehabilitation of DEGEBSA*

**Review of ANNEX 75 success stories**  
**3% plus Road map for EE renovation for local districts.** *Uta Lynar, B.&S.U. mbH*

12:45 Conclusions of the workshop

13:00 Closure

Programme for the Workshop | Vitoria-Gasteiz (Spain) | March 27, 2019



**Encuesta sobre Rehabilitación de Distrito objetivo EECN - IEA EBC ANNEX 75 - Questionnaire about District Renovation towards nZEB**

**Héla,**  
 Bienvenido/a a esta Encuesta sobre rehabilitación de distrito del proyecto IEA-EBC ANNEX 75: "Cost-effective Building Renovation at District Level Combining Energy Efficiency & Renewables".

Con este formulario deseamos recopilar y compartir experiencias directas sobre casos de rehabilitación de edificios a escala de barrio. Esta herramienta tiene una doble función: por un lado empujar el debate del taller presencial del 27 de marzo de 2019 y por el otro, nos ayudará a identificar las principales barreras, los modelos de negocio más exitosos y los instrumentos de política energética más útiles para impulsar más allá las renovaciones de distritos hacia el objetivo de Edificios de Consumo de Energía Casi Nulo (EECN o nZEB).

Le invitamos a responder 10 preguntas. Le llevará unos 5-10 minutos aproximadamente.  
 Puede rellenar la encuesta de dos formas:  
 - sobre su experiencia directa en rehabilitación de edificios/barrios  
 - sobre su punto de vista trabajando para su institución.

Las respuestas se utilizarán para el proyecto IEA-EBC ANNEX 75. Le rogamos facilite sus datos de contacto para poder confirmar la validez de los datos y enviarle las conclusiones del taller. Las respuestas serán tratadas de forma confidencial para los fines del proyecto ANNEX 75, acorde a la LOPD. Si desea eliminar o rectificar sus datos póngase en contacto con los organizadores del taller.

Para conocer más del proyecto, puede visitar la web <http://annex75.iea-ebc.org> o puede contactar con los organizadores del taller desarrollado en el Laboratorio de Control de Calidad en la Edificación del Gobierno Vasco escribiendo a: [juanmaria.hidalgo@ehu.es](mailto:juanmaria.hidalgo@ehu.es)

Muchas gracias por su participación, sus respuestas serán de gran ayuda para impulsar las renovaciones de barrios a nivel EECN.

El equipo del ANNEX 75.

**Nota:** el IEA EBC ANNEX 75 es un proyecto de la Agencia Internacional de la Energía (International Energy Agency, IEA).

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**Héla,**  
 Welcome to this Questionnaire about district renovation towards nZEB of IEA-EBC ANNEX 75 project: "Cost-effective Building Renovation at District Level Combining Energy Efficiency & Renewables".

With this form we aim to gather and share direct experiences about building renovations at district scale. This tool has a double use: first to enrich the debate of the workshop on the 27th of March of 2019 and second, to help us identify the main barriers, most successful business models and the best energy policy instruments to further facilitate district renovations towards nZEB.

We invite you to answer these 10 questions. It will take you 5-10 minutes, approx.  
 You can write about either:  
 - your direct experience with a renovation case,  
 - or your point of view as working for your institution.

The answers will be used in the ANNEX 75 project. Please, give us your contact information so that we can validate the data and send you the results of the workshop. The answers will be treated confidentially for the purposes of ANNEX 75 project, according to the LOPD. If you want to correct or remove your data, please contact the workshop organization.

You can find more information of the project in the web <http://annex75.iea-ebc.org> or you can contact the organization of the workshop in the Laboratory for the Quality Control of buildings, of Basque Government: [juanmaria.hidalgo@ehu.es](mailto:juanmaria.hidalgo@ehu.es)

Thank you for your participation, your answers will be of great help to further facilitate district renovations towards nZEB.

Regards from the team of ANNEX 75.

**Note:** the IEA EBC ANNEX 75 is a project of the International Energy Agency (IEA).

**\*Obligatorio**

1. Dirección de correo electrónico \*

**Datos del participante / Participant information**



#### **4. Presentations summary and discussion on Round table 1: Administration role in building renovation at district scale**

##### **Basque government's Department of Housing: building renovation strategy**

*Ainara Sertutxa, Head of Projects, Constructions and Supervisions, Department of Housing, Basque Government.*

- Buildings technical inspections as key information input: in Basque region, approximately 50% of existing housing buildings need refurbishment works and over 30% lack elevator.
- The Basque Law of Housing (Ley de Vivienda 3/2015) acknowledges that building renovation and urban regeneration becomes a public action, in order to ensure the access to a decent and adequate housing.
- Basque Government renovation strategy is based on 5 programs with different financial aids and requirements, oriented to different renovation scales and stakeholders. From private ownership renovations, to multifamily buildings and urban regeneration promoted by municipality agencies.

##### **Basque social housing renting company - ALOKABIDE: social housing building management and 2050 renovation Plan for 7700 dwellings**

*Carlos Orbea, Technical Manager of ALOKABIDE*

- They are working on a medium to long term strategy to implement renovation action to transform the Basque Government social housing stock towards better performance, named "Zero CO2 Plana". New management model to improve the service for tenants and reduce the environmental impact. Digital transformation of the process, advanced energy management, management of risks in rental housing.
- The current diagnosis of renovation needs states that: 67% of homes require medium intervention, 15% a high intervention and 2% a complete intervention (including accessibility).
- This plan defines 3 axes: health and wellbeing, environmental behaviour, and management model. Each one of them is achieved by 3 specific objectives and key indicators for each aspect.
- Every building needs to have the technology to offer an equal service.
- People is in the centre of the plan: service vs housing, empower the people not the building.

