BRICKER

ENERGY REDUCTION IN PUBLIC BUILDING STOCK

n. 03/2015

Welcome to this third issue of the BRICKER project newsletter

Our Project to deliver a blueprint for cutting energy consumption in public-owned buildings is, I'm proud to say, on track and progressing well. For the last one and a half years, Partners have covered a lot of ground, all pulling in the right direction. Attesting to this, the Project's first of three formal reviews took place over two days during mid-April in Brussels where the Project Officer and Project Technical Advisor took stock of our work and gave our consortium insights from their perspectives outside the project. The feedback has been constructive and positive as we set about tackling the next stages of our project towards demonstration.

Much of the monitoring across the three demonstration sites has been completed, and the tendering process and interventions are in full swing, and set to continue over the coming year. The latter include technologies for trigeneration based on solar and biomass, to produce power, heating and cooling where needed as well as solutions for building envelopes. We now have quite a good idea of the technological solutions required at each site and we are looking ahead to configuring and integrating the BRICKER system. This will involve complex challenges such as commissioning, maintenance, operational studies, and ultimately lead to a set of guidelines for replicability across our continent and further afield.

You can follow our progress by signing up to our LinkedIn page and do check out our website where sections about the demo sites include updated and more comprehensive information.

With best wishes,
Juan Ramón de las Cuevas, BRICKER coordinator

Inside

This project has received funding from the EU's Seventh Programme for research, technological development and demonstration under grant agreement N° 609071

News from DEMO SITES

Over the last year, the demostration sites have been monitoring and assessing performance prior to renovation. The tendering for and the manufacturing of the solutions to be installed are continuing. Here we provide a snapshot from each demonstration site.

Spanish demo site: Promotion of BRICKER @ Expoenergea.

Extremadura participated in Expoenergea, an International Energy Fair organised via Extremadura's Energy Cluster and the region's energy agency. The event was initiated to meet the need in our industry for a meeting point specialising in activities that directly and indirectly affect its evolution. The aim is to establish renewable energy and energy efficiency and related sectors as one of the engines of the economic growth and development in Extremadura.

At this event, the General Direction of Industry and energy of Government of Extremadura outlined the Bricker Project: the expectations, the main approach proposed and the benefits.

The BRICKER project outline at Expoenergea

News from
DEMO SITES

Visits of future retrofitting contractors to the Spanish demo site

In addition, during the month of December 2014 several visits to the Cáceres Public Demo site took place for technicians who will be involved in constructing the industrial warehouse and the concrete foundations for the roof-mounted thermosolar collectors. The design works are already finished and now tenders are under preparation, to start construction works in summer 2015.

The works to be undertaken on the roof present a specific set of challenges as humidity and infiltrations must be avoided. We are therefore working in close cooperation with the contractor to meet the technical specifications and to establish a timeline for the interventions.

Roof of the Spanish building

The Spanish demosite

News from

DEMO SITES

Belgian demo site: Procurement procedures in Liège in full swing

The Province of Liège has scheduled all installation works of innovative technologies from the BRICKER Project over two different budgetary years: 2014 and 2015. Due to the specific nature of the works, four different public tenders have been issued. The first two subcontractors were chosen in December 2014. The first company will undertake replacement works of the main curtain-wall facade. The second subcontractor will install the biomass boiler, pellets storage silos, the prototype ORC-unit, piping, cables and logic control of the BRICKER system.

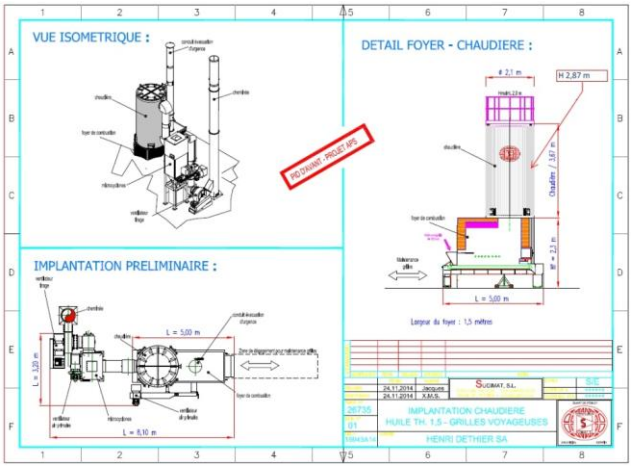


Diagram and layout of boiler

Tenders 3 and 4 have received budgets in 2015 and contracts will be signed by June. The third tender concerns insulation works of the roofs with PIR foams (with and without PCMs) and the forth includes the replacement of the windows frames, façade insulation and integration works of 22 prototypes of air handling units at the top of the selected windows.

