Where we are

• Grenoble Metropolis – French Alps
• 440 000 inhabitants on 49 Municipalities

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Who we are

- Local Agency for Energy and Climate
- Non-profit Organization, created in 1998
- 23 Salaries
- Mission: Implement Public Authorities Energy strategies on the territory

- Partner in EU project (Grenoble/Amsterdam)
- Local Information Point for Mur | Mur program

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In a nutshell

- Large scale private housing building renovation campaign

- 2010-2014: 4500 dwellings 1945-75 retrofitted

- 2016-2020: Objective 10000 retrofit:
  - 5000 dwellings (1945-75)
  - 5000 other dwellings + individual houses

- How to create the conditions for success: propose optimized financial, technical and organizational support, and work closely together with every stakeholder!

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Value proposition: targets and expectations

A technical support and financial incentive scheme for the thermal renovation of private housing to:

- Significantly lower CO2 emissions of the buildings
- Move to a phase of “massification” of retrofitting projects
- Ensure the thermal and architectural quality of the projects,
- Contribute to the fight against fuel poverty in households
- Stimulate the building economic sector

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Value proposition: strategy and actions

- **New strategy for enhanced demand and efficient project support:** steps of services for the project owner, promotion of the benefits (technical / economical / confort /...), tools (financial calculation, work examples), public authority as a « trusted third party »: qualified builders contacts, price offers checking,...

- **New collaborations for individual housing:**
  - Work with **technical engineers** to define relevant and homogeneous « energy audits »
  - Work with **builders’ federations** to identify and develop « builders’s team consortiums »: capable to manage « global » renovation works, with all technical skills coordinated, with a unique contact for customer, quality check, insurances,...
New collaborations for condominiums:

- Work in collaboration with housing « managers » and joint ownership associations to inform / train / support them on mur|mur services
- Work in collaboration with maintenance and operating companies: post renovation energy monitoring, heat flows and temperature regulation, incentive contracting on Energy performance
Technology

- 3 retrofitting packages available:
  1. **Progressive**: external insulation of walls
  2. **Complete**: insulation of walls + roof + floor
  3. **Exemplary**: insulation of walls + roof + floor + windows replacement + renovation of the ventilation

- Each project must fit to thermal performances required for each element (walls, roofs, floor, windows ...)

- **Exemplary** energy consumption target: < 96 kWh/m².yr primary energy (Effinergie BBC Rehabilitation level)

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Technology

- External envelop insulation (walls, roof, floor) + windows for exemplary projects

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Finance

- View by Public Authority:

- 1 € Public fund generates 3 € investment in work in local economy (Murmur 1 : 22M€ budget, 61 M€ Work)

- Public Cost for La Metro: 13 M€ + Operating cost 5,2 M€ ie

3,7 €/inhabitants/yr over 2016-2022

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Finance

- View by habitant, depending on work package realized:

- Work Cost:
  - 9400 to 15000€ to finance after subsidy
  - 2500 to 7000€ extra-investment compared to simple maintenance of the building (with only painting on wall, and waterproof layer on roof)

- Subsidies:
  - 600, 1500, up to 6500 € / dwelling
  - Individual subsidies according to the household income
  - National tax credit and 0% interest loan
  - Specific MM2 collective Loan with low rate (1.5% 15yr under discussion)
Finance

- View by habitant, depending on work realized:

- Return on investment (Hyp 2% capital cost, observation 20yrs, only considering energy savings):
  - If energy price is stable, only “complete” work is rentable, with 30% energy savings
  - If energy price increase +5%/yr, all “3 work packages” are rentable
Society

- Lower energy bills (-20 to -50% of heating, 135 to 250 €.yr savings)
- More comfortable inside living conditions (summer+winter)
- Increase value of the dwelling
- Special support for tenants with very low income: specific increased subsidies + advance
- Social Clauses for works: unemployed people are integrated to craftmen companies during MM2 work, to get better qualification and employment capacity
- Environmental benefit: Decrease local pollution and fight against climate change (5200 tons CO2 saved in MM1)

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Society

- Help inhabitants being actor of the work decisions in their condominium, through dedicated animations
Communication & dissemination

• Transversal communication: Website www.alec-grenoble.org, videos, communication kit in municipalities and events, public meetings, sites visits.

