



INNOVATION

HOW TO ACCELERATE INNOVATION UPTAKE FOR ENERGY REHABILITATION

TOPIC REPORT — SEVILLE, 30th NOVEMBER 2017

**BUILD2LC Project
Boosting Low Carbon
Innovative Building
Rehabilitation in
European Regions**

The topic report is a communication action for the general public to show the main conclusions and results of the events being held with stakeholders in relation with BUILD2LC topics.

More info: interreurope.eu/build2lc

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ABOUT BUILD2LC

The recent framework strategy of the “Energy Union” of the European Commission indicates that 75% of European households are energy inefficient. There is also great potential for energy savings in public buildings of the EU. The BUILD2LC project will contribute decisively to achieve the EU energy goals, with its overall objective to increase the energy rehabilitation of buildings, and pave the path that facilitates the transit towards the new standard of nearly Zero Energy Buildings (nZEB).

The key innovative aspect of BUILD2LC is its multidisciplinary approach, that counting on different complementary expertise at Local (Gloucestershire County UK, and Gorenjska SI), Regional (Andalusia ES, Rzeszow PL, NorthWest Croatia HR and Jämtland-Härjedalen Region SE) and National (Lithuania LT) level, will allow achieving the energy goals and a sustainable development of the construction sector, based on improving the competitiveness, generating qualified employment, promoting innovation, and alleviating fuel poverty, in line with the European objectives for smart, sustainable and inclusive growth.

The project, with a high replicability impact will design innovative financial instruments, adapted to the needs of citizens, new mechanisms that contribute to a more competitive business network, special programmes to support innovation, and innovative collaboration actions, focusing on vulnerable groups. Homeowners, business sector, policy makers, local authorities, knowledge institutes and vulnerable groups will benefit from the project.

BUILD2LC will develop a complete learning process to facilitate an effective knowledge flow among regions, with a bottom-up approach methodology, counting on the regional stakeholder groups. More than 70 best practices and almost 70 events involving nearly 400 stakeholders, will establish 7 different Regional Action Plans covering a population of more than 15 million inhabitants and improving energy efficiency over 25% at the participating regions.

— AIMS

The main objective of the BUILD2LC is **to increase the energy rehabilitation of buildings to reduce energy consumption and enhance policies to favour the creation of a market of specialised companies in this sector**. To achieve this objective, it is necessary to reinforce the competences of partners in the following sub-objectives:

1. Encourage the demand and promotion of investments, facilitating that citizens undertake energy rehabilitation activities.
2. Promoting the competitiveness of the business network: reformulating business models (ES-COS) and integrating all actors in the value chain of the energy rehabilitation sector.
3. Improve the skills of workers aimed at new market niches of energy rehabilitation of buildings.
4. Encourage innovative solutions, the use of new materials, boosting public procurement, and the cooperation between companies and knowledge institutes.
5. Eliminate barriers that impede the rehabilitation of buildings, especially those of a normative or administrative nature.

Therefore, the exchange of experiences between partners, some of them occurred during this Interregional Meeting will be aimed at:

- The promotion of innovation in the energy rehabilitation sector in line with the priorities set in the smart specialisation strategies of the participating regions. The increase in innovative projects, innovative public procurement processes and better knowledge of society of these solutions will also be project results.
- Boosting mechanisms to support innovation in equipment and systems of higher energy efficiency in buildings with special relevance to the role of public administration and promotion of innovative strategic projects, demonstration projects and pilot projects in buildings.



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INTRODUCTION TO THE TOPIC INNO- VATION

The main objective of the BUILD2LC project is **to increase the energy rehabilitation of buildings enhancing the implementation and change of policies**. The project is focused on four different topics:

- New financial instruments
- Professionalization of the construction sector
- Activation of demand and combating energy poverty
- Innovation

BUILD2LC addresses the topic *innovation* focusing on the encouragement to uptake innovative solutions, the use of new materials, boosting public procurement, and the cooperation between companies and knowledge institutes. Therefore, the exchange of experiences between partners will be aimed at boosting mechanisms to support innovation in equipment and systems of higher energy efficiency in buildings with special relevance to the role of public administration and promotion of innovative strategic projects, demonstration projects and pilot projects in buildings.

Innovation is a very broad concept, and should not only be understood as technological innovation; it could refer to financial, management or communication innovation with regards to energy efficiency in buildings. The focus of the Innovation topic within the BUILD2LC is ways of working to facilitate the creation and dissemination of innovation in buildings and the construction sector.

Topics that were addressed during the meeting are e.g.

- Academic session on the innovation system and large scale transitions.
- The role of an innovation strategy and circular economy in Region Jämtland Härjedalen.
- Workshops on the role of innovation in order to reach near zero-energy buildings.
- Good practices exchange between partner regions.
- Study visits.

All aspects of *innovation*, whether technological, financial, or the development of mechanisms, stimulate activity and engagement across sectors.

3 INTERRE- GIONAL MEETING IN ÖSTER- SUND, SWEDEN

The BUILD2LC Interregional Meeting titled *'How to accelerate innovation uptake for energy rehabilitation'* was held in Östersund on 12th - 13th September 2017 in accordance with the agenda shown in *Appendix 8.1*. The Seminar attracted 40 delegates, and speakers including Build2LC partners and their stakeholders.

This section summarises the key outcomes of the meeting.



Anneli Kamb, Joaquin Villar and Elin Nirjens.

— SUMMARY OF SESSION 1 welcome session

Susanné Wallner, Regional Council at the Jämtland Härjedalen Region, Joaquín Villar, Lead Partner, Andalusian Energy Agency and Anneli Kamb, Build2LC PM at Region Jämtland Härjedalen, opened the seminar. They explained the value of the Build2LC project, as outlined in the Foreword and welcomed the delegates.



Susanné Wallner, one of the regional commissioners, opened the meeting by welcoming everyone to Jämtland Härjedalen. She mainly works with regional development, which in her case means to work with the companies and make sure that everything is working well for them. Wallner explains that at the moment there is great development in the region, and in particular a lot of new buildings are being constructed.

She further explains that most of the construction is concentrated to the tourism destinations in Åre and Härjedalen municipalities. Tourism is one of the most important sectors in the region and each year the region hosts 2.9 million guest nights in Jämtland Härjedalen, which is a lot compared to its inhabitants of 127.000. As the region is aiming to be fossil fuel free by 2030, sectors like tourism with large building stocks will be very important to reach this goal. Therefore, projects like Build2LC are very important for the sustainable development of the region, as we can reach this goal faster by learning from each other.