Belgium demo building is a educational establishment

News from

DEMO SITES

Turkish demo site: A detailed plan for delivering a successful retrofit.

Since the beginning of the year 2015, the technical specifications of both the active and passive works have been drawn up and in February a first meeting was held with the hospital procurement team. For the solar and ORC systems to be installed in the Turkish Demo (a Public Hospital in the city of Aydin), manufacturing has already started and is set to continue until the last quarter of 2015. Tendering for the purchase of some of the technologies, such as the adsorption chiller, and the ventilated façade installation works, are underway and should be completed by the end of July.

Adsorption chiller- part of the BRICKER system

The Turkish demo site

News & Interviews

BRICKER PROJECT'S FIRST REVIEW – ALL ON TRACK DESPITE CHALLENGES

Mid-April saw the BRICKER Project's first review meeting, coming after one and a half years of endeavours. Members of the consortium convened in the Belgian capital and delivered presentations in the presence of the representatives of the European Commission, the Project Officer and the Project Technical Advisor.

Since BRICKER started in 2013 the consortium has covered much ground and is well into the monitoring of the demonstration buildings and the tendering rounds for the retrofitting works. Given the diversity of the work carried out at each site, these activities are at different stages. Along the way, we are developing the BRICKER System, which will be designed as set of replication guidelines, detailing the challenges, pitfalls, and solutions for adopting energy efficient measures applied to public-owned buildings.

This particular stage of our Project inevitably involves a high degree of collaboration among energy developers, building owners and the various project partners across the work packages. The monitoring has already shed light on issues which require alternative solutions. At the Turkish site for example, the Greencast façade has been found to be unsuitable for use in this particular seismic zone. A new product, more expensive but able to withstand earthquakes and wind loads, will be adopted but over a smaller surface area in order to keep the original costs. Likewise, at the Liège demonstration building, PIR foam with and without embedded PCMsis selected to be applied internally and externally after a reound of several simulations to look for the the best option for our Belgian demo.

At this time, BRICKER Systems´configurations are defined for the three demos, both passive and active, in order to optimise system integration for compliance with total primary energy savings targeted in the Project. These works have included software simulation of cogeneration, solar, geothermal, biomass and adsorption units, leading to single engineered systems at each site. Detailed characterisation of the buildings has been completed at all 3 sites and a set of energy scenarios has been set to define specific technical requirements and specifications of each cogeneration prototype and System as a whole, integrated in the previously existing HVAC equipment. Uncertainties remain at all three sites with regard to internal efficiency gains, precise occupancy profiles, and final BRICKER contributions to the indoor air quality, but the 3 demos are alreadty monitored to assess these works during the coming 2 years..

All this process requires tight control over the work packages involved and consists of much decision-making about technology selection and integration, and the subsequent tendering rounds. The latter are not only technical but also legal – as health and safety, EC targets, and local public procurement rules all need to be considered. And this set of activities will be of paramount importance for producing the guidelines for replicability elsewhere.

In parallel and closely linked to the above, are costs and procurement issues which have been taking and continue to take centre-stage. In Liège, special attention is being paid to meeting legislation, and some subcontractors are having to look at how highly novel technologies may be integrated. Public tendering rounds have been launched for the manufacturing of the technologies earmarked for use within the BRICKER system and later on in 2015, the ORC co-generation prototypes should be ready for shipping. For Spain and Turkey, the parabolic trough collectors will be manufactured in Italy and assembled on-site to avoid risk of damage and to keeps costs down.

The Project review is the first of three that are scheduled over the 4-year life span of BRICKER. The positive result of this first review is encouraging for such a project at the pre-demonstration stage when everything is moving quickly towards integration and operations.

