



New urban energy

WP2 - Project Initiation

Key Innovation Form

HOUSING RETROFITTING IN GRENOBLE: MURMUR 2 PROGRAMME

Retrofitting



DELIVERABLE INFORMATION

Number	D2.1	Reviewers	Benjamin Giron (HESP)
Title	Key Innovation Forms	Nature	R – Report
Lead organization	La Metro / ALEC	Dissemination level	PU – Public;
Main author(s)	David-Albert Billiote (La Metro)	Delivery Date	21/02/2017
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VERSION HISTORY

Version	Date	Author/Reviewer	Description
1	21/02/2017	David-Albert Billiote (La Metro)	



This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 608702.

MAIN INFORMATION

Intro: The legal context of co-ownerships retrofitting is very complex in France. In the meantime its sector has the highest energy saving potential. Development of retrofitting work-programs is long (2/3 years) and expensive (20-30 k€/dwelling to reach 96 kWh/m²/year). In City-Zen project, La Metro aims to systematize refurbishment programs for co-ownership buildings dated from 1945 to 1975 involved in façade renovation works

Principle: The mains feedbacks from previous experimentations tested in Grenoble proved the innovation has not been pushed forward on technical aspects but on the processes and on accompanying measures developed. The key element of the energy refurbishment process was the co-ownerships decision to start the works. It requires a multidisciplinary engineering assistance focussing the following skills: R&D design for thermal studies, real estate legal counselling for co-ownerships, setting-up complex financial operation and business model. Based on the experience of previous experimentation La Metro launch the MurMur2 insulation campaign (2016 – 2020) with the objective to refurbish 10.000 dwellings amongst 50% should be private condominiums built between 1945 and 1975. For this typology, the developed incentive scheme proposes a choice among 3 offers of works :

- 1/ progressive thermal renovation (walls insulation)
- 2/ complete thermal renovation (insulation of roof, walls, groundfloor and ventilation system as option)
- 3/ exemplary thermal renovation (complete renovation, improvement of ventilation system, replacement of windows)

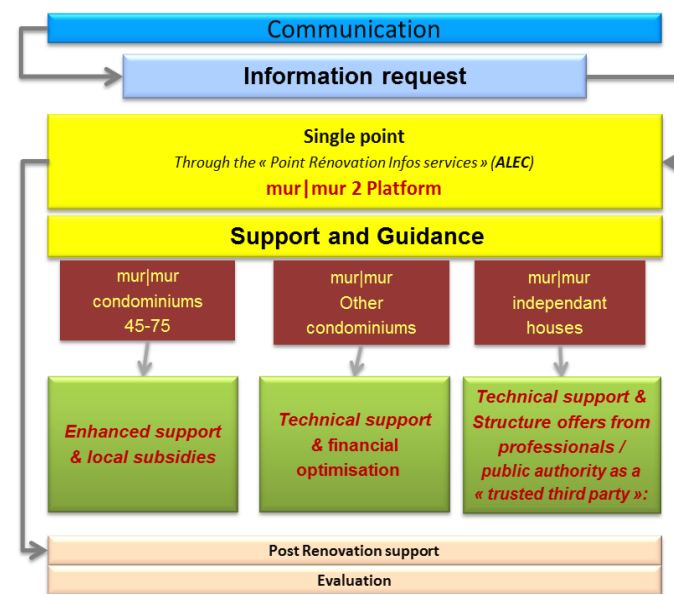
A single contact point run by professionals (ALEC and the Pact of Isère) has been created to give answer on technical questions and make administrative and financial process.

Cityzen project support la Metro and ALEC with the design of the overall process to address legal, financial and social barriers, as well as to support financial frontrunners condominiums that will implement exemplary thermal renovation in the city Grenoble.

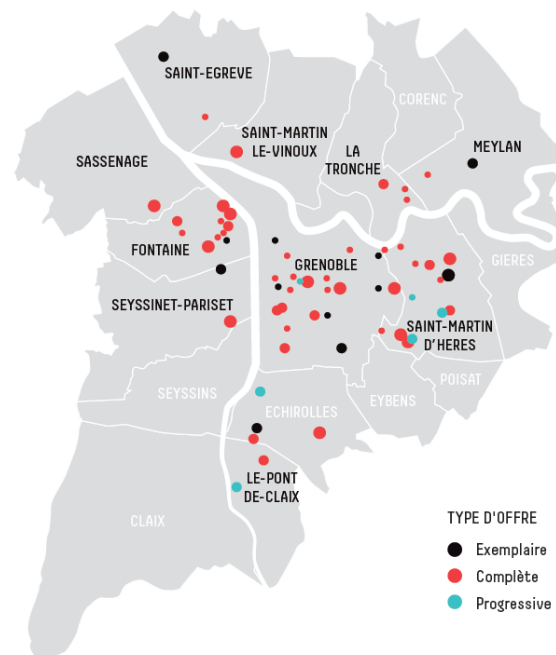
- Location:** Grenoble
- Work Progress :** From 2014 to 2016, La Metro and ALEC made a sound assesments of the Murmur1 campaign and designed a new campaign to up-scale the refurbishment of private housing. Murmur 2 campaign has been launched in **avril 2016**. The first condominium tio be refurbished as part as the citizen project are in the decision process (vote at the general assembly of co-owners)