Elin Nirjens, the meeting moderator for the day, invited **Joaquín Villar** as lead partner and **Anneli Kamb** as Swedish partner to talk about the meeting and the project.

Joaquín Villar explains that the project is an Interreg Europe project and the main objective is to increase the energy rehabilitation in Europe. For this to promote innovation is very important, but also important to have a holistic approach. This is why several meetings have already been organised within the project: *new financial instruments* in Lithuania, *professionalization of the construction sector* was addressed in Poland, and *activation of demand and energy poverty* in the UK. This meeting with innovation as the theme is the last opportunity to share experiences. These exchanges will be the basis for the ambitious action plans that the partners will develop and implement in the coming years.

When asked what his expectations of the day are, Villar says his main expectation is to learn about the many actors within the innovation field who are participating in the meeting. As innovation is a key element in sustainable construction it is important that these actors meet and can start creating these interregional collaborations and share their many experiences.

Kamb welcomes everyone to the meeting on behalf of the Swedish partner, and explains that her expectations of the day are that everyone will get the opportunity to learn something new, get inspired and have interesting discussions during the day.

Nirjens also asked the participants to write down their own expectations for the day on post its and put them on the wall on their way out. There were many different kinds of expectations, but the most reoccurring were:

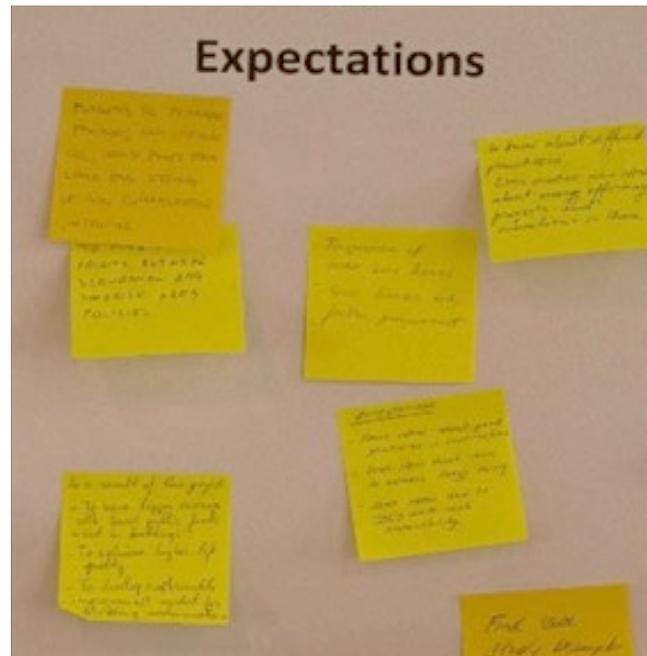
- *Opportunity to share ideas and learn from existing good examples*
- *Collaborations and New projects among partners and stakeholders*
- *Inspiration!*
- *Better understanding of innovation in energy efficient field and... building sector*
- *Concrete innovation development*
- *Have fun! and See a bear*

Master speech by Torbjörn Skytt, Mid Sweden University: *Energy and housing - Swedish and regional conditions*

Dr Torbjörn Skytt from Mid Sweden University started the presentations of the day by giving an overview of the Swedish energy system and the housing market. The picture below shows the energy supply in Sweden in 2014, stating that that has a lot of biomass (green), but also a lot of fossil fuels (red and blue). The electricity production in Sweden on the other hand is 50% hydro and wind power and 40% nuclear power, meaning it's mostly carbon neutral.



Moving on to the housing market, Dr Skytt explained the different climate/temperature zones we have in Sweden, given that it stretches so far from north to south. These zones have different thresholds for energy use in the building regulations, varying more than 50% from south to north. Typically in Sweden today, demands are on the level of 70-80 kWh/m² for heating and hot water, with bio fuel, electric heating and district heating being the main energy sources.



— SUMMARY OF SESSION 2 *“Innovation management from global to local level”*



Mr Erik Noaksson

Erik Noaksson, Innovation strategist Region Jämtland Härjedalen: *Region Jämtland Härjedalen Innovation Strategy and SMICE.*

Erik Noaksson presented the regional innovation work of Jämtland Härjedalen. The basis for his presentation was the [regional innovation blog](#), where all the different aspects of the regional innovation work can be found. He explained the process of developing the [regional innovation strategy](#), which is important to know in which direction you're going.

He explained that they quickly moved forward to creating an **innovation programme**, to be able to start doing the work needed.

Noaksson also presented the newly started projects **SMICE**, which is a new Mid-Nordic infrastructure to promote borderless circular transition in the regions of Trøndelag (Norway) and Jämtland Härjedalen. The mission is to contribute to a more sustainable mid-nordic region, with a focus on circular economy and bio-economy. Here on the website, dedicated people in the region can get in touch with each other and be inspired by their own and others' successful work and progress. The idea is to connect dedicated people in the region to facilitate active co-creation.

Find out more:

- **Stakeholder map**
- **Onepager** - progress report
- **Film** explaining the Appreciative Inquiry methodology used in SMICE
- **Sustainable Cleveland** that uses the same method but in an urban context vs Jämtland Härjedalen, which is rural/sparse



Mr Joaquín Villar

Joaquín Villar, on behalf of Joint Research Centre (European Commission): *Interregional collaboration to boost innovation uptake in energy rehabilitation in buildings.*

Joaquin Villar explained why a Partnership on Sustainable Buildings is important; the building sector is the largest energy consumer in Europe (40% of energy and 36% of CO2) and over 75% of energy savings could be achieved; but only 0,4-1,2% of the stock is renovated each year.

The partnership is an alliance between European regions to boost new markets and take advantage of regional opportunities for specialisation in sustainable construction. Currently 47 entities are part of the partnership, and it is lead by the Andalusian Energy Agency.

Currently the partnership is exploring project ideas in different themes (see below).The first project ideas are planned to be developed by the end of 2017.