##### **Building administrator association of Bizkaia: The perspective from building management professionals**

*Raquel Varona, member of the board of governors of Colegio de Administradores de Bizkaia*

- Building administrators in Spain work mainly for private multi-ownership buildings. They are hired by the owners as helpers to manage all paperwork, meetings and so on.
- They collaborate with architects and other building specialists in order to provide enough information about each building possible renovation options from a professional and objective viewpoint.
- In Spain, community investments and decisions are always made according to owners' majority, where administrators or managers are only advisors. For most renovations, 60% of owners' approval is required, including ground level commerce.
- However, their role is very relevant because they are often the main source of information for building owners. Information and good practice guides are very important.
- One of the main barriers when conducting multiple-ownership building deep renovations are the finance availability. Renovation works are very costly, some economic grants are not compatible with each other and the grants come months after finishing the works. Renewable energies are not common because they are quite costly.
- Information is very important. Citizens need to be informed about new technologies

### **Architect's association: The perspective from design professionals**

*Arantxa García, member of the board of governors of Delegación de Gipuzkoa del Colegio de Arquitectos Vasco Navarro.*

- The promoters of building renovations are the owners, not the administration. In most of the cases, the renovation need is limited and begins with the presence of humidity problems and related pathologies. The available economic resources are limited.
- The district renovations are promoted by public institutions and frequently with a top-bottom approach. The renovations are in these cases more global, supported by additional funding.
- It is proposed that public institutions should take the lead in order to change the scale of present renovations: transforming the urban planning into municipality renovation plans and using a circular process, instead of linear one (top-bottom).

### **Further discussion:**

- Spanish context is not ready for deep renovations yet. There is an extended dependence on economic grants to be able to pay or fund the renovation costs.
- Also, it would be necessary to increase awareness about the importance of a proper maintenance and prevention, not only renovating when urgent problems appear.
- Current Building Technical Inspections (Inspecciones Técnicas de Edificios, ITE) started in 2011 (RD 8/2011) and have proven to be very useful. However, they are only mandatory for buildings over 50 years old and they don't assess energy efficiency problems, only moisture

and structural pathologies. For this reason, more detailed inspections should be encouraged from public administration.

- In multi-ownership residential buildings, building administrators can create groups of communities in order to do large scale renovations. This can facilitate a bottom-up approach, with more involvement, access to better financing conditions or lower design and construction costs. This works better if the initial need starts from local inhabitants and continues with the lead of public institutions.
- In the case of renovating social housing for rent, the choice of the energy systems must consider that while the installation is paid by the government or public institution, the tenants are who will pay the bills and maintenance.
- It is not clear if centralized or decentralized systems are more suitable in rented homes, because the unpaid energy use can be a big burden to the whole building, together with the likely underuse of the generation potential. Individual prepaid energy solutions can minimise this problem.
- Building envelope improvement is more advantageous in buildings constructed before the 80s. In newer buildings it is often more beneficial to focus on the system renovation and their proper operation. However, this evaluation can vary greatly in some countries and cases.
- There are a number of renovation methodologies for deep renovations developed by research projects and innovation cases. Unfortunately, the knowledge of these methodologies and the key lessons learnt are not well known and consequently not used by current urban renovation strategies.
- There is consensus about the excess of paperwork and management difficulties in all the renovation process, starting from required documentation, construction permissions, economic grant request, finance limitations, etc. This can be one of the biggest barriers for deep and district scale renovations.
- Some innovation can be applied with training plans oriented to train building management agents.
- In multi-ownership buildings the difficulties to achieve a legal majority can be one of the most important barriers for any deep renovation. Local authorities can be the leading agent, but better stakeholders' dialogue and innovative financing solutions must be also included from the beginning.

## 5. Presentations summary and discussion on Round table 2: District renovation CS analysis and best facilitation tools

### SmartEnCity project - Vitoria-Gasteiz: new biomass DH in Coronación

*David Grisaleña, Innovation and sustainability department of VISESA*

*Oskar Bell, urban renovation and regeneration architect of VISESA*

- One of the biggest challenges was the residents' engagement. Urban area with aged population, high population density, high percentage of immigrants, low income owners, parking and mobility issues.
- Main 6 barriers were: the lack of trust (top-down project), citizenship not interested in energy improvement, preference for individual systems (not DH), complexity of the process management (different funding sources, timing, technical requirements), legal issues when creating a new district heating community, technical solutions not well adapted to multiple-ownership buildings.
- The first project proposal was not accepted by the communities. It required the consensus of 60% of owners. In a second attempt, the grant compatibility was improved and the public coverage increased. Additionally, they also increased the awareness in the neighbourhood with better communication and feedback methods.
- VISESA is developing a "methodology to detect building pathologies" as a way to prevent the appearance of internal condensation after the renovation. This is particularly important because this renovation doesn't include any mechanical ventilation units and the underuse of natural ventilation can facilitate the appearance of new pathologies.

### **CITYFIED project – Valladolid, new biomass DH in Torrelago**

*Ana Quijano, Researcher at Energy Department – Foundation CARTIF*

- Methodologies for city renovation at district level were developed, with a global business model that helps overcoming the main non-technological barriers. The renovated neighbourhood consisted of 31 private-ownership apartment blocks.
- There wasn't an initial social demand, the high costs of investments were a great barrier for the owners.
- To finance the renovation, an energy company offered energy supply contracts for 25 years that includes the energy production and building renovation costs, in an ESCO relationship.

### **ZenN project – Eibar, social housing district renovation in Mogel**

*Esther Zarrabeitia, Head of Urban planning and rehabilitation of DEGEBESA*

- This project is a good example of bottom-up project, started from the neighbourhood organization with a shared demand to improve the building and nearby urban conditions. The lack of accessibility and the need to install new elevators was the main driver to start the process.
- Despite the initial interest, the renovation didn't work in the first proposal of 2006, due to the high renovation costs. The requests and actions done by local owners' association together with the municipality urban renovation agency, were a key factor. There were some local people doing a strong opposition against the project. Only in 2011, with additional funding

possibilities and awareness meetings, was approved by the first owner communities. These additional grants came from regional government and EU.

- After the first renovations, in 2015 a second group of buildings approved similar renovations, despite having lower grants.
- As lessons learnt, the replicability effect works better if: building typology is similar, neighbourhood is motivated by local leaders and have some shared problems, and if the local inhabitants have minimum disposable income.
- There are some questions that can help starting the renovation process, such as the need for installing elevators and the switch to individual heating.
- Unfortunately, they believe the experience of this case is quite limited by the local conditions and the motivation of local agents and it can't be directly exported to other cases. These questions and some others must be addressed to raise awareness before starting the renovation proposal.

### **ANNEX 75 success story: 3% plus Road map for EE renovation for local districts.**

*Uta Lynar, B.&S.U. mbH*

- The first barrier in German single-family homes is that owners don't have a real interest for renovation. The current renovation ratio in Germany is around 1%.
- Public grants can cover around 20-30% of the total renovation costs.
- The energy prices didn't go as high as predicted in the last decade, and so, the owners don't trust much the predictions or plans related to nZEB concept.
- Their agency plans actions and events frequently to increase stakeholder involvement and gain the trust through clear communication. It is important that renovation plans are explained by local people with professional and specialised training to be able to explain the technical questions and doubts of the owners. The use of lighthouse projects or demonstration cases is essential to reinforce the trust as well.