News & Interviews

Francesco Orioli: Solar beam collectors, key to enhancing solar power

By Marco Boscolo, youris.com

A new technology to concentrate solar power provides a new, more efficient way of generating electricity

New technologies could soon bring more effective ways of harvesting solar power. That is the case with small size concentrated solar power, or CSP. It is a relatively new technology compared to the more mature photovoltaic technology, which is a "big boy, well grown and muscular" in the words of **Francesco Orioli**, Director at Soltigua, located near Cesena, Italy. His company produces energy generation systems capable of concentrating solar power. The company is also a partner in BRICKER, a project supported by the EU, which aims at reducing energy consumption of existing public buildings, using cutting-edge technology. In this interview with BRICKER, Orioli explains the challenges ahead for implementing prototypes of these new types of solar collectors in showcase sites in Aydin, Turkey and in Cáceres, Spain.

Can you explain how concentrated solar power technology works? Our parabolic concentrators are solar collectors. They are made of parabolic mirrors that track the sun, constantly concentrating the solar radiation in the focus point of its parabolic section. Then, the solar power heats up the thermal oil contained in a tube positioned at the focus point of the parabola. As a result, the oil is heated up to high temperatures, ranging between 200 and 250 °C. Subsequently, this hot thermal oil is used to feed a turbine—produced by another partner—that generates electricity. This kind of collaboration has been of huge importance for us, as we are developing solutions that must work in a complex system and could be part of a public tender process.

What have been the main challenges? From technical point of view, we had to tune our collectors in order to make thermal oil work in the best and most convenient way with the turbine. We are developing collectors that can heat the thermal oil up to 280°C. But that does not directly mean this is the ideal temperature. We had to work to find the best balance. At the same time the two installations, in Turkey and Spain, are different. In one case, they are on the roof of the building, in the other, on the ground. But we are not making the foundations of the system ourselves. That means that we have to understand the kind of forces that are present, due to the exposure to the wind, before deciding who was building them.

Why have public buildings been chosen as focus of research? Public sector is considered as a model for society. That is why a serious energy saving policy must start off of public buildings as an example. Moreover, the project consortium is working on buildings that are currently in use. This means that we are facing real-life energetic problems in an actual hospital and school setting. It is worth remembering that in Europe a very small part of the buildings are brand new. The vast majority of buildings have been built in the past. The variety of solution we are studying are opportunities to have a real impact on energy consumption.

Could the technology be adapted elsewhere? We have succeeded in designing and producing easy-to-install solar collectors. This means it opens the door to implementing it in a wider range of settings, such as for example on rooftops or near public buildings. For us, in particular, a very important aspect is the prototyping phase both on the product side and on the shipping and installation side. The latter is a crucial point if we want to scale up and make these solutions widely available.

News & Interviews

Matteo D'Antoni: In-depth analysis required prior to retrofitting old

By Luca Tancredi Barone, youris.com

Passive technologies can maximise primary energy reduction and economic investment in existing buildings

Innovative technologies can be used to retrofit old buildings as a means to save energy. This is precisely what the Bricker project is aiming to achieve. Matteo D'Antoni is a senior researcher at the solar thermal heating and cooling team of the independent research centre at the heart of the Italian region of the Dolomites, called EURAC the European Academy of Bolzano. Here, D'Antoni, talks to Bricker about his research on dynamic simulation of building and how to harness the benefits of active and passive energy systems. His aim is to understand how to integrate various technologies in a building's energy concept to reduce its primary energy consumption.

How do you obtain energy savings and economic viability? The key aspects are methodology and design. The strongest aspect of our research project is its methodology. That is, studying the rationale to introduce passive or active technologies in an existing building and its implementation. This is what makes it possible to replicate the results to other climatic contexts in Europe. Our objective is to reduce the primary energy emission by 50%. But we will only be able to ascertain this is the case for the three showcase buildings we have been studying by the end of 2015.

Could any environment-friendly public administrator equip the public buildings of their city with these technologies? Most of these technologies are mature. They are already available on the market. The issue, once again, is the methodology. It is important that we establish guidelines that allow deciding if any solution we choose to adopt is really economically and energetically viable. Depending on the context and the buildings, some solutions that work in theory may not be the best ones. Some less economically onerous solution might lead to a quicker payback time.

