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<b>Responsible:</b>	<b>Organisation:</b>	<b>Contributing WP:</b>
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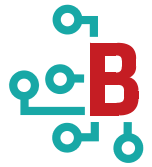
**Abstract:**

The aim of this document is to provide a short overview of the dissemination activities carried out during the project. This document includes the comprehensive list of events where the project has been presented, papers published and other dissemination materials prepared and used during the life time of the project.

This document should be seen as complement to the information presented at the Demonstration Report D6.2 and as an extension of the Dissemination Master Plan (D8.4)

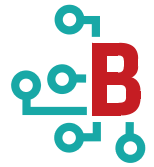
**Keywords:**

BESOS, Dissemination, Activities



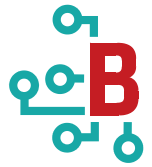
## Revision History

Revision	Date	Description	Author (Organisation)
V0.0	01.07.2016	New document	Manuel Serrano (ETRA)
V0.2	20.09.2016	Section 1	ETRA
V0.3	21.09.2016	Section 2	ETRA
V0.3	23.09.2016	Section 3	ETRA
V0.4	26.09.2016	Section 4	ETRA
V0.5	29.09.2016	Section 5	ETRA
V0.6	29.09.2016	Section 7	ETRA

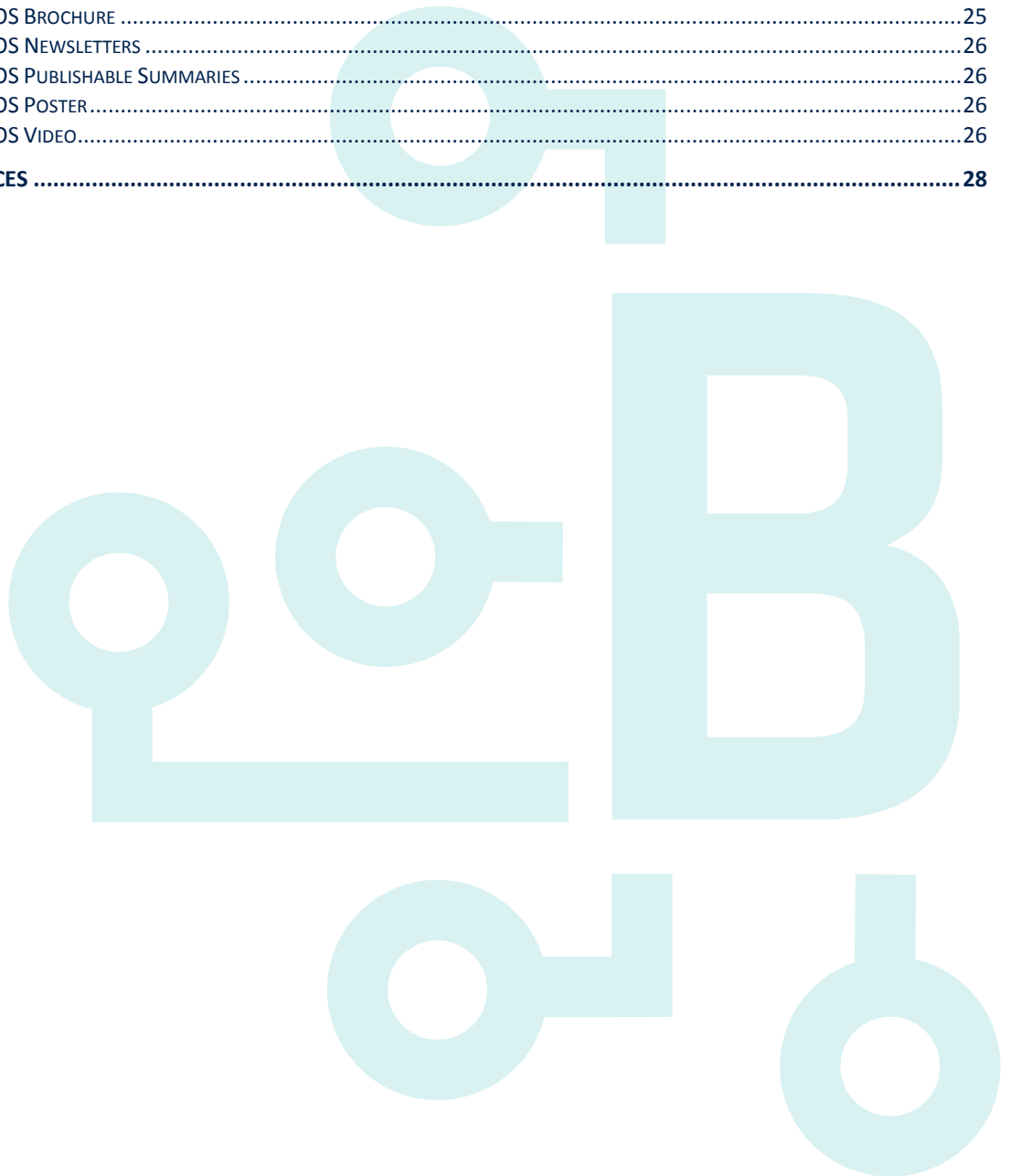


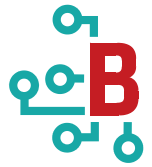
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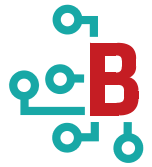


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## 1 INTRODUCTION

### 1.1 PURPOSE OF THE DOCUMENT

The document describes the dissemination activities carried out in the project. It includes a summary of all the events where the project has participated, and the publications made by the consortium. It also includes any other dissemination material produced during the project – i.e. videos, brochures, etc.

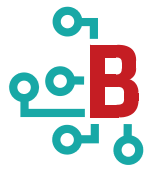
This document should be seen as complement to the information presented at the Demonstration Report D6.2 and an extension of the Dissemination Master Plan (D8.4).

### 1.2 SCOPE OF THE DOCUMENT

This document is a report on the main dissemination activities participated by the project to maximise the impact of its results. The document has been produced at the end of the project, including the very last activities planned during the last days of the life time of BESOS. Deliverable D8.3 is the dissemination effort itself – conferences, workshops, papers and presentations – and not the report. However, for the better management and closure of such activities, this document was planned for the very last month of the project, in order to act as a final summary of the dissemination activities performed by the BESOS consortium. All the activities reported in this document are also available and published at the project web-site and the Periodic Report at the end of each year of the project life.

### 1.3 STRUCTURE OF THE DOCUMENT

The document is structured in six main sections: chapter 2 recovers the Dissemination Master Plan (D8.4) presenting briefly the corporate image and web-site (D8.1); chapter 3 presents an abstract of the publications by BESOS; chapter 4 presents the summary of the presentations (conferences and workshops) where the project has participated – including those events organised by the project; chapter 5 recovers the Demonstration Activities report, focusing on the networking activities. Finally, chapter 6 includes any other dissemination material used by the project – i.e. video, brochures, etc.



## 2 BESOS Identity and Project Web site

The BESOS identity was soon defined within the project and first reported at the Project Handbook (D9.1) [1]. Once the project image was fixed, it was followed by the definition of the project web-site (D8.1) [2]. At the end of the first year the project image was reviewed and updated in the context of the project Dissemination Master Plan D8.4 [3].