### **Further discussion:**

- The cases with extraordinary grants are not replicable directly. Some of the cases presented in the workshop had high grants due to the addition of non-conventional funding sources triggered by the research project. At present, grants and public funding can cover around 20-30% of all renovation costs, in majority of the cases. Consequently, owners will still have to face very high investments and search funding in most of the cases.
- Regarding alternatives for funding, the participation of the construction companies was tested in ZenN project of Eibar, but it was under similar conditions than conventional banks and institutions.

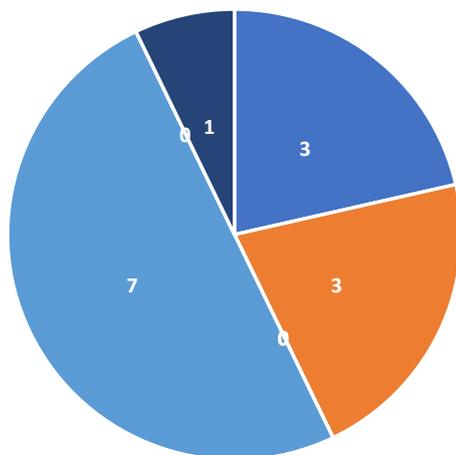
- All the cases agree on the need of coupling energy efficiency improvements with other local needs to raise the interest of local inhabitants or owners. Renovation in an integrative way. Arguments to engage people can also be: Wellbeing and health problems (thermal comfort, condensations, indoor air quality, ...), better security and better adaptation to senior citizens' needs.
- It is very important to set local information offices with technical trained collaborators. Trust is the key.
- The scale of renovation matters: creating groups of communities and define leaders in a democratic way.
- It is important to define roadmaps for large scale renovation in order to avoid/reduce the dependence on future financial aids.
- Grants should be modified in order to consider the real spending opportunities, adjusting the financial aid to the social background in each case.

## 6. Questionnaire results and analysis

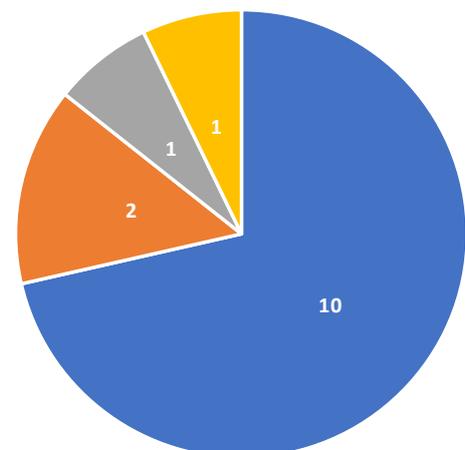
A total of 14 questionnaire answers were received. The number of participants is limited, but the information and results were analysed to complete the debate information, with two objectives:

- Find out the most common answers from direct stakeholders of real renovation cases.
- Outline the relationships between stakeholders and understand better their points of view.

Participants' Institution or company category



Project location

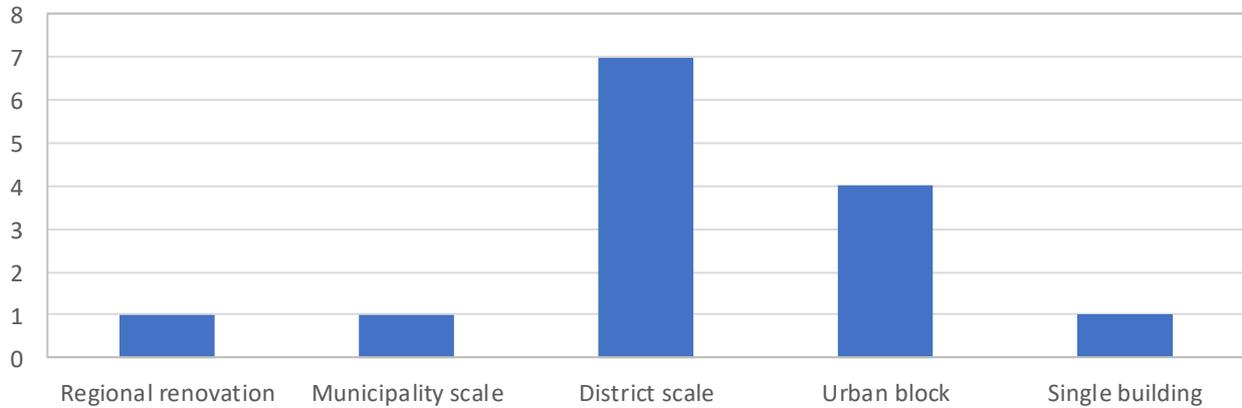


■ Public administrations  
 ■ Companies, investors  
 ■ Educat, consulting, research  
 ■ Others

