

# Newsletter

Residential Renovation towards nearly zero energy CITIES



## Welcome to the 1<sup>st</sup> R2CITIES Newsletter!



This is the first issue of a series of newsletters that will keep you informed about our project, called R2CITIES. The project, which is co-financed through the FP7 programme, is ambitious – to develop replicable strategies that can be applied to large-scale district renovation initiatives for achieving nearly zero energy cities.

Why ambitious? For a number of reasons but there are perhaps three main ones. Firstly, replicability doesn't mean one size fits all. It requires a combination of technological know-how, along with heightened awareness of legislation and economic issues. Secondly, the scale of district renovation for the future is enormous, as is the diversity in terms of building typologies, climatic conditions and policies around Energy Efficiency across our continent. Thirdly, communication is paramount for such a demonstration project in order for the methodologies to be taken up by the right stakeholders in a way that is meaningful. Achievement in these areas will open the way for new refurbishments on a European scale within the framework of new urban energy planning strategies.

To help us deliver innovative, workable solutions to the challenges ahead, we draw on the leading expertise of a 16-strong consortium from across six countries. We will be showcasing them in our newsletter and highlighting the points of interest of our endeavours as the project unfolds. Newsletter sections also include interviews with experts, latest news from the project's three demonstration sites and news from our networks. This newsletter will be of interest to the construction industry as a whole, policy makers, local governments, other related EU initiatives, and research communities with an interest in energy efficiency, not forgetting of course the key beneficiaries; the end users.

R2CITIES began in July 2013 when the consortium gathered in Valladolid, Spain, at the offices of the project coordinator, Fundación CARTIF. It will run for four years and has just held its first progress meeting in Madrid, at partner ACCIONA's premises. This was the opportunity not only to take stock of current developments but also to deliver two workshops, one about Integrated Project Delivery (IPD) and Building Information Modelling (BIM) and its application at district level and the other one about exploitation and market deployment.

And finally, I would invite you to take a look at our website and sign up to keep abreast of our findings and solutions, and join our community.

With best wishes

**Rubén García Pajares** - R2CITIES Coordinator  
Fundación CARTIF

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# Low energy district renovation

Renovations of entire districts, designed to reach near zero energy consumption, need to be replicable if they are to be widely adopted.



The overall building stock represents about 40% of the EU's energy consumption. It also produces about 36% of its total CO2 emissions. Besides, new buildings only account for 1% to 1.5% of the building stock. This means that renovation of existing buildings could be relevant for energy saving and greenhouse gases reduction.

In particular **R2CITIES, bets on reducing, by about 60%, the energy consumption of districts renovated on a large scale.** "District renovations are not very well developed in Europe", says project co-ordinator [Rubén García](#), a researcher at the energy and information and communications technology division of an applied research institute, called the [CARTIF Technology Centre](#), based in Boecillo, near Valladolid, Spain. **"Our aim is to approach the district as a whole to boost economies of scale and ensure replicability of our approach to other cities."**

Three local authorities in three different countries have become involved in showcasing these potential savings. They are located in [Valladolid](#), Spain, [Genoa](#), Italy and [Kartal-Istanbul](#), Turkey. All three share common problems, such as insufficient insulation. Common solutions to meet the energy needs of these districts include adoption of solar thermal and photovoltaic energy production. Their ultimate goal is to achieve cities with a near-zero energy consumption.

Today, the regulatory framework for energy savings, related to renovation, is not homogenous across Europe. "Until now legislations in Europe have been concentrating mainly on new buildings, for which we have good rules and requirements, rather than on the renovation of existing ones," says **Kurt Eriksen**, general secretary of an international non-profit organisation promoting sustainable building, called the [Active House Alliance](#), and based in Copenhagen, Denmark. "Few countries, such as Denmark and Germany, do have good requirements for renovation, but many others don't."

However, "this is definitely going to change," Eriksen says **"holistic renovation is necessary to meet the targets for CO2 reduction in 2050."** These targets are of 20% below 1990s' levels.