It is a complex approach. One the one hand, we have to calculate how much primary energy can we save; on the other, how much it costs. Technologies have to be easy to install and maintain and incurring a limited investment cost. If they are expensive, we have to understand whether it makes sense to install them. And this analysis has to take into account the energy concept of a specific building replaced in its own environmental context.

What are the key steps in the process? There are three steps in the process. First, we evaluate the energy consumption of the existing building. This is done through thermo-energetic dynamic simulations of the system installed in the building and of the structure of the building itself. This way, we obtain the baseline. In a second phase, we evaluate the integration of the so-called passive technologies to reduce the energy requirements of the building. The last phase is the implementation of active technologies, like solar technologies, to reach energy efficiency in large public non-residential buildings, such as schools, hospitals or offices. All these technologies have to be agreed with the building owners in order to guarantee technical and economic feasibility.

Could you give one example of passive technology? For example, we have been working with an insulating system containing what are known as PCM (phase change material). This is a material contained in capsules capable of turning from solid into liquid while storing heat. It is like when water boils and until all the water is evaporated the temperature does not change. When this solid material becomes liquid, as the surrounding temperature changes, it stores the heat that can be released later on when needed. This results in a constant temperature inside the building, which can be for example, 25º in summer and winter. The capsules containing this special material are little spheres embedded in a traditional solid insulating panel.

What is your long-term ambition? Besides the simulation for individual buildings, I would like to run a wide range simulation campaigns in various European climates. We could thus provide useful guidelines for the renewal of similar public buildings in different geographical contexts. It is in the interest of Europe that this project provides general indications to help replicate results everywhere.

News & Interviews

Luigi Crema – how to make solar energy systems more widespread

By Luca Tancredi Barone, youris.com

A novel modular technology paves the way for a potential 50% decrease in monthly energy bills of public buildings

Retrofitting existing buildings with adequate cutting-edge technologies is thought to guarantees spectacular energy savings, by about 50%. The objective of the EU funded project BRICKER is precisely to demonstrate such possibility. **Luigi Crema**, a physicist who is the head of the Applied Research on Energy System (ARES) group at the Bruno Kessler Foundation, a private foundation dedicated to research and controlled by the Province of Trento, in Italy, talks to youris.com about the challenges of applying solar technologies to smart buildings, smart communities and smart cities.

Choose three key-words to describe your approach. Without a doubt the three guiding principles are: efficiency, effectiveness, and modularity. Efficiency is taken for granted. Systems based on renewable sources clearly have to compensate the costs needed to produce the energy. Effectiveness means that you need to make sure that the client's needs and expectations are fulfilled. End-users want to be able to use the energy when they need it, not when technology or nature – in the case of renewable energy – can provide it. Finally, modularity: each site is geographically distributed, has different characteristics, and different needs and has to be furnished with a system that is adequate for a given location. If these three characteristics are fulfilled, this technology is certainly a winning one.

What are the strategies adopted to reduce energy consumption? The strategy involves implementing different active energy production mechanisms for large public buildings. It relies on two renewable energy sources: concentrated solar power and biomass. The idea is to join them in a hybrid co-generation system, using a technology called Organic Rankine Cycle (ORC). This consists of a turbine activated by an organic fluid, working at much lower temperatures than those of the standard vapour or gas turbines. The system makes it possible to lower dependence on fossil fuels. In parallel, other partners in the project focus on passive technologies—that is, the integration of more efficient materials or elements that allow energy savings.

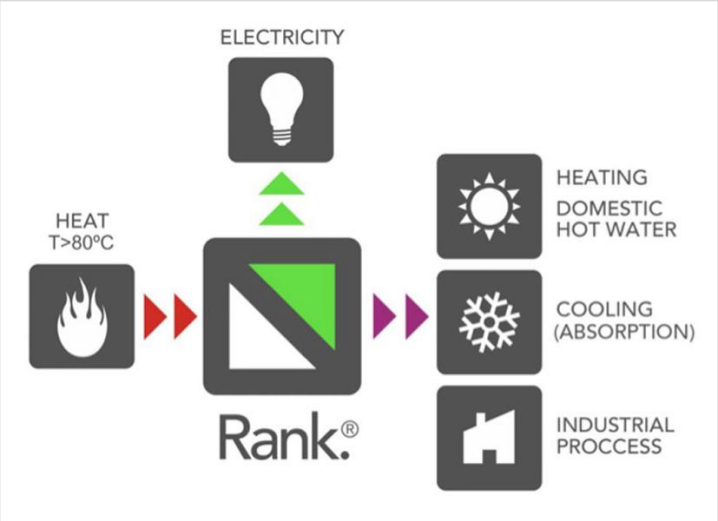
How does a concentrated solar power system work? Nowadays, we use two main technologies to generate electrical or thermal energy from solar energy. One is the common photovoltaic system and the other is called concentrated solar power, or CSP. As the name suggests, this is when solar radiation is concentrated onto a receiver, a cavity or absorbing material to convert it into heat. The heat generated can reach very

