



RE-CONCEPTUALIZE SHOPPING MALLS from consumerism to energy conservation

Edito

Sometimes seen as highly energy-consuming buildings, shopping centres have though the potential to be energy efficient and meaningfully contribute to reach the environmental and energy goals as fixed in EU policies. The retail industry's size, importance in EU economy, and impact have indeed a great deal of potential to be exploited. Demonstrating to policy-makers and directly involved stakeholders the importance of having commercial buildings as a focus in the EU building-related directives is key.

In *CommONEnergy*, we firstly defined the context from economic, architectural and technology point of views, as the boundary conditions for development of energy efficient products, effective retrofitting solution-sets, and useful tools to support their planning, design, implementation, and management.

We are now implementing such solution-sets in three demo-cases: Mercado del Val (Spain), COOP Canaletto (Italy), and City/Syd (Norway), where partners supported the retrofitting design, procurement procedures and implementation, particularly with innovative solutions, control strategies and overall building performance monitoring. A number of issues with unexpected challenges were faced during the retrofitting process: the local representative partners in the three cases, as well as the partner managing them, played a very important role to allow effective exchanges among actors inside and outside the project consortium. Indeed, we defined a general methodological approach and specific tools to make the integration of innovative solutions in a shopping centre retrofitting process easier.

Measurement and verification procedures (M&V) and a continuous commissioning platform will be used for performance assessment and whole energy system optimisation as driven by energy, comfort, economic, and social targets, which were planned by shopping centre ownership and/or management.

Approaching the last part of *CommONEnergy*, we are also implementing specific dissemination actions to support market penetration of project results. Such actions are targeted to different stakeholders ranging from designers, owners/investors, managers, builders, craftsmen, advisors, to policy-makers.

We wish you a fruitful reading,

Roberto Lollini, EURAC, *CommONEnergy* project coordinator.

Highlights




Energy efficiency in shopping centres: solutions and technologies to increase comfort and energy savings

CommONEnergy is providing smart, innovative and cost-effective solutions for deep and systemic retrofitting.

An energy-integrated approach for retrofitting is developed, including architectural, functional and technological solutions such as modular multifunctional climate adaptive façade system; ventilative cooling; internal micro-layout design to improve thermal zoning; solar reflective coloured coatings; iBEMS (intelligent Building Energy Management System); greenery integration in the building envelope and auxiliary structures (e.g. parking-lot roof), functional integration of air conditioning and refrigeration system (HVAC+R), and more.

Next steps are crucial to implement the retrofitting solution-sets and measure the results. The assessment will be done through energy simulations using IME (integrative modelling environment) and cost-benefit assessment tools. The implemented technologies will be evaluated from a sustainable (environmental, economic, and social) point of view. An energy-economic evaluation tool will allow investigating the economic feasibility of shopping centres' retrofitting under different surrounding conditions and climatic zones throughout Europe.

	<p>More solutions are detailed on the website, such as the indoor environment quality measurement campaign or the Lean Construction approach. Other approaches tested include building energy simulations to identify effective retrofitting solutions and the associated energy savings, power requirement profile and impact on comfort assessed.</p>
	<p>Status of works</p> <p>CommONEnergy started almost 3 years ago: this means that the works operated to install highly efficient technologies in 3 demo-cases (Trondheim (NO), Valladolid (ES) and Modena (IT)) are over or coming to an end.</p> <ul style="list-style-type: none"> - 'Mercado del Val - MVal', the 1882 Valladolid market, will be the first to reopen after nearly a year and a half of works. Comfort was improved for shop-owners and visitors with a multifunctional modular façade now including openable windows, optimized glass system to let natural light enter, and shutters to regulate it. Geothermal heat pumps are meeting the demand for heating as well as cold and hot water, while roof skylights coupled with openable windows in the façade system, provide natural ventilation. A modern energy management and monitoring system (iBEMS) will allow an optimal control of all technologies, taking appropriate decisions to reduce energy consumptions, while ensuring high indoor environmental quality, putting MVal as a frontrunner for renewables and natural light and ventilation use. - 'Canaletto' in Modena will benefit from innovative solutions, including ventilative cooling, coupled HVAC and refrigeration system using CO2 as (organic) refrigeration gas, a high performing envelope using multifunctional elements, natural and artificial lighting. The executive designs are in progress and works are planned from June to September. A LEAN construction management approach will support the construction phase to identify methods and best practises to smooth the construction process and avoid waste and delays. Meanwhile in another shopping centre in Italy (Grosseto) the focus will be put on electrical mobility and storage integration (opening foreseen for October). - In Trondheim, the 1987 38.000 m² centre was redeveloped in 2000, remaining one of the largest shopping centres in central Norway. The focus there is put on natural ventilation, iBEMS, as well as natural and artificial lighting.