• Dedicated presentation meetings with building managers and architects.

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Governance

- Local authorities fully involved in the program, assisted by ALEC and SOLIHA:
  - Initial specific commitments of “Public authority” to vote global budget
  - Meetings ALEC/LA METRO/SOLIHA every month: commit for subsidies attribution, projects review
  - Direct partnership “Public authority” with stakeholders to engage them in MurMur program rules
Lessons learned

• Energy retrofitting of condominiums with high performance criteria is a very long process (roughly 5 years)
• 50% of condominium engaged in a technical study finally vote for the works: honorable but perfectible.
• Adapted and key time support for inhabitants is required
Lessons learned

• Public subsidies still necessary to stimulate work and compensate high investment cost for habitants
• Importance to associate professionals for quality of work
  • Before (architect technical engineering)
  • During (craftmen)
  • After Work (Maintenance / Operating companies)
Innovation

• Public Authority guarantee for quality of work, by partnership with technical engineering, craftsmen and architects engaged to respect MurMur 2 rules

• Dedicated sessions for habitants (elearning training, animations) and professionals

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Innovation: work closely with a LOT of partners!!

- Operators
- Financers
- Municipalities
- Professionnal organizations
- Craftmen and Technical Engineering
- Architects:
- Others: Operating companies ...

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Replication

• What makes your solutions replicable:
  • Habitants peer to peer exchange based on first MM1 campaign good feedback
  • Skills and competences developed by every partner

• For a successful replication?
  • Keep on ameliorate individual awareness and mutual communication to favorize collective decision process for engaging work
  • Carbon taxes/Energy cost increase would help...
Q&A and Discussion

• more in details?

• Where we are now?
  • For condominiums
  • For individual houses
Work ongoing ALEC – Condominium 1945-1975

- Inscriptions
- Meeting ALEC with building managers/ syndic
- Technical Studies completed by ALEC
- Technical Studies presented
- Meetings for inhabitants

+ 46
Condominium <1945 >1975
180 contact houses
42 audits completed
15 work ongoing
12 work completed
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THANK YOU!
Jerome Buffiere ALEC
Jerome.buffiere@alec-grenoble.org
# Lessons learned

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions implemented in</th>
</tr>
</thead>
</table>
| Financial capacity to invest for co-owners     | - Partnership with banks « Banque Populaire des Alpes » : implementation of collective loans for condominiums  
- Third party financing experimentation  
- Advance of 50 % of the subsidy at the start of the retrofitting |
| Internal problem in the management of the condominiums | - A step-by-step services to better support the condominiums in their decision process  
(elearning MM2, technical study, habitants meeting, financial informations...) |
| Difficulty to find advice and skilled building professionals | - Requirement spécification for the consultation of architects / technical guides and trainings (eMooc)  
- A mur|mur partnership (charter of engagement) |
| Monitoring done on a few operations only       | - Wish to involve Operating/Maintenance companies in the monitoring and garantee of result |

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## Energy Building specifications

<table>
<thead>
<tr>
<th></th>
<th>BEST table CityZen specifications</th>
<th>MurMur2 specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Façade/wall</strong></td>
<td>$U$ W/m$^2$K</td>
<td>0,5</td>
</tr>
<tr>
<td><strong>Roof</strong></td>
<td>$U$ W/m$^2$K</td>
<td>0,3</td>
</tr>
<tr>
<td><strong>Ground floor</strong></td>
<td>$U$ W/m$^2$K</td>
<td>0,4</td>
</tr>
<tr>
<td><strong>Glazing</strong></td>
<td>$U_g$ W/m$^2$K</td>
<td>1,5</td>
</tr>
<tr>
<td><strong>Energy transmission of glazing</strong></td>
<td>g %</td>
<td>40</td>
</tr>
</tbody>
</table>

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