- Eco construction, bioclimatism and insulation of buildings
- Renewable energy integration in buildings
- Systems of maximum energy efficiency use in buildings and cities



Mr Carlos García

Carlos García Delgado, Civil Engineering and Building Technical Officer. Technological Corporation of Andalusia: *An example of regional Public Private Partnership to fund RTDI projects.*

The Technological Corporation of Andalusia (CTA) is an example of a Public-Private Partnership (PPP) that was created in 2005 in order to promote and facilitate the transfer of knowledge and technology between different actors, promote innovative culture, and evaluate and fund R&D and innovation.

Carlos García Delgado explains that the partnership consists of several actors who each act as a gearwheel, each capable of starting processes that in turn gets the other actors (gearwheels) moving.

To date the CTA have funded up to 625 projects, out of which 22% were carried out in collaboration between agreement of the interested companies. In total, 157 M€ have been granted in funds, and the total project budgets have been 474M€ so far.

Lillian Strand, Norwegian University of Science and Technology: *Transitions in the construction sector*

Lilian Strand presented some of her results from her research about transformation in the construction sector. She introduced us to three paradoxes that come with the ambition of building zero emission houses, using the example of Trøndelag, Norway:

- The difficulty to choose technical innovation How to choose innovation.
- Demand without local supply – ends up not creating job opportunity.
- Rebound effect: when energy is saved in the building envelope, people get a higher disposable income and increases consumption.

These paradoxes combined is the innovation challenge. Because of how the system works we run the risk of higher emissions after the renovation is done. The innovation challenge is also the energy system.

Lillian also presented some approaches to go about it. It is important that the industry and the market shall be stimulated simultaneously to reach required effect. For instance, through campaigns, free expert advice and socio-cultural approaches to promote local supply and cooperation.

One good practice where the social-cultural approach has been taken into practice is in *Ecohouse* in Antwerpen, Belgium. The house is built with several high-tech energy saving solutions which are shown in the house. The house has a café and get a lot of visitors that are exposed to energy saving information and also other environmental information. Visitors are encouraged by a local point system, where you get points when visiting. The points can be used for example to go to the local cinema and similar activities. In order to accelerate innovation, Lillian's advice was to connect stakeholders along all dimensions from the supply chain to end users, since innovation can happen anywhere.

— SUMMARY OF SESSION 3: WORKSHOPS *paving the way to nearly Zero Energy Buildings*



To quote one of the speakers at the event, *Innovation is about people meeting*. Therefore, the idea of this workshop was to create the space for creative and free discussion, between people with different backgrounds and with different ideas to deliver the best outcomes on innovation.

During the workshop the participants were assigned to three different groups, with 25 participants in total. The smaller groups help with collaborative work, where everyone is given a chance to

contribute through both talking and writing. The workshop focused on positive and optimistic feelings, by letting the participants envisioning a desirable scenario far into the future, escenary 2050. By doing this one could let go of the current barriers and problems, where everybody commonly get stuck when you want to create a change. This format tends to help people stay with the positive feelings and.

So, what would they like if they could dream big?



The groups were given A3 papers with instructions for this first stage, and were encouraged to take notes directly on these papers. Once the vision is clear, they moved on to discussing what will need to be done to reach such a future; what could they themselves do, which actors are needed, what strengths can they identify etc.

Two groups were focused on financing and one on technological aspects. More precisely the themes were:

- Innovation uptake for the buildings of the future
- Innovation Funding (I and II)

Again the groups were given A3 papers with instructions. The groups were then asked to share the three most important opportunities that they found during their discussions. In many ways, they have envisioned similar future scenarios, which put smiles on people's faces. And they, in some ways, had found similar opportunities as well.

Outcomes from Technology Uptake Workshop Group

DREAM SCENARIO

- Affordable dwellings.
- Fresh clean air.
- High quality life.
- Possibility for everyone to grow their own vegetables.
- New houses should be nZEB or passive houses.
- Energy supply should be renewable and efficient.
- Healthy houses with safe materials (no chemicals).
- Low maintenance solutions.
- Equal pay for everyone or no money.

THREE OPPORTUNITIES

- Use our existing media and social media to spread GPs and bad practices (how no to do things) e.g. short films to educate the population.
- The technology is already here, we need to use it we need knowledge and therefor education and training (clients, customers and construction sector).
- Increase the price of energy is needed.
- It needs to be cool to be aware (cool to be a nerd).

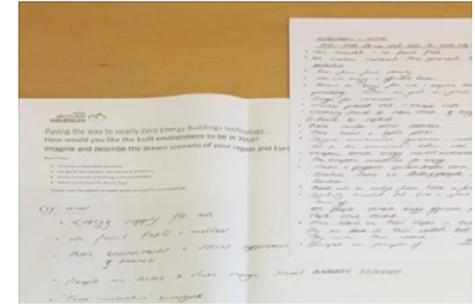
Outcomes from Innovation Funding I

DREAM SCENARIO

- Everyone has access to energy world wide.
- Removing fossil fuels and nuclear power.
- Ensure that businesses work more with environmental issues.
- People are aware and can drive change themselves.
- European energy supply.
- Different use of spaces, e.g. more work from home and less offices.
- Funding for war and military should be transferred to social services, we should invest in the people instead.

THREE OPPORTUNITIES

- Single energy market, learn from previous project in Africa (that didn't go so well).
- Aim to eradicate energy poverty, first stage is recognition on national level in all countries in Europe.
- Promote innovative solutions, driven by demand from the people (if they demand it, it will be provided).



Outcomes from Innovation Funding II

DREAM SCENARIO

- 100% eco buildings, some regions wood.
- Citizens view important, more friendly, more oriented with social questions.
- More balance between work and leisure.
- Avoiding poverty through more social buildings.
- More focus on growth in the cities and buildings, focus on smart cities.
- Importance of circular economy, no toxic materials and energy efficient.
- Having things in the buildings before the problems arise.

POSSIBILITIES (MORE THAN THREE)

- In the short term funding will be similar to today, but changing slowly to adapt.
- Much more public private funding, crowd funding and circular funding models.
- Public procurement PPI processes are successful.
- More flexible support for SMEs, soft funding for SMEs, ESCOs, and new ways for funding.
- Skilled workers as well, not only funding, not only on funding, but also providing support, knowledge...
- Much more customer and citizens driven processes.
- Huge potential in the sector due to its size.
- More cooperation across the borders (within Europe and other continents).