To realise the ambitious goal of reducing energy consumption in urban districts, it is essential to define renovation standards. "Individual countries have different methodologies to refurbish buildings, so if we managed to find, as the project aims to, a common standard to implement in different countries, it would be a breakthrough," says Eriksen, "like having three different languages merged into a common one." This explains why ensuring the replicability of the building showcases is key. A methodology made of "a book of good, and perhaps bad practices," as García defines it, could help turn these showcases into mirrors of future cities. This book would include the various building development stages, a description of the tools used during the renovation and cost-related information. All this information will be gathered into a single place thanks to a so-called Building Information Modelling (BIM) system.

However, achieving replicability may not be that straightforward. "If you want replicability of solutions you need to use the same philosophies and perhaps also the same technologies that were in the first project," Eriksen points out, "knowledge sharing from within a project to others is limited; therefore replication very often requires involvement of one or more of the previous partners."

The concept of replicability is relative. **"Replicability per se in buildings and in urban policy does not exist because each site has specific characteristics** such as ownership structure, hydrogeological, climatic, cultural characteristics and users'

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needs,” remarks **Antonio Borghi**, an architect based in Milan, Italy, and the chairman of the working group urban issues of the [Architects’ Council of Europe ACE-CAE](#).

However, he definitely sees the potential advantages of these projects lies in their knowledge collection and sharing, which can then be adapted to the individual case. “Replicability is intended as the knowledge transfer of procedures, methodologies, technological solutions from one context to another,” Borghi says. “Therefore the best practices book will always need to be adapted according to different contexts, needs, solutions and available resources and also be tailored to reach decision makers”.

All three experts agree that finance is a possible obstacle to successful achievement of large-scale district renovation. Indeed, the lack of resources of public administrations and their failure to promote districts energy efficient renovation is an issue.

Besides, the unavailability or unwillingness of buildings owners and end-users, whose involvement and often contribution is essential, would also represent a major barrier to renovations. “In order to achieve district energy renovation it is important to find a balance between the various stakeholders,” says Borghi referring to public administrations, end users, businesses, banks, “so that no one has much more power than the others,” he adds. He also points to the need to restrain industry's pressure to sell their products. He concludes: **“The best guarantee of success for all urban requalification projects is decision sharing by a broad partnership of stakeholders.”**

*by Elena Ledda*



In this picture:  
The Lavatrici District, in Genoa

## First progress meeting of the R2CITIES, a project about residential renovation towards nearly zero- energy cities

The R2CITIES Consortium met for three days at the premises of partner Acciona in Madrid to assess achievements to date and plan the coming project period.



Last 12 – 14 February, the R2CITIES project consortium gathered in Madrid, Spain, for its first progress meeting. The purpose of this ambitious four-year FP7 project is to develop and demonstrate replicable strategies for designing, constructing and managing large-scale district renovation projects for achieving nearly zero energy cities. These results will open the way for new refurbishments on a European scale within the framework of new urban energy planning strategies.

Coordinator **Rubén García** from [Fundación CARTIF](#) led the three days of intensive exchange among R2CITIES partners as well as two workshops about the complex implementation of R2CITIES. The review of work packages revealed that RTD activities and demonstration activities are equally relevant for the successful delivery of R2CITIES results. Rubén García said:

*“R2CITIES most important impact will be the development and demonstration of innovative, cost-effective, high performance retrofitting concepts and solutions to boost high quality district renovations and to accelerate market uptake of low efficient building stock “.*

One of the workshops that took place dealt with energy efficient district renovation methodology dedicated on methods for **Integrated Project Delivery (IPD)**, **Building Information Modelling (BIM)** as well as **Life Cycle Studies (LCA and LCC)** revealed the truly innovative solutions adopted in R2CITIES. Project solutions will take technology integration from the individual building onto the district level. The definition of an energy efficient district renovation methodology will represent a key for replication and uptake of the R2CITIES concepts.

Partner [Steinbeis](#) facilitated the second workshop dealing with exploitation and market deployment strategies. During interactive exercises, the partners were challenged to express and exchange their initial ideas about exploitation paths, as they see it from their involvement into R2CITIES.