■ Architecture, engineering  
 ■ Landlords, owner organizations  
 ■ End users

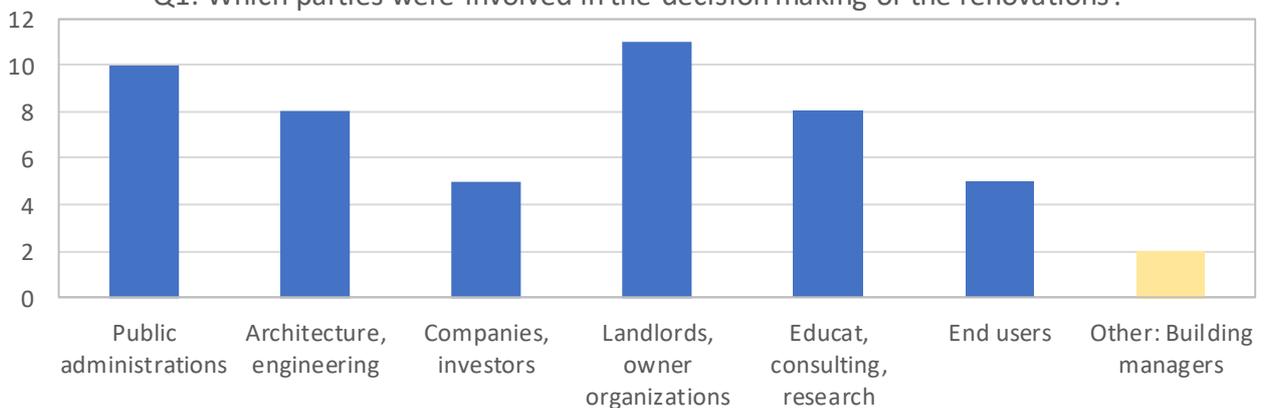
■ Spain ■ German ■ Italy ■ Denmark

Participants' Size of the renovation project

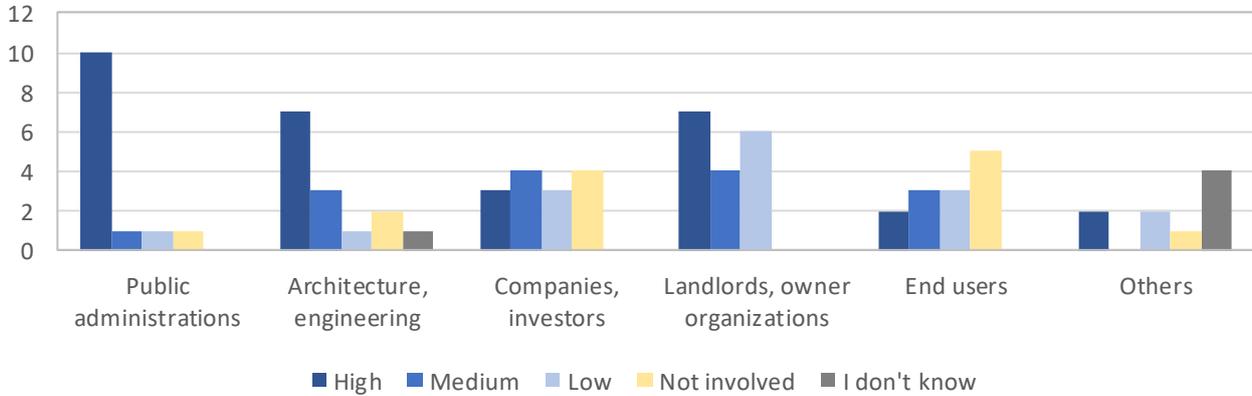


Project start	Project end
1.985	1.989
2.011	2.018
annual program since 2.014	4 year after approval
2.015	2.021
2.015	2.020
2.015	2.016
2.016	2.020
2.017	2.019
2.017	2.021
2.018	2.019
2.018	2.020
2.019	2.021
2.019	2.019

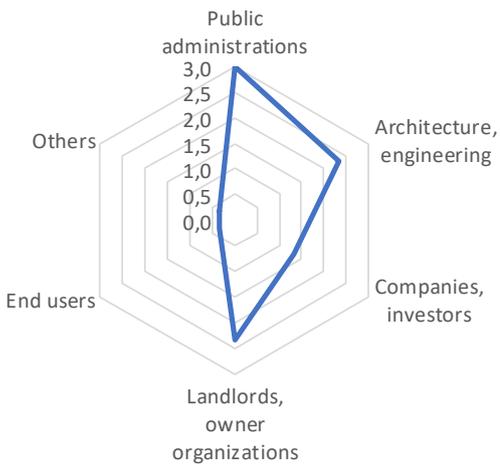
Q1: Which parties were involved in the decision making of the renovations?



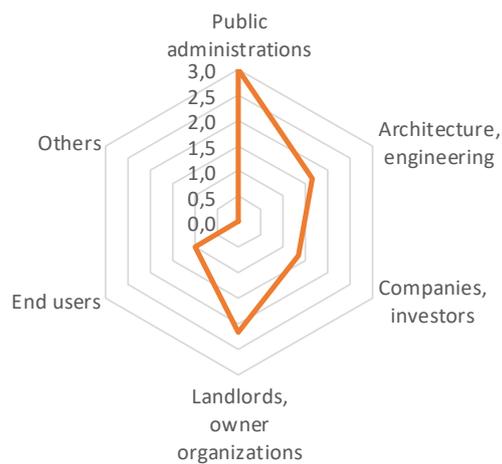
Q3: In your opinion, how strong was the involvement of the following parties to the renovation decision making?