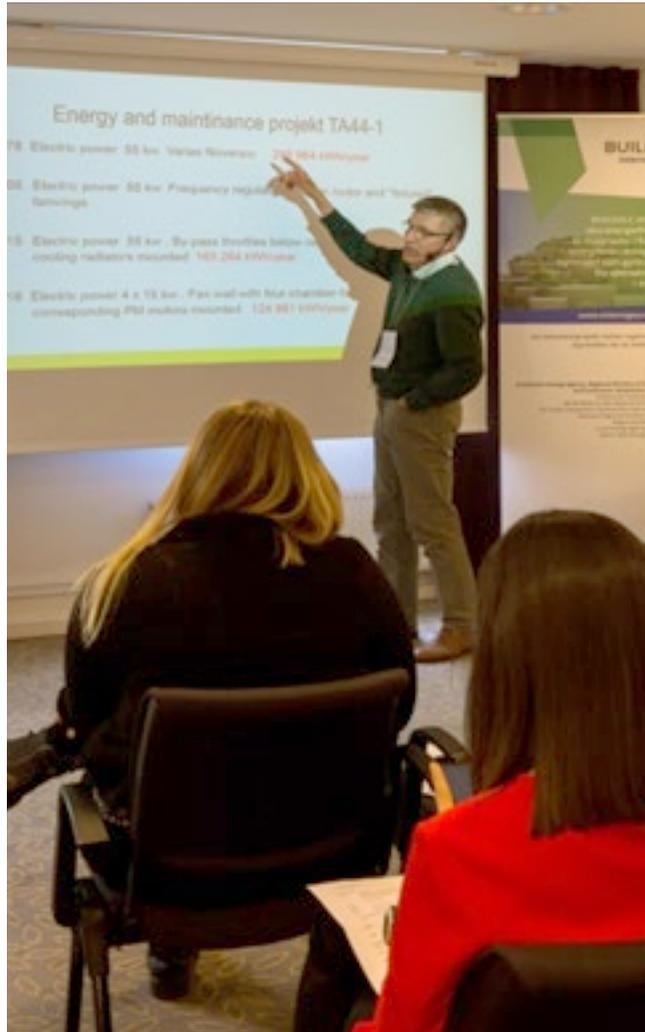
— SUMMARY OF SESSION 4 good practices in innovation

Stefan Östlund, Region Jämtland Härjedalen

HOSPITAL OF ÖSTERSUND – LARGE ENERGY SAVINGS WITH INNOVATIVE VENTILATION SOLUTIONS

Stefan Östlund is the managing energy engineer of the Hospital of Östersund. He presented some of the renovation solutions and thus reduction of energy demand, that has been done in the hospital's ventilation system during the past 40 years.

From a yearly energy consumption of nearly 297 000 kWh in 1978 it has decreased to 125.000 kWh in 2017. Every renovation work has been carried out during ongoing hospital activities in the operation rooms, with very high demands on ventilation compared to ordinary buildings. This has made the work even more complicated. The investments have had an average pay-off time of 15 years. In comparison to what is possible in most businesses this is a long time. Since the hospital has long-term owners and a long-term perspective to work from, it has been possible to do.



Richard Jessup and Howard Thomas, Stride Treglown

INNOVATIVE PRACTICE AT STRIDE TREGLOWN, UK

Stride Treglown is a company offering the whole range from architecture, landscape design, town planning to project management and building surveying. Richard and Howard presented three examples of successful renovation projects and several cases where they have been hired as building surveyors.

The company has heavy experience from working with several kinds of buildings; school buildings, historical buildings, student residences are some examples.

Both Richard and Howard emphasized the importance of communication in building- and renovation projects. When they work they make sure to identify what is wanted, make agreements and make sure that quality doesn't get dropped if subcontractors are used.

From their experience it is not all about innovation and technology, it is also about the process. Without a well working process the wished effect is dropped.

Juan Manuel Castaño, European Passive House Platform

PASSIVE HOUSES IN MEDITERRANEAN CLIMATE & SPANISH PASSIVE HOUSE PLATFORM

Juan Manuel Castaño represented the international non-profit organization “*Passivhaus Building Platform*”. The organization has 500 members and its main purpose is the dissemination of the passivhaus standard.

Passive houses are implemented all over the world, in all kinds of climates and in all types of buildings. In some regions as the Region of Brussels or Heidelberg city (Germany) it is already compulsory to build new passive houses.

The definition of a passive house, according to the standard, is a house with a maximum heating demand at 15 kwh/m² and heating load 10 w/m², a maximum cooling demand at 15 kwh/m² and cooling load 10 W/m².

A passive house is a clear path to Nearly Energy Zero Buildings (nZEB) and certification works as a quality assurance. Since it is the same calculation procedure it is possible to make global comparisons.

Air tightness has been introduced in Spain quite recently. Despite some skepticism at the beginning it has worked well. A conclusion is that contractors need to be trained and informed. The production cost is about 0%-7% higher than regular houses, which is not a problem if the profit from the market price selling is included.



Karin Söderberg, Municipality of Östersund

STORSJÖ STRAND – SUSTAINABLE NEW CITY DISTRICT IN ÖSTERSUND

Karin Söderberg, Project manager in Urban development at Östersund municipality, talked about one of her projects, Storsjö strand. The project started in 2009 with the ambition to build 800 new apartments. The municipality had high ambitions to implement sustainability in the project. This was a big challenge since the area was polluted from industrial activity.

The project has reached success thanks to the planning process which has focused more on cooperation and communication than normal. The developers and architects have been part of the project from the beginning, which has been crucial to reach the goals. High energy performance has been central demands from the beginning, as well as other sustainability aspects such as choice of material, storm- and rainwater treatment and soil purification. The project has also managed the certification for green building. The extended planning process was made possible by grants from the state.

4

STUDY VISIT

During the interregional meeting in Östersund, visitors from Build2LC partners (stakeholders and partners' representatives) attended two Site Visits.

— SPORTS TECH

Sports Tech Research Centre in Östersund is a multidisciplinary research centre with a focus on the development of and verification of products, material, technology and methods in the field of sports and outdoor activities. But the working methods and cooperations with companies could also be applied to other sectors, such as the development of new materials in the construction industry. Kajsa Nilsson, TITEL and X TITELGave us a presentation about Sports Tech Research centre and a tour in the labs.