high temperatures, even 800ºC or 1,000ºC at the point where the radiation is concentrated. The ratio can be of a thousand to one or even more, which means that the radiation from the reflecting surfaces can be concentrated onto a focal point; one thousandth of the surface of the mirrors.

What kind of concentrated solar power technology are you using for the project? We are using parabolic trough collectors that track the position of the sun and concentrate solar radiation onto a tube of limited dimensions, the receiver. This technology is designed to be easily adaptable to the roofs of large buildings. The tube acts like a so-called black body which absorbs radiation with only a minor fraction re-emitted. An organic fluid flows inside the tube and it can reach a temperature of about 250 ºC. The key point is that this temperature is maintained constant in the loop thanks to a biomass boiler directly connected to the solar system.

The issue is that the sun is an intermittent source. Therefore, a constant supply of radiation to the receiver is not guaranteed. On a rainy day or at night, then, the fluid temperature would drop and the solar system would not be efficient. So the hybrid system is conceived to allow a small energy accumulation that covers the time required for the biomass boiler to be activated to compensate for the missing energy from the sun.

What was your role in the project? The energy savings can be achieved through different designs. We have to identify the best configuration of the modules of energy systems to guarantee efficiency--minimal energy loss--in each site. Our role is to determine the optimal configuration of the system by introducing experimentally measured data. We have to guarantee a stable generation of energy with variable energy demand profiles. We call this method 'dynamic modelling' and it provides a virtual model of the functioning of the system. This is how we identified the different needs of the three showcase projects. One of the objectives of the project is to propose a modular technology that can match the needs of different locations.



Organic Rankine Cycle concept scheme

Retrofit Advisor Corner

SOLAR PARABOLIC COLLECTORS

By tracking the position of the sun, parabolic collectors can concentrate the solar radiation on a tube, thus heating the fluid which flows in the tube up to 250-300°C. The hot fluid can be used for many purposes. This technology is already used for large solar power stations.

Within BRICKER **it is being applied to the retrofit of existing public buildings as part of an integrated system**. **Some critical aspects of the collectors**, such as their modular structure and receiver tube **are being optimised to the specific needs of the integrated system**.

The structure suits the needs of **both ground and roof mounted installations**. The receiver tube will increase its operating range from up to 250° C to up to 280 - 300°C, depending on the needs of the integrated system. The collectors have a modular design, so that no welding will be necessary to install them on their foundations.

In the Spanish site, a rooftop installation of n.12 enhanced PTMx-24 type collectors provide an overall collecting area of 648 m2, corresponding to a thermal output of 407 thermal kW in reference conditions.

The BRICKER demonstrations use both rooftop and ground mounted installations and therefore it will be possible to compare the pros and cons of each option. This will provide two useful references for future projects.

In addition, the application of concentrated solar thermal energy together with other renewable sources such as biomass and, potentially in Turkey, geothermal, represents high technical value. This combination will feed the renewable polygeneration system equipped with ORC turbine and absorption chillers.

More information at www.soltigua.com

Solar parabolic collectors

In the spotlight

FONDAZIONE BRUNO KESSLER - FBK

Fondazione Bruno Kessler is a private non-profit research centre working for the public interest. Established by the government of the Autonomous Province of Trento, FBK has a strong international orientation and conducts research in the areas of Information Technology, Materials and Microsystems, Nuclear Physics, Mathematics, Italian-German Historical Studies, Religious Studies, and Effectiveness of Public Policies.