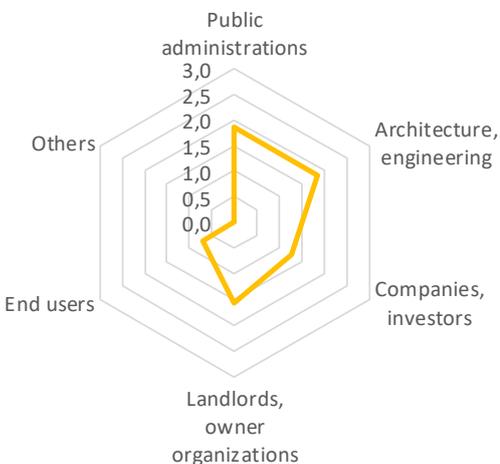
POV public administrations



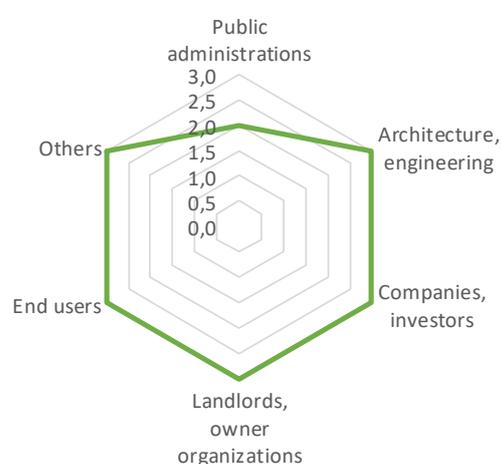
POV architecture, engineering



POV educat, consulting, research

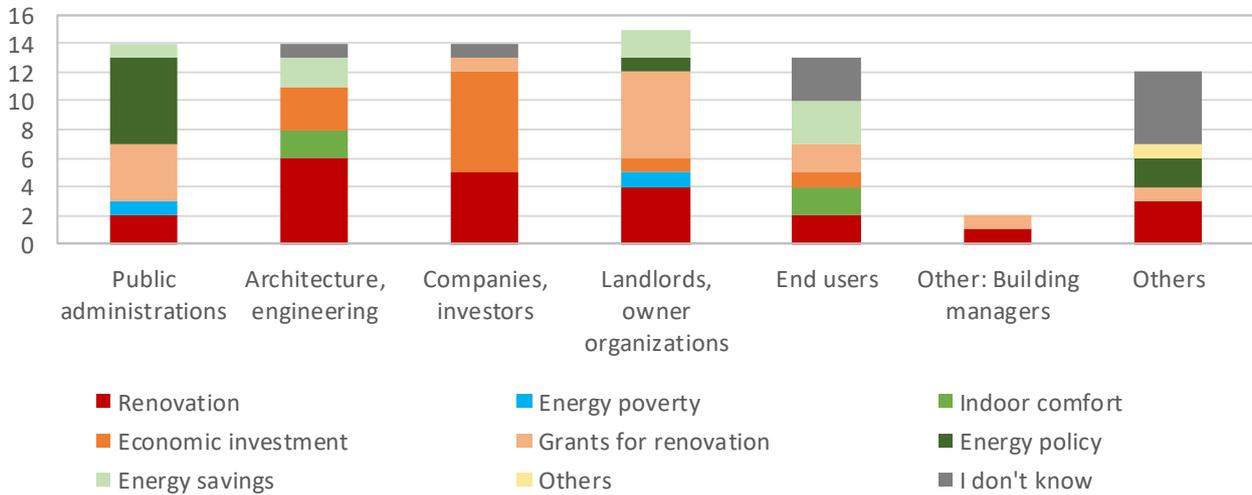


POV building managers

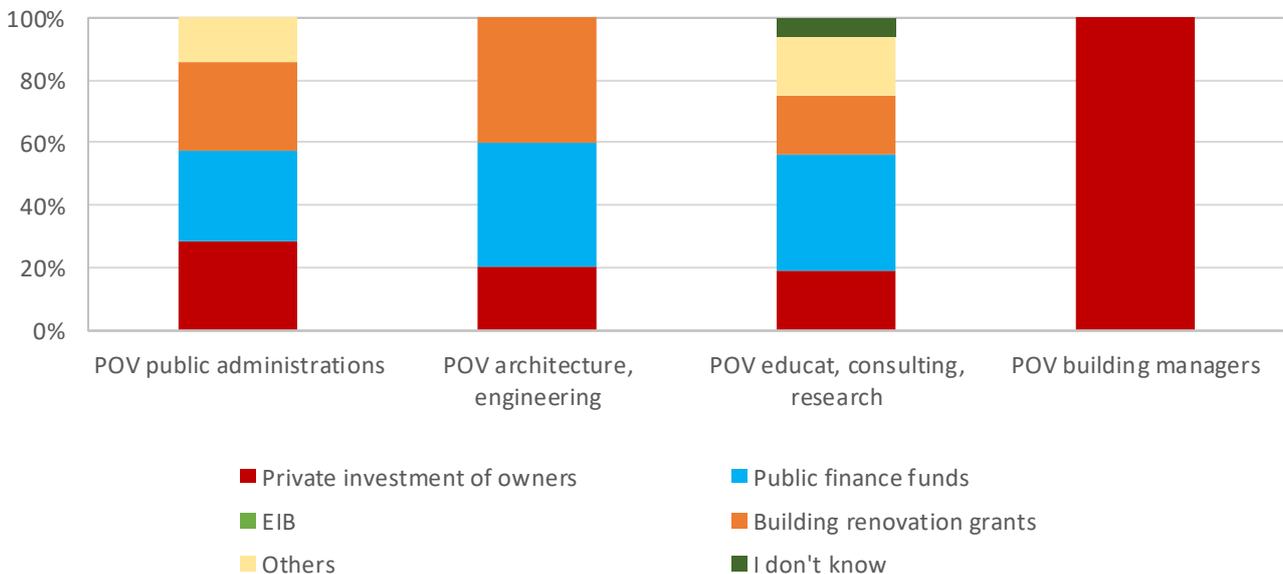
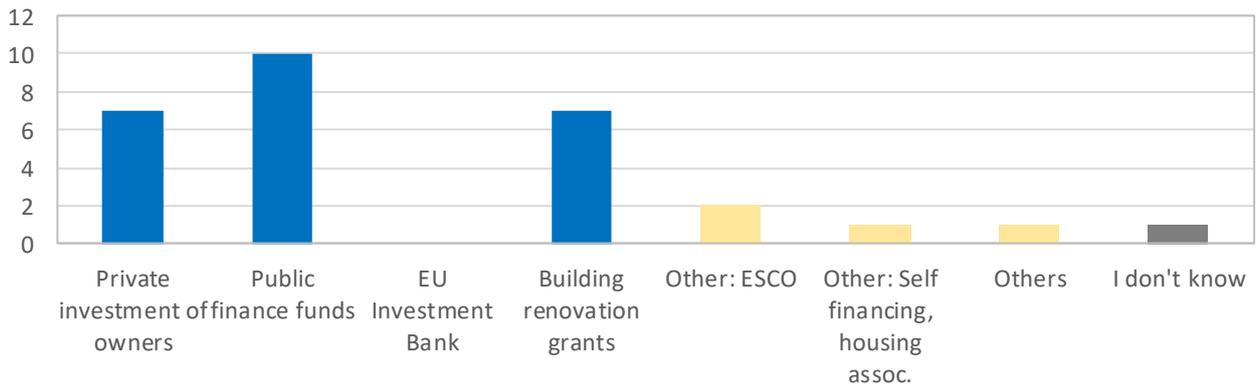


3 High, 2 Medium, 1 Low, 0 Not involved

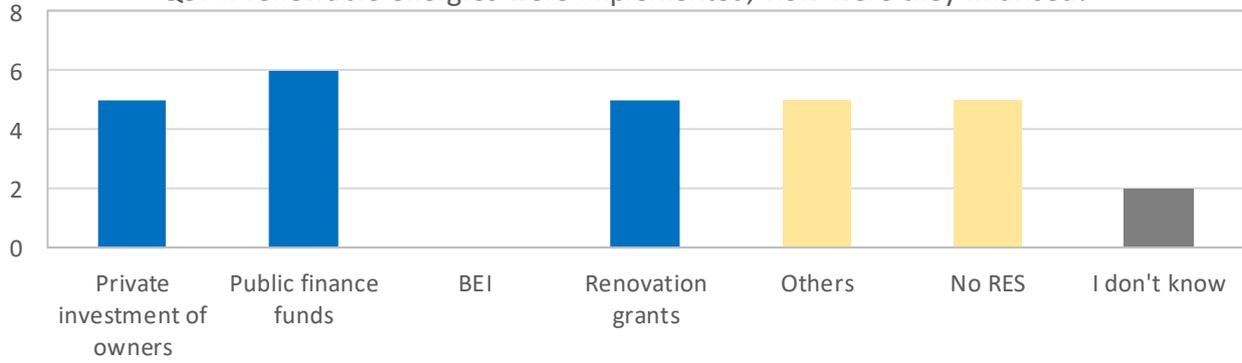
Q3.1: How important do you think the following items are for facilitating to renovate with energy efficiency and renewable energy targets?