Research

Sports Tech Research Centre are engaged in research relating to innovative development and verification of products, materials, technology. The ability to test products in the same condition as in the ones in which they will be used is a vital aspect of product development

Education

Sports Tech Research Centre are closely linked to the engineering program in mechanical engineering at Bachelor's and Master's level at the Mid Sweden University. During the education, students have opportunity to work in the various labs often in cooperation with industrial and outdoor companies, for example during the degree project.

Corporate collaboration

By cooperating with Sports Tech Research Centre, companies and organizations can gain access to the labs and work with researchers and research engineers to develop and test products and materials.

Labs

- *Wind tunnel*

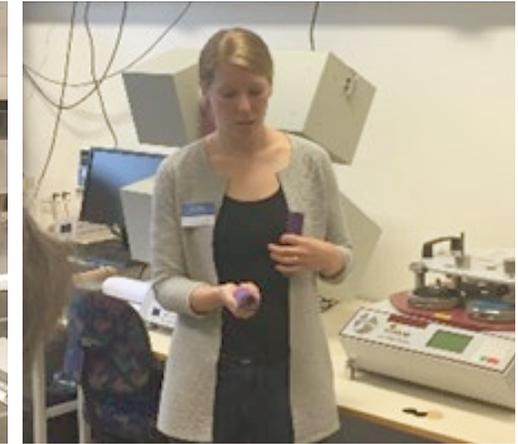
The wind tunnel houses one of the largest treadmills in the world, an enormous fan and advanced climate function which enables study the impact wind, moisture and movement has on materials, products and humans in interaction with equipment. All were given the opportunity to experience the force of the wind inside the tunnel. It was popular and some entered the tunnel several times. Today, the tunnel is mostly used to test sports and outdoor equipment, however it would just as well be used to test new construction materials for buildings.

- *Additive manufacturing - 3D printing*

The lab can produce prototypes and small series productions using, among other things, 3D printers for plastic and metal. It allows ideas and prototypes to be tested and refined before they start manufacturing.

- *Materials testing*

The lab has several machines to test realistic load of different materials and products, among other things apply water pressure to materials to check its waterproof ability, abrade it with sandpaper to simulate harsh wear, or tear the it apart in freezing temperatures and study the changes in material properties.



Kajsa Nilsson told us about how the lab is used by both companies and students and that they often cooperate. For example, Kajsa Nilsson was a student herself at the Mid Sweden University some years ago. She collaborated with the local company Woolpower which produces woolen clothing. She developed a new material of wool that can be used to carry wool soles.

We discussed how wool can be used as an insulation material and that wool is a common waste product from food production. Some sheep species provide good milk but have wool that is not suitable for clothing.

— STORSJÖ STRAND

Ecological and social sustainability has been the key words during the development of the Storsjö Strand area. In 2009 the municipality of Östersund received a grant from the state which made it possible to move towards a more sustainable and innovative spatial planning. The municipality started a project which aimed to develop working methods and processes, two outcomes of this work were a Sustainability program based on the BREEAM certification system and a Design program. Similar planning processes sustainability programs could be developed for retrofitting an area with older buildings.

These documents contain requirements that take more environmental considerations than legal requirements. The documents were formulated in such a way that they could easily be converted into contracts. These contracts have since been signed by developers who wanted to buy the land and build houses there. In this way, the urban development project has contributed to greater consideration for the environment.



The group were shown around the construction site by Karin Söderberg from Östersund municipality and Gabriel Duvenskog from Persson Invest (developer).

The group was also shown around one of the apartments by a tenant, who welcomed everyone into his home. He told the group how pleasant the apartment is to live in when it is made out of wood, as it is very quiet and has great indoor climate.

5

BENCH- MARKING FICHES

Benchmarking Fiches are provided by BUILD2LC partners as a consequence of the learning and exchange of common experiences. Based on the effective exchange of Good Practices (GP), partners were asked to identify which practice they are willing to adopt in their region.

A Benchmarking Fiche has been designed in the frame of the project to show the interest of the partner in adopting a specific GP. Hence, partners are required to complete questions about main needs in their region (related to the topic) that the good practice will address, issues that could be improved in the region by adopting the good practice, problems that could arise when adopting or once adopted the good practice or policy instruments in place that could implement the good practice.

The good practices requested by the partners on this *Innovation* topic were:

- **Podkarpackie Transfer Centre Low Energy Technology Passive House**
- **Complete renovation of apartment buildings** – System Dominum
- **System for monitoring, measuring and verification of energy savings** (SMIV)
- **Solar thermal installation** – ESCO model
- **Bračak Energy Centre**

— BENCHMARKING FICHES FOR 'INNOVATION'

Hence we present the compilation of Benchmarking Fiches showing the interest of partners to embody the already identified Good Practices for the topic 'Activation of demand and combating energy poverty'.

The partners from Andalusia, Croatia, Jämtland Härjedalen and Slovenia did not requested any innovation GP so far. However, it is likely the adoption of some additional ones during the bi-lateral meeting phase the next semester.

	<i>Podkarpackie Transfer Centre</i> RRDA	<i>System Dominium</i> LEAG	<i>RSMIV</i> RGEA	<i>ESCO Model</i> OTHER	<i>Bračak Centre</i> RGEA
LITHUANIA	*	*			
GLOUCESTERSHIRE			*	*	
PODKARPACKIE				*	*

BENCHMARKING FICHE REGION: LITHUANIA



TOPIC: INNOVATION

Good practice to be adopted

Podkarpackie Transfer Centre Low Energy Technology Passive House

Lithuania may use part of “Podkarpackie Transfer Centre Low Energy Technology Passive House” experience in quartal (city block) renovations program.

Main needs to respond to

VIPA is appointed as financial coordinator in quartal renovation program and the quartals are planning to implement “lighthouse” projects with advanced technologies in some of the buildings. The experience in mentioned good practice may be helpful to make projects more efficient.

Main objective to transfer the good practice to your region

The “lighthouse” projects will show other project promoters the technologies that could be implemented in other projects. It is planned that more efficient technologies would lead to more energy saving in other projects.

Factors that might hamper the transfer

To innovative (with ought track record) technologies, which may fail.

Policy instrument

No policy instruments identified. Framework policy instrument – quartal renovation program (which is not planned to be influenced).

Existing financing funds

Please detail any funds that could be used to finance the implementation of the practice in your region during the 2nd phase in the project.