The three demonstration sites are located in different climate regions and each has its set of challenges. There is one in the Italian city of [Genoa](#), another in Turkey in [Kartal](#), a municipality within the city of Istanbul, and the third is part of [Valladolid](#) in Spain. All are managed by their respective municipalities and participated in the meeting to represent public policy makers.

In this picture: a moment of the meeting.





## R2CITIES reaches out to the final conference of the CONCERTO Initiative in Brussels

One of Europe's flagship initiatives for building and district energy efficiency innovation, CONCERTO, held its final conference on 22 and 23 October in Brussels.



Co-delivered by R2CITIES partner Steinbeis-Europa-Zentrum, the event focused on the drive towards energy solutions for smart cities and communities. Some 300 delegates attended the conference with a panel of experts discussing how to disseminate know-how from avant-garde communities and how to put this knowledge to use in the new EU initiative for Smart Cities.

There was much debate about funding large-scale demonstration projects in towns and cities. This included opportunities for Smart Cities projects within Horizon 2020, ELENA funding, and programmes for SMEs. As part of the third parallel session, R2CITIES Project coordinator Rubén García from [Fundación Cartif](#), delivered a presentation entitled "Co-financing issues in FP7 Smart Cities projects" during which he explained the various options for co-funding the large investments needed for demonstration projects. He also presented the R2CITIES project before concluding that it is crucial to take into account building ownership when addressing the risks, costs and benefit of energy efficient solutions.

[Steinbeis-Europa-Zentrum](#) is the coordinating organisation for [CONCERTO Premium](#), a meta project serving as a support for investors' decision-making, and ensuring a sustained effect with regard to a widespread application and replication of results from previous projects from within the European initiative. At the conference, coordinator Valerie Bahr presented the topic "what Smart Cities can learn from CONCERTO". She likened these over-arching initiatives as concerts, saying "a concert is only harmonious when all of the musicians play in sync. Orientation towards Smart Cities would turn a simple concert into a whole symphony".

R2CITIES could be considered as part of the transition from CONCERTO to Smart Cities and as such it will have very obvious two-way links with these two European-wide

initiatives. Fundación Cartif as R2CITIES coordinator along with Steinbeis-Europa-Zentrum, responsible for exploitation and market deployment, are therefore well positioned to ensure not only maximum capitalisation of the project's outcomes but also the input from the vast experience of previous projects from FP6 and FP7 is injected into R2CITIES.

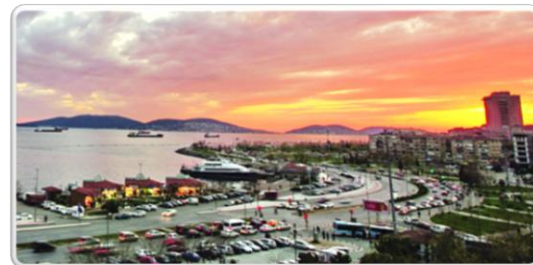
[You can download the presentation of Fundación CARTIF at CONCERTO Initiative on \[www.r2cities.eu\]\(http://www.r2cities.eu\).](#)

In this picture: Project Coordinator Rubén García @ Concerto Initiative



## Kartal Municipality enters a European collaborative project to renovate the Yakacik district

The aim is to achieve a nearly zero energy city. Turkish stakeholders part of a project consortium at the cutting edge of energy efficiency



The Yakacik district of [Kartal Municipality](#) takes centre-stage in R2CITIES, a 4-year project co-financed by the European Research Programme 7. In this district, low efficiency lighting systems and appliances are in operation, and there are major issues relating to insufficient insulation, meaning much room of improvement. R2CITIES will involve refurbishment of the area with emphasis on passive design strategies, heating and cooling sources, and the integration of renewables for building envelopes. As such, the Yakacik will serve as a demonstration platform for replication purposes elsewhere.

Turkish partners [ITU](#), [Ode](#) and [Ezinc](#) will pool their respective competencies to carry out the local interventions which include commissioning energy efficiency measurements, assessment of energy performance and savings on the retrofitted areas, economic analysis and also social acceptance. This will result in lower maintenance costs, enhanced occupant health and overall a more convenient and enjoyable use of dwellings.