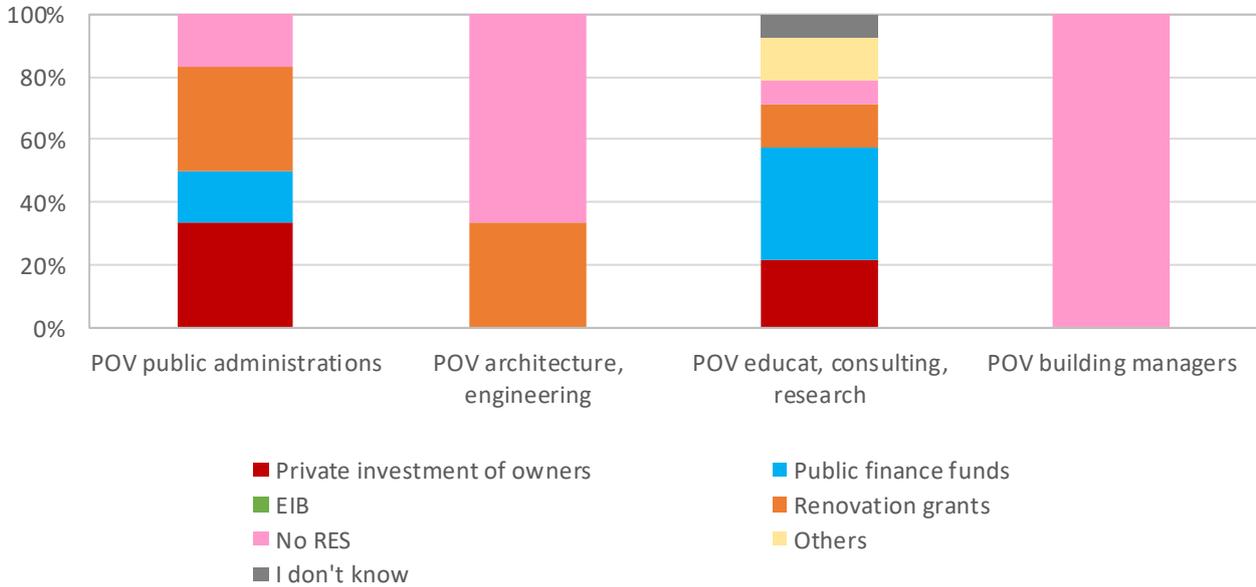
Q4: How were the building renovations financed?



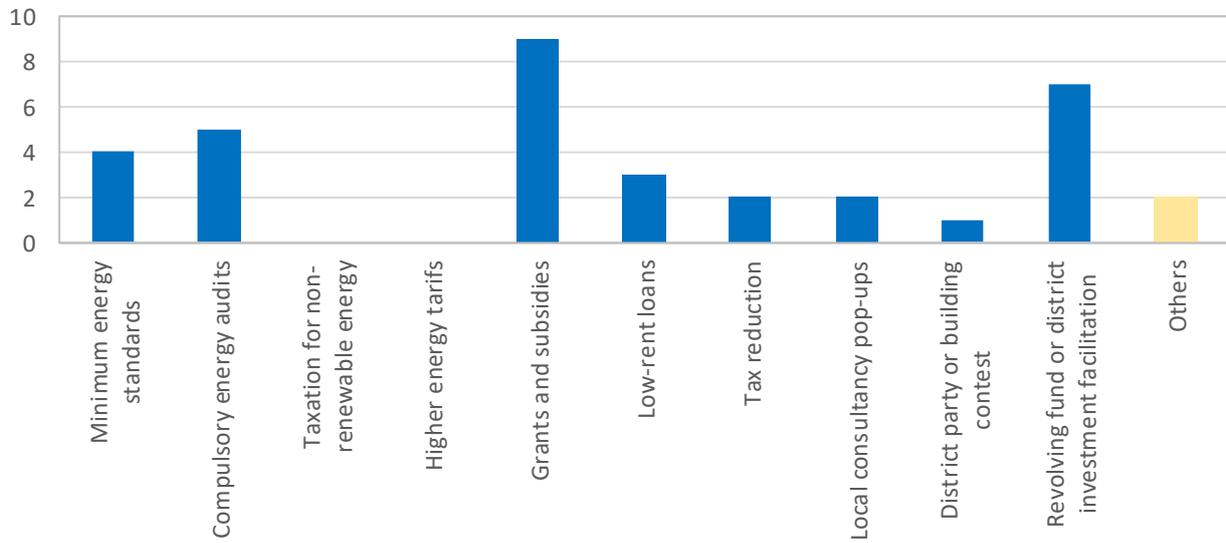
Q5: If renewable energies were implemented, how were they financed?