There might be some financing for the extra (innovative measures) from international donors (e.g. KfW).

Relevant stakeholders

- Municipalities participating in quartal renovation program.
- Ministry of Environment – project promoter.
- Final beneficiaries.

Main beneficiaries

The buildings with extra measures will save more energy and lower CO₂ emissions. There might be some influence on the other projects which might look for the experience and seek some additional savings.

Further information

There could be a need for the project promoters to meet Poland counterparties and share their experience. Bilateral meeting might be the best option of sharing such experience, although some detailed information might help in the beginning of good practice transfer.

Contact details to obtain further information on the adoption of the good practice:

Justinas Bucys
justinas.bucys@vipa.lt

Public Investment Development Agency (VIPA)
(Public Organisation)

vipa.lt

BENCHMARKING FICHE REGION: LITHUANIA



TOPIC: INNOVATION

Good practice to be adopted

Complete renovation of apartment buildings - System Dominum

Lithuania may use some part of experience of 'Complete renovation of apartment buildings - System Dominum'.

Main needs to respond to

In last programming period of 2007-2013 multi-apartment buildings were started to be renovated using financial instruments and this program was continued in 2014-2020 period. Despite the success of the program raised new challenges which requires to seek for alternative measures and solutions. The GP's indicated above may lead to new solutions of financing building renovation program.

Main objective to transfer the good practice to your region

As Lithuania is looking for new solutions and decisions, VIPA decided to explore Slovenian GP "Complete renovation of apartment buildings - System Dominum", which may provide for the ideas on the renovations model, which will more rely on the private sector funding.

Factors that might hamper the transfer

The reluctance of the politicians to change model.

Reluctance of the multi apartment owners to apply major changes to the buildings.

Challenges raised by the differences in legal systems of the countries.

Requirements associated with the cities development plans

Policy instrument

Currently there are no local policy instruments which might help to transfer such good practice to Lithuanian buildings sector. Although for the implementation of rehabilitation of multi-apartment buildings the Government of the Republic of Lithuania has approved multi-apartment buildings renovation (modernization) Programme.

Existing financing funds

Currently approved multi-apartment building renovation system is relying on the funding from ESI funds and budget sources, as well as private participation, but the challenges associated with the programs raises questions about sustainability of the program. The applied model could increase the attractiveness of the renovation model as it could.

Relevant stakeholders

- Ministry of environment – responsible for municipalities public buildings renovation.
- BETA – technical assistance facility targeting multi-apartment buildings, owned by ministry of environment.
- Technical and financial consultants – willing to provide technical advice and help to prepare technical and financial documentation.

Main beneficiaries

- Multi-apartment owners.
- Government (minimized pressure on the budget, increase in result associated with energy savings and reduction of CO₂ emissions).

Further information

Lithuania needs more information about experience in adopting such good practice. Bilateral meeting might be the best option of sharing such experience.

Contact details to obtain further information on the adoption of the good practice:

Justinas Bucys
justinas.bucys@vipa.lt

Public Investment Development Agency (VIPA)
(Public Organisation)

vipa.lt

BENCHMARKING FICHE REGION: GLOUCESTERSHIRE



TOPIC: INNOVATION

Good practice to be adopted

System for monitoring, measuring and verification of energy savings (SMIV)

Main needs to respond to

Data is collected for each project within the region but this is not centrally collated. Using a SMIV model could help to collate this information to monitor activities and also provide evidence of effectiveness of installations for procurement purposes; an area which will be reviewed within the UK project.

Main objective to transfer the good practice to your region

We have identified 16 potential actions to pursue. This good practice could support a number of these actions, most notably:

Action 4: Pilot for Growth – A partnership project will be developed to focus on Oakely, Cheltenham and Matson, Gloucester.

How could the GP support this action? This action focuses efforts on specific areas within the region. Once this pilot has taken place, it is anticipated that

the project will roll out to other areas. Using a system such as the SMIV will help to log improvements and can be used to collate the data across the county as the pilot is rolled out.

Action 9: Implement a range of small measures packages for landlords – including White Goods scrappage and LED lighting schemes.

How could the GP support this action? It will be important to evaluate small measures packages. Therefore, using data from the Croatian SMIV may be able to support planning or the collection of information within the UK via an SMIV system can help to assess the impact of the action.

Action 14: Review procurement processes with the aim of: a) improving standards through contracting; b) not excluding smaller, local businesses.

How could the GP support this action? If procurement processes are to be successful it would be useful to see the impact of different measures installed by dif-

ferent companies, particularly SMEs who may not be able to provide such cheap labour costs but can show evidence of energy saving impacts. A system such as this could be incorporated into the system, particularly for Link to Energy companies.

Action 16: Expand the Link to Energy network to have greater focus on businesses

How could the GP support this action? Again, incorporating a system such as the SMIV into Link to Energy will provide evidence for installers and customers. It can also be used as a reference tool and stimulate further work.

Factors that might hamper the transfer

Finance to establish and sustain the system.

Ability to secure accurate and regular data. As we are working within a region it would not be possible to create legislative change (this could come if we can demonstrate success to the UK government). Therefore, we would need to work on a smaller scale where we can collect accurate data from regular sources or through projects developed through Build2LC where deliverables can be stipulated.

Applicability to the Gloucestershire context.

Policy instrument

The Target 2020 project uses EUSIF funding and could be an avenue for development (linked to Action 16). Also, the existing Warm & Well and Link to Energy programmes could be used to implement to good practice.

Existing financing funds

Funding has already been allocated within project budgets therefore some pooling of resources or applications for funding will need to be made to secure funding for the development and maintenance of a system.

Relevant stakeholders

Gloucestershire Clinical Commissioning Group – potential for financial support.

Severn Wye – potential lead and facilitator for the development of a system.

Registered Social Landlords – RSLs may wish to use the system to provide evidence of installations within their properties and for procurement purposes. Will also need to commit to providing data.

National Landlords Association – landlords engaged within the Build2LC project may need to support data collection.

Local Authorities and County Council – potential financial support and co-ordination of the system. Could use within procurement processes and to evidence impact.

Link to Energy Installers – using the system to evidence impact. Need to contribute and commit to providing data.

Energy suppliers/Ofgem – use the system to provide evidence and will also need to provide data. These stakeholders have a national impact and Ofgem can direct energy suppliers to collect data.