This experience will then be drawn upon to elaborate replicable strategies for designing, constructing and managing large scale district renovation projects with a view to achieving nearly zero energy cities.

This project is a collaborative endeavor to which 16 partners from 6 countries will be contributing over the next four years. Kartal Municipality will be working in close co-operation with the two other demonstration sites in Spain and Italy, to learn from the findings and to input the knowledge and expertise from Turkey's partners.



## Kartal, Istanbul The demo site

The use of low efficiency lighting systems and appliances and a slim insulation means very high energy consumption for Yakacik district of Kartal, Istanbul and therefore a high potential for improving.

The project aims to retrofit a residential district with energy-efficient strategies. Passive design strategies, heating & cooling sources and integration of renewables for building envelope will be implemented.

See more about Kartal district on <http://www.r2cities.eu>

## Rubén García: how to refurbish urban residential low energy district

Three case studies will constitute the basis for developing an easily replicable strategy for renovating districts so they reach near zero energy consumption.



Achieving nearly zero energy consuming cities: this is the goal of three large scale district renovation projects. They are currently being tested in Valladolid, Spain, Genoa, Italy and Kartal - Istanbul, Turkey. There, the local authorities provide the demonstration sites for the renovation of three residential districts, under the recently initiated EU funded R2CITIES project. Project coordinator, Rubén García, researcher at energy and information and communications technology division at the Spanish research centre CARTIF, based in Boecillo near Valladolid, speaks about the challenges ahead.

### How did you become involved in this large scale district renovation project?

In Europe, there is a very high need for energy renovation. Buildings are generally aged. Energy availability is limited. And the amount of people moving to the cities is continuously growing. Our research centre participates in the Smart Cities programme on some of the strategic projects in our area. We have got involved when we realised that Valladolid city council, who is one of the Smart Cities partners, was planning to holistically refurbish the city's neighbourhood of Cuatro de Marzo. This project perfectly fitted with the concept of energy renovation. We therefore started working together with Valladolid's municipal housing society, [VIVA](#), and the construction company [Acciona Infraestructuras](#)—both of which are project partners—to prepare a showcase project for Valladolid.

### How does energy efficient residential district renovation differ from standard energy efficiency in single dwellings?

When renewing an entire district you can think of solutions on a larger scale than you would in a single house. For

example, it is possible to implement a district heating by installing a much bigger biomass boiler than you could possibly do in a home. Moreover, when refurbishing a whole district in a homogeneous way the results are much more visible than in a single building. These can therefore be more easily replicated.

### Why did you choose the three demonstration sites?

These sites are interesting because they bring in different building types and different kinds of properties. There are common solutions planned for the three showcase buildings. These include improvements in insulation and implementation of photovoltaic and solar thermal systems.

For example, the Cuatro de Marzo neighbourhood of Valladolid is a privately-owned district built in the 1960s'. The local authority promotes its renovation works through Valladolid's municipal housing society. By comparison, Kartal and Genova have been chosen to allow ambitious district-level renovations. Renovations are normally based at building level rather than at district level. What makes this project ambitious, unlike typical renovations, is that it will, for example, involve approaches such as façade renovation combined with renewable energy installations.

The Italian demonstration site, Lavatrici neighbourhood, is a social housing district in the periphery of Genoa, Italy. It was built between the 1980s and the 1990s and belongs to the Genoa city hall. By comparison, the Yakacik district of Kartal belongs to the municipality of Istanbul. It was built at the end of the 1990s. Most of the area is mainly occupied by a large building originally planned as a retirement home, which was never used for that purpose because of high

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energy inefficiencies due, mainly, to lack of insulation and to the high costs of running it. Instead, it has been used to shelter hundreds of people affected by an earthquake for eight months. And now, it is about to be converted into social housing due to its inability to be used for other purposes because of its high energy inefficiencies related to poor insulation.

