EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY
Directorate C - Renewables, Research and Innovation, Energy Efficiency

**CALL FOR TENDERS**

N° **ENER C2/2013-463**

# TENDER SPECIFICATIONS

**Invitation to tender No. ENER C2/2013-463 concerning**

**Smart Cities and Communities Information System (SCIS)[1]**

[1] Called "CONCERTO Platinum" in FP7 work programme 2013 (Energy theme)

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## Information on tendering

### 1.1. Participation

Participation in this tender procedure is open on equal terms to all natural and legal persons coming within the scope of the Treaties and to all natural and legal persons in a third country which has a special agreement with the Union in the field of public procurement on the conditions laid down in that agreement. Where the Multilateral Agreement on Government Procurement[2] concluded within the WTO applies, the participation to the call for tender is also open to nationals of the countries that have ratified this Agreement, on the conditions it lays down.

### 1.2. Contractual conditions

The tenderer should bear in mind the provisions of the draft contract which specifies the rights and obligations of the contractor, particularly those on payments, performance of the contract, confidentiality, and checks and audits.

### 1.3. Joint tenders

A joint tender is a situation where a tender is submitted by a group of economic operators (consortium). Joint tenders may include subcontractors in addition to the joint tenderers.

In case of joint tender, all economic operators in a joint tender assume joint and several liability towards the Contracting Authority for the performance of the contract as a whole.

These economic operators shall designate one of them to act as leader with full authority to bind the grouping or the consortium and each of its members. It shall be responsible for the receipt and processing of payments for members of the grouping, for managing the service administration and for coordination. The composition and constitution of the grouping or consortium, and the allocation of the scope of tasks amongst the members, shall not be altered without the prior written consent of the Commission.

The tenderers should indicate in their offer whether the partnership takes the form of:

a) a new or existing legal entity which will sign the contract with the Commission in case of award

or

b) a group of partners not constituting a new legal entity, who via a power of attorney, signed by an authorised representative of each partner (except the lead partner), designate one of the partners as lead partner, and mandate him as lead contractor to sign the contract with the Commission in case of award.

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[2] See http://www.wto.org/english/tratop_E/gproc_e/gp_gpa_e.htm

## 1.4. Subcontracting

Subcontracting is permitted in the tender but the contractor will retain full liability towards the Contracting Authority for performance of the contract as a whole.

Tenderers must give an indication of the part of the services and proportion of the contract that they intend to subcontract.

Tenderers are required to identify subcontractors whose share of the contract is above 20%.

During contract execution, the change of any subcontractor identified in the tender will be subject to prior written approval of the Contracting Authority.

## 1.5. Content of the tender

The tenders must be presented as follows:

Part A: Identification of the tenderer (see section 1.6)

Part B: Evidence for exclusion criteria (see section 2.2)

Part C: Evidence for selection criteria (see section 2.3)

Part D: Technical offer (see section 2.5)

Part E: Financial offer (see section 2.6)

Part F: Power of attorney (for consortia only)

## 1.6. Identification of the tenderer: legal capacity and status

- The tenderer identification form in **Annex 1** shall be filled in and signed by:
    - The tenderer (including any member of a consortium or grouping)
    - subcontractor(s) whose share of the work represent more than 20% of the contract.
- In order to prove their legal capacity and their status, all tenderers (including any member of a consortium of grouping) must provide a signed **Legal Entity Form with its supporting evidence**. The form is available on: http://ec.europa.eu/budget/contracts_grants/info_contracts/legal_entities/legal_entities_en.cfm

  Tenderers that are already registered in the Contracting Authority's accounting system (i.e. they have already been direct contractors) must provide the form but are not obliged to provide the supporting evidence.
- If it has not been included with the Legal Entity Form, tenderers must provide the following information

  - For legal persons, a legible copy of the notice of appointment of the **persons authorised to represent the tenderer** in dealings with third parties and in legal proceedings, or a copy of the publication of such appointment if the legislation which applies to the legal entity concerned requires such publication. Any

delegation of this authorisation to another representative not indicated in the official appointment must be evidenced.

- For natural persons, where applicable, a proof of registration on a professional or trade register or any other official document showing the registration number.

- The tenderer (only the leader in case of joint tender) must provide a **Financial Identification Form and supporting** documents. The form is available on: http://ec.europa.eu/budget/contracts_grants/info_contracts/index_en.cfm

## Evaluation and award

### 2.1. Evaluation steps

The evaluation is based on the information provided in the submitted tender. It takes place in three steps:

(1) Verification of non-exclusion of tenderers on the basis of the exclusion criteria

(2) Selection of tenderers on the basis of selection criteria

(3) Evaluation of tenders on the basis of the award criteria (technical and financial evaluation)

Only tenders meeting the requirements of one step will pass on to the next step.

### 2.2. Exclusion criteria

All tenderers shall provide a declaration on their honour (see Annex 2), duly signed and dated by an authorised representative, stating that they are not in one of the situations of exclusion listed in the Annex 2.

The declaration on honour is also required for identified subcontractors whose intended share of the contract is above 20%.

The successful tenderer shall provide the documents mentioned as supporting evidence in Annex 2 before signature of the contract and within a deadline given by the contracting authority. This requirement applies to all members of the consortium in case of joint tender In case of doubt on this declaration on the honour, the contracting authority may also request the evidence for subcontractors whose intended share of the contract is above 20%.

The fact that a tenderer is also beneficiary in one or several of the monitored projects is not per se considered a conflict of interest. Tenderers shall in the proposal be transparent with regard to their participation in monitored projects and propose measures how to avoid conflicts of interest where these could arise.

### 2.3. Selection criteria

Tenderers must prove their economic, financial, technical and professional capacity to carry out the work subject to this call for tender.

The tenderer may rely on the capacities of other entities, regardless of the legal nature of the links which it has with them. It must in that case prove to the Contracting Authority that it will have at its disposal the resources necessary for performance of the contract, for example by producing an undertaking on the part of those entities to place those resources at its disposal.

### 2.3.1. Economic and financial capacity criteria and evidence

In order to prove their economic and financial capacity, the tenderer (i.e. in case of joint tender, the combined capacity of all members of the consortium) must comply with the following criteria:

**- The annual turnover of the last two financial years of at least € 1 000 000 EUR,** for the past three years.

The following evidence should be provided:

- Copy of the profit & loss account for the last three years for which accounts have been closed,

- Failing that, appropriate statements from banks.

If, for some exceptional reason which the Contracting Authority considers justified, a tenderer is unable to provide one or other of the above documents, he or she may prove his or her economic and financial capacity by any other document which the Contracting Authority considers appropriate. In any case, the Contracting Authority must at least be notified of the exceptional reason and its justification in the tender. The Commission reserves the right to request any other document enabling it to verify the tenderer's economic and financial capacity.

### 2.3.2. Technical and professional capacity criteria and evidence

**a) Criteria relating to tenderers**

Tenderers (in case of a joint tender the combined capacity of all tenderers) must comply with the following criteria:

1. Experience of at least three years in the field of monitoring buildings' energy performance (i.e. advanced controls, sensors, interfaces, whole building control, associated data management, online energy performance surveillance). This experience must cover the use and development of Building Analysis Tools to examine the relation between energy systems and buildings' energy performance, in order to accurately assess and model energy use in the built environment during the design and, in particular, operational phases, and to find out why buildings do not perform as planned, if this is the case

2. Experience of at least three years in establishing and maintaining a clearly structured website in English that makes large amounts of information and data from different projects and related sources accessible in a user-friendly way

3. Experience of at least two years in the monitoring of the energy and socio-economic performance of buildings, including in automated performance monitoring

4. Experience of at least two years in the monitoring of the energy- and socio-economic performance of projects in the fields of ICT (as enabling technology) and transport projects

5. A general understanding of the legal, political, technical and socio-economic aspects related to energy efficiency in buildings, renewables integration, transport, ICT (as enabling technology)

6. Experience of at least three years in the field of integration of different energy-relevant technologies

7. Expertise of at least 10 years in the technical, economic, environmental (mainly climate change-related) and social performance of energy technologies and the interaction of these aspects

8. Experience of at least three years in analysing quantitative and qualitative data and in generating conclusions and recommendations from it, targeted at different user groups

9. Experience of at least three years in organising events of different formats, including international conferences, seminars and networking events, and in liaising with relevant stakeholder groups in view of establishing an active stakeholder community

10. Experience of at least three years in communicating policy and technical content in different languages, formats and contexts (written & audio-visual material, oral presentations, social media, …), and in drafting different genres of concise and clear texts (press releases, articles for different target groups, web-texts, event invitations and programmes, …) in English.

11. For the editor(s) of the public deliverables as well as working documents for wider distribution[3]: proficiency in the language of the deliverable, that is an academic degree obtained with the language as the working language, and at least four years of experience in proofreading and editing texts at the interface between science and policy, and knowledge of the deliverable's subject. If not part of the consortium from the outset, editors recruited *after* the contract start have to comply with these criteria.

**b) Criteria relating to the team delivering the service:**

The team delivering the service should include, as a minimum, the following profiles:

[3] • To ensure that the project results are communicated in clear, accessible and correct language, the contractor has to ensure that all public deliverables as well as all working documents for wider distribution are edited and proofread by professionals who are proficient in the language of publication and knowledgeable in the technical subject matter of the project.

1. Project Manager: At least 5 years of experience in project management, including overseeing project delivery, quality control of delivered service, client orientation and conflict resolution experience in project of a similar size (at least € 2 000 000) and coverage (geographical scope at least half of the one subject to this call for tender), with experience in management of team of at least 10 people.

2. Language skills: at least 2 members of the team shall have native-level language skills or equivalent in English, as guaranteed by a certificate or past relevant experience. All members of the team shall already have worked in English, including oral and written communication.

3. The experts in data collection, processing, analysis and report drafting: Relevant higher education degree and 4 years' professional experience in the field.

4. The team's event organisers shall each have at least three years of experience in organising large events with international participation.

5. The team's webmasters shall each have at least three years of experience in designing and maintaining a website of complexity similar to that of the CONCERTO website.

**c) Evidence**

To document that the above criteria (both parts a and b) are fulfilled, the tenderer shall provide the following evidence in form of a table:

| **Criterion number and content** | **How the tenderer fulfils the criterion** (e.g. list services provided) | **Documentation (refer to numbered Annexes)** | **For EC comments [leave empty]** |
|---|---|---|---|
| 1. Experience of at least three years in monitoring buildings' energy performance | | | |
| 2. Experience of at least three years in establishing and maintaining a clearly structured website in English | | | |
| Etc. | | | |

Examples of documentation

1. list of relevant services provided in the past three years, with sums, dates and recipients with mention of the sector and if public or private. The most

important services shall be accompanied by proof of satisfactory completion, e.g. proof of final payment.

2. The educational and professional qualifications of the persons who will provide the service for this tender (CVs in accordance with the Commission Recommendation on a common European format for curricula vitae, published in OJ L79 of 22 March 2002, p. 66), including the management staff. Each CV provided should indicate the intended function in the delivery of the service and the person's educational background, degrees and diplomas, professional experience, including the places of employment, research work, publications and linguistic skills.
3. different genres of texts drafted in English by the tenderer(s).

If several service providers/subcontractors are involved in the bid, each of them must have, and show that they have the professional and technical capacity to perform the tasks assigned to them.

**Subcontracting**
The contractor shall also provide a table indicating the part of the contract which he intends to subcontract.

### 2.4. Award criteria

The tender will be awarded according to the best-value-for -money procedure. The quality of the tender will be evaluated based on the following criteria. The maximum total quality score is 100 points.

- **Quality of the technical proposal** (60 points - minimum threshold 36 points (= 60%))
- Clarity, completeness and quality of the proposal;
- Quality of proposed methodology to develop further the existing CONCERTO technical monitoring database and website to integrate Energy Efficient Buildings Private-Public Partnership and Smart Cities and Communities FP7 and Horizon 2020 projects;
- Quality and clarity of the work plan towards the objectives of the call for tender;
- Quality and appropriateness of proposed stakeholder engagement & networking, knowledge transfer and communication and dissemination activities;
- Potential impact through the development, dissemination and use of project results.

- **Organisation of the work** (20 points – minimum threshold 12 points (= 60%))

This criterion will assess how the roles and responsibilities of the proposed team and of the economic operators (in case of joint tenders, including subcontractors if applicable) are distributed for each task. It also assesses the global allocation of time and resources to the project and to each task or deliverable, and whether this allocation is appropriate for the work. The tender should provide details on the allocation of time and resources and the rationale behind the choice of this allocation.

- **Quality control measures** (20 points – minimum threshold 12 points (= 60%))

This criterion will assess the quality control system applied to the service foreseen in this tender specification concerning the quality of the deliverables, the language quality check,

and continuity of the service in case of absence of the member of the team. The quality system should be detailed in the tender and specific to the tasks at hand; a generic quality system will result in a low score.

Tenders must score above 60% for each criterion and sub-criterion, and above 70% in total. Tenders that do not reach the minimum quality thresholds will be rejected and will not be ranked.

After evaluation of the quality of the tender, the tenders are ranked using the formula below to determine the tender offering best value for money. (A weight of 60/40 is given to quality and price.)

$$\text{score for tender X} = \frac{\text{cheapest price}}{\text{price of tender X}} \times 40 + \frac{\text{total quality score (out of 100) for all award criteria of tender X}}{100} \times 60$$

### 2.2. Technical offer

The technical offer must cover all aspects and tasks required in the technical specification and provide all the information needed to apply the award criteria. Offers deviating from the requirements or not covering all requirements may be excluded on the basis of non-conformity with the tender specifications and will not be evaluated.

### 2.3. Financial offer

The price for the tender must be quoted in euro. Tenderers from countries outside the euro zone have to quote their prices in euro. The price quoted may not be revised in line with exchange rate movements. It is for the tenderer to assume the risks or the benefits deriving from any variation.

Prices must be quoted free of all duties, taxes and other charges, including VAT, as the European Union is exempt from such charges under Articles 3 and 4 of the Protocol on the privileges and immunities of the European Union. The amount of VAT may be shown separately.

The quoted price must be a fixed amount which includes all charges (including travel and subsistence). Travel and subsistence expenses are not refundable separately.

Maximum price: 3 500 000 €.

## Technical specifications

### The EU's energy and climate challenges

The Union is facing unprecedented challenges resulting from increased dependence on energy imports and scarce energy resources, and the need to limit climate change and to overcome the economic crisis. The effects of climate change become more and more visible also in the EU, e.g. through more frequent extreme weather events and related effects on health, on the build and natural environment, and damages to our economy. To prevent the most severe impacts of climate change, the international community has agreed that global warming should be kept below 2ºC compared to the temperature in pre-industrial times.

That means a temperature increase of no more than 1.2°C above today's level. To stay within this ceiling, the scientific evidence shows that the world must stop the growth in global greenhouse gas emissions by 2020 at the latest, reduce them by at least half of 1990 levels by the middle of this century and continue cutting them thereafter.

Energy from renewable sources and energy efficiency are valuable means to address these challenges. Energy Efficiency improves the Union's security of supply by reducing primary energy consumption and decreasing energy imports. It helps to reduce greenhouse gas emissions in a cost- effective way and thereby to mitigate climate change. Shifting to a more energy-efficient economy should also accelerate the spread of innovative technological solutions and improve the competitiveness of industry in the Union, boosting economic growth and creating high quality jobs in several sectors related to energy efficiency.

The Conclusions of the European Council of 8 and 9 March 2007 emphasised the need to increase energy efficiency in the Union to achieve the objective of saving 20% of the Union's primary energy consumption by 2020 compared to projections. The conclusions of the European Council of 4 February 2011 emphasised that the 2020 20 % energy efficiency target as agreed by the June 2010 European Council, which is presently not on track, must be delivered. The Energy Efficiency Directive[4] adopted on 25 October 2012 put measures into place to make this happen.

On 22.1.2014 the EC presented for a new EU framework on climate and energy for 2030[5]: A reduction in greenhouse gas (GHG) emissions by 40% below the 1990 level, an EU-wide binding target for renewable energy of at least 27%, renewed ambitions for energy efficiency policies, a new governance system and a set of new indicators to ensure a competitive and secure energy system.

For **2050**, EU leaders have endorsed the objective of reducing Europe's greenhouse gas emissions by 80-95% compared to 1990 levels as part of efforts by developed countries as a group to reduce their emissions by a similar degree. The European Commission has published a roadmap for building the low-carbon European economy that this will require.

**Buildings and cities in EU energy policy**

Buildings account for 40% of total energy consumption in the Union and for 33% of its $CO_2$ emissions. The sector has significant untapped potential for cost-effective energy savings which, if realized, would mean that in 2020 the EU will consume 11% less final energy[6].

70% of the EU's energy consumption and a similar share of GHG emission take place in cities.

Reduction of energy consumption and the use of energy from renewable sources in the buildings sector constitute important measures to reduce the Union's energy dependency and greenhouse gas emissions.

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[4] Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC [OJ L315 p.1]

[5] COM/2014/015 final

[6] COM (2008) 780 final.

The Energy Performance of Buildings Directive[7] sets ambitious standards for new buildings and retrofitting. It requires all newly built buildings to be "nearly zero energy buildings" as of end 2020 (for the public sector already end of 2018), and that the remaining energy need shall be covered mainly from renewable sources of energy. Member states have to identify the cost-optimal levels of ambition in the implementation of the directive.

The Energy Efficiency Directive provides for public buildings to play an exemplary role in terms of energy efficiency. Member States must renovate 3% of their central government buildings or adopt measures that achieve equivalent energy savings in these buildings, and must encourage public bodies and social housing bodies to adopt energy efficiency plans. Central government purchasing under the public procurement directive should (with exceptions) be limited to products, services and buildings with high energy efficiency performance.

As for smart grids, the Energy Efficiency Directive requires that Member States ensure that national energy regulatory authorities, TSOs and DSOs maximise the energy efficiency potential of smart grids, assess and improve energy efficiency in the design and operation of gas and electricity infrastructure, and ensure that tariffs and regulations fulfil specific energy efficiency criteria and do not hamper demand response.

**EU Initiatives for energy efficient buildings and smart energy districts and cities**

The EU supports with several initiatives the relevant sectors and stakeholders in meeting these challenges and legal requirements. The initiatives relevant to this call for tender are:

**I. The CONCERTO Initiative**

CONCERTO is a European Commission initiative within the European Research Framework Programme (FP6 and FP7). It aims to demonstrate that the energy-optimisation of districts and communities as a whole is more cost-effective than optimising each building individually, if all relevant stakeholders work together and integrate different energy-technologies in a smart way.

The EU initiative of the European Commission's Directorate General for Energy started in 2005 and has co-funded with more than € 175 million 58 cities and communities in 22 projects in 23 countries.

CONCERTO implemented examples of:

• innovative technologies that are ready to be applied

• the use of renewable energies sources for cities

• energy efficiency measures

• sustainable building and district development

• economic assessments

• affordable energy

[7] DIRECTIVE 2010/31/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on the energy performance of buildings

• energy transparency for citizens

The CONCERTO initiative proves that if given the right planning, cities and communities can be transformed into pioneers in energy efficiency and sustainability.

The results so far have been very encouraging: CONCERTO cities and communities have shown that existing buildings can cut their CO2 emissions, at acceptable costs, by up to 50%. CONCERTO does this by implementing renewable energy sources, innovative technologies and an integrated approach.

The 58 CONCERTO cities and communities integrate innovative energy efficiency measures with a substantial contribution from local renewable energy sources (RES), smart grids, renewables-based cogeneration, district heating/cooling systems and energy management systems in larger building settlements. These sets of innovative technologies and measures are optimised locally in order to take into account the specific characteristics and possibilities of the local site, climate and cultural differences or local political aspects.

CONCERTO cities and communities demonstrate role-models towards zero energy communities. The experiences and technology performance data from the CONCERTO sites have been thoroughly gathered and analysed in the meta-projects CONCERTO Plus and CONCERTO Premium. The results are made available on CONCERTO website[8]; in reports and via the interactive technical monitoring database with intelligent inquiry facility. Recommendations for practitioners and policy makers based on the lessons learned in CONCERTO are particularly relevant for the Smart Cities and Communities European Innovation Partnership which addresses the challenge of making entire cities energy-smart.

The CONCERTO shows cities and communities how to make their energy-systems fit for the future, and thus helps the EU reaching its 2020 and 2050 energy and climate policy objectives.

CONCERTO has been designed to have a strong research component to perform analyses, such as the local trends in retail energy prices and costs of energy saving measures introduced, as well as an assessment of the social and environmental impacts and an in-depth assessment of the energy services provided within the community itself. The projects include analyses of technical, financial, legal, social, political and acceptance risks, cost reduction potentials and future market potentials for the technologies and approaches adopted in these projects.

[8] www.concerto.eu

**A first batch of CONCERTO projects (CONCERTO I) started end 2005. This first batch contained 9 projects with a total of 26 local communities (see table below).**

| Project Acronym | Community 1 | Community 2 | Community 3 | Community 4 |
|---|---|---|---|---|
| RENAISSANCE | Lyon (FR) | Zaragosa (ES) | | |
| POLYCITY | Ostfildern (DE) | Cerdanyola del Vallés (ES) | Torino (IT) | |
| ECO-CITY | Helsingborg (SE) | Helsingor (DK) | Tudela (ES) | Trondheim (NO) |
| ECOSTILER | Amsterdam (NL) | Lambeth (UK) | Mäbjerg (DK) | |
| SESAC | Växjö (SE) | Delft (NL) | Grenoble (FR) | |
| TETRAENER | Geneva (CH) | | | |
| CRRESCENDO | Almere (NL) | Milton Keynes (UK) | Ajaccio (FR) | Viladecans (ES) |
| ENERGY IN MINDS | Weiz Gleisdorf (AT) | Zlin (CZ) | Neckarsulm (DE) | Falkenberg (SE) |
| ACT2 | Hannover (DE) | Nantes (FR) | | |

**A second batch of CONCERTO projects (CONCERTO II) started end 2007. This batch contains 9 projects with a total of 19 local communities (see table below).**

| Project Acronym | Community 1 | Community 2 | Community 3 | Community 4 |
|---|---|---|---|---|
| Class1 | Stenloese (DK) | | | |
| Concerto AL Piano | Alessendria (IT) | | | |
| Green Solar Cities | Salzburg (AT) | Valby (DK) | | |
| HOLISTIC | Dundalk (IR) | Neuchatel (CH) | Mödling (AT) | |
| SEMS | Tulln (AT) | Weilerbach (DE) | Slubice (PL) | Redange (LU) |
| SERVE | Serve region (IR) | | | |
| SORCER | Hillerod (DK) | Apeldoorn (NL) | | |
| STACCATO | Amsterdam (NL) | Sofia (BU) | Óbuda (HU) | |
| REMINING-LOWEX | Heerlen (NL) | Zargoje (SL) | | |

**A third batch of CONCERTO projects (CONCERTO III) started in 2010, adding 4 new CONCERTO projects and 13 local communities.**

| Project Acronym | Community 1 | Community 2 | Community 3 | Community 4 |
|---|---|---|---|---|
| SOLUTION | Cernier (CH) | Hartberg (AT) | Hvar (HR) | Lapua (FI) |
| PIME'S | Salburua (ES) | Dale (NO) | Szentendre (HU) | |
| ECO-Life | Birstonas (LT) | Kortrijk (BE) | Høje-Taastrup (DK) | |
| GEOCOM | Mórahalom (HU) | Galanta (SK) | Montieri (IT) | |

| Acronym | Start of Project | End of Project | Cities and Communities involved: | | | |
|---|---|---|---|---|---|---|
| act2 | 01/01/2006 | 31/12/2012 | **Hannover/DE** | **Nantes/FR** | | |
| cRRescendo | 01/08/2005 | 31/07/2012 | **Ajaccio/FR** | **Almere/NL** | **Milton Keynes/UK** | **Viladecans/ES** |
| ECO-City | 11/10/2005 | 10/12/2012 | **Helsingborg/SE** | **Helsingor/DK** | **Trondheim/NO** | **Tudela/ES** |
| ECOSTILER | 01/09/2005 | 31/08/2012 | **Amsterdam New West/NL** | **London-Lambeth/UK** | **Maabjerg/DK** | |
| energy in minds! | 30/05/2005 | 29/05/2010 | **Falkenberg/SE** | **Neckarsulm/DE** | **Weiz-Gleisdorf/AT** | **Zlin/CZ** |
| POLYCITY | 06/05/2005 | 05/05/2011 | **Cerdanyola/ES** | **Ostfildern/DE** | **Torino/IT** | |
| Renaissance | 17/11/2005 | 17/10/2012 | **Lyon/FR** | **Zaragoza/ES** | | |
| sesac | 25.05.2005 | 24.05.2011 | **Delft/NL** | **Grenoble/FR** | **Växjö/SE** | |
| TetraEner | 01.11.2005 | 01.11.2010 | **Geneva/CH** | | | |
| class1 | 01/11/2007 | 31/10/2013 | **Stenloese/DK** | | | |
| Concerto Al Piano | 01/09/2007 | 31/08/2013 | **Alessandria/IT** | | | |
| Green Solar Cities | 01/06/2007 | 31/05/2013 | **Salzburg/AT** | **Valby/DK** | | |
| Holistic | 01/06/2007 | 31/05/2013 | **Dundalk/IE** | **Mödling/AT** | **Neuchatel/CH** | |
| Remining-Lowex | 18/06/2007 | 17/06/2014 | **Heerlen/NL** | **Zagorje/SL** | | |
| SEMS | 01/06/2007 | 31/05/2012 | **Redange/LU** | **Slubice/PL** | **Tulln/AT** | **Weilerbach/DE** |
| Serve | 01/11/2007 | 31/10/2012 | **Serve region/IE** | | | |
| Sorcer | 01/05/2007 | 30/04/2013 | **Apeldoorn/NL** | **Hillerod/DK** | | |
| Staccato | 08/11/2007 | 07/11/2014 | **Amsterdam/NL** | **Budapest/HU** | **Sofia/BU** | |
| SOLUTION | 01/11/2009 | 31/10/2014 | **Cernier /CH** | **Hartberg/AT** | **Hvar/HR** | **Lapua (FI)** |
| PIME's | 01/12/2009 | 30/11/2014 | **Salburua/ES** | **Dale/NO** | **Szentendre/HU** | |
| Eco-Life | 29/12/2009 | 28/12/2016 | **Birstonas/LT** | **Kortrijk/BE** | **Høje-Taastrup/DK** | |
| GEOCOM | 01/01/2011 | 31/12/2014 | **Mórahalom/HU** | **Galanta/SK** | **Montieri/IT** | |

| | |
|---|---|
| Project is finished | |
| Project is still running | |

Table above: Overview of all CONCERTO projects and their duration (future end dates may change in some cases)

No new calls will be launched under the CONCERTO programme, as it has been succeeded by the Smart Cities and Communities calls in FP7 and in Horizon 2020.

In addition to these communities there are a number of associated communities (see Annex Associated Communities CONCERTO I, II and III, attached to this Specification to Tender) whose role is to participate as observers in the projects and potentially in the future accomplish the same measures in their local areas based upon a successful implementation and experience of previous showing cases.

All three CONCERTO batches of projects are based upon the same basic principles.

In order to support the communities and stakeholders under this initiative in the implementation, monitoring and promotion of CONCERTO I and II individual projects, the European Commission signed two service contracts: From 2005 to 2010 the CONCERTO PLUS contract, and from 2010 to beginning of 2014 the CONCERTO Premium contract. The aim of these service contracts was to foster cooperation and develop the highest possible added value to the work done by the Communities in the CONCERTO projects, support the European Commission in its development and responsibilities and increase the success of the CONCERTO initiative as a whole, at the scientific, technical and policy levels. The contracts included coordinated analysis, collection of monitoring data and dissemination of the results from all CONCERTO projects including the strengthening of networking between the CONCERTO projects and facilitating the transfer of best practices to new communities across the European Union. CONCERTO Plus and CONCERTO Premium ensured the link between technological demonstration and EU policy implementation.

### The Smart Cities and Communities European Innovation Partnership (SCC EIP)[9]

One of the greatest challenges facing the EU is how best to design and adapt cities into smart intelligent and sustainable environments. Almost three quarters of Europeans live in cities, consuming 70% of the EU's energy. Congestion costs Europe about 1% of its GDP every year; most of it is located in urban areas. Smart urban technologies can make a major contribution to tackling many urban challenges. By launching on the 10th of July 2012 the Smart Cities and Communities European Innovation Partnership (SCC EIP) the European Commission aims to boost the development of smart technologies in cities – by pooling research resources for energy, transport and ICT[10] and concentrating them on a small number of demonstration projects which will be implemented in partnership with cities. With the Smart Cities Partnership, the EU will help to establish strategic partnerships between these industries and European cities to develop and roll out the urban systems and infrastructures of tomorrow. The SCC EIP is supported by the Smart Cities Stakeholder Platform (SCSP)[11], which organises the stakeholders' contributions to the SCC EIP (e.g.

[9] http://ec.europa.eu/eip/smartcities

[10] [10] Possibly water- and waste management and their energy aspects may in the future also be included in the SCC EIP.

[11] http://eu-smartcities.eu

the development of a technology roadmap as part of the EIP's governance structure) and takes on important communication and dissemination tasks (such as identifying and disseminating innovation solutions for cities, develop market uptake measures (organisational innovation through innovative planning and business models, public procurement, standards, regulations and exchange of knowledge and best practices). The Smart Cities Stakeholder Platform cooperates with the Covenant of Mayors Office, Smart Cities and Communities Information System , the Green Digital Charter as well as with other relevant EU initiatives.

**Projects:**

An important element of the SCC EIP are the EU-co-financed lighthouse projects, that demonstrate replicable smart cities solutions.

Two calls for proposals for the Smart Cities and Communities in the 7th Framework Programme EIO and one call in Horizon 2020[12] have so far taken place:

The Smart Cities call in the Commission's work programme 2012 comprised of three different topics:

1. The topic "Strategic sustainable planning and screening of city plans", with the following topics:

| Project acronym and website | Participating cities | Project duration in months & starting & end date[13] |
|---|---|---|
| TRANSFORM<br>http://urbantransform.eu/ | Amsterdam, Copenhagen, Hamburg, Vienna, Lyon, Genova | 24<br>started 1.1.13<br>end date<br>30/06/2015 |
| STEP-UP:<br>http://www.stepupsmartcities.eu/ | Glasgow, Gent, Gothenburg | 24<br>started 1.11.12<br>30/04/2015 |
| STEEP<br>(no official page yet):<br>https://www.facebook.com/pages/STEEP-Project/541780422563867 | Firenze, San Sebastian, Bristol | 24<br>started 01/10/2013<br>end date<br>30/09/2015 |
| PLEEC<br>http://www.pleecproject.eu/ | Eskilstuna, Turku, Tartu, Stroke-on-Trent, Santiago de Compostella | 36<br>started 01/04/2013<br>end date<br>31/03/2016 |
| InSMART<br>no official page yet | TRIKALA, Greece, Nottingham, United Kingdom, EVORA, Portugal, CESENA, Italy | 36<br>started 01/12/2013<br>end date<br>30/11/2016 |

[12] The call texts are in the annex of this document.

[13] End dates of all projects may change if a project is prolonged.

2. The topic "Large scale systems for urban area heating and/or cooling supply", with the following projects:

| Project acronym and website | Participating cities | Project duration in months, starting- & end date |
|---|---|---|
| CELSIUS<br>(no own website yet)<br>http://eu-smartcities.eu/content/celsius-smart-district-heating-and-cooling-solutions | Gothenburg, Cologne, Islington, Rotterdam, Genova | 60<br>started 01/04/2013<br>end date 31/03/2017 |
| PITAGORAS<br>no website yet | Bilbao, Graz, Bizkaiko Foru Aldundia (ES) | 48<br>Started 01/11/2013<br>end date 31/10/2017 |

3. The topic "Demonstration of nearly Zero Energy Building Renovation for cities and districts", with the following projects:

| Project acronym and website | Participating cities | Project duration in months & starting & end date[14] |
|---|---|---|
| EU-GUGLE<br>http://www.greenovate-europe.eu/EU-GUGLE<br>http://eu-gugle.eu/ | Vienna (AT), Aachen (DE), Milan (IT), Sestao (ES), Tampere (FI) Bratislava (SK), Gothenburg (SE) and Gaziantep (TR) | 60<br>started 01/04/2013<br>31/03/2018 |
| R2CITIES<br>http://r2cities.eu/ | Kartal, a municipality of the city of Istanbul, Valladolid, Spain, Genoa, Italy | 48<br>started 01/07/2013<br>30/06/2017 |
| ZenN<br>http://zenn-fp7.eu/ | Arlequin, France, Lindängen, Sweden, Lorensborg, Sweden, Mogel, Spain, Oppsalhjemmet, Norway, Økern, Norway | 48<br>started 01/03/2013<br>end date<br>28/02/2017 |

[14] End dates of all projects may change if a project is prolonged.

The Smart Cities call in the Commission's work programme 2013 had the topic "Demonstration of optimised energy systems for high performance-energy districts". Grant agreement negotiations are on-going with four projects, most of which have two participating cities and a duration between 48 and 60 months.

**Smart Cities calls in Horizon 2020**

In December 2013 a new call for proposals has been launched under Horizon 2020, the new EU framework programme for research and innovation, and further new calls are planned for the following years. For the period 2014 to 2017 (the duration of this contract) we expect to co-finance
for the 2014 call: 4-5 projects, each with 2-3 lighthouse cities and 2-3 follower cities
for the 2015 call: 5-6 projects, each with 2-3 lighthouse cities and 2-3 follower cities,
thus for both calls together in total between 18 and 33 lighthouse cities and an equal amount of follower-cities.
Follower-cities are meant to replicate the solutions demonstrated in the lighthouse cities.

For the 2016 and 2017 calls together a similar amount of projects and participating cities is expected. The cities of all these calls are in the scope of this call for tender.
Though the amount of relevant information and data will vary greatly between lighthouse- and follower cities, and between different generations of projects, all cities shall be covered by the monitoring, analysis and communication activities to the extent that relevant information and data from these cities are available.

The texts of the published Horizon 2020 SC call topics are in Annex 6 of this document. The four topics are:

- SCC 1 - 2014/2015: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse (large scale demonstration - first of the kind) projects

- SCC 2 - 2014: Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and best-practice identification

- SCC 3 - 2015: Development of system standards for smart cities and communities solutions

- SCC 4 - 2014: Establishing networks of public procurers in local administrations on smart city solutions[15]

It derives from the nature of the different call topics that the SCC lighthouse projects of SCC1 are *fully* in the scope of this tender.

With the topic
SCC 2 - 2014 91: Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and best-practice identification
the contactor of this tender shall ensure complementarity.

[15] The topic "SCC 5 - 2015: Smart solutions for creating better cities and communities - assistance for a prize competition", is cancelled.

The topics
SCC 3 - 2015 : Development of system standards for smart cities and communities solution
SCC 4 - 2014 : Establishing networks of public procurers in local administrations on smart city solutions are not at the centre of the scope of this call for tender, but the tenderer should be prepared to contribute to these, in particular with expertise and results of the demonstration project assessments.

**The Energy-efficient buildings private-public partnership (Eeb PPP)**

The Energy-efficient buildings (EeB) PPP[16] is a research and demonstration programme that is financed jointly by industry and the European Commission under the Seventh Framework Programme for Research (FP7). The research programme has started in July 2009 with coordinated calls for research proposals, jointly implemented by DG Research and Innovation, DG Energy and DG Information Society and Media. Further calls for proposals have been launched every year in July until 2012, and again in 2014 under Horizon 2020. The programme consists of a financial envelope of €1 billion to boost the construction sector, and aims at promoting green technologies and the development of energy efficient systems and materials in new and renovated buildings - this, with a view to radically reducing their energy consumption and CO2 emissions.

[16] http://ec.europa.eu/research/industrial_technologies/energy-efficient-buildings_en.html

The two calls for EeB demonstration projects launched by DG Energy[17], resulted in the following projects:

**Topic EeB.ENERGY.2011.8.1-1: Demonstration of very low energy new buildings**

| Project acronym | Website | Project duration in months |
|---|---|---|
| NEXT-BUILDINGS | http://www.next-buildings.com/ | 72 |
| BUILDSMART | http://www.buildsmart-energy.eu/ | 45 |
| NEED4B | http://www.need4b.eu/ | 72 |
| EE-HIGHRISE | http://www.ee-highrise.eu/index.php/en/ | 36 |
| DIRECTION | http://www.direction-fp7.eu/ | 48 |

**Topic EeB.ENERGY.2010.8.1-2: Demonstration of Energy Efficiency through Retrofitting of Buildings**

| Project acronym | | Project duration in months |
|---|---|---|
| BEEMUP | http://www.beem-up.eu/ | 48 |
| E2REBUILD | http://www.e2rebuild.eu/ | 42 |
| SCHOOL OF THE FUTURE | http://www.school-of-the-future.eu/ | 60 |

In Horizon 2020 the following Energy Efficient Buildings Private Public Partnership demonstration projects call topics (managed by the Executive Agency Executive Agency for Small and Medium-sized Enterprises (EASME)[18] have been published[19] and are in the scope of this contract:

- EE 1 – 2014: Manufacturing of prefabricated modules for renovation of buildings,
- EE 2 – 2015: Buildings design for new highly energy performing buildings
- EE3 - 2014: Energy strategies and solutions for deep renovation of historic buildings
- EE 6 - 2015: Demand response in blocks of buildings
- EE 11 - 2014/2015: New ICT-based solutions for energy efficiency

[17] The call texts are in the Annex of this document.

[18] http://ec.europa.eu/easme/

[19] The call texts are in the Annex of this document.

- EE 13 - 2014/2015: Technology for district heating and cooling

New calls are expected to be launched by the Commission under this programme in 2016[20]. The resulting projects are also in the scope of this call for tender.

**The need for monitoring and technical & financial analysis**

The recast of the EU Directive on the Energy Performance of Buildings (EPBD) introduces a general framework for a methodology to calculate the energy performance of buildings and its cost optimal minimum energy performance requirements. Implementation of the Directive will yield a large amount of information on the make-up of building stock across Europe and this information will be regularly updated through the audit procedure prescribed by the recast of EPBD[21].

Such information provides a useful baseline for the buildings and construction sector, as well as policy-makers. It also opens up opportunities for the development of software applications and tools for the purpose of **compliance with the EPBD**.

The general framework proposed by the EPBD Directive recast invites the monitoring linked activities and companies (i.e. ICT) to work together with the buildings and construction sector to identify areas where the impact and cost-effectiveness of proper monitoring can be maximised, and to specify requirements. All these actors should also promote interoperability between auditing tools, and building and energy management systems, with a view to developing a **systemic understanding** of a building's energy performance.

There is nevertheless scope to go beyond the general methodological framework introduced in the Directive, extended from individual buildings to settlements, communities and cities and agree on common methodologies for presenting data. Then adequate monitoring could be applied for EU-wide collection, aggregation and comparative analyses to support benchmarking and policy evaluation.

Following this line of argument and priorities from the EPBD Directive, the CONCERTO, EeB and SCC projects have produced and are producing a considerable amount of monitored field data showing the experience on energy supply and demand behavioural patterns in targeted buildings, with a very high penetration of RES supply. Detailed information on the performance and reliability of the innovative RES supply solutions and end use technologies involved, have also been generated in this pioneering initiative and provide useful learning and knowledge to steer future policy developments at the EU level.

Based on the work carried out in the CONCERTO Plus project, CONCERTO Premium has collected this information and introduced it into an indicator-based advanced Technical Monitoring Database (TMD) with an intelligent enquiry facility[22]. In order to best cater for different information needs CONCERTO Premium has carried out a detailed survey[23] and

[20] The H2020 EeB projects are managed by the Executive Agency for SME (EASME).

[21] recast Directive 2002/91/EC; http://www.buildup.eu/.

[22] http://concerto.eu/concerto/environmental-technologies/technologies-intel-enquiries.html

[23] http://concerto.eu/concerto/library/library-concerto-questionnaires.html

analysis of the different target groups prior to defining indicators and levels of aggregation of the gathered data and information.

It has to be noted that CONCERTO Premium could not gather complete monitoring data sets from all projects, as some projects have already ended and have not provided the requested data, while others have been affected by the economic crisis and have not progressed as planned.

To help the projects provide comprehensive and coherent data CONCERTO Premium has produced monitoring guides and data collection sheets[24] for the different monitored aspects and levels.

Other important deliverables produced by CONCERTO Premium are a the publications "Energy solutions for smart cities and communities - Recommendations for Policy Makers from the 58 Pilots of the CONCERTO initiative"[25], and "Energy solutions for smart cities and communities - Lessons learnt from the 58 pilot cities of the CONCERTO initiative"[26], a series of videos[27] on the technologies applied in the CONCERTO projects, an integrated report of policy contributions and recommendations, as well as brochures, flyers and posters.

**The purpose and scope of the Smart Cities and Communities Information System contract**

The European Commission is launching this Smart Cities and Communities Information System call for tender (duration: 36 months) for the provision of interdisciplinary scientific expertise from relevant disciplines (e.g. constructional engineering, architecture, economy, urban- and energy planning, ICT, monitoring of building and energy infrastructure performance, environment, social sciences) to monitor and analyse EU-co-financed demonstration projects in the fields of smart cities, sustainable energy districts (CONCERTO) and energy-efficient buildings with respect to European Union energy and climate change policy. The tasks to be undertaken under this contract will feed into the Commission analysis of the energy efficiency and renewable energy measures and innovation potentials in the buildings sector, in communities and in cities by providing key data and findings arising from the demonstration projects.

The gathering, management and analysis of the data from all DG ENER-managed projects of the CONCERTO programme, of all Smart Cities and Communities projects, and of all projects of the Energy Efficient Buildings PPP that are managed by DG Energy and the Executive Agency Executive Agency for Small and Medium-sized Enterprises (EASME)[28], form a core part of the work, as indispensable evidence-basis for the policy advice and transferable knowledge the contract is to yield. As the projects to be monitored demonstrate innovative technologies and solutions in view of facilitating their market-

[24] http://concerto.eu/concerto/library/library-concerto-guidelines.html

[25] http://concerto.eu/concerto/images/library/concerto_publications/2014-01_concerto_premium_recommendations_for_policy_makers_final.pdf

[26] http://concerto.eu/concerto/images/library/concerto_publications/2014-03_concerto-premium_lessons-learnt_sez_en.pdf

[27] http://concerto.eu/concerto/home/video-gallery.html

[28] http://ec.europa.eu/easme/

entry and replication, another objective of the contract is the pooling of information and results from the many demonstration projects in a "one stop shop", ensuring the best possibly dissemination of the knowledge and best practices, in order to encourage and facilitate their up-take.

When preparing their proposal to this invitation to tender all tenderers should take into account the content of the CONCERTO website (www.concerto.eu), developed and managed by CONCERTO Premium.

## Work Packages

The call for tender is structured in four work packages (WPs) which the tenderer should implement in an integrated way:

・The objective of **WP 1 Project and quality management** is to ensure an effective management of the project, including liaising with DG Energy as the purchaser of the work, and applying a sound quality management system.

This WP also includes the following points:

- Organisation and management of project meetings, including progress-meetings every half-year, following the submission of the integrated progress report, where the consortium meets the EC technical officer to discuss the project's progress. Minutes of these meetings shall be drafted by the tenderer and sent to the EC for comments and approval no later than 7 days after the meeting.

- Timely submission of the deliverables.

- Regular reporting to the European Commission, including statistics on use of the website and the TMD

- To ensure that the project results are communicated in clear, accessible and correct language, the contractor has to ensure that all public deliverables as well as all working documents for wider distribution are edited and proofread by professionals who are proficient in the language (academic degree obtained with the language as working language, and at least four years of experience in proofreading and editing texts at the interface between science and policy) of publication and knowledgeable in the technical subject matter of the project.

- To ensure a sound transfer to a possible follow-up project at the end of the contract duration the selected tenderer must produce complete and user-friendly documentation on all the procedures and means used in developing, maintaining and updating the Smart Cities and Communities Information System website and TMD, and provide training and information sessions during the last 6 months of the contract to the EC staff members and/or staff members of other entity designated by the EC, in order to enable them to take over all contractor's activities after the end of the contract.
  As part of the transfer, the full contents of the website, including the latest version of the source codes, are to be delivered to the EC on DVDs, if requested by the EC. Underlying data structures shall be transferred, too, by the most efficient means in view of ensuring an uninterrupted continuation of the work.

In accordance with EU policies on green public procurement and in the spirit of this contract on sustainable, low-carbon energy, tenderers are encouraged to take environmental considerations into account during the execution of the project, e.g. when selecting paper and numbers of copies for printed products, catering for events, and in keeping low emissions from travel.

WP1 Project and quality management includes the following deliverables:

| **Deliverable Nr.** | **Deliverable/Report title and content** | **Delivery date (Month after signature of the contract)** |
|---|---|---|
| 1 | Inception report<br>(detailing, in addition to the technical proposal, and in light of questions raised at the kick-off meeting and in the first month of the work, how the WP objectives are to be met) | 3 |
| 2 | Integrated progress report[29]<br>documenting progress made in all WPs | 6, 12, 24, 30 |
| 3 | Progress meeting<br>(arranged by the tenderer, following the submission of the Integrated progress report, where the consortium meets the EC technical officer to discuss the project's progress) | Every 6 months |
| 4.1<br>4.2 | Interim Technical Report<br>and Final Technical Report[30], documenting progress made in all WPs in the past year<br>(linked to payments) | 18, 36 |
| 5 | Draft final report | 34 |

The objective of **WP 2 Monitoring** is to assess the long-term performances of the innovative energy supply and distribution systems applied in the monitored projects, mainly by maintaining the website, developed in the CONCERTO Premium project, with its qualitative and quantitative content, and in particular the Technical Monitoring Database (TMD), and to develop it further to include monitoring data from the still on-going CONCERTO projects, from all Energy efficient buildings and Smart Cities and Communities demonstration projects funded in FP7 and in Horizon2020.

This includes the Smart Cities FP7 Coordination and Support Actions (CSA) Topic ENERGY.2012.8.8.1: Strategic sustainable planning and screening of city plans) to the extent that this is meaningful, as these CSA in their lifetime do not generate technical monitoring data (but may after project completion), but transferable energy planning expertise, which should also be monitored and assessed in this tender.

The contractor must take into account the relevance of the energy-efficient buildings projects for the Smart Cities and Communities objectives to boost the development of

[29] The contractor shall base its reports on the templates from the CONCERTO Premium contract.

[30] On *what* has been done in *the past* year (in the WPs, and how they were linked together) and how the resources were used. Not to repeat the deliverables, nor the interim reports.

smart technologies in cities by pooling research resources for energy, transport and ICT and develop monitoring and reporting requirements adapted to (i) the different nature of projects under the above topics (buildings demonstration, consumer focus, supply side focus); (ii) the relevance of the projects under these topics in a smart cities context and identification of key data; and (iii) the identification of the more relevant information to identify integrated solutions.

The tasks in this work package include organising the gathering of the qualitative information and quantitative data, implementing self-reporting of the projects and making the data accessible to the different target groups by offering information at different levels of aggregation and complexity, corresponding to the information needs of different user profiles (e.g. policy makers at different levels of governance, technical experts), and by producing communication material for different target groups (e.g. stakeholders in the Member States, the general public, …).

This WP also includes the following points:

- Adapt the existing monitoring guides, data collection sheets, indicators and indicator visualisations and/or develop necessary new ones so that the information and monitoring data from the EeB PPP and SCC EIP projects can be integrated into the existing CONCERTO TMD (The EeB PPP should largely be already covered by the existing CONCERTO material, as it already includes buildings and groups of buildings but the SCC projects will require new material, e.g. to cover the ICT and transport dimensions). Developing the monitoring for the SCC projects the tenderer shall use and complement the indicators that will be part of the SCC EIP Operational Implementation Plan[31].

- Keep abreast with general developments in data and indicator visualisation and keep the TMD user interface at a high level with regard to providing clear, rich and targeted information.

- Develop the TMD to low-maintenance and to self-reporting of the projects: In CONCERTO Premium much of the work of completing the data collection sheets had to be carried out by the contractor. In Smart Cities and Communities Information System this work shall be shifted as much as possible to the projects. This requires developing appropriate ways of instructing the projects (by means of training and guidance material) and creating user-friendly reporting interfaces with underlying automatic data-quality assurance mechanisms that feed-back on wrong or implausible entries.

- Provide a help-desk to support the self-reporting of the demonstration projects to the TMD. Where necessary, gather data from the projects from available material and visit projects to fill data gaps through direct contact with the project consortia.

[31] http://ec.europa.eu/eip/smartcities/files/operational-implementation-plan-oip-v2_en.pdf

Investigate the scope for automated online-reporting from the projects, develop a concept for its implementation and implement it.

- Approach projects that have ended or are close-to end to encourage continued voluntary long-term monitoring after the end of the project. (For buildings, e.g. a post-occupancy monitoring *for at least* three years is necessary to assess if the building really performs as planned, to account for teething problems and seasonal variations). But as many projects only have shorter monitoring obligations in their contracts, they have to be encouraged to a longer monitoring on a voluntary basis. Benefits for the monitored have to be highlighted to encourage participation.

- As a basis for improving the TMD systematically gather user feedback on the TMD from an appropriate sample of users (at least 20, representing different user-profiles, taking into consideration that the broader scope of the SCC projects may require addressing new angles and new target groups.) .

- On the basis of the user-feedback develop further the TMD's user-interface and inquiry facilities for different user-groups.

- Fill data gaps in the TMD by finding ways to obtain data from ended projects that have not yet provided any data, and by liaising with the European Environment Agency, the Covenant of Mayors Office, the European Commission's Joint Research Centre, Eurostat, CIVITAS, Green Digital Charter, and others relevant.

- Ensure complementarity, synergy and consistency of the TMD with related initiatives, in particular with the web-space for SCC projects that will be offered by the Smart Cities Stakeholder Platform, and with the Energy Research Knowledge Centre[32], the BUILD-UP portal[33], CIVITAS, and the Green Digital Charter, the Commission's Common Research Data warehouse (CORDA)[34], The Community Research and Development Information Service (CORDIS)[35]

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[32] http://setis.ec.europa.eu/energy-research

[33] www.buildup.eu

[34] https://webgate.ec.europa.eu/e-corda/

[35] http://cordis.europa.eu/home_en.html

WP2 Monitoring includes the following deliverables:

| Deliverable Nr. | Deliverable/Report title and content | Delivery date (Month after signature of the contract) |
|---|---|---|
| 1 | Inception report on monitoring scope, database development for inclusion of EeB and SCC projects, technical & financial analysis and scope study and implementation plan for self-reporting | 3 |
| 2 | TMD and website ready to include EeB projects (monitoring guides, data collection sheet, indicators and indicator visualisation ready) | 4 |
| 3 | TMD ready to include SCC EIP projects (necessary additional monitoring guides, data collection sheets, indicators and indicator visualisations ready) | As early as possible (to be proposed by tenderer), but not later than M 12 |
| 4 | TMD updated | Every 3 months, all available project data included at M 36 |
| 5 | Scope study and implementation plan on self-reporting | 6 |
| 6 | Self-reporting possible | As early as possible (to be proposed by tenderer), but not later than M 24 |
| 7 | Offer for voluntary long-term monitoring implemented | 8 |
| 8 | Report on how to fill data gaps and ensure complementarity with related initiatives (M 12 and 24 reports are on actions taken) | 6, 12, 24 |
| 9 | Report on user feed-back and TMD improvements | 15 |
| 10 | TMD improvements based on deliverable 9 implemented | 19 |
| 11 | Report on complementarity, synergy and consistency of the TMD with related initiatives (identified action needs and actions taken) | 12, 24, 36 |

The objective of **WP 3 Analysis and recommendations** is to distil from the project monitoring transferable knowledge on the economic, technical, environmental and social performance of the technologies and technology mixes applied in the sustainable energy demonstration projects, and to make recommendations to technical and political decision-makers at different levels (urban district, city, regional, national, European). Important aspects of this work are calculating payback periods and identifying ways to implement energy-efficiency and renewable energy measures that are economically viable but yet not implemented (what are the barriers, how can these be overcome?), and developing targeted information and evidence-based advice to local decision makers in view of encouraging and facilitating replication of the solutions developed in the demonstration projects.

The different generations of projects and each individual project have very different states of advancement. The tenderer should be aware of this constraint and adapt its work and

methodology with regard to the content of the monitoring analysis to the actual level of development of the different projects.

This WP also includes the following points:

- Analyse the data and the information gathered on the technologies, technology mixes, policies and ways of financing applied in the projects, and extract lessons learned and targeted policy recommendations from it. Particular attention shall be paid to determining payback times and cost-optimal levels for energy-efficiency measures and CO2-reduction measures, and to determining the costs per tonne CO2 saved in the different projects. (feeds into all WP deliverables)

- Suggestions for a potential up-scaling to the rest of the buildings market and replication in other cities, by means of a **'Technology replication study'** which takes into account the potential barriers, risks associated whatever their nature and gives orientation on the transformation of current market of buildings environment to a more sustainable low-carbon scenario. Linkages with future policy developments and mechanisms, such as possible recasts of the EPBD and the EED are desired in the scope of this study. (Deliverable 10)

- Assess the innovative solutions and pool of technologies best adapted to different climatic conditions normalised across Europe and analyse the cost-effectiveness of their introduction. (feeds into all deliverables)

- Analyse replication potential of each solution and the market deployment capacity in EU and neighbouring countries taking into account existing EU, national and regional support mechanisms (at least IEE programmes, European Structural and Investment Funds, the Covenant of Mayors, , and Joint Programming Initiatives; but also other relevant initiatives and schemes). (feeds into all deliverables)

- Develop a common structured framework as a methodology (i.e. guidebook) for each group of projects (CONCERTO, EeB, SCC projects), on the basis of which the individual projects are assessed, , ranked and classified according to different criteria, achievements reached (technical and financial) and potential for energy saving (ground work for all deliverables) dentify how EU policies influenced the projects and what lessons can be learnt from the projects for EU policies. Identify country-specific barriers and make recommendations for overcoming these (feeds into all deliverables)

- To make evidence-based recommendations for EU policies, i.e. future EU support schemes, regional policies, RTD activities and development of regulatory measures (e.g. methods or thresholds for future revisions of the EPBD or the EED) (feeds into deliverables 8, 9, 11, 12, 13)

- Offer seminars on the findings to EC staff and other stakeholders, including the option of training sessions on the use of the TMD. (Deliverables 6, 12)

- Assess to what extent the cities and communities participating in CONCERTO and the Smart Cities FP7 and Horizon2020 funded projects benefitted from synergies with participation in other energy-related national and EU programmes (such as Intelligent Energy Europe, INTERREG and URBACT) and make recommendations how these synergies can be strengthened. (feeds into all deliverables)
- Assess and reflect in the recommendations linkages between the CONCERTO, EeB and SCC Horizon2020 funded projects, in particular extrapolate the performance figures from the evaluated technologies of EeB and CONCERTO to the level of communities and cities and develop mechanisms how the demonstrated technologies can be used for developing energy and climate action plans in different categories of cities (e.g. climate conditions, financing conditions and mechanisms etc). (Deliverables 8, 9, 10, 11, 13)

- Contribute to and seek complementarity with the Horizon 2020 call topic SCC 2 – 2014 (see Annex 6), contribute to the Horizon 2020 call topics SCC 3, 4 and 5, in particular with expertise and results of the demonstration project assessments) (to be documented in deliverable 1)

List of deliverables of WP 3 Analysis and recommendations

("Publications" are deliverables for targeted public distribution; "reports" are mainly for the European Commission, to follow the progress of the project and to receive the results.

| **Deliverable Nr.** | **Deliverable/Report title and content** | **Delivery date (Month after signature of the contract)** |
|---|---|---|
| 1 | Technical & Financial analysis Interim reports (every 6 months updated) | 6, 12, 18, 24 |
| 2 | Policy section in Smart Cities Information System newsletters | 12, 24, 35 |
| 3 | Recommendation sessions in project coordinators meetings | 10, 22, 34 |
| 4 | Recommendation session in Final Conference | Between 24 & 36 |
| 5 | At least six recommendation sessions in other EC events (e.g. SCSP annual conference, EUSEW) | To be determined after contract start[36], but two sessions not later than M 18, and all six not later than M 36 |
| 6 | At least three training sessions for stakeholders/multipliers | To be determined after contract start, but not later than M 36 |
| 7 | Publication on policy and technology recommendations for decision makers at local and regional level) | 34 |
| 8 | Publication on policy and technology recommendations for decision makers at national and EU-level | 34 |
| 9 | Integrated report on policy contributions and recommendations | 24, 36 |
| 10 | Technology replication study for decision makers at local and regional level and for enterprises (publication) | 33 |
| 11 | Technology replication study for decision makers at national and EU level (publication) | 33 |
| 12 | Two seminars on the findings to EC staff, including the option of training sessions for EC staff and the project representatives on the use of the TMD | To be determined after contract start, but not later than M 36 |
| 13 | Integrated report on main conclusions and recommendations and the analyses that led to them; power point slides on main points | 12, 24, 36 |

[36] Tenderers are invited to make proposals for the (tentative) timing of deliverables 5, 6 and 12.

The objective of **WP 4 Communication and dissemination** is to encourage other cities and communities to replicate the successful sustainable energy measures, by making known the successful solutions and lessons learned in the demonstrations projects and in the across-project analysis of the contract.

As the Commission's strategy for the dissemination and exploitation of the Horizon 2020 project results is under development flexibility to accommodate future developments will be required.

Dissemination of results of the different monitored projects should:

- Maximise the impact of the results from the demonstrations projects at the EU level and amplify the messages and/or good practices identified by using effective communication and dissemination tools.

- Facilitate networking activities with organisations, stakeholders and networks, external to the CONCERTO communities, through the share of experiences on the internationally most advanced concepts and technologies for Eco-buildings and Renewable Energy Sources (RES) integration in sustainable communities.

- Promote in the planning, development and implementation of sustainable energy communities, leading to a substantial increase in the number of such communities across the EU by performing a proper and detailed communication/dissemination strategy based upon the results of the evaluation of the monitoring of the initiative.

- Amplify the learning speed from the results of CONCERTO projects through the appropriate publications (i.e. number of prints, languages, formats to be decided by the tenderer), web-site and dissemination activities.

As the Members States that have joined the EU since 2004 are significantly underrepresented in the CONCERTO and Smart Cities activities special communication efforts should be made towards these.

The selected tender will maintain and further improve the CONCERTO website[37] (with a view to the mentioned communication among the stakeholders, knowledge sharing, etc). The website shall be further transformed to be the "one stop shop" for smart energy solutions for cities and communities and to offer relevant stakeholders (acting either in their personal or professional capacity) the possibility of exchanging ideas, presenting plans, raising questions and being able to discuss any energy-efficient buildings and Smart Cities and communities-related issues with the other users of the website. The information on the website and in any other published materials shall be provided in English (possibly including web-links to any other websites containing relevant information in any language). Tenderers shall propose in their tenders a cost-effective way of translation of the information published on the Smart Cities Stakeholder Platform's website into other official EU languages by making use of state-of-the-art technology, thus helping users across the EU in understanding the published contents. The contents published by the selected tenderer must be published impartially and independent of any special interests.

[37] www.concerto.eu

The website should not be used for the distribution of interest-based information (besides clearly identified events and news items) or for third-party advertising. The contents published on the website shall be open to public access and must therefore be subject to the selected tenderer's internal quality control. The selected tenderer must maintain and update all sections of the website throughout the duration of the contract.

The selected tenderer must ensure that no restrictions based on personal data and/or confidentiality and/or intellectual property rights are to be expected from any third party due to the publication of any data and documents on the website or in any other material produced and publically available. The selected tenderer must fully respect the intellectual property rights. Should the tenderer for providing the deliverables or services under this contract intend to use any data which cannot be published, this must be explicitly mentioned in the tender. While fully respecting the relevant legislation, the selected tenderer shall actively search for new contacts and interested parties to be included in the distribution lists of the contract's dissemination products. Subscription and removal from the distribution list shall be easy. The website shall be a copyrighted product of the EC.

This WP also includes the following points:

- Update Concerto website to Commission Corporate visual identity[38]
- Link the website to other relevant websites (two-directionally)
- Develop and execute a dissemination plan for products made in the predecessor project CONCERTO Premium (e.g. the website, videos, best practice brochure, flyer on overall concerto results, reference study on policy recommendations, guide for assessment)
- Co-ordinate and co-operate with the Smart Cities Stakeholder Platform and other relevant initiatives (Covenant of Mayors, BUILD-up, CIVITAS, …) to ensure complementarity and synergies.
- To adapt and maintain the CONCERTO website to reflect the broadened scope of the TMD
- Create an active community among the projects and related stakeholders by means of, among others, social media, a newsletter, and the organisation of regular project coordinators' meetings. Provide demonstration projects with support on technical, socio-economic, and policy questions based on the monitoring and analysis of existing projects.
- Provide technical support to interested cities/communities in order to facilitate their registration into the CONCERTO initiative.
- Respond to questions from users related to the content of the website
- Liaise with the projects to organise the monitoring

[38] http://ec.europa.eu/dgs/communication/services/visual_identity/index_en.htm

- Make the TMD and the other products known to relevant stakeholders in view of encouraging roll-out of best practice solutions, to disseminate the lessons and recommendations in publications and through organizing seminars and public events, in close collaboration with related initiatives, in particular with the Smart Cities and Communities Stakeholder Platform and with national and regional energy agencies[39] as important multipliers.

- Seminars (including TMD training sessions) for multipliers (e.g. energy agencies) and for local and regional decision makers

- Organisation of high-level workshops (e.g. sessions or side-events at major EU energy conferences including the EUSEW, SCSP annual conference, Covenant of Mayors conferences) and of a final conference. The scope and contents of the individual events will remain subject to EC approval. These events could be organised, depending on needs, in cooperation with other EU initiatives relevant to the monitored projects (such as the SCSP, the Covenant of Mayors, CIVITAS).

- Approach other entities (in particular consultancies) that provide advice on energy matters to cities, communities other relevant players, acquaint them with the TMD and other deliverables, and encourage them to use and disseminate, independently from EU-funding, the monitoring data and lessons learned.

List of deliverables of WP 4 Communication:

In organising project coordinators meetings, conferences and conference contributions maximum synergy shall be sought with the events of the Smart Cities Stakeholder Platform in order to create a broad and active community of smart cities stakeholders. This means that the events shall, where possible, become joint events with the SCSP, or at least adjacent events to SCSP event.

[39] http://www.managenergy.net/energyagencies_map.html

| Deliverable Nr. | Deliverable/Report title and content | Delivery date (Month after signature of the contract) |
|---|---|---|
| 1 | Dissemination plan for the CONCERTO Premium products | 3 |
| 2 | Informing CONCERTO, EeB and SCC EIB projects about the contractor's monitoring work and how they are to contribute | 2 |
| 3 | Overall dissemination plan, including overview of training seminars | 6 |
| 4 | At least five seminars (including TMD training sessions) for multipliers (e.g. energy agencies) and for local and regional decision makers | Distributed over the contract duration |
| 5 | CONCERTO Web site updated to Commission Corporate visual identity and broadened scope | 6 (with 6-monthly up-dating of content) |
| 6 | Newsletters | 6, and then every 6 months |
| 7 | Brochures | 12, 34 |
| 8 | Videos | 22, 34 |
| 9 | PowerPoint slides | 6 (with half-yearly up-dating) |
| 10 | posters | 18, 34 |
| 11 | best practice guide(s) | 34 |
| 12 | Two major contributions to other conferences (e.g. to the SCSP annual conference) | To be determined after contract start[40], but one sessions not later than M 24, and both not later than M 35 |
| 13 | Final conference | Between 24 & 36 |
| 14 | Working with the international press | 2 press releases and 2 article in technical press per year |
| 15 | Project coordinators meetings | Once per year |
| 16 | Participation in national / international events (other than those of WP3' Deliverable 5) | Annual listing to EC and participation in 6 events per year |

[40] Tenderers are invited to make proposals for the (tentative) timing of deliverables 5, 6 and 12.

| | | |
|---|---|---|
| 17 | Study on how to promote the use of the TMD and other products among consultancies and other advising entities | 18 |
| 18 | Report on steps taken to promote the use of the TMD and other products among consultancies and other advising entities | 30 |

**General points on the deliverables to produce & timetable to observe**

Execution of the tasks begins after the date on which the Contract enters into force.

A **kick-off meeting** will take place (in Brussels, if the EC so wishes; or at another place that permits to keep costs and emissions from travel and travel time for the group of participants low), at the latest 15 days following the signature of the contract, in order to settle all the details of the deliverables, reports to be undertaken.

**All publications and report deliverables shall be delivered electronically, and, if the EC wishes, also in paper.**

***Please note that the ownership that the contracting authority acquires of the contract's results in the meaning of Article I.8.1 of the annexed (draft) contract include the graphic-designers' master-files[41] of the publications, as well as the power point files of presentations (thus not only pdf versions of both), for re-use in future publications/presentations.***

**Content, Structure and graphic requirements of the final deliverables**

All studies produced for the European Commission and Executive Agencies shall conform to the corporate visual identity of the European Commission by applying the graphic rules set out in the European Commission's Visual Identity Manual, including its logo[42].

The Commission is committed to making online information as accessible as possible to the largest possible number of users including those with visual, auditory, cognitive or physical disabilities, and those not having the latest technologies. The Commission supports the Web Content Accessibility Guidelines 2.0 of the W3C.

For full details on Commission policy on accessibility for information providers, see: http://ec.europa.eu/ipg/standards/accessibility/index_en.htm

The Commission may publish the results of the services provided. For this purpose, the tenderer must ensure that the reports and deliverables are not subject to any restrictions deriving from intellectual property rights of third parties. Should the tenderer intend to use data in the deliverables, which cannot be published, this must be explicitly mentioned in the offer.

In principle, the deadlines set out above cannot be extended. The Contractor is deemed solely responsible for delays occasioned by subcontractors or other third parties (except for rare cases of force majeure). Adequate resources and appropriate organisation of the work including management of potential delays should be put in place in order to observe the timetable above. The Commission shall have 45 days from receipt to approve or reject and to comment on any of the above mentioned reports. Within 20 days of receiving the Commission's observations, the Contractor will submit additional information or another

[41] E.g. the "indesign" files

[42] The Visual Identity Manual of the European Commission is available at http://ec.europa.eu/dgs/communication/services/visual_identity/index_en.htm. Questions can be addressed to comm-visual-identity@ec.europa.eu

report. All reports shall be delivered in English. In general, the selected tenderer should be able to respond to requests from the EC within 3working days (or within 3 working days provide justification for a different deadline).

**Duration of the tasks**

The duration of the tasks shall not exceed *36 months*. This period is calculated in calendar days.

**Place of performance**

The tasks will be performed on the Contractor's premises. However, meetings between the contractor and the Commission may be held on Commission premises in Brussels. When proposing places for meetings the tenderer shall take into consideration how the selection of the place can keep emissions from travel and travel time for the group of participants low.

**Payments**

There will be three payments: a pre-financing after entering into force of the contract, an interim payment after reception and approval of the Interim Technical Report (Deliverable 4.1 of WP 1) and a final payment after reception and approval of the Final Technical Report (Deliverable 4.2 of WP 1). These payments are subject to the conditions specified in the service contract.

**ANNEXES**

1. Tenderer 's Identification Form
2. Declaration related to the exclusion criteria and absence of conflict of interest
3. Power of Attorney (mandate in case of joint tender)
4. Draft Contract
5. Associated Communities CONCERTO I, II and III
6. The Smart Cities calls for proposal in Horizon 2020 and FP7
7. DG Energy's Energy Efficient Buildings PPP calls
8. List of data that Concerto projects and EeB projects have been asked to collect before the more advanced data collection sheets and guides developed by CONCERTO Premium were available

# ANNEX 1

## IDENTIFICATION OF THE TENDERER

(Each service provider , including any member of a consortium or grouping and subcontractor(s) whose share of the work is more than 20% of the contract must complete and sign this identification form)

**Call for tender ENER C2/2013-463**

| **Identity** | |
|---|---|
| Name of the tenderer | |
| Legal status of the tenderer | |
| Date of registration | |
| Country of registration | |
| Registration number | |
| VAT number | |
| Description of statutory social security cover (at the level of the Member State of origin) and non-statutory cover (supplementary professional indemnity insurance)[43] | |
| **Address** | |
| Address of registered office of tenderer | |
| Where appropriate, administrative address of tenderer for the purposes of this invitation to tender | |
| **Contact Person** | |
| Surname:<br>First name:<br>Title (e.g. Dr, Mr, Ms) :<br>Position (e.g. manager): | |

[43] For natural persons

| | |
|---|---|
| Telephone number:<br>Fax number:<br>E-mail address: | |
| **Legal Representatives** | |
| **Names and function of legal representatives** and of other representatives of the tenderer who are authorised to sign contracts with third parties | |
| **Declaration by an authorised representative of the organisation**[44]<br><br>I, the undersigned, certify that the information given in this tender is correct and that the tender is valid. | |
| Surname:<br>First name: | Signature: |

[44] This person must be included in the list of legal representatives; otherwise the signature on the tender will be invalidated.

# ANNEX 2

## Declaration of honour on exclusion criteria and absence of conflict of interest

*(Complete or delete the parts in grey italics in parenthese)*
[Choose options for parts in grey between square brackets]

The undersigned *(insert name of the signatory of this form)*:

- ❑ in [his][her] own name *(for a natural person)*

  or

- ❑ representing the following legal person: *(only if the economic operator is a legal person)*

  full official name:

  official legal form:

  full official address:

  VAT registration number:

- ➢ declares that [the above-mentioned legal person][he][she] is not in one of the following situations:

a) is bankrupt or being wound up, is having its affairs administered by the courts, has entered into an arrangement with creditors, has suspended business activities, is the subject of proceedings concerning those matters, or is in any analogous situation arising from a similar procedure provided for in national legislation or regulations;

b) has been convicted of an offence concerning professional conduct by a judgment of a competent authority of a Member State which has the force of *res judicata*;

c) has been guilty of grave professional misconduct proven by any means which the contracting authorities can justify including by decisions of the European Investment Bank and international organisations;

d) is not in compliance with all its obligations relating to the payment of social security contributions and the payment of taxes in accordance with the legal provisions of the country in which it is established, with those of the country of the contracting authority and those of the country where the contract is to be performed;

e) has been the subject of a judgement which has the force of *res judicata* for fraud, corruption, involvement in a criminal organisation, money laundering or any other illegal activity, where such activity is detrimental to the Union's financial interests;

f) is a subject of an administrative penalty for being guilty of misrepresentation in supplying the information required by the contracting authority as a condition of participation in a procurement procedure or failing to supply this information, or having been declared to be in serious breach of its obligations under contracts covered by the Union's budget.

- *(Only for legal persons other than Member States and local authorities, otherwise delete)* declares that the natural persons with power of representation, decision-making or control[45] over the above-mentioned legal entity are not in the situations referred to in b) and e) above;

- declares that [the above-mentioned legal person][he][she]:

g) has no conflict of interest in connection with the contract; a conflict of interest could arise in particular as a result of economic interests, political or national affinity, family, emotional life or any other shared interest; (The fact that a tenderer is also beneficiary in one or several of the monitored projects is not per se considered a conflict of interest. Tenderers shall in the proposal be transparent with regard to their participation in monitored projects and propose measures how to avoid conflicts of interest where these could arise.)

h) will inform the contracting authority, without delay, of any situation considered a conflict of interest or which could give rise to a conflict of interest;

i) has not granted and will not grant, has not sought and will not seek, has not attempted and will not attempt to obtain, and has not accepted and will not accept any advantage, financial or in kind, to or from any party whatsoever, where such advantage constitutes an illegal practice or involves corruption, either directly or indirectly, inasmuch as it is an incentive or reward relating to award of the contract;

j) provided accurate, sincere and complete information to the contracting authority within the context of this procurement procedure ;

- acknowledges that [the above-mentioned legal person][he][she] may be subject to administrative and financial penalties[46] if any of the declarations or information provided prove to be false.

In case of award of contract, the following evidence shall be provided upon request and within the time limit set by the contracting authority:

For situations described in (a), (b) and (e), production of a recent extract from the judicial record is required or, failing that, a recent equivalent document issued by a judicial or administrative authority in the country of origin or provenance showing that those requirements are satisfied. Where the tenderer is a legal person and the national legislation of the country in which the tenderer is established does not allow the provision of such documents for legal persons, the documents should be provided for natural persons, such as the company directors or any person with powers of representation, decision making or control in relation to the tenderer.

For the situation described in point (d) above, recent certificates or letters issued by the competent authorities of the State concerned are required. These documents must provide evidence covering all taxes and social security contributions for which the tenderer is liable, including for example, VAT, income tax (natural persons only), company tax (legal persons only) and social security contributions.

For any of the situations (a), (b), (d) or (e), where any document described in two paragraphs above is not issued in the country concerned, it may be replaced by a sworn or, failing that, a solemn statement

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[45] This covers the company directors, members of the management or supervisory bodies, and cases where one natural person holds a majority of shares.

[46] As provided for in Article 109 of the Financial Regulation (EU, Euratom) 966/2012 and Article 145 of the Rules of Application of the Financial Regulation

made by the interested party before a judicial or administrative authority, a notary or a qualified professional body in his country of origin or provenance.

If the tenderer is a legal person, information on the natural persons with power of representation, decision making or control over the legal person shall be provided only upon request by the contracting authority.

| Full name | Date | Signature |
|---|---|---|

# ANNEX 3

## POWER OF ATTORNEY

**mandating one of the partners in a joint tender as lead partner and lead contractor**[47]

The undersigned:

– Signatory (Name, Function, Company, Registered address, VAT Number)

having the legal capacity required to act on behalf of his/her company,

HEREBY AGREES TO THE FOLLOWING:

1) To submit a tender as a partner in the group of partners constituted by Company 1, Company 2, Company N, and led by Company X, in accordance with the conditions specified in the tender specifications and the terms specified in the tender to which this power of attorney is attached.
2) If the European Commission awards the Contract to the group of partners constituted by Company 1, Company 2, Company N, and led by Company X on the basis of the joint tender to which this power of attorney is attached, all the partners shall be co-signatories of the Contract in accordance with the following conditions:
   (a) All partners shall be jointly and severally liable towards the European Commission for the performance of the Contract.
   (b) All partners shall comply with the terms and conditions of the Contract and ensure the proper delivery of their respective share of the services and/or supplies subject to the Contract.

1) Payments by the European Commission related to the services and/or supplies subject to the Contract shall be made through the lead partner's bank account: [Provide details on bank, address, account number].
2) The partners grant to the lead partner all the necessary powers to act on their behalf in the submission of the tender and conclusion of the Contract, including:
   (a) The lead partner shall submit the tender on behalf of the group of partners.
   (b) The lead partner shall sign any contractual documents — including the Contract, and Amendments thereto — and issue any invoices related to the Services on behalf of the group of partners.
   (c) The lead partner shall act as a single contact point with the European Commission in the delivery of the services and/or supplies subject to the Contract. It shall co-ordinate the delivery of the services and/or supplies by the group of partners to the European Commission, and shall see to a proper administration of the Contract.

Any modification to the present power of attorney shall be subject to the European Commission's express approval. This power of attorney shall expire when all the contractual obligations of the group of partners towards the European Commission for the delivery of the services and/or supplies subject to the Contract have ceased to exist. The parties cannot terminate it before that date without the Commission's consent.

Signed in …… on [dd/mm/yyyy]

Place and date:

Name (in capital letters), function, company and signature:

[47] **To be filled in and signed by each of the partners in a joint tender, except the lead partner;**

ANNEX 4

# DRAFT CONTRACT

*(see next page)*

EUROPEAN COMMISSION

DIRECTORATE-GENERAL FOR ENERGY

Directorate C - Renewables, Research and Innovation, Energy Efficiency

**The Director**

# SERVICE CONTRACT

CONTRACT NUMBER – ENER C2/2013-463

The European Union (hereinafter referred to as "the Union"), represented by the [European Commission] (hereinafter referred to as "the contracting authority"), which is represented for the purposes of the signature of this contract by Ms Marie Donnelly, Director in the Directorate-General for Energy, Directorate C – Renewables, Research and Innovation, Energy Efficiency,

on the one part, and

[*full official name*][48]

[*official legal form*][49]

**[***statutory registration number***]**[50]

[*full official address*]

[*VAT registration number*]

[(hereinafter referred to as 'the contractor'),][represented for the purposes of the signature of this contract by [*forename, surname and function*,]][51]

[The parties identified above and hereinafter collectively referred to as 'the contractor' shall be jointly and severally liable vis-à-vis the contracting authority for the performance of this contract.][52]

on the other part,

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[48] When the designated winning bidder is known and the detailed information must be filled in, please indicate the information for all consortium partners.

[49] Delete if contractor is a natural person or a body governed by public law.

[50] Delete if contractor is a body governed by public law. For natural persons, indicate the number of their identity card or, failing that, of their passport or equivalent.

[51] In case of consortium the name of the authorised representative of the leader + comapny has to be indicated

[52] To include in case of consortium

HAVE AGREED

to the **special conditions,** the **general conditions for service contracts** and the following annexes:

**Annex I –** Tender specifications (reference No [*complete*] of [*insert date*])

**Annex II** – Contractor's tender (reference No [*complete*] of [*insert date*])

[*Other annexes*]

which form an integral part of this contract (hereinafter referred to as "the contract").

- The terms set out in the special conditions shall take precedence over those in the other parts of the contract.
- The terms set out in the general conditions shall take precedence over those in the annexes.
- The terms set out in the tender specifications (Annex I) shall take precedence over those in the tender (Annex II).

# I – SPECIAL CONDITIONS

## ARTICLE I.1 – SUBJECT MATTER

**I.1.1** The subject matter of the contract is the Smart Cities and Communities Information System, that is

- the gathering, management, analysis of the data from all demonstration projects managed by DG Energy/the executive agencies supervised by DG Energy of the CONCERTO programme, the Smart Cities and Communities projects of the FP7 and Horizon 2020 calls, and the FP7 projects of the Energy Efficient Buildings PPP.
- the provision of interdisciplinary scientific expertise from relevant disciplines with respect to European Union energy and climate change policies.
- The dissemination of results in view of facilitating roll-out of the demonstrated best-practices.

**I.1.2** The contractor shall execute the tasks assigned to it in accordance with the tender specifications annexed to the contract (Annex I).

## ARTICLE I.2 – ENTRY INTO FORCE AND DURATION

**I.2.1** The contract shall enter into force on the date on which it is signed by the last party.

**I.2.2** Under no circumstances may performance commence before the date on which the contract enters into force.

**I.2.3** The duration of the execution of the tasks shall not exceed 36 months. Unless otherwise specified, all periods specified in the contract are calculated in calendar days. Execution of the tasks shall start from the date of entry into force of the contract.

The period of execution of the task may be extended only in exceptional and duly justified cases and with express written agreement of the parties. If the request for extension is made by the contractor, he must send it to the contracting authority in good time before it is due to take effect and at all events one month before the period of the execution of the tasks elapses, except in cases duly substantiated by the contractor and accepted by the contracting authority.

## ARTICLE I.3 –PRICE

**I.3.1** The maximum total amount to be paid by the contracting authority under the contract shall be EUR [*amount in figures and in words*] covering all tasks executed.

## ARTICLE I.4 – PAYMENT ARRANGEMENTS

### I.4.1 Pre-financing

Following signature of the contract by the last party and its receipt by the contracting authority, a pre-financing payment of EUR [*amount in figures and in words*] equal to [*complete*]% of the total amount referred to in Article I.3.1 shall be made within 30 days of the receipt of an invoice. The contracting authority may refuse to make payments where the award procedure or the performance of the contract prove to have been subject to substantial errors, irregularities or fraud attributable to the contractor.

### I.4.2 Interim payment

The contractor shall submit an invoice for an interim payment of EUR [*amount in figures and in words*] equal to 40 % of the total amount referred to in Article I.3.1.

Invoices for interim payment shall be accompanied by a progress report in accordance with the tender specifications. The contracting authority shall make the payment within 90 days from receipt of the invoice. The contractor shall have 20 days in which to submit additional information or corrections or a new progress report or documents if required by the contracting authority.

### I.4.3 Payment of the balance

The contractor shall submit an invoice for payment of the balance.

The invoice shall be accompanied by a final progress report and other deliverables in accordance with the tender specifications. The contracting authority shall make the payment within 90 days from receipt of the invoice. The contractor shall have 20 days in which to submit additional information or corrections, a new final progress report or other documents if it is required by the contracting authority.

***

Where VAT is due in Belgium, the provisions of the contract constitute a request for VAT exemption No 450, Article 42, paragraph 3.3 of the VAT code (circular 2/1978), provided the contractor includes the following statement in the invoice(s): “Exonération de la TVA, Article 42, paragraphe 3.3 du code de la TVA (circulaire 2/1978)” or an equivalent statement in the Dutch or German language.

## ARTICLE I.5 – BANK ACCOUNT

Payments shall be made to the contractor’s bank account denominated in [euro][*insert local currency where the receiving country does not allow transactions in EUR*], identified as follows:

Name of bank:

Full address of branch:

Exact designation of account holder:

Full account number including [bank] codes:

[IBAN[53] code:]

[53] BIC or SWIFT code for countries with no IBAN code.

## ARTICLE I.6 – COMMUNICATION DETAILS AND DATA CONTROLLER

For the purpose of Article II.6, the data controller shall be the Director of the Shared Resources Directorate.

Communications shall be sent to the following addresses:

Contracting authority:

European Commission

Directorate-General [*complete*]

[Directorate [*complete*]]

[Unit [*complete*]]

[*Postcode and city*]

Email: [*insert functional mailbox*]

Contractor:

[*Ms/Mr/Mrs*]

**[***Function***]**

**[***Company name***]**

**[***Full official address***]**

Email: [*complete*]

## ARTICLE I.7– APPLICABLE LAW AND SETTLEMENT OF DISPUTES

**I.7.1.** The contract shall be governed by Union law, complemented, where necessary, by the law of Belgium.

**I.7.2.** Any dispute between the parties in relation to the interpretation, application or validity of the contract which cannot be settled amicably shall be brought before the courts of Brussels.

## ARTICLE I.8 - EXPLOITATION OF THE RESULTS OF THE CONTRACT

### I.8.1 Modes of exploitation

In accordance with Article II.10.2 whereby the Union acquires ownership of the results as defined in the tender specifications (Annex I), these results may be used for any of the following purposes:

[(a) use for its own purposes:

(i) making available to the staff of the contracting authority

(ii) making available to the persons and entities working for the contracting authority or cooperating with it, including contractors, subcontractors whether legal or natural persons, Union institutions, agencies and bodies, Member States' institutions

(iii) installing, uploading, processing

(iv) arranging, compiling, combining, retrieving

(v) copying, reproducing in whole or in part and in unlimited number of copies

(b) distribution to the public:

(i) publishing in hard copies

(ii) publishing in electronic or digital format

(iii) publishing on the internet as a downloadable/non-downloadable file

(iv) broadcasting by any kind of technique of transmission

(v) public presentation or display

(vi) communication through press information services

(vii) inclusion in widely accessible databases or indexes

(viii) otherwise in any form and by any method

(c) modifications by the contracting authority or by a third party in the name of the contracting authority:

(i) shortening

(ii) summarizing

(iii) modifying of the content

(iv) making technical changes to the content:

- necessary correction of technical errors
- adding new parts or functionalities
- changing functionalities
- providing third parties with additional information concerning the result (e.g. source code) with a view of making modifications

(v) addition of new elements, paragraphs titles, leads, bolds, legend, table of content, summary, graphics, subtitles, sound, etc.

(vi) preparation in audio form, preparation as a presentation, animation, pictograms story, slide-show, public presentation etc.

(vii) extracting a part or dividing into parts

(viii) use of a concept or preparation of a derivate work

(ix) digitisation or converting the format for storage or usage purposes

(x) modifying dimensions

(xi) translating, inserting subtitles, dubbing in different language versions:

- English, French, German
- all official languages of EU
- languages used within EU
- languages of candidate countries
- all other languages

(d) the modes of exploitation listed in article II.10.4

(e) rights to authorise, license, or sub-license in case of licensed pre-existing rights, the modes of exploitation set out in any of the points (a) to (c) to third parties.

Where the contracting authority becomes aware that the scope of modifications exceeds that envisaged in the contract the contracting authority shall consult the contractor. Where

necessary, the contractor shall in turn seek the agreement of any creator or other right holder. The contractor shall reply to the contracting authority within one month and shall provide its agreement, including any suggestions of modifications, free of charge. The creator may refuse the intended modification only when it may harm his honour, reputation or distort integrity of the work.

### I.8.2 Pre-existing rights and transmission of rights

All pre-existing rights shall be licensed to the Union in accordance with Article II.10.3.

The contractor shall provide to the contracting authority a list of pre-existing rights and third parties' rights including its personnel, creators or other right holders as provided for in Article II.10.5.

The contractor shall present relevant and exhaustive evidence about the acquisition of all the necessary pre-existing rights and third parties' rights together with presentation of relevant result. This obligation should be fulfilled by presentation of the contractor's statement prepared in accordance with Annex A and third parties' statements prepared in accordance with Annex B and the relevant evidence listed in article II.10.5 as appropriate.

## ARTICLE I.9 – TERMINATION BY EITHER PARTY

Either party may, unilaterally and without being required to pay compensation, terminate the contract by formally notifying the other party by giving [one month's] notice. Should the contracting authority terminate the contract, the contractor shall only be entitled to payment corresponding to part-performance of the contract before the termination date. The first paragraph of Article II.14.3 shall apply.

**SIGNATURES**

| | |
|---|---|
| For the contractor, | For the contracting authority, |
| [*Company name*/*forename/surname/function*] | [*forename/surname/function*] |
| signature[s]: _____ | signature[s]:_____ |
| Done at [Brussels], [date] | Done at [Brussels], [date] |

In duplicate in English.

# II – GENERAL CONDITIONS FOR SERVICE CONTRACTS

## Article II.1 – Performance of the contract

**II.1.1** The contractor shall perform the contract to the highest professional standards.

**II.1.2** The contractor shall be solely responsible for taking the necessary steps to obtain any permit or licence required for performance of the contract under the laws and regulations in force at the place where the tasks assigned to it are to be executed.

**II.1.3** Without prejudice to Article II.4 any reference made to the contractor's personnel in the contract shall relate exclusively to individuals involved in the performance of the contract.

**II.1.4** The contractor must ensure that the personnel performing the contract possesses the professional qualifications and experience required for the execution of the tasks assigned to it.

**II.1.5** The contractor shall neither represent the contracting authority nor behave in any way that would give such an impression. The contractor shall inform third parties that it does not belong to the European public service.

**II.1.6** The contractor shall be solely responsible for the personnel who executes the tasks assigned to the contractor.

The contractor shall stipulate the following employment or service relationships with its personnel:

(a) personnel executing the tasks assigned to the contractor may not be given orders directly by the contracting authority;

(b) the contracting authority may not under any circumstances be considered to be the employer of the personnel referred to in point (a) and the personnel shall undertake not to invoke against the contracting authority any right arising from the contractual relationship between the contracting authority and the contractor.

**II.1.7** In the event of disruption resulting from the action of one of the contractor's personnel working on the contracting authority's premises or in the event that the expertise of a member of the contractor's personnel fails to correspond to the profile required by the contract, the contractor shall replace him without delay. The contracting authority shall have the right to make a reasoned request for the replacement of any such personnel. The replacement personnel must have the necessary qualifications and be capable of performing the contract under the same contractual conditions. The contractor shall be responsible for any delay in the execution of the tasks assigned to it resulting from the replacement of personnel.

**II.1.8** Should the execution of the tasks be directly or indirectly hampered, either partially or totally, by any unforeseen event, action or omission, the contractor shall immediately and on its own initiative record it and report it to the contracting authority. The report shall include a description of the problem and an indication of

the date on which it started and of the remedial action taken by the contractor to ensure full compliance with its obligations under this contract. In such an event the contractor shall give priority to solving the problem rather than determining liability.

**II.1.9** Should the contractor fail to perform its obligations under the contract, the contracting authority may - without prejudice to its right to terminate the contract - reduce or recover payments in proportion to the scale of the unperformed obligations. In addition, the contracting authority may claim compensation or impose liquidated damages in accordance with Article II.12.

## ARTICLE II.2 – MEANS OF COMMUNICATION

**II.2.1** Any communication relating to the contract or to its performance shall be made in writing and shall bear the contract number. Any communication is deemed to have been made when it is received by the receiving party unless otherwise provided for in this contract.

**II.2.2** Electronic communication shall be deemed to have been received by the parties on the day of dispatch of that communication provided it is sent to the addressees listed in Article I.6. Without prejudice to the preceding, if the sending party receives a message of non-delivery to or of absence of the addressee, it shall make every effort to ensure the actual receipt of such communication by the other party.

Electronic communication shall be confirmed by an original signed paper version of that communication if requested by any of the parties provided that this request is submitted without unjustified delay. The sender shall send the original signed paper version without unjustified delay.

**II.2.3** Mail sent using the postal services is deemed to have been received by the contracting authority on the date on which it is registered by the department responsible referred to in Article I.6.

Any formal notification shall be made by registered mail with return receipt or equivalent, or by equivalent electronic means.

## Article II.3 – Liability

**II.3.1** The contractor shall be solely responsible for complying with any legal obligations incumbent on it.

**II.3.2** The contracting authority shall not be held liable for any damage caused or sustained by the contractor, including any damage caused by the contractor to third parties during or as a consequence of performance of the contract, except in the event of wilful misconduct or gross negligence on the part of the contracting authority.

**II.3.3** The contractor shall be held liable for any loss or damage sustained by the contracting authority in performance of the contract, including in the event of subcontracting, and for any claim by a third party, but only to an amount not exceeding three times the total amount of the contract. Nevertheless, if the damage or loss is caused by the gross negligence or wilful misconduct of the contractor or

of its personnel or subcontractors, the contractor shall have unlimited liability for the amount of the damage or loss.

**II.3.4** The contractor shall indemnify and hold the Union harmless for all damages and costs incurred due to any claim. The contractor shall provide compensation in the event of any action, claim or proceeding brought against the contracting authority by a third party as a result of damage caused by the contractor during the performance of the contract. In the event of any action brought by a third party against the contracting authority in connection with the performance of the contract, including any alleged breach of intellectual property rights, the contractor shall assist the contracting authority. Such expenditure incurred by the contractor may be borne by the contracting authority.

**II.3.5** The contractor shall take out an insurance policy against risks and damage relating to the performance of the contract, if required by the relevant applicable legislation. It shall take out supplementary insurance as reasonably required by standard practice in the industry. A copy of all the relevant insurance contracts shall be sent to the contracting authority should it so request.

### Article II.4 - Conflict of interest

**II.4.1** The contractor shall take all the necessary measures to prevent any situation of conflict of interest. Such situation arises where the impartial and objective performance of the contract is compromised for reasons involving economic interest, political or national affinity, family or emotional ties, or any other shared interest.

**II.4.2** Any situation constituting or likely to lead to a conflict of interest during the performance of the contract shall be notified to the contracting authority in writing without delay. The contractor shall immediately take all the necessary steps to rectify the situation. The contracting authority reserves the right to verify that the steps taken are appropriate and may require that additional steps be taken within a specified deadline.

**II.4.3** The contractor declares that it has not granted and will not grant, has not sought and will not seek, has not attempted and will not attempt to obtain and has not accepted and will not accept, any advantage, financial or in