In simple terms, Fondazione Bruno Kessler's mission is to conduct scientific research, develop technology, advance knowledge, provide services to the local community and to foster innovation. The commitment to the exploration of innovative scientific frontiers, with particular emphasis on interdisciplinary approaches and applications, characterize the profile of FBK in terms of originality and complementarity.

Within the Energy sector, activities on Concentrated Solar Power, Hydrogen storage and Renewable Energy Technologies are part of ARES (Applied Research on Energy Systems) research unit. ARES focus research on applied innovative energy system, providing support to research, innovation and technology transfer, both at the local and the international level. The value proposition can be identified in several support options, from a customized proposed technology, to a service oriented support to the assessment of a whole value chain. ARES offers its know-how, expertise and facilities in the energy domain in order to achieve a measurable value on a common objective.

In Bricker, FBK is involved in the system integration and energy analysis for the main active components coming from the technology providers. Within this framework, a control strategy for the continuous management and smooth operation of the BRICKER Systems is proposed to the plant owners. Simulation tools and dedicated analysis are conducted, in order to characterize the overall system behaviour and performances before plant commissioning.

Stay in touch

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Contact:
Fabrizio Alberti

"The Bricker project is a unique occasion to work first hand on promising and innovative technologies, which many engineers have so far only seen on paper, with the objective to demonstrate that they can work together. For people in the energy sector like us, this opportunity is both challenging and an existing professional experience, from which much can be achieved and learned."

Fabrizio Alberti, Energy Research Engineer, ARES Unit (Applied Research on Energy System), Fondazione Bruno Kessler

In the spotlight
EURAC

EURAC is an applied research centre located in Bolzano, Italy. Founded in 1992 as a private association, EURAC currently has eleven institutes organised into four main areas of research: Autonomies, Mountains, Health and Technologies.

These institutes work closely with international organisations such as the Carpathian and Alpine Conventions, the UN, as well as several territorial agencies in the fields of sustainable development and energy technologies. The work of the institutes is largely financed through European funding, with contributions from the centre's members as well as a financial agreement with the Province of Bolzano.

The Institute for Renewable Energy works mainly in the field of system integration of renewable energy and energy efficiency solutions for buildings. The activities range from monitoring over numerical simulation to laboratory testing. The Institute for Renewable Energy is internally structured in four research groups: (i) Energy Efficient Buildings (with focus on net-zero energy buildings, energy efficiency in historical buildings and energetic refurbishment of existing buildings); (ii) Photovoltaic Energy Systems (with focus on solar resources, performance and reliability of PV modules and systems and their integration into buildings and products); (iii) Sustainable Heating and Cooling Systems (with focus on hybrid and efficient heating and cooling systems for buildings, industry and sustainable districts); and (iv) Urban and Regional Energy Systems (with focus on regional renewable energy resource analysis and sustainable urban energy planning).

Within the BRICKER project, EURAC coordinates the activities of Work Package 4. The aim is to integrate passive (PCM insulating materials, aerating window and ventilated wall façade) and active (biomass boiler, Organic Rankine Cycle unit, parabolic trough collectors) technologies in the energy renovation of non-residential, public owned target buildings. Heating and cooling loads of the three demo buildings are therefore covered through the standardized BRICKER energy active system, which is also capable of generating renewable electricity for building needs. In order to promote replicable and exploitable outcomes from the project, a clear focus is given on the development of a clear and structured methodological approach. This consists in identifying cost-optimal renovation scenarios according to specific building energy demands and local climatic characteristics.

Stay in touch

Official website:
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Contact:
Matteo d'Antoni

"In BRICKER, it is important that we establish guidelines that enable us to assess if a chosen solution is really economically and energetically viable. It is in the interest of Europe that this project provides general indications to help replicate results everywhere"

Matteo D'Antoni, Senior Researcher at the solar thermal heating and cooling team, EURAC

In the spotlight
SOLTIGUA

Soltigua is the only company worldwide to sell both parabolic troughs and Fresnel concentrators for medium temperature applications (100-330°C).

Soltigua's products have been the first tracking and concentrating collectors to be tested and certified up to 250°C according to the EN 12975 standard. Soltigua's manufacturing volumes are growing with its industrial sales. Current maximum capacity is 30 MWt/year. Engineering is being continuously improved also via Soltigua's participation to several FP7 and Horizon 2020 collaborative research projects such as Bricker. Soltigua operates on a worldwide basis either directly or via a network of selected specialized integrators of solar thermal systems.

Within Bricker, the main role of Soltigua will be to perform the following tasks:

1. develop a new, enhanced version of its already best in class parabolic trough collector.
2. manufacture two prototype solar fields of to serve the installation in Turkey and Spain.
3. support the system integration design.

and to be active in the dissemination and exploitation activities, with particular reference towards the public building categories of hospitals and universities.

Stay in touch

Official website:
www.soltigua.com

Contact:
Francesco Orioli

"The public sector is one of the natural customers for our innovative technologies based on renewable energy. Retrofitting public buildings with solutions which are not only convenient but also highly innovative generates a positive impact which is part of what public service is about. We are therefore glad to take part in this project which pioneers not only the technologies but also the way in which they can be put together in a system and also linked to the overall economic and policy targets of the owners of public buildings."

Francesco Orioli,
Director of Soltigua

News from
THE BRICKER NETWORK

BRICKER project now on LinkedIn

Since March, BRICKER is present on the social web. A LinkedIn page has been set up where information about the project, new publications on the web site, events where BRICKER partners can be met, news from our network and more can be discovered.

If you would like to be informed what happens in BRICKER, follow us on LinkedIn and link your account to the BRICKER page.

Follow us on LinkedIn

BRICKER at the EeB PPP Impact Workshop 2015

The BRICKER Project was presented during the recent EeB PPP Impact Workshop 2015, along with 14 other projects in *Area 3: Deep energy renovation of existing buildings*. The discussion following the presentation of the projects raised the question of missing concepts for exploitation of industrial results. It was underlined that at the end of the Project exploitation, often results cannot yet be commercialised and are not yet ready for exploitation. Also, contributions to standardization are very limited due to the timeframe of the projects.

The EeB PPP Impact Workshop was also the opportunity to hold a short meeting between the BRICKER D&C Secretariat and dissemination desks of fellow projects RESSEEPE and A2BPEER. We agreed to inquire the opportunities to hold a common workshop later in 2015.

The EeB PPP Impact Workshop

Next events

MEET US AT EVENTS

European Sustainable Energy Week – Policy Conference

Brussels, Belgium, 16-18 June

The Policy Conference will take place during the European Sustainable Energy Week (EUSEW) and brings together energy experts, policy-makers, representatives of civil society and the media. BRICKER coordinating partner ACCIONA will be participating in this three day event as energy expert.

Steinbeis Day 2015 – Platform for Specialist Networking

Germany (venue to be confirmed) 25 September

The Steinbeis network offers solutions for all kinds of fields related to technology and management – for enterprises of every size. Numerous Steinbeis centres will be participating in the Steinbeis Day, all with the aim of using the exhibition to introduce the projects they are currently involved in. If you have questions, the centre directors and employees will be delighted to help.

10th Conference on Sustainable Development of Energy, Water and Environment Systems

Dubrovnik, Croatia, 27 September – 3 October

BRICKER partners Fundación CARTIF will be at Dubrovnik at the end of September for the Conference on Sustainable Development of Energy, Water and Environment Systems. Emphasis will be placed on the improvement and dissemination of knowledge on methods, policies and technologies for increasing the sustainable development. The event includes a plenary session of smart energy systems with other talks on BRICKER topics such as cogeneration.

ASME-ORC 2015 – 3rd International Seminar on ORC Power Systems

Brussels, Belgium, 12 – 14 October

This will be the third edition of the international seminar dedicated to an increasingly acknowledged energy system. Organic Rankine Cycle systems are central to the BRICKER concept, and our partners **University of Liège** is coorganiser of the event. Other BRICKER partners will also be present. Included in this year's event will be an industry day entitled "Bridging the gap between academia and industrial leaders in the field of ORC energy systems".

ABOUT BRICKER

More information on this Newsletter and related dissemination and communication activities of the project available at:

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BRICKER
ENERGY REDUCTION IN PUBLIC BUILDING STOCK

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For the purposes of media law, editorial responsibility rests with the BRICKER Communication Secretariat.

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