#### What is the most challenging aspect of the project?

The joint participation of several different actors in the renovation of different districts, in different European cities is one of the most challenging aspects of the project. The main actors include municipalities, research centres, building and renovation companies, financial and non-profit organisations and more than thousand users. The other main challenge is to ensure that the project results can be replicated in other European cities.

#### What makes you anticipate that other places will emulate the example set by the project case studies?

The main project output will be the development of a so-called integrated project delivery based methodology. This involves using a method called Building Information Modelling (BIM) to gather and share all the project

information including development stages, tools, details of successful and less successful solutions as well as costs related information. As a result, any actor involved in renovation work can have access to the BIM content and adapt the information for specific purposes. This could be relevant, for example, to architects, engineers, local authorities, energy services companies, equipment and maintenance operators and even individual users.

We think we will be able to publish a first version of our methodology report in the project website by the beginning of the last project year, in 2017. We are creating a very ambitious strategy to disseminate our methodology and lessons learnt for policy makers, professionals and the general public.

We will never be able to ensure our methodology will be replicated since the last word is with the relevant actors. Nevertheless, we will handle all interested stakeholder the project results gathered in a copy of our good practices book. This will constitute a form of benchmark for future holistic large scale renovation projects across Europe, should other cities involved in district renovations decide to adopt the project's methodology and similar technology solutions.

*By Elena Ledda*



In this picture:  
Buildings from Cuatro de Marzo  
district in Valladolid



## In the spotlight: Fundación CARTIF

Coordinating R2CITIES is Fundación CARTIF, a leading Spanish applied research centre set up in 1994. It possesses 9 technical divisions in which some 200 research staff are mobilised across energy, environment, food and chemicals, biomedical, and robotics.

The focal point of [CARTIF](#)'s research areas is **ICT and energy**. By combining these two fields, a multidisciplinary team has formed which is able to design and develop solutions in the specific fields of energy efficiency, energy savings, integration of renewable energy systems, electricity market, demand response, Smart Grid, etc.

CARTIF takes an active part in 10 international networks and platforms such as **ISES** (International Solar Energy Society) and **IEA** (International Energy Agency), and it is also the Spanish National Liaison Point for the European E2BA (Energy Efficient Buildings Association).

The Energy Division at CARTIF has carried out many research and development projects in its fields of specialisation. Besides, the current participation in international projects in which it is involved include FP7-EeB projects such as [DIRECTION](#) (coordinated by CARTIF), [3ENCULT](#), [CAMPUS21](#), [BRICKER](#) and [CommONEnergy](#).

Apart from the overall coordination of the R2CITIES project, Fundación CARTIF is leading a work package dedicated to the measurement and verification of energy performance and savings. This will be undertaken prior to the actual demonstration activities planned within the project at three different sites. The work will involve identifying the most suitable protocols and adapting them to the local specificities. Furthermore, requirements for monitoring and metering will be defined and deployment feedback from demonstration will be collected

*"R2CITIES most important impact will be the development and demonstration of innovative, cost-effective, high performance retrofitting concepts and solutions to boost high quality district renovations and to accelerate market uptake of low efficient building stock."*

Rubén García Pajares  
project coordinator, Fundación CARTIF



### What is CARTIF?

**CARTIF is a interdisciplinary research centre located in Spain which covers a wide range of scientific disciplines such as such as Energy, Environment, Food and Chemicals, Biomedical, Robotics.**

This characteristic, which makes it stand out from other technology centres, enables CARTIF to provide companies with integral solutions. Information and Communication Technologies (ICT) and Energy are two of the main research areas of CARTIF. Both together have created a multidisciplinary group focused on the application of ICT in the field of Energy, in particular Energy Efficiency, Energy Saving, Integration of Renewable Energy Systems, Electricity Market, Demand Response, Smart Grid, etc...