Overview of support process the set-up as part as MumMur2 campaign:



Map of condominiums invovled in Murmur1 campaign:



OPPORTUNITIES, BARRIERS AND SOLUTIONS

	Opportunities	Barriers/Challenges	Solutions
Technical (/Geographical)	<ul style="list-style-type: none"> Grande uniformité des modalités constructives dans l'agglomération grenobloise qui permet de proposer des offres de travaux standardiser et compatible avec la cible BBC renovation, soit 96 kWh_{ep}/m².an 	<ul style="list-style-type: none"> Contraintes architecturales qui peuvent degrader les programmes de travaux en copropriété. Qualité dans la mise en oeuvre des travaux 	<ul style="list-style-type: none"> Suivi précis de la phase conception des travaux Edition d'un guide qualité architecturale Organisation de se ssions de travail sur le référentiel technique MM2. Mise à disposition d'un AMO "renovation exemplaire" pour garantir les moyens et l'atteinte de la performance BBC renovation.
Political/Legal	<ul style="list-style-type: none"> Les orientations réglementaires incident de plus en plus les propriétaires à réaliser des travaux de renovation énergétique de leur habitation. Ex : loi TEPCV 	<ul style="list-style-type: none"> En copropriété, les modalités décisionnelles et les difficultés financières de certains copropriétaires ralentissent ou empêchent tout programme de renovation énergétique 	<ul style="list-style-type: none"> MM2 amène des surfinancement à destination des copropriétaires modestes et très modestes afin de ne pas metre ces ménages en difficultés à l'occasion de vote de travaux
Financial/Economic	<ul style="list-style-type: none"> Il est estimé unmontant de travaux de 94 M€ dans le cadre de la campagne MM2, générant un potentiel de 1 800 emploi dans le bassin grenoblois (1 M€ d'investissement permet la creation de 19 emploi dans l'efficacité énergétique, sources : ADEME) 	<ul style="list-style-type: none"> Les objectifs de renovation visés nécessitent un lourd investissement en fonds publics, afin de générer l'effet de levier nécessaire à la prise de decision en copropriété. Ce lourd investissement est appelé à baisser voir disparaître dans les années 2020 pour laisser la place à un marché de la renovation énergétique devenu mature 	<ul style="list-style-type: none"> La Métropole maintien un budget massif pour MM2 (18 M€) et sollicite de multiples financeurs institutionnels (ANAH, Région ARA, PIA...) pour augmenter l'effet d'incitation. 1 € d'argent public génère 3,5 € de travaux dans l'efficacité énergétique
Social	<ul style="list-style-type: none"> MM2 est une politique de soutien aux ménages en précarité énergétique Le dispositif améliore le confort (hivers et été), permet une reduction des consommations de chauffage (-35% en moyenne), et valorise le patrimoine des copropriétaires 	<ul style="list-style-type: none"> Effet rebond possible qui limite l'impact des renovations sur les baisses de consommation Taux de réussite dans le passage à l'acte qui reste inférieur à 50% 	<ul style="list-style-type: none"> MM2 soutient en priorité les ménages les plus modestes Un accompagnement renforcé a été conçu pour améliorer la prise de decision
Environmental	<ul style="list-style-type: none"> Le gain énergétique total est estimé à 45 GWh en énergie primaire pour la globalité de l'opération MUR MUR 2 (estimation ALEC Grenoble). 		

NEWS & LINKS

- <http://www.lametro.fr/505-mur-mur-campagne-isolation-de-grenoble-alpes-metropole.htm>
- <http://www.alec-grenoble.org/9132-mur-mur-2-campagne-isolation-renovation-coproprietes-1945-1975.htm>
- <http://www.cityzen-smartcity.eu/ressources/building-retrofitting/>

DESCRIPTION OF THE INNOVATION AND RATIONALE FOR THE SELECTION

Existing building stock offers a massive potential to reduce energy consumption. But some interventions are more difficult and with a cost that reduce the potential impacts in terms of numbers of retrofitting buildings. Mur/mur2 insulation campaign aims to encourage private owners from co-ownerships from the years 1945-1975 to rehabilitate their dwellings. It has been indeed analysed that it will be more rewarding in terms of energy saving and technical system to make works on that typology of buildings, which were constructed after WW2 period without any thermal specifications. The mains feedbacks from previous experimentations tested in Grenoble proofed the innovation has not been pushed forward on technical aspects but on the processes and on accompanying measures developed. The target was to reach nearly 150 condominiums, about 5,000 dwellings.