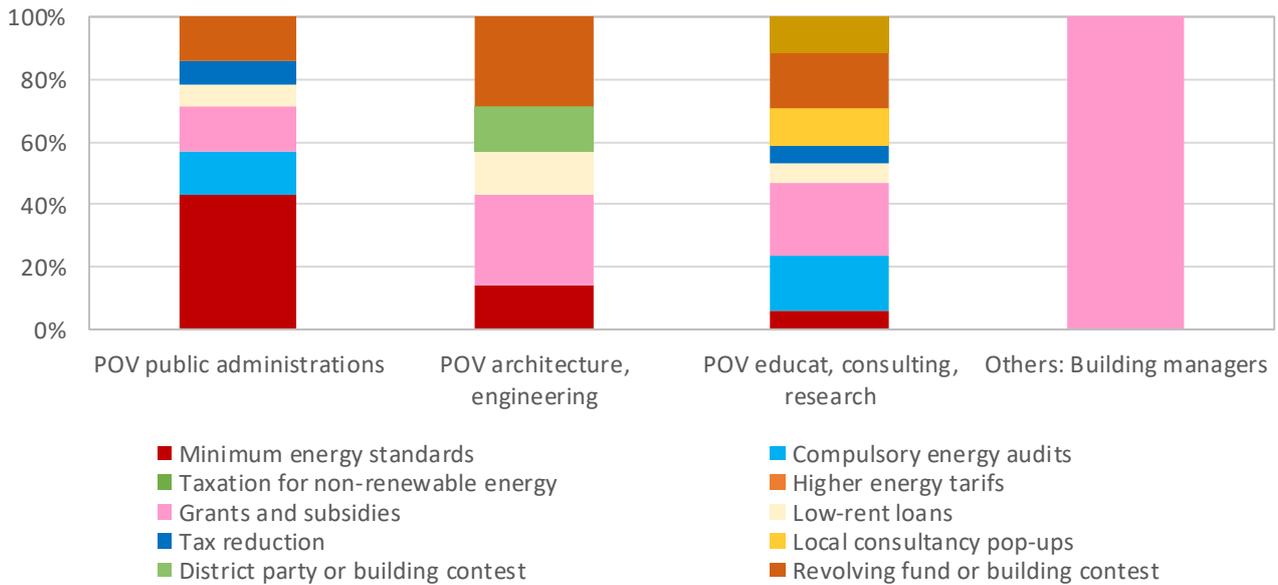
Q5: If renewable energies were implemented, how were they financed?



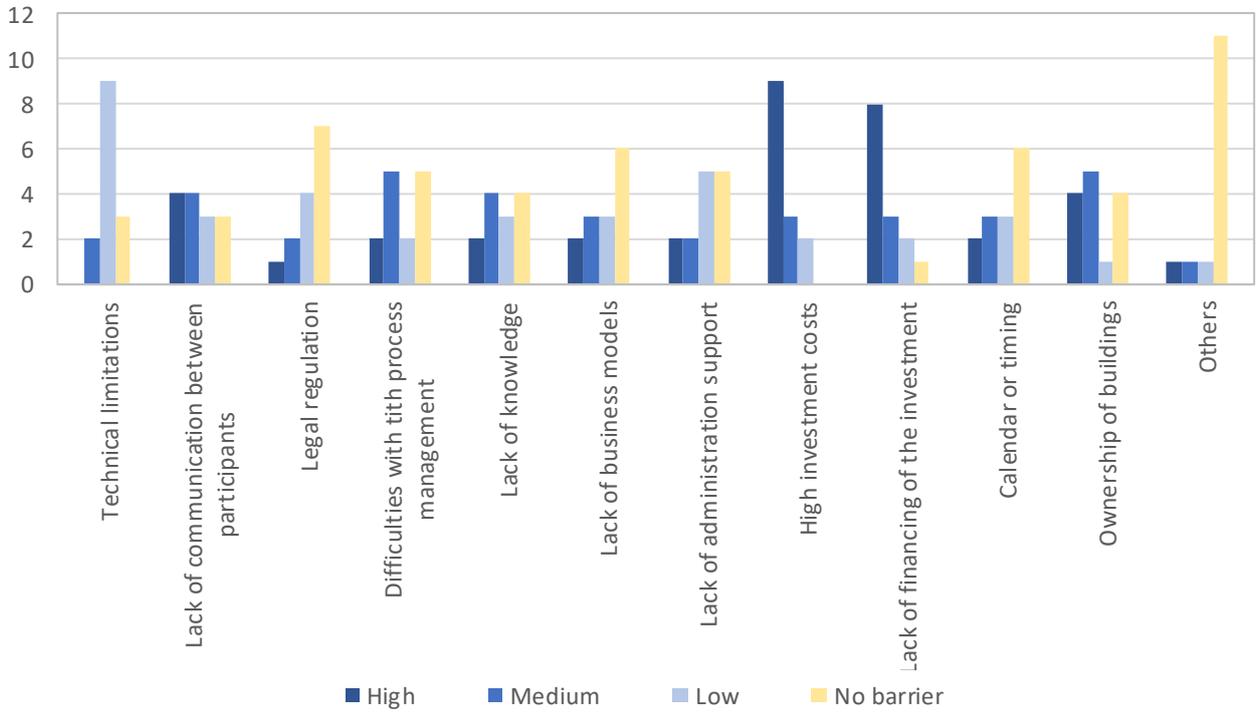
Q6: Which policy instruments moved district into renovation?



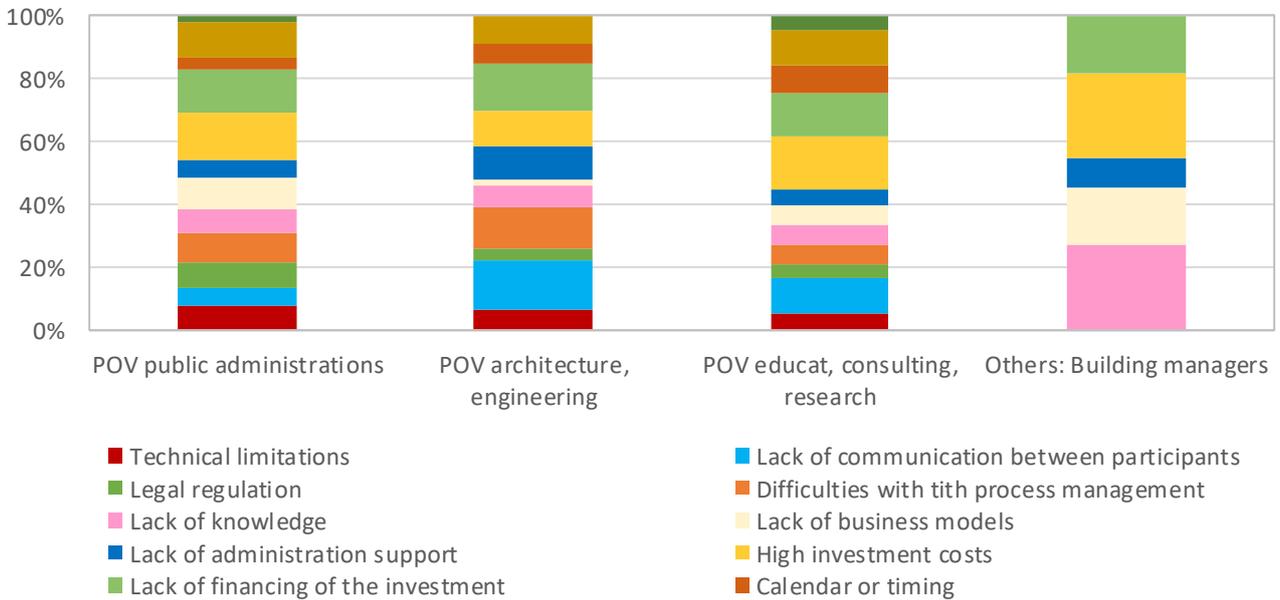
Q6: Which policy instruments moved district into renovation?