This section summaries the dissemination material and activities already reported in the above mentioned references, as they were the basis for any further dissemination activities in the project.

### 2.1 BESOS IDENTITY

BESOS Logo and Acronym Usage:





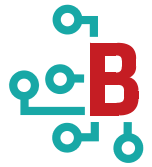
Description	Icon
This is the official and corporative image of the project to be used by default.	
This Logo is reserved to formats where the information has to be represented vertically	
Icon 1: Belem Tower	
Icon 2: Basilica and Expiatory Church of the Holy Family in Barcelona 1882 - 2030	

Table 1. BESOS Logos

The BESOS logo appears in all BESOS related documents. Any material co-funded with the project budget needs to make explicit reference to it and if possible make use of the BESOS Logo.

The Acronym of the project – i.e., BESOS – is the main representative mark. When possible it has to be used with the above mentioned logo, respecting the font and colours. Otherwise, it should be written with capital letters.

The table hereafter provides the information to recreate the colours and styles of the project.





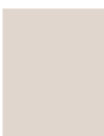

	Ink	CMYK	Visual
			RGB
<b>Red</b>	 Pantone 1795 C	8% cyan 94% magenta 91% yellow 1% black	R: 214 G: 40 B: 40  Web: #D62828
<b>Teal</b>	 Pantone 3282 C	82% cyan 24% magenta 51% yellow 2% black	R: 0 G: 140 B: 130  Web: #008C82
<b>Sand</b>		13% cyan 12% magenta 14% yellow 0% black	R: 227 G: 222 B: 216  Web: #E3DED8
<b>Pastel Teal</b>	 Pantone 325 C	59% cyan 0% magenta 25% yellow 0% black	R: 96 G: 205 B: 203  Web: #60CDCE

Table 2. BESOS colours

## 2.2 BESOS WEBSITE

BESOS web site (<http://besos-project.eu/>) [2] is the main general dissemination tool, available to anyone with access to the Internet. It serves as a distribution channel of the rest of dissemination material: brochures, presentations, posters, videos, etc.

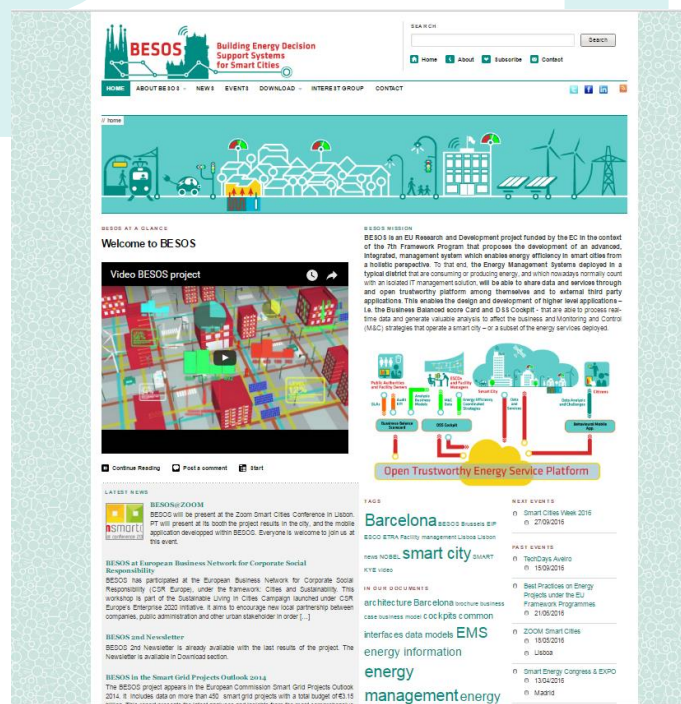


Figure 1. BESOS Website



The web site was created with one of the most well-known CMS: Wordpress [4]. It is a free and open source system that ne can be used for in principle any kind of website. Wordpress is released under the GNU General Public License (GPL) and is designed to be extensible. It has been chosen due to its main strengths: its flexible and adaptable workflow, very good security, extensibility, high usability and flexibility.

The web site has been periodically updated with news and summaries on the progress of the project. All the web site transactions are logged, in order to track any kind off attack, wrong usage or similar situations. It is worth mentioning that during the second year the web-site needed a specific maintenance to guarantee its security, as the hosting company serving the web site suffered several cyber-attacks, leading to a major revision of the contents of the site.

**Web Site Public area.**

It includes a description of the Project according to the public information of the DoW. The available sections are the following ones:

**Home.**

This section is the home page and contains a general and brief description of the project including five subsections

- BESOS AT A GLANCE, with a video describing the project activities.
- BESOS MISSION, with the strategic goal of the project.
- LIST OF NEWS.
- TAGS.
- LIST OF EVENTS.

**About BESOS.**

This section contains a general and brief description of the project including two subsections:

**Mission and Objectives.**

This section gives an overall screenshot for BESOS project, describing the mission and main objectives for BESOS project.



**Figure 2. BESOS Website -Mission and Objectives Consortium Section.**

This section shows a short description of all consortium members involved in BESOS project. Highlighting the main goals of each one and the main role within the project



Figure 3. BESOS Website -Partners Description

**News.**

This section allows the publication of existing news directly related to BESOS objectives and technologies. The news updates also the “news” section at the home page.



Figure 4. BESOS Website -News section

**Events.**

This section contains all the events internal and external to the project that keep a tight relation with BESOS project, including the project workshops. The web-site enables to discriminate the events where the project has been presented, the ones that the project has organised and the ones that the project has been following – even attending – but without a formal presentation of BESOS. The list of events at the web-site is later reported in the next section of this document.

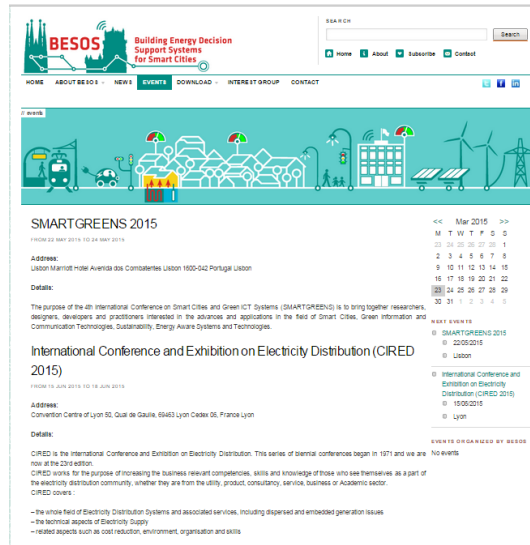


Figure 5. BESOS Website -Events Section

**Download.**

This section makes available all BESOS public documents. It has three subsections:

- **Dissemination Material:** BESOS Brochure, presentation and newsletters, also the publishable summaries at the end of each year are available here.
- **Deliverables.** All the public deliverables are published in this section. It is worth mentioning that in summary the documents from the project have been downloaded more than 5.000 times.
- **Papers.** All the publications from the project are available in this section.