LEVEL OF DEVELOPMENT

TRL8 - System complete and qualified: Every aspect of the level of deployment has been already lifted. The refurbishment process has been successfully developed and tested as part as the Murmur1 retrofitting campaign (2010 -2014). Objectives of the new Murmur2 campaign (2016-2020) are to up-scale the programme by including new typology of buildings and addressing remaining technical, financial, legal and social barriers.

WHAT ARE THE MOST RELEVANT DEMONSTRATION PROJECTS?

“MUR/MUR1” insulation campaign (2010 -2014): Following the previous experimentation, Grenoble-Alpes-Métropole developed an incentive energy-refurbishment work programs for the whole Grenoble urban district. The program is based on the followings principles: an one-stop shop principle for information and assistance, the OPATB guidance complying with Effnergie Label, a range of work-programs to match with co-ownerships objectives in terms of energy performance, investments and financial supports. The municipality of Grenoble actively participates to support technically and financially implementation of this program, in its territory. The insulation campaigns achieved the following results:

- 174 condominiums (about 9.500 units) have received support of ALEC
- 52 condominiums (or 2.900 units) have voted work
- 41 condominiums (or 2.200 units) are preparing to vote work (before June 30, 2014)

IMPACTS OF THE INNOVATION

□ Impact on Energy (supply or savings) & greenhouse gas reduction expected

The technical guidance provided by Mur/Mur2 campaign has been design to reach the French BBC renovation level, which is of 96 kWh_{pe}/sqm/y (for heating, cooling, DHW, ventilation and lighting) when a complete renovation is done. Depending on the consumption level before works, the gain could reach 60% of energy savings. No RES production is forecast in technical guidance. Co2 saving will be calculated once decision to making work will be taken since it is highly depend of the energy used for heat and domestic hot water production .

□ Wider potential benefits for cities

After the experience developed by the city of Grenoble and Echirolles on single OPATB (Building thermal improvement program), the mur/mur program has been launched on the whole metropolitan area. The impact in terms of jobs creation and economy are real, but not evaluated. ALEC provided special training session for local building enterprises.

□ Other impacts

City-Zen should foster the acculturation of local stakeholders involved in the energy savings for existing private housing. Incentives disposal are complicated to implement, even more with the environmental constraint. However, Grenoble area has a high level of experimentation to foster a common culture shared by stakeholders involved: economic players of the construction, public sphere, engineering, co-ownership management, architects and designers, banking sector, ... That common culture a precious source for the Grenoble living area with an ambition to broad dissemination at national and European levels.

TECHNICAL FEASIBILITY AND SOCIO-ECONOMIC VIABILITY

Technical feasibility is not a big problem for the typology of building when external insulation is possible. Socio-economic viability depend on decision in co-ownership, must be taken at the decision of majority. It needs a lot of work to convince people to accept to make insulation works.

INTEGRATED MEASURES

□ Integrated measures combining multiple of the domains: buildings, smart grids and district heating and cooling

- The link with smart grid is very interesting: enable to have consumption in real time and allow people to act on it. Only when condominium will have decided work, we can be able to measure their real energy consumption, thanks to the installation of a box (link to Vivacité tool developed within Cityzen).
- Grenoble district heating network (DHN) is supply by 60% of renewable energy. When a condominium to be refurbished is situated close enough to the DHN and has a collective heating system, connection to the DHN will be made mandatory.

□ Which other stakeholders would need to be involved in the implementation of the key innovation?

La Metro : Metropolitan local government, who will develop Mur/Mur 2 campaign and will have the responsibility for retrofitting works in Metropolitan area.

ALEC : Local Climate and Air Energy Agency, which was the single contact point for Mur/Mur 2 campaign.

CHALLENGES TO BE ADDRESSED BY CITY- ZEN

Manies studies have been launched by La Metro and ALEC summer to have a wider potential of retrofitting co-ownerships :

- **Technical:** To Set-up of technical guidelines and specific requirements to monitor actual energy savings.
- **Financial:** To ensure a convergent application between energy savings financial disposals, and to propose innovative financing schemes (ex. Partnerships with banks, on-stop-shop, etc.).
- **Legal:**
- **Sociological:** The social acceptability of energy-savings works program, combined with more sustainable behaviour in a smart dwelling are 2 mains challenges of retrofitting. City-Zen project will carry sociological analys regarding the collective decision meeting in the general assembly of co-owners. Cityzen will work on the potential of communicative energy meters to clearly analyse and act on residents' behaviour and adapt the recommendations and practice guidance (link withVvivacité) .