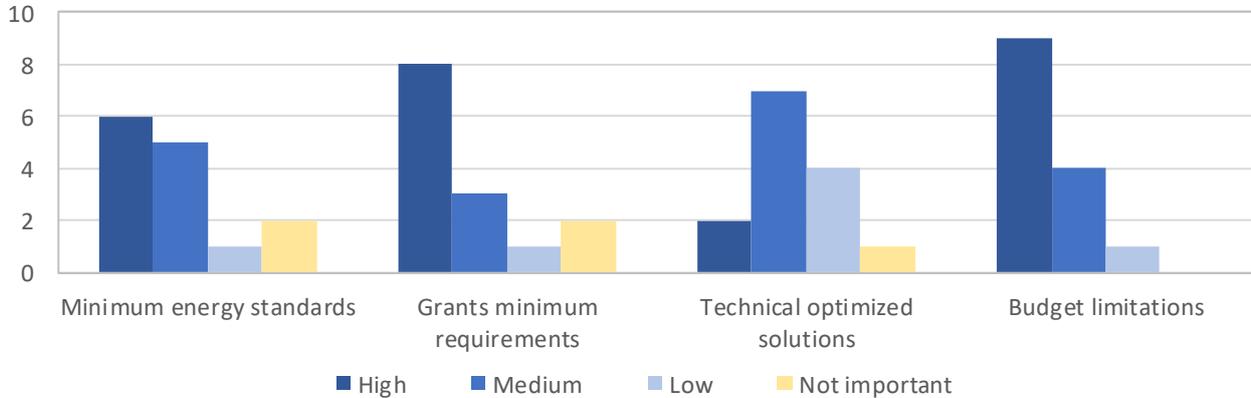
Q7: Which were the main barriers to achieve a high efficient renovation?



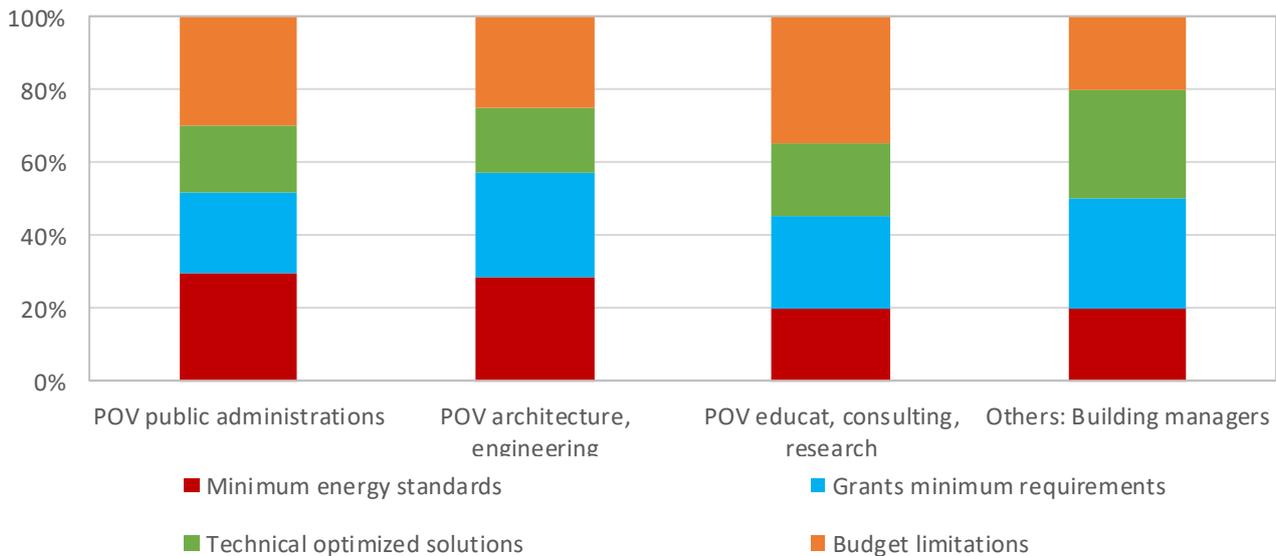
Q7: Which were the main barriers to achieve a high efficient renovation?



Q8: Which were the most important aspects for the energy decisions making of the renovation?



Q8: Which were the most important aspects for the energy decisions making of the renovation?



### Open questions:

Q9: In your opinion, what business opportunities or policy instruments do you think can further facilitate the decision making?

- Better information and communication for housing owners, offering reliable diagnosis, different technical solutions, finance details and examples from reliable sources, case studies, ...
  - One of the public housing agencies is developing a new method to improve the existing local energy consultancy services for property owners, in collaboration with municipalities.
- Economic proposals: ESCO business models, more public funding, tax reductions, ...

Q10: What was the main challenge for the renovation?

- Owners' low involvement in renovation project definition:
  - No understanding of all the benefits of a renovation, low awareness.
- The achievement of the energy requirement with the limited resources, especially in degraded urban areas.
- In social housing:
  - Reluctance from tenants and owners. Low-return of investment, limited rent prices...
  - Adapt the renovation solution to end users' needs.

Q11: What benefits were perceived after the renovation?

- Personal benefits: wellness: more indoor comfort and less heating costs.
- Building benefits: fixing of moisture pathologies, update of accessibility, better image.
- Social benefits: less energy poverty and better image of the city.

Q12: Who were the main drivers of the renovation?

- Local renovation agencies.
- Better funding possibilities, additional grants, ...
- DH company.
- Architecture and engineering professionals.

Q13: Any additional benefits apart from energy improvements?

- Urban area renovation, social integration, reactivation of local organizations, accessibility, green areas, sustainability,
  - "Empowering neighbourhoods", energy independence can be seen as an asset ...