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## News from the demo sites



The Cuatro de Marzo district in the Spanish city of Valladolid features 1941 dwelling built in the early sixties. It has now been about eight months since the inception of R2CITIES and work on the diagnosis stage is nearing completion. Achievements to date include a large series of analysis and data collection as part of BIM (building information modelling) at district level. Cuatro de Marzo has been divided into 10 unit groups with one of them used as a pilot (13 blocks and 2 tower). Preliminary energy performance simulation has been undertaken. The preliminary conclusions of this phase for the Valladolid demonstration site indicate that consumption partially corresponds to predictions, that energy ratings are better to what was set out in the description of work, and that heating strategies must be prioritised.

Work at Cuatro de Marzo is now starting to shift to the actual project phase which will see the implementation of a series of energy efficiency solutions. Targets are set as 60% energy savings and 60% cut in emissions. Solutions include ventilated façades, centralised biomass boiler, solar photovoltaic panels and ICT measures. Tentative percentages for energy savings have been made for each specific solution.

A concrete timeline has now been drawn up which starts with the planning and concept design which includes quality control plan and business models.

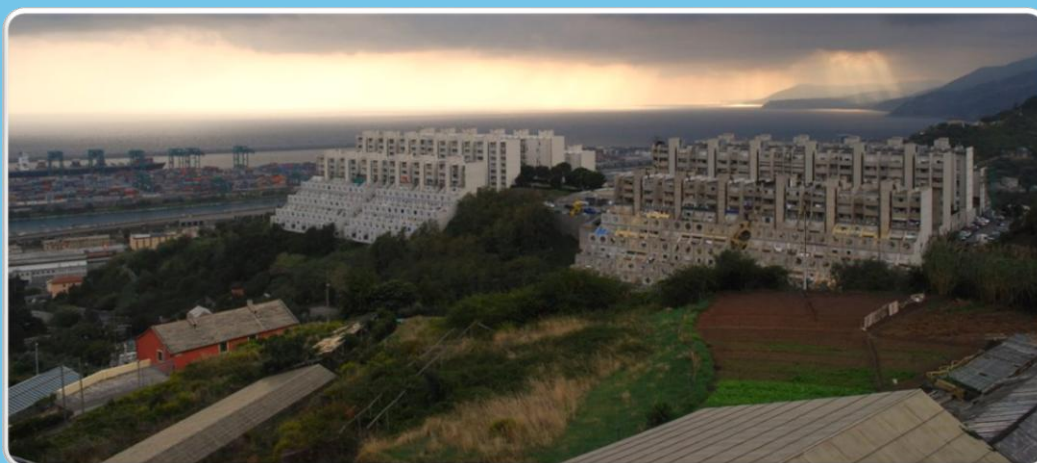
It remains now to finalise the diagnosis phase by conducting non-destructive testing in 3 dwellings, and finalising energy performance simulation models that are the basis for evaluating the proposals.





In Genoa, the demonstration site is a district called Lavatrici, built between 1980 and 1990 with over 500 dwellings. Residents are generally senior citizens on low incomes. This site was the last one to be identified for demonstration in R2CITIES and so far a choice of demonstration elements has been made and some alternative energy efficiency solutions elaborated. Now the process of building characterisation is taking place which involves analysis of the environment,

building typology, and specific details of building components. Some of the solutions being examined at the moment are roof and floor insulation, window substitution, balconies being fitted with greenhouse-like panes to increase heat. Before moving towards the actual project stage, further analysis needs to be conducted in order to pinpoint specific solutions to be implemented, in particular, central heating systems.



The demonstration site in Turkey is Kartal, a district of Istanbul characterised by insufficient insulation, and low efficiency lighting systems and appliances. The area designated for retrofit covers 18,813 m<sup>2</sup>.

Data collection, energy performance modelling and diagnosis are being completed and partner EZINC sent technical staff to carry out two visits to Kartal. The first was to evaluate costs of one of the specific solutions to be used: solar water heating systems. The second one involved liaising with Kartal Municipality regarding building status, concept design for specific solutions to be implemented during the project phase.



## News from our networks

As a demonstration project, R2CITIES is keen to engage in various communities relevant to its interests. The following is a selection of news from Energy Cities, Smart Cities and Communities, Buildup and Managenergy



Energy Cities Annual Rendezvous,  
23-25 April 2014, Riga (Latvia)

Co-organised and hosted by the City of Riga, European Capital of Culture 2014 and gateway to the East, Energy Cities' next Annual Rendezvous will explore the successful strategies of local leaders, building bridges between the pieces of the energy transition puzzle.