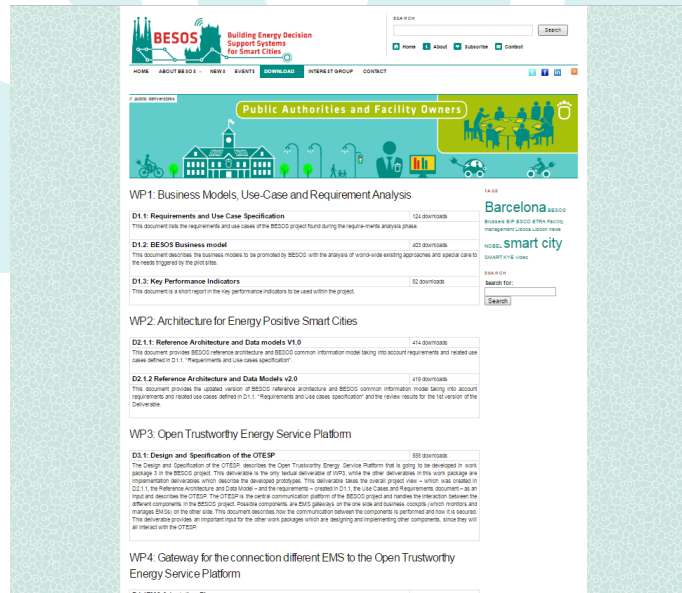
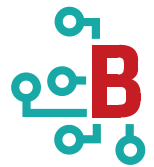


Figure 6. BESOS WebSite -Download Section

**Interest of Group and Contact.**

This section introduces BESOS interest group (IG) and invites visitors to get involved in the IG.. For the contact link in the upper corner and the right bar, the website counts with links to the official e-mail address for the project (info@besos-project.eu).



### Private Area.

The web site has a private area accessible to the members of the consortium that enables the publication of events and news, and to upload publications and deliverables. The management of this area is responsibility of the Dissemination Manager (ETRA).

## 3 Presentations at events

As stated in previous sections all the events the project has participated are listed at the project web-site.

### 3.1 PRESENTATIONS DURING THE FIRST YEAR

#### 3.1.1 Besos at greencities & sustainability: smart solutions to urban sustainability

**Name of BESOS representative presented at the event:** Lola Alacreu (ETRA).

**Web site:** <http://greencities.malaga.eu/>

**Venue and Date:** Malaga, Spain, October 2013.

**Target Areas:** ICT, smart cities and Energy efficiency.

**Type of the event:** National.

**Details:** The fourth edition of Greencities & Sustainability, Forum of Intelligence applied to Urban Sustainability, is a unique professional showroom, highly specialised in energy efficiency in building and urban areas, which makes it possible to get to know solutions and trends that help to improve energy sustainability in cities. We are dealing with an event with a participatory, flexible and practical approach in which there various activities with one objective in common: the generation of networking.

#### 3.1.2 Smart City Expo World Congress

**Name of BESOS representative presented at the event:** Manuel Serrano (ETRA).

**Web site:** <http://www.smartcityexpo.com/en/>

**Venue and Date:** Barcelona, Spain, 19<sup>th</sup>-21<sup>th</sup> November 2013.

**Target Areas:** Municipalities, ESCO, smart cities and Energy efficiency.

**Type of the event:** International.

**Details:** The Smart City Expo World Congress is the most important event that gathers in one place city representatives, institutions, academic and thought leaders, research centres, industry and entrepreneurs with major decision-making power. In the 2013 edition counted with 213 cities and nearly 10.000 visitors.

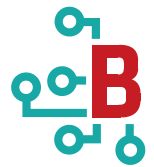
The project partners ETRA and SODEXO presented a **paper** on how to deploy and Energy Efficiency platform for the city of Barcelona.

The paper presented a proposal for a common framework where existing infrastructure operators and public bodies could cooperate in order to exploit synergies and achieve higher levels of energy efficiency.

It was presented by Antonio Marqués, director of Technology at ETRA within the main panel of the Conference.

#### 3.1.3 Launch conference of the European Innovation Partnership on Smart cities and communities in Brussels

**Name of BESOS representative presented at the event:** Lola Alacreu, Manuel Serrano and



Antonio Marqués (ETRA).

**Web site:** <http://besos-project.eu/2013/12/03/besos-in-the-launch-conference-of-the-european-innovation-partnership-on-smart-cities-and-communities-in-brussels/>

**Venue and Date:** Brussels, Belgium, 26<sup>th</sup> November 2013.

**Target Areas:** Municipalities, smart cities communities.

**Type of the event:** European.

**Details:** On November 2013 – just after the kick off BESOS activities - ETRA was invited to present, together with other 5 organizations, in the exhibition area of the launch conference of the **European Innovation Partnership on Smart Cities and communities** [5] in Brussels, the main developments done in energy efficiency for Smart cities during the last years.

Specifically, during this event, ETRA I+D showed to dozens of experts in the area of Smart Cities the three successful coordinated FP7 European projects NOBEL, SMARTKYE and **BESOS**.

The European Commission organized the launch conference of the European Innovation Partnership on Smart cities and communities in order to share and discuss the actions outlined in the "Strategic Implementation Plan" of the Smart Cities and Communities Partnership and how to put them into practice. At the conference, the Strategic Implementation Plan and future actions by the Partnership was presented to a large audience.

ETRA had its own stand with posters of all three projects and a mock-up of the smart lighting approach to be further explore in BESOS: adapting street light conditions to traffic conditions. The venue was a great opportunity to present at the beginning of the project, the main ideas and objective to relevant stakeholders in the area of Smart Cities. Especially relevant was the visit of the deputy-major of Barcelona at that time – Mr. Antoni Vives- to the stand, where he was able to know directly the plans of BESOS for the deployment of an Energy Efficiency Support System in Barcelona.

### 3.1.4 IEEE PerCom 2014 - IEEE International Conference on Pervasive Computing and Communications

**Name of BESOS representative presented at the event:** Manuel Serrano (ETRA).

**Web site:** [http://www.percom.org/documents/2014/PerCom14\\_Final\\_Program.pdf](http://www.percom.org/documents/2014/PerCom14_Final_Program.pdf)

**Venue and Date:** March 2014. Budapest, Hungary.

**Target Areas:** ICT, Smart cities, Energy Management.

**Type of the event:** International.

**Details:** PerCom 2014 provided a leading edge, scholarly forum for researchers, engineers, and students alike to share their state-of-the art research and developmental work in the broad areas of pervasive computing and communications. The conference featured a diverse mixture of interactive forums: core technical sessions of high quality cutting-edge research articles; targeted workshops on exciting topics; live demonstrations of pervasive computing in action; insightful keynote speeches; panel discussions from domain experts; and posters of emerging ideas.

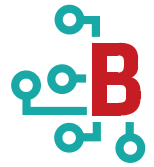
During the event a **keynote** by ETRA was delivered to the audience in the context of the 1st International IEEE Workshop on Pervasive Systems for Smart Cities.

### 3.1.5 Brussels EeB Impact workshop Smart cities

**Name of BESOS representative presented at the event:** Manuel Serrano (ETRA).

**Web site:** [http://ec.europa.eu/research/industrial\\_technologies/pdf/eeb-impact-workshop-01-02042014-agenda\\_en.pdf](http://ec.europa.eu/research/industrial_technologies/pdf/eeb-impact-workshop-01-02042014-agenda_en.pdf)





**Venue and Date:** Brussels, 1-2 April 2014.

**Target Areas:** ICT, Smart cities, Energy Management.

**Type of the event:** European.

### 3.1.6 Workshop "Promotion of thermal solar systems of thermal in existing buildings"

**Name of BESOS representative presented at the event:** Miguel Aguas (Lisbon E-Nova)

**Web site:** <http://www.lisboaenova.org/pt/workshops/2014/item/2884-workshop-adopcao-sistemas-solares-termicos>

**Venue and Date:** May 2014, Lisbon.

**Target Areas:** Renewable systems, Smart cities, building management systems.

**Type of the event:** National.

### 3.1.7 EUSEW 2014. Synergies with BEAMS and SmartKYE

**Name of BESOS representative presented at the event:** Manolo Serrano (ETRA).

**Web site:** <http://www.eusew.eu/>

**Venue and Date:** Barcelona, 26 June 2014.

**Target Areas:** Smart Grids, Smart city, renewable energy, energy management.

**Type of the event:** European.

**Details:** EUSEW is the premier event for public authorities, energy agencies, private companies, NGOs and industry associations engaged in helping to meet the EU's energy and climate goals. It features activities dedicated to energy efficiency and renewable energy solutions in Europe and around the world. First launched by the European Commission in 2006, EUSEW is organised with the support of the Executive Agency for Small and Medium-sized Enterprises (EASME).

EUSEW helps promote the EU's energy and climate goals, and it serves as an important platform for the exchange of information and best practices amongst participating sustainable energy experts. The EUSEW offers the opportunity to discuss the EU sustainable energy agenda with stakeholders and the general public.

This was the first workshop organised by the project. More details are available at D6.2 [6].

### 3.1.8 Session "Energy efficiency case studies in Lisbon", EUSEW 2014, June 2014, Lisbon. (Lisboa Enova)

**Name of BESOS representative presented at the event:** Miguel Aguas (Lisbon E-Nova).

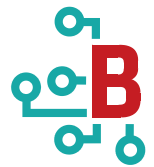
**Web site:** <http://www.lisboaenova.org/pt/outros/2014/item/2954-sessao-eficiencia-energetica-lisboa>

**Venue and Date:** June 2014, Lisbon.

**Target Areas:** Smart city, energy management.

**Type of the event:** National.

**Details:** In parallel to the BESOS organised workshop in Barcelona, LISBOA e-NOVA participated in a second energy day with local partners in the city of Lisbon. The session focused on the potential use of renewables, and special solar energy, in the city.



The event counted with the participation of representatives of the Lisbon municipality and some of the main consumptions loads in Lisbon were identified as potential elements to be monitored by BESOS – i.e. street lights, traffic lights, buildings, tunnels, etc.

Being hosted by the Lisbon municipality, the event attracted the attention of local decision makers in the area of energy efficiency.

### 3.1.9 Session "Solar potential and strategic projects on the Horizon 2020"

**Name of BESOS representative presented at the event:** Miguel Aguas (Lisbon E-Nova)

**Web site:** <http://www.lisboaenova.org/pt/outros/2014/item/2954-sessao-eficiencia-energetica-lisboa>

**Venue and Date:** July 2014, Lisbon.

**Target Areas:** Smart city, H2020, renewable energy systems management.

**Type of the event:** National.

## 3.2 PRESENTATIONS DURING THE SECOND YEAR

### 3.2.1 Sustainable Places 2014

**Name of BESOS representative presented at the event:** Lola Alacreu (ETRA).

**Web site:** <http://sustainable-places.eu/>

**Venue and Date:** Nice, France. 1/10/2014.

**Target Areas:** ICT, smart cities and Energy efficiency.

**Type of the event:** International.

### 3.2.2 CONAMA 2014- Spanish environmental congress

**Name of BESOS representative presented at the event:** Lola Alacreu (ETRA).

**Web site:** <http://www.conama2014.conama.org>

**Venue and Date:** Madrid, Spain. 24- 27 Nov 2014.

**Target Areas:** Smart Cities.

**Type of the event:** National.

### 3.2.3 2014 Annual Polis Conference

**Name of BESOS representative presented at the event:** Wolfgang Apolinarski (UDE).

**Web site:** <http://www.polisnetwork.eu/2014conference>

**Venue and Date:** Madrid, Spain. 27 Nov 2014.

**Target Areas:** Smart Cities.

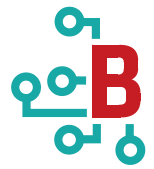
**Type of the event:** European.

**Details:** BESOS project was present in POLIS Annual Conference. UDE partners talked with visitors about Energy in Smart Cities (BESOS-related) and handed out flyers.

### 3.2.4 2ª Conferência "Cidades Inteligentes - Cidades do Futuro"

**Name of BESOS representative presented at the event:** Filipe Cabral (PTIN), Francisco Gonçalves (LISBOA e-NOVA)

**Web site:** <http://lisboaenova.org/pt/conferencias/2014/item/2995-conferencia-cidades-inteligentes-cidades-do-futuro-02-12-2014>



**Venue and Date:** Lisbon, Portugal. 02/12/2014.

**Target Areas:** Smart Cities, ICT.

**Type of the event:** National.

### 3.2.5 Cathedra "Urbane Systeme" (Germany)

**Name of BESOS representative presented at the event:** Kostas Tsatsakis (HYPERTECH)

**Web site:**

**Venue and Date:** Essen, Germany. 10/12/2014.

**Target Areas:** ICT.

**Type of the event:** National.

### 3.2.6 Ponto de Encontro, "Soluções inteligentes nas cidades de hoje"

**Name of BESOS representative presented at the event:** Filipe Cabral (PTIN), Francisco Gonçalves (LISBOA e-NOVA).

**Web site:** <http://lisboaenova.org/pt/pontos-de-encontro/2015>.

**Venue and Date:** Lisbon, Portugal. 07-04-2015.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** National.

### 3.2.7 SmartKye final workshop

**Name of BESOS representative presented at the event:** Lola Alacreu (ETRA), Pedro Marrón (UDE).

**Web site:** <http://smartkye.eu/news/>.

**Venue and Date:** Barcelona, Spain. 30-04-2015.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** National.

**Details:** In the context of the SmartKye project – predecessor of BESOS – it was possible to present to the Barcelona stakeholders how BESOS was going to continue the work done in Barcelona.

A half-day session about Innovative tools and research activities to enhance energy efficiency in European Smart cities and Smart grids, was organised. The conference presented the latest tools for the improvement of energy efficiency in the cities and grids of the future, presenting a comprehensive vision that addresses energy optimization in large infrastructure of public use, residential neighbourhoods and industrial facilities.

### 3.2.8 SMARTGREENS 2015

**Name of BESOS representative presented at the event:** Francisco Gonçalves (LISBOA e-NOVA), Kostas Tsatsakis (HYPERTECH).

**Web site:** <http://www.smartgreens.org/>

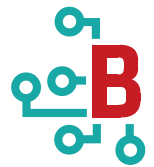
**Venue and Date:** Lisbon, Portugal. 22-24 May 2015.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** International.

**Details:** The purpose of the 4th International Conference on Smart Cities and Green ICT Systems (SMARTGREENS) was to bring together researchers, designers, developers and





practitioners interested in the advances and applications in the field of Smart Cities, Green Information and Communication Technologies, Sustainability, Energy Aware Systems and Technologies.

During the conference, HYPERTECH presented a **paper** –see next section.

### 3.2.9 Nobel Grid Workshop OPEN SESSION

**Name of BESOS representative presented at the event:** Manuel Serrano, Lola Alacreu (ETRA).

**Web site:** <http://nobelgrid.eu/event/opensession/>

**Venue and Date:** Brussels, Belgium. 10/06/2015.

**Target Areas:** ICT.

**Type of the event:** International.

**Details:** The purpose of the Workshop "Nobel Grid Workshop OPEN SESSION" was bringing together researchers, designers, developers and practitioners interested in the advances and applications in the field of Smart Cities, Green Information and Communication Technologies, Sustainability, Energy Aware Systems and Technologies. In this workshop three projects collaborated: NOBELGRID, BESOS and SmarterEMC2 [7] project.

BESOS project presented "BESOS project. Smart Energy Efficiency Service Platform for Smart cities" where ETRA shared main results and the latest tools for the improvement of energy efficiency in the cities of the future, in order to present the activities for energy optimization in large infrastructure of public use and residential neighbourhoods. Specific demonstration activities with the pilot sites end-users.

### 3.2.10 IoT Week (Lisbon)

**Name of BESOS representative presented at the event:** (PTIN, UDE).

**Web site:** <http://iot-week.eu/events/iot-week-lisbon/>

**Venue and Date:** Lisbon, Portugal. 16- 18/06/2015.

**Target Areas:** ICT.

**Type of the event:** International.

**Details:** Portugal Telecom participated at IOT Week Lisbon 2015 presenting BESOS Project. In IoT Week Lisbon BESOS presented a demonstrator in order to show the integration done with Lisboa Enova EMS, in particular the Campo Grande 25 Building, the Olivais School and the Mechanical and Electrical Department from the Municipality.

### 3.2.11 EUSEW 2015 Energy-Efficiency & Smart Solutions

**Name of BESOS representative presented at the event:** Antonio Marques, Manuel Serrano (ETRA).

**Web site:** <http://besos-project.eu/events/99/energy-efficiency-smart-solutions-eusew-2015/>

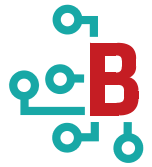
**Venue and Date:** Barcelona, Spain. 23/06/2015.

**Target Areas:** ICT, Energy.

**Type of the event:** National.

**Details:** The BESOS, project, with the support of the e-Balance [8] and URB-Grade projects [9], organised a second Energy Day on energy efficiency in Smart Cities in Barcelona.

In the context of the EU Sustainable Energy week 2015, a second session on Innovative tools to enhance energy management in EU cities served to introduce the achievements in the



Energy Efficient Management arena of some of the EU funded projects being demonstrated in the city of Barcelona.

This was the second workshop organised by the project.

### 3.2.12 WoRIE (Workshop on Reliable Intelligent Environments)

**Name of BESOS representative presented at the event:** Wolfgang Apolinarski (UDE).

**Web site:** <http://www.ugr.es/~worie/2015/>

**Venue and Date:** Prague, Czech Republic. 14/07/2015.

**Target Areas:** ICT, smart cities and Energy efficiency.

**Type of the event:** International.

**Details:** UDE had a keynote on this venue available at BESOS web-site –see next section.

### 3.2.13 IE (Intelligent Environment)

**Name of BESOS representative presented at the event:** Wolfgang Apolinarski (UDE).

**Web site:** <http://www.intenv.org/>

**Venue and Date:** Prague, Czech Republic. 14/07/2015.

**Target Areas:** ICT, smart cities and Energy efficiency.

**Type of the event:** International.

**Details:** UDE had a paper published at this venue available at BESOS web-site –see next section.

### 3.2.14 Sustainable Places 2015

**Name of BESOS representative presented at the event:** Manuel Serrano (ETRA).

**Web site:** <http://sustainable-places.eu/>

**Venue and Date:** Genova, Italy. 17/09/2015.

**Target Areas:** ICT, smart cities and Energy efficiency.

**Type of the event:** International.

## 3.3 PRESENTATIONS DURING THE SECOND YEAR

### 3.3.1 ICT 2015

**Name of BESOS representative presented at the event:** (HYPERTECH) (PTIN).

**Web site:** <https://ec.europa.eu/digital-single-market/en/ict2015>

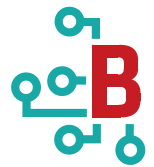
**Venue and Date:** Lisbon, Portugal. 10-12/10/2015.

**Target Areas:** ICT.

**Type of the event:** European.

**Details:** The policy conference provides information about the new Commission policies and initiatives with regard to Research & Innovation in ICT.

The interactive exhibition showcased the results and impact of most recent EU ICT Research & Innovation projects. PTIN counted with a stand to disseminate BESOS results.



### 3.3.2 Smart city World congress 2015

**Name of BESOS representative presented at the event:** Manuel Serrano, Antonio Marqués (ETRA).

**Web site:** <http://www.smartcityexpo.com/en/program>

**Venue and Date:** Barcelona, Spain. 17-19/11/2015.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** International.

**Details:** As a result of the EUSEW 2015 workshop organised by BESOS, three of the projects participating there (URB-GRADE, DoF and BESOS) decided to join forces and attend the Smart City World Congress edition of 2015 with a medium-size stand.

The 2015 edition counted with a total of 14,288 attendees, 485 exhibitors and 421 speakers from 568 Cities around the globe.

### 3.3.3 3ª Conferência "Cidades Inteligentes – Cidades do Futuro

**Name of BESOS representative presented at the event:** Manuel Serrano (ETRA), Filipe Cabral (PTIN), Francisco Gonçalves (LISBOA e-NOVA).

**Web site:** <http://lisboanova.org/pt/conferencias/2015/item/3178-conferencia-cidades-inteligentes-cidades-do-futuro-02-12-2015>

**Venue and Date:** Lisbon, Portugal. 2/12/2015.

**Target Areas:** ICT, smart Cities.

**Type of the event:** European.

**Details:** With the support of Portugal Telecom and organised by LISBOA e-NOVA, a conference on Smart Cities was organised in Lisbon between the EUSEW 2015 workshop and the EUSEW 2016 event. The conference was promoted in the context of BESOS, and followed the structure of previous similar conferences organised by LISBOA e-NOVA – actually, this event was the third edition of the conference, and despite the fact that BESOS already participated in the second edition, it was only during the 2015 edition that BESOS took a leading role.

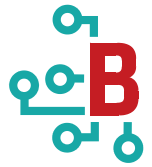
Not only different local stakeholders were invited to participate and share the Lisbon Smart City roadmap, but also the European Commission was represented by means of the BESOS project officer.

The audience – with more than 80 attendants – was composed of different ICT providers, public authorities, decision makers and energy companies – both retailers and distributors.

The conference was organised around three main blocks followed always by a round table and open debate among participants. In the first block the political vision on smart Cities was tackled by representatives of the Lisbon municipality, with special focus to the Lisbon smart City strategy.

In the second block of presentations, different business opportunities promoted by local companies – most of them SMEs – were presented. Finally, in the third block, the EC vision was presented, jointly with the experiences of some of the EU smart City projects being run in Lisbon.

This was the third workshop organised by the project.



### 3.3.4 GRID+STORAGE WS5

**Name of BESOS representative presented at the event:** Manuel Serrano, Lola Alacreu (ETRA).

**Web site:** <http://www.smartcityexpo.com/en/program>

**Venue and Date:** Madrid, Spain. 15/2/2015.

**Target Areas:** Energy.

**Type of the event:** European.

**Details:** Nine regional knowledge sharing workshops are being organised by the Grid+Storage project, each covering smart transmission and distribution grids, and integration of energy storage solutions.

The purpose is to foster networking and exchange of experiences between projects being carried out both at EU and national or regional levels.

The fifth Grid+Storage regional workshop will be held in Madrid (Spain) on 15 and 16 February 2016 with the support of the ERA-Net Smart Grids Plus initiative.

This fifth workshop, addressing Portugal and Spain, was a unique opportunity to interact with network operators and energy storage stakeholders about the scope and contents of the future Research and Innovation roadmap about energy storage integration in the future electricity networks.

### 3.3.5 European Business Network for Corporate Social Responsibility

**Name of BESOS representative presented at the event:** Filipe Cabral (PTIN), Francisco Gonçalves (LISBOA e-NOVA).

**Web site:** <http://www.csreurope.org/>

**Venue and Date:** Porto, Portugal. 11/3/2016.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** European.

**Details:** BESOS participated at the European Business Network for Corporate Social Responsibility (CSR Europe), under the framework: Cities and Sustainability.

This workshop is part of the Sustainable Living in Cities Campaign launched under CSR Europe's Enterprise 2020 initiative.

It aims to encourage new local partnership between companies, public administration and other urban stakeholder in order to develop innovative and efficient solutions for urban sustainable development.

### 3.3.6 II Congreso Ciudades Inteligentes.

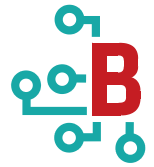
**Name of BESOS representative presented at the event:** Antonio Marqués (ETRA).

**Web site:** <http://www.congreso-ciudades-inteligentes.es/>

**Venue and Date:** Madrid, Spain. 13/4/2016.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** National.



### 3.3.7 Smart Energy Congress & EXPO

**Name of BESOS representative presented at the event:** Antonio Marqués (ETRA).

**Web site:** <http://www.congreso-ciudades-inteligentes.es/>

**Venue and Date:** Madrid, Spain. 13/4/2016.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** National.

### 3.3.8 ZOOM Smart Cities

**Name of BESOS representative presented at the event:** Filipe Cabral (PTIN).

**Web site:** <http://www.zoomsmartcities.com/>

**Venue and Date:** Lisbon, Portugal. 18/5/2016

**Target Areas:** ICT, smart Cities.

**Type of the event:** National.

**Details:** ZOOM SMART CITIES is the event that puts Portugal in the international agenda. A conference that stands out using innovation and communication.

The city of Lisbon hosts the first edition of the ZOOM SMART CITIES 2016 in an era where the subject Smart Cities is focusing on the future, innovation and creativeness and in new ways to promote urban sustainable and inclusive development.

### 3.3.9 EUSEW 2016 Best Practices on Energy Projects under the EU Framework Programmes

**Name of BESOS representative presented at the event:** Manolo Serrano (ETRA).

**Web site:** <https://www.eventbrite.com/e/partenalia-members-best-practices-on-energy-projects-under-the-eu-framework-programmes-tickets-26066507626/>

**Venue and Date:** Brussels, 21 June 2016.

**Target Areas:** Smart Grids, Smart city, renewable energy, energy management.

**Type of the event:** European.

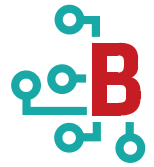
**Details:** With the support of Partenalia [10] – located in Brussels – BESOS and other two European projects (BRICKER [11] and NOBELGRID [12]) organised an event under the frame of the EU Sustainable Energy Week 2016, aimed to present and share success stories of ongoing Efficient Energy Projects under the Horizon 2020 Programme and the FP7 Programme in different regions of Europe (members of Partenalia).

The projects focused their goals in empowering people and municipalities as key factor in the energy transition. Members of Parentalia, stakeholders, experts on energy and citizens were welcome to find out those best practices on energy efficiency.

The projects presented together with BESOS were “ BRICKER: Total Renovation Strategies for Energy Reduction in Public Building Stock” of the Province of Liege (Belgium) and “NOBELGRID:

The audience included representatives from public authorities – regions – and also from renewable energy cooperatives. In addition to the presentation of projects, it was presented the Start-up Europe Awards, an initiative promoted by the European Commission and implemented with the support of the StartUp Europe. This action, which is currently in phase of development, aims at rewarding the start-ups in different areas, such energy, across Europe and also gathering all the start-ups awards organisers held in Europe under the umbrella of the StartUp Europe Awards Alliance. Some of the BESOS partners have shown interest on this new





initiative.

This was the last workshop organised by the project. More details are available at D6.2 [6].

### 3.3.10 TECH DAYS IN AVEIRO 2016

**Name of BESOS representative presented at the event:** Filipe Cabral (PTIN).

**Web site:** <http://www.techdays.pt/>

**Venue and Date:** Aveiro, Portugal. 15-17/9/2016.

**Target Areas:** ICT, Smart Cities.

**Type of the event:** National.

**Details:** With the last prototypes of the project ready to be shown to all kinds of public, PORTUGAL TELECOM participated in the TechDays in Aveiro.

The TechDays Aveiro is a national reference event, giving visibility to the importance of technology and innovation accelerator for economic development and improved quality of life. It is an event that for three days, joint companies, entrepreneurs, creative and the general public on the same stage - the city of Aveiro - to discuss and experience the future in four thematic areas: ICT, Energy, Sea, and Materials and Habitat.

In this edition, more than 10.000 visitors participated, with more than 100 exhibitors in the expo area.

The BESOS results were part of the solutions being exposed to public at the PORTUGAL TELECOM stand.

## 4 Publications

For the simplicity of the document, instead of including all the publications as an annex, all the material quoted in this section is referenced to the project web-site, where the reader can easily download it.

### 4.1 PAPER AT SMART CITY WORLD CONGRESS 2013

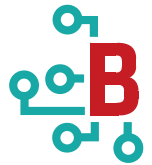
**Title:** A Smart Energy Efficiency Service Platform for Barcelona. [13]

**Authors:** Manuel Serrano, Antonio Marqués (ETRA), Guillem Maragall (SODEXO).

**Abstract:** Through a number of already running R&D projects in the city of Barcelona, the authors of this paper are presenting and integrated approach to interface energy management systems in smart cities.

The adopted vision involves the deployment of an Open Energy Service Platform capable to communicate and extend the functionalities of current public infrastructure. In a context where public bodies and service providers need to cooperate and maximize the efficiency of any public resource, it is necessary to build over the existing solutions and create spaces to exploit synergies. Hence, through the open framework proposed, it will not only be possible for authorities to assess the behaviour of a smart city from an energy efficiency point of view, but also to dynamically negotiate with Energy Service Companies and Facility Managers, the quality of the services based on a number of factors, both economic and social.

The authors, in addition to their extensive presence in the city of Barcelona as providers of technology for public services and management of public infrastructure, have invested in the last years an accumulative effort of 30 person years in order to deploy new solutions in the city. New Building Management Systems for emblematic public spaces as the stadium of the Football Club Barcelona, or energy management systems for public schools, or information systems supporting the electrical vehicles of the city are just examples of the solutions investigated and tested in the last years.



The paper takes the most relevant results of a number of breakthrough R&D projects, and presents a proposal to integrate different and heterogeneous energy management systems offering the authorities and operators a comprehensive vision of the energy flows in Barcelona, establishing new business models and cooperative strategies.

#### 4.2 PAPER AT SMARTGREEN 2015

**Title:** A data model for energy decision support systems for smart cities. The case of BESOS Common Information Model. [14]

**Authors:** George Anadiotis , Christos Malavazos and Kostas Tsatsakis (HYPERTECH).

**Abstract:** Integrating Energy Management Systems is a necessary task in order to be able to offer a range of services for citizens and public authorities. This task requires integration at the data level in order to expose data coming from different systems in a unified way. In this paper we describe the creation of a Common Information Model to unify disparate Energy Management Systems in the context of the BESOS project. We identify related work, describe design decisions and methodology and give an outline of the data model itself, based on profiling and extending the IEC 61970 standard.

#### 4.3 PAPER AT IE 2015

**Title:** Automating the Generation of Privacy Policies for Context-sharing Applications. [15]

**Authors:** Wolfgang Apolinarski, Marcus Handte, Pedro Jose Marrón (UDE).

**Abstract:** Integrating Energy Management Systems is a necessary task in order to be able to offer a range of services for citizens and public authorities. This task requires integration at the data level in order to expose data coming from different systems in a unified way. In this paper we describe the creation of a Common Information Model to unify disparate Energy Management Systems in the context of the BESOS project. We identify related work, describe design decisions and methodology and give an outline of the data model itself, based on profiling and extending the IEC 61970 standard.

#### 4.4 KEYNOTE AT WORIE 2015

**Title:** Establishing Secure Intelligent Environments. [16]

**Authors:** Wolfgang Apolinarski (UDE).

#### 4.5 ARTICLE AT CIDADES

**Title:** A eficiência vai morar na Baixa lisboeta. [17]

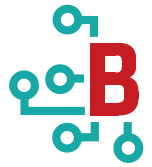
**Authors:** LISBOA e-NOVA.

#### 4.6 PAPER AT IEEE SMC2016

**Title:** An Analog Ensemble-based Similarity Search Technique for Solar Power Forecasting.

**Authors:** Vitali Pankraz (ENERCAST), André Gensler, Bernhard Sick (U. Kassel).

**Abstract:** The power forecasting for renewable energy power plants has been a highly active field of research during the last decade. In order to support the operation of the power grid, sophisticated algorithms have to predict the future development of power generation. Algorithms in the class of analogue ensembles conduct the process of forecasting by finding historically similar situations (e.g., by comparing weather situations), and merging the historic power generation time series during similar periods to an overall power forecast. However, these algorithms often only use very simple comparison strategies, which in turn do not make optimal use of the historic information available. In this article, we propose and compare advanced search strategies for similarity assessment. These strategies include the assessment of forecasting time periods as a whole and joint time windows of historic and future weather



situations. Also, historic power time series are used directly in the comparison strategy. Furthermore, we propose a combined scheme to perform automated feature selection and -weighting for individual weather parameters. We evaluate the proposed technique on a solar farm data set consisting of 21 photovoltaic power plants which is made publicly available. In the evaluation we show that advanced comparison strategies not only offer an advantage over simple strategies, but that these techniques also are able to outperform other reference models such as physical models.

#### 4.7 PAPER AT IEEE SMC2016

**Title:** Deep Learning for Solar Power Forecasting – An Approach Using Autoencoder and LSTM Neural Networks.

**Authors:** Nils Raabe (ENERCAST), Andr e Gensler, Janosch Henze, Bernhard Sick (U. Kassel).

**Abstract:** The power forecasting for renewable energy power plants has been a highly active field of research during the last decade. In order to support the operation of the power grid, sophisticated algorithms have to predict the future development of power generation. Algorithms in the class of analogue ensembles conduct the process of forecasting by finding historically similar situations (e.g., by comparing weather situations), and merging the historic power generation time series during similar periods to an overall power forecast. However, these algorithms often only use very simple comparison strategies, which in turn do not make optimal use of the historic information available. In this article, we propose and compare advanced search strategies for similarity assessment. These strategies include the assessment of forecasting time periods as a whole and joint time windows of historic and future weather situations. Also, historic power time series are used directly in the comparison strategy. Furthermore, we propose a combined scheme to perform automated feature selection and -weighting for individual weather parameters. We evaluate the proposed technique on a solar farm data set consisting of 21 photovoltaic power plants which is made publicly available. In the evaluation we show that advanced comparison strategies not only offer an advantage over simple strategies, but that these techniques also are able to outperform other reference models such as physical models.

#### 4.8 ARTICLE AT GRID INNOVATION

**Title:** BESOS: Building Energy Decision Support Systems for Smart cities. [18]

**Authors:** Manuel Serrano, Lola Alacreu (ETRA).

#### 4.9 MENTION AT BLOG OF VICE-PRESIDENT OF THE EUROPEAN COMMISSION NEELIE KROES

Reference to BESOS at the blog of the Vice-President of the European Commission Neelie Kroes as a project that contributed to the Barcelona smart city iCapital award [19].

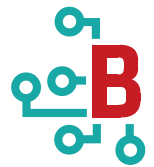
#### 4.10 MENTION AT THE SMART GRID PROJECTS OUTLOOK2014

BESOS was one of the limited projects mentioned in the Smart Grid Projects Outlook 2014. March 2014.

## 5 Workshops and networking

Networking with other research initiatives – especially European – has been targeted to promote the organisation of conferences/workshops involving projects working in the same area, and with similar time frameworks. These are some of the events that BESOS organized or participated creating synergies – the list includes workshops and events already described in section 3.





- *Greencities & Sustainability, Malaga, Spain, October 2013,*
- *Smart City Expo World Congress. November 19-21, 2013, Barcelona, Spain (ETRA),*
- *Launch conference of the European Innovation Partnership on Smart cities and communities in Brussels, 26 November 2013 (ETRA),*
- *Brussels EeB Impact workshop Smart cities. April 2014 (ETRA),*
- *Workshop EUSEW 2014, June 2014, Barcelona. Synergies with BEAMS and SmartKYE. (ETRA, SODEXO),*
- *Workshop in the Sustainable places 2014, October 2014, Nice (France) – ETRA.*
- *Spanish environmental congress – CONAMA 2014, November 2014, Madrid (Spain) – ETRA.*
- *Sustainable Places -2015 (Italy). ETRA. 17/09/2015. Up to 10 projects participated in the organisation of one of the sessions. Especially relevant was the networking with the DoD, e-balance and URBGRADe projects.*
- *Nobel Grid Workshop OPEN SESSION (Belgium). ETRA. 10/06/2015. The main project coordinated by ETRA on the ENERGY domain will benefit of 90% of the results coming from BESOS.*
- *2ª Conferência "Cidades Inteligentes - Cidades do Futuro". The event not only served to promote BESOS, but also to establish link with other Smart City projects in Lisbon.*
- *Smart City Expo World Congress. November 17-19, 2015, Barcelona, Spain (ETRA).*
- *3ª Conferência "Cidades Inteligentes – Cidades do Futuro. Lisbon, Portugal. 2/12/2015 (ETRA, PTIN, LISBOA e-NOVA).*
- *EUSEW 2016 Best Practices on Energy Projects under the EU Framework Programmes. Brussels, 21 June 2016 (ETRA).*

More details on the workshops organised by the project and other demonstration activities that facilitated the networking with other initiatives can be found at D6.2 [20].

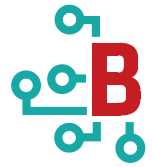
## 6 Other material

For the simplicity of the document, instead of including all the material as an annex, all the material quoted in this section is referenced to the project web-site, where the reader can easily download it.

### 6.1 BESOS BROCHURE

A brochure was prepared to promote and enhance the visibility of the project [20]. It has been distributed to potential end-users and relevant stakeholders at conferences, workshops and exhibitions. Its primary goal is to introduce the BESOS project to the main actors at the Energy and smart Cities arena, and also to the general public.

A double-sided A4 leaflet was designed. It is prepared for printing using an A3 sheet in a way that with a simple fold the external and internal A4 sides form the brochure. The cover page presents the partners – logos, project title and date of publication, whilst the back page introduces in details the consortium and BESOS main goal. In the inside pages the motivation for the project is the main topic, jointly with the scientific and technological objectives. The main actors involved are also introduced. The brochure is not supposed to be periodically updated as the Newsletter or presentations.



## 6.2 BESOS NEWSLETTERS

There has been a periodic e-newsletter containing summaries of the project's achievements during the three years of the project. The newsletters has been distributed by any of the consortium members participating at European or national events dealing with related subjects, and it has also been available at the project web-site (more than 500 downloads in total). The newsletters has been published at the end of each year of activity, preferably coinciding with the project workshops. Currently there are three newsletters available [21] [22] [23] - for the two first years of activity plus an additional one related to one of the first workshops by the project. They all are structured at least in the following sections:

- An editorial presenting the advances and progress from the last issue and an analysis on the state of relevant research initiatives connected to BESOS.
- A Networking section created to invite third parties to participate in the dissemination of the project.
- A recent events sections, where it was possible to promote not only the news coming from the project workshops, but also the events and conferences where BESOS was going to be presented.
- A partner profile section, introducing two of the members of the consortium each time.
- A Results Section, created to show all the partial results obtained until the period publication.

A final Newsletter covering the final closure event at the Smart City World Congress 2016 is planned to be published as part of the final report summarising the project findings and main results.

## 6.3 BESOS PUBLISHABLE SUMMARIES

At the end of each year, a public summary was produced as part of the dissemination material to be shared with the EC [24] [25].

Currently there are two summaries published at the web-site, with one last coming as part of the final reporting material to be shared with the EC.

## 6.4 BESOS POSTER

A large poster (size A0) was designed as generic dissemination material [26]. It presents the motivation and main goal of the project, the key stakeholder, the approach and the potential impact.

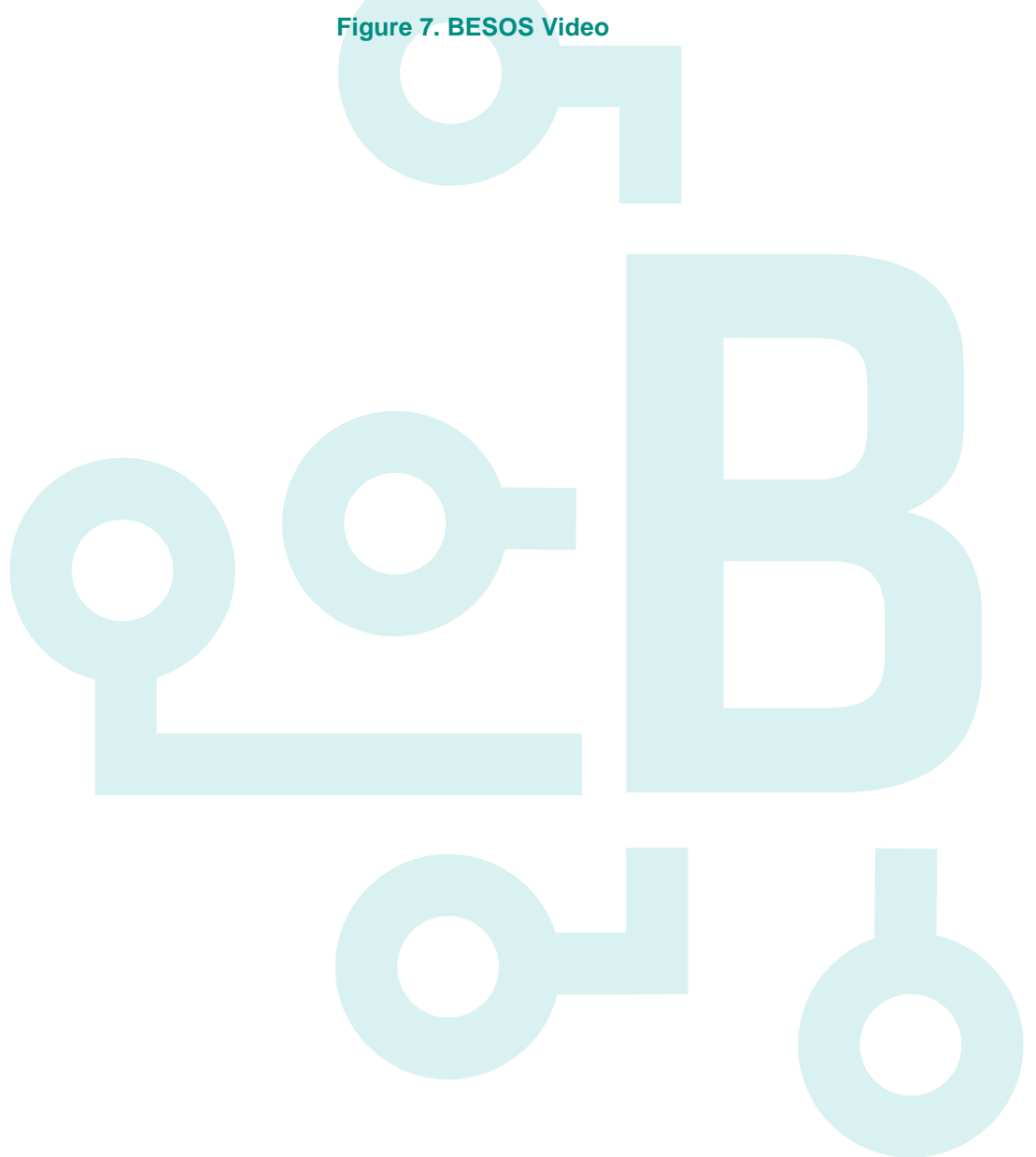
The poster can also be printed in an A3 sheet, and members of the consortium have access to the master poster to even print bigger sizes or customise the poster and be able to use a common framework when preparing new scientific posters for conferences and events.

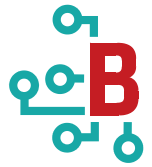
## 6.5 BESOS VIDEO

At the end of the first year of the project an animation video was created [27]. It is at the home page of the web-site and at youtube. It counts with more than 700 visualizations.



Figure 7. BESOS Video





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