Schools within the areas – engagement and education programme

Community groups – engagement and education programme

Main beneficiaries

Installers – able to evidence the impact of their work.

Decision-makers – use the system to identify appropriate techniques. Show evidence of work carried out within organisations and across the region.

Further information

We would like to see the system and then have a skype/call to discuss the system, how it was established, how it is used, how it is maintained, and costs/financing.

At this stage we would not like a bi-lateral meeting visit.

We are unsure if we will adopt this good practice but it may inform the actions identified.

Contact details to obtain further information on the adoption of the good practice:

Victoria Boynton
Victoriab2@severnwye.org.uk

Severn Wye Energy Agency
(Not for Profit energy agency)

severnwye.org.uk

BENCHMARKING FICHE REGION: GLOUCESTERSHIRE



TOPIC: INNOVATION

Good practice to be adopted

Solar thermal installation- ESCO model

Main needs to respond to

Providing low cost, sustainable energy to areas of need within Gloucestershire in order to reduce energy poverty.

Main objective to transfer the good practice to your region

We have identified 16 potential actions to pursue. This good practice could support two of these actions:

Action 4: Pilot for Growth – A partnership project will be developed to focus on Oakely, Cheltenham and Matson, Gloucester.

Action 8: Provide/source grant funding to support landlords to install energy efficient measures within Matson, Gloucester and Oakely, Cheltenham

How could the GP support these actions? This action focuses efforts on specific high need areas within the region. This GP could help provide guidance about whether establishing ESCOs in these areas and installing solar installations or another energy source would be feasible in these areas. If it is feasible, the GP could provide advice about the establishment of the ESCO, financing and management within an area.

Factors that might hamper the transfer

- Community and stakeholder engagement.
- Financing.
- Policy instrument
- None.

Existing financing funds

Funding has already been allocated within project budgets therefore some pooling of resources or applications for funding will need to be made to secure funding for the development of this aspect of the action.

Relevant stakeholders

Gloucestershire Clinical Commissioning Group – potential for financial support.

Severn Wye – potential lead and facilitator for the development of a system.

Registered Social Landlords – RSLs may be targeted within the area to become part of the process.

National Landlords Association – RSLs may be targeted within the area to become part of the process.

Local Authorities and County Council – potential financial support and co-ordination of the practice.

Energy suppliers/Ofgem –ESCO support.

Residents – directly affected and involved in the process.

Installers – Skilled installers will be required for the works.

Main beneficiaries

Residents – Reduced energy costs.

Landlords – Tenants are more able to pay rent if energy costs are reduced.

Further information

We would like to see the system and then have a skype/call to discuss the ESCO, how it was established, financing, engagement with the community and stakeholders, long term benefits and challenges.

At this stage we would not like a bi-lateral meeting visit.

We are unsure if we will adopt this good practice but it may inform the actions identified.

Contact details to obtain further information on the adoption of the good practice:

Victoria Boynton
Victoriab2@severnwey.org.uk

Severn Wye Energy Agency
(Not for Profit energy agency)

severnwey.org.uk

BENCHMARKING FICHE REGION: PODKARPACIE



TOPIC: INNOVATION

Good practice to be adopted

Bračak Energy Centre

Main needs to respond to

The need for minimizing of the negative buildings impact on the natural environment in the region

The need for taking actions against climate changing.

The need for reducing of the costs of the exploitation of buildings in region.

The need for respecting of international obligations that Poland has agreed to respect.

Main objective to transfer the good practice to your region

The need for creating an educational energy center that would practically allow to raise awareness, knowledge and skills about energy efficiency and renewable energy sources for the public and private sectors, a multifunctional education and demonstration center in the region

The need for showing onsite how modern equipment, materials, and ways of using of energy might reduce the costs of energy and improve the environment.

Factors that might hamper the transfer

- Problems with financing of some solutions – the most often more advanced and more effective solutions cost much more than those less effective ones.
- Other legislations preventing the implementation of certain elements of good practice

Policy instrument

Regional Operational Program of the Podkarpackie Region for the years 2014-2020.

Own funds of various Associations, Chambers of Commerce or clusters.

Existing financing funds

Regional Operational Program of the Podkarpackie Region for the years 2014-2020.

Own funds of various Associations, Chambers of Commerce or clusters.

Relevant stakeholders

- Marshall Office of Podkarpackie Region
- Podkarpackie Energy Agency
- Chamber of Civil Engineers
- Podkarpackie Renewable Energy Cluster

Main beneficiaries

- Society
- Public institutions
- Construction companies
- Housing co-operatives
- Schools and universities
- Entrepreneurs

Further information

Not enough information at this moment.

Contact details to obtain further information on the adoption of the good practice:

Marek Duda

mduda@rarr.rzeszow.pl

Rzeszow Regional Development Agency
(Public regional government Organisation)

rarr.rzeszow.pl

BENCHMARKING FICHE REGION: PODKARPACIE



TOPIC: INNOVATION

Best practice to be adopted

Solar thermal installation- ESCO model

Main needs to respond to

Needs of a Solar Thermal Installation in a building and awareness activities for the promotion of energy efficiency measures and renewable energy sources for citizens in the local environment

Needs of the investment and maintenance of the solar installation

Giving advices to the citizens, final customers of energy in the residential sector and offering free and commercially independent advices connected with training services in the field of RES and RUE.

Needs of free helping in planning and implementation environmentally friendly investments in the region, helping in identification available sources of funding, organizing training and information and education activities to help prepare, verify and implement low carbon economy plans.

Needs of different forms of support tailored to specific needs of different groups: the form of informational meetings, consultations in the office and outside of the office, answers by email inquiries, phone counselling, training and information and promotion activities, individual counselling as well as conferences or webinars.

Main objective to transfer the good practice to your region

Environmental benefits such as reducing pollutant emissions, improving air quality and reducing the use of non-renewable natural resources.

Increasing energy awareness of citizens, energy savings and reduction of greenhouse gas emissions and RES through providing local and regional information exchange and good practices on the implementation of Directive 2010/31 / EU, 2012/27 / EC and 2009/28 / EC and Directive 2008/50 / EC.

Facilitating the implementation of certain measures and programs related to energy policy.

Systematically combating pollution of the environment, energy poverty and dependency on energy imports.

Preparation of well-qualified independent energy advisors.

Promotion of low carbon economy.

Generating of new jobs in the economy - increasing the number of municipal energy auditors.

Facilitating access to EU and national funds for increasing energy efficiency and using of RES,

Citizens - lower energy costs, energy efficient investments can become a potential source of revenue,

Business: lower energy consumption, positive image, increased competitiveness,

Support in the planning and implementation of environmentally friendly investments in the region,

Increasing the quality of life and green jobs.

Factors that might hamper the transfer

Poor energy awareness of homeowners.

Lack of ESCOs companies.

Policy instrument

Infrastructure and Environment Operational Program for the years 2014-2020 within the Priority Axis "Reduction of emissivity of the economy".

Existing financing funds

Infrastructure and Environment Operational Program for the years 2014-2020 within the Priority Axis "Reduction of emissivity of the economy".

Relevant stakeholders

- National Fund for Environmental Protection and Water Management.
- Regional Fund for Environmental Protection and Water Management in Rzeszow.
- Marshall Office of Podkarpackie Region.
- Podkarpackie Energy Agency.

Main beneficiaries

- Domestic, business and communities users
- Installers
- SMEs
- Public institutions
- Insulation and heating product manufacturers
- Podkarpackie Chamber of Civil Engineers
- Universities.

Further information

We do not have enough information at this moment.

Contact details to obtain further information on the adoption of the good practice:

Marek Duda
mduda@rarr.rzeszow.pl

Rzeszow Regional Development Agency
(Public regional government Organisation)

rarr.rzeszow.pl

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APPEN- DICES

— INTERREGIONAL MEETING IN ÖSTERSUND, SWEDEN AGENDA

All the Seminar presentations are available at the BUILD2LC project website using the following link:

- [BUILD2LC](#)

Enjoy our short video about the interregional meeting:

How to accelerate innovation uptake for energy rehabilitation

INTERREGIONAL MEETING ON INNOVATION AT ÖSTERSUND, SWEDEN 12-13 SEPTEMBER 2017

SEMINAR AGENDA

DAY 1 – TUESDAY 12 SEPTEMBER 2017

I STUDY VISIT

09:30 Departure from Clarion Hotel Grand – 15 min walk

10:00 Sports Tech Research Centre.

Introduction by project partner. *Anneli Kamb or Marina Gregorsson.*

Innovation park in Östersund where companies can test their innovative products.

[Click](#) for information of one of the research projects run by Sports Tech innovation Centre.

[Click](#) for short video clip from the wind tunnel – one of the test devices in the laboratory.

12:00 Common lunch Cultum

II STEERING COMMITTEE AND STAKEHOLDER NETWORKING

Venue: Region Jämtland Härjedalen Köpmangatan 21, Östersund

13:30 Stakeholder networking session

Pitching session 1 h – 3/5 min presentation per stakeholder. Discussions on prepared topics 1 h

13:30 Meeting for BUILD2LC Partners: Steering Committee.

Discussion, agreements, financial issues, next meeting, etc. Bilateral meeting preparation. Innovation map draft

17:00 End of day 1

DAY 2 – WEDNESDAY 13 SEPTEMBER 2017

Plenary Session

Venue: Clarion Hotel Grand. Prästgatan 16, Östersund

REGISTRATION AND WELCOME

8:30 Registration

9:00 Opening and Welcome by the Authorities. *Susanné Wallner, Regional Council*

9:10 Lead partner Build2LC. *Joaquín Villar Rodríguez, Andalusian Energy Agency*

9:15 Energy and housing – Swedish and regional conditions. *Torbjörn Skytt, Mid Sweden University*

INNOVATION MANAGEMENT FROM GLOBAL TO LOCAL LEVEL

9:30 Region Jämtland Härjedalen Innovation Strategy and SMICE. *Erik Noaksson, Innovation strategist*

9:50 Interregional collaboration to boost innovation uptake in energy rehabilitation in buildings. *Joaquín Villar, on behalf of JRC*

10:10 Technological Corporation of Andalusia: an example of regional Public Private Partnership to fund RTDI projects. *Carlos García Delgado, Civil Engineering and Building Technical Officer. Technological Corporation of Andalusia*

Short Q&A and discussion

10:30 Coffee break

WORKSHOPS

11:00 Workshop

Stakeholders' parallel round tables on innovation topics as:

How do we reach the nearly zero-energy buildings in existing buildings? How can innovation play a role in reaching this goal? How can innovation be funded to boost these goals? Are ESIF well connected with Smart Specialization Strategy priorities? Interregional activities to boost innovation uptake, etc.

12:45 Group photo

13:00 Lunch at Clarion Hotel Grand

14:00 Transitions in the construction sector. *Lillian Strand, Norwegian University of Science and Technology*

GOOD PRACTICES OF INNOVATION

14:20 Hospital of Östersund – large energy savings with innovative ventilation solutions. *Stefan Östlund, Region Jämtland Härjedalen*

14:40 Innovative Practice at Stride Treglown, UK. *Richard Jessup, Stride Treglown*

15:00 Passive Houses in Mediterranean climate & Spanish Passive House Platform. *Juan Manuel Castaño, European Passive House Platform*

15:20 Coffee break

16:00 Storsjö Strand – sustainable new city district in Östersund. *Karin Söderberg, municipality of Östersund*

16:20 Summary of GPs and discussion

STUDY VISIT

17:00 Study visit Storsjö Strand

Sustainable new city district in Östersund – Multi-apartment buildings in wood.

[Click here](#) for webpage (swedish) (10 minute walk)

18:30 End of meeting

19:30 Common dinner Arctura



More info: www.interregeurope.eu/build2lc



Andalusian Energy Agency
MINISTRY OF EMPLOYMENT, BUSINESS AND TRADE



VIŠIŲJŲ INVESTICIJŲ PLĖTROS AGENTŪRA



asiantaeth ynni
SevernWye
energy agency



RARR
RZESZOWSKA AGENCJA
ROZWOJU REGIONALNEGO



REGIONALNA ENERGETSKA AGENCIJA
NORTH-WEST CROATIA
SJEVEROZAPADNE HRVATSKE
REGIONAL ENERGY AGENCY



REGION
JÄMTLAND
HÄRJEDALEN



European Union
European Regional
Development Fund



Lokalna energetska
agencija Gorenjske