Publications

<p>Smart Coating materials</p> <p>Thought as mainly aesthetic accessories, coatings have the potential to be used to address several buildings' issues, such as mold, water penetration and solar reflection. The report <i>Smart Coating materials</i> aims at investigating the materials of commercial ordinary and specialised paints and additives, in order to cross-check their performance and developing a novel series of multi-functional formulations. Supported by the successful Catanian demo case, the new "cool" paints seem to be as "smart" as the commercial buildings they would cover, given their potential for higher energy savings and relatively low production costs, as well as their compliance to the CommONEnergy goal of formulating a coating with outstanding properties in various fields.</p>	<p>Energy Audits</p> <p>The main idea of CommONEnergy is to shift from single-action refurbishments to deep - energy performing - retrofitting. Energy audits in this case turn out to be extremely useful to better understand the situation in shopping centres and detect the energy-saving opportunities. The report <i>Energy Audits</i> analyses the three demo cases to understand the buildings' performance baseline and optimise their retrofitting plans. This report gathers general information on the status of the building before the retrofit, including construction figures, uses, energy systems (heating and cooling, refrigeration, ventilation, lighting, DHW), monitoring. To complete the picture, the energy consumption of each demo case is investigated as well. The report does not include proposed solutions and improvements, as it is performed in other tasks of the project..</p>
---	--

Going deeper

[Energy Day 2016] Smart strategies and policies for sustainable shopping centres: energy efficient and

cost-competitive retrofitting solutions

This [event](#) will dive into the retrofitting of commercial buildings, with a focus on policies and technologies. Spotlight will be put on how to frame policies, integrating the CommONEnergy project results into policy-making with recommendations for new and existing commercial buildings. Shopping centres features in EU28 + Norway will be presented as well as the three demonstration cases lessons-learned and replication potential. The importance of innovation will be highlighted, with a session on technologies improving comfort and reducing energy consumption in shopping centres. **June 13, from 2pm** at BPIE premises - Rue de la science 23, Brussels. [Registration link](#). Last seats available!

[In the news] CommONEnergy under the spotlight

The project, its results and methodologies are presented in a comprehensive 4-page article written for the EU energy innovation magazine (from page 48).

Articles were also published in the [REHVA magazine](#) on ventilative cooling in shopping centres' retrofit and in the [IBPSA newsletter](#), on the Integrated Modelling Environment for shopping centres. Finally, [FuturEnergy](#) features a bilingual article (ES and EN) on the project, the expected results and demo-cases, presenting the work done by CARTIF (from page 55).

[Awards] Sustainable Building Challenge (SBC): a competition for shopping centers

The SBC competition will be launched at the event "[Central Europe towards Sustainable Building Prague 2016 \(CESB16\)](#)", June 23, where EURAC, Fraunhofer, TU Wien and CMS will present CommONEnergy latest developments.

The [Sustainable Building Challenge](#) is the first competition for sustainable European retail buildings. Addressed to recently refurbished centres, it will take place in 2017 and award best practices, provide useful examples for future renovations and improve the sustainability of commercial buildings. The winner will receive the Shopping Centre Sustainability Award, which will stand as a "label" for the highest level of sustainability in European shopping centres. Submission of Expressions of Interest should be done by October 2016. The full rules and the Expression of Interest will soon be [available on the website](#).

[Events] MAPIC 2016 in November and Shopping Centre stakeholders' seminar, October 5

CommONEnergy is gaining more visibility with many events coming up: the project will be presented at [MAPIC](#), the international retail property market, in November 2016 in Cannes. Another important date to save is October 5: a one-day seminar organised in Valladolid will present the project and allow to visit the "Mercado del Val", one of the demonstration case that will reopen before Summer. Focus will be put on the typical challenges these buildings face, and the solutions tested in Valladolid: modular façade, lighting and more. Sustainability and economic assessment tools will be introduced. Scenarios are tested for 7 additional European centres and will be discussed. Agenda and registration link soon available on the website.

[Call for papers, deadline June 10] International Conference on Sustainability in Energy & Buildings, SEB16 Torino, Sept 11-13

The European wholesale and retail sector contributes around 11% of the EU's GDP, representing 28% of the total non-residential building stock and producing the highest specific energy demand (BPIE, 2011). The shopping centre renovation rate is very high compared with the residential sector: 4.4%. Thus, sustainability of the retail sector and deep energy retrofitting strategies, with all their challenges, may significantly contribute to reaching the long-term environmental and energy goals of the EU. This [session on Energy efficiency in Commercial and Retail buildings](#) will gather the latest developments of solutions and challenges for energy efficient retrofitting technologies, design and operation of commercial and retail buildings. Submission of full papers can still be done by June 10. Contact: Dr Matthias Haase, matthias.haase@sintef.no.

Meet the partners to learn more about the project

- 22-24 June, European conference Industrial Technologies 2016 - Creating a Smart Europe in Amsterdam. SINTEF will give the presentation: "Retrofitting of existing shopping centres".
- 23 June, [Central Europe towards Sustainable Building Prague 2016 \(CESB16\)](#)", where EURAC, Fraunhofer, TU Wien and CMS will present CommONEnergy latest developments.
- July 3-8, "Assessment of thermal comfort in shopping center transitional spaces" will be presented by EURAC at the [Indoor Air conference in Gent](#).

- August 16-18, International Conference on Energy, Environment and Economics (ICEEE2016), Edinburgh, SINTEF will give the presentation: "Renewable energy supply potential of shopping centres".

More news about #CommONEnergy on    **Linked** 

You are receiving this email because you opted in on our website or as a result of your link to a BPIE or CommONEnergy event / activity.

If you wish to unsubscribe, please e-mail us at marine.faber@bpie.eu.

Copyright © 2016 CommONEnergy, All rights reserved

The research leading to these results has received funding from the European Community Seventh Framework Programme (FP7/2007-2013) under grant agreement n. 608678.