For further information and to register: [Energy Cities Annual Rendezvous](#)



Overview of national programmes to stimulate energy efficiency market

Build Up portal has published an overview of schemes from different European countries designed to stimulate energy efficiency markets. Further information is available on various financing schemes for residential and non-residential buildings, municipalities, individual home-owner... etc.

For further information: [Overview of national programmes](#)



Looking for Projects to Make Smart Cities even Smarter

The Cluster for Application and Technology Research in Europe on NanoElectronics has opened its 7th call. The objective is to gather a strong group of projects to "make smart cities even smarter, as well as more comfortable, efficient and green". The objective is the European Industry leadership through technological solutions in micro- and nano-technologies. The call is now open and proposals must be submitted by 5 April. Projects will start in January 2015.

For further information: [CATRENE call 7](#)

## ManagEnergy

Money for Renewable, Clean and Energy Efficient Innovations






The European Institute of Innovation and Technology (EIT) has launched a call for proposals through its Knowledge and Innovation Community (KIC) for InnoEnergy. The call seeks proposals that strengthen innovation and entrepreneurship chiefly within the field of sustainable energy.

For further information: [call for proposals](#)



## Recommended events

Interesting upcoming events selected by the R2CITIES team

Events	Description
 <p><b>EeB PPP Impact Workshop</b> <b>1 - 2 April 2014</b></p>	<p>The two day workshop is organized by the EC with the EeB project representatives. The main objectives are to engage project participants by intensifying cross-project collaboration and to demonstrate the value of the PPP.</p> <p>R2CITIES coordinator Rubén García from <a href="#">Fundación CARTIF</a> will be attending along with Elisabeth Schmidt from <a href="#">youris.com</a>.</p>
 <p><b>International week for efficient construction and renovation (SiCRE)</b> <b>3 - 11 May 2014</b> <b>Madrid, Spain</b></p>	<p>This event is both a professional and commercial gathering of the efficient construction and renovation sectors in a broad sense. It will take place alongside the international Sustainable Constructions fair and the Genera energy and environment fair. Solutions and materials for sustainability, comfort, the environment, energy efficiency and the wellbeing of people.</p> <p>For further information: <a href="#">SiCRE</a></p>
 <p><b>International HVAC+R Technology Symposium/ International HVAC &amp; Refrigeration Exhibition</b> <b>7 - 10 May 2014</b> <b>Istanbul Expo Centre, Turkey</b></p>	<p>The 11th International HVAC+R Technology Symposium will take place in Istanbul. This year, the symposium will be held simultaneously with the International HVAC &amp; Refrigeration Exhibition (ISK-SODEX 2014), which attracted over 82,000 national and international visitors last year. The subjects covered include some of those with direct relevance to R2CITIES such as control and building management systems, heating, air-conditioning applications in buildings.</p> <p>For further information: <a href="#">International HVAC+R Technology Symposium</a></p>
  <p><b>Smart City Week</b> <b>17 - 18 June 2014</b> <b>Genoa, Italy</b></p>	<p>As part of Smart City Week in Genoa, the initiative TRANSFORM will host a policy forum. Genoa Municipality is an R2CITIES partner and provides one of the project's three demonstration sites. For purposes of maximum leverage, other members of the R2CITIES consortium will be participating in the event. The forum will include two keynote speeches entitled "<i>Ten Points: history and future vision for smart city development in European cities</i>" and "<i>Energy change and Climate Challenge: differences and similarities in varied approaches</i>". Furthermore there will be discussions on Horizon 2020 and beyond. Various European projects will pool their experience to highlight best practices. TRANSFORM is an initiative for a transformation agenda for low-carbon cities. It provides insight into smart city processes and methodologies based on stakeholder co-creation.</p> <p>For further information: <a href="#">Smart Cities and Communities</a> and <a href="#">TRANSFORM - agenda for low carbon cities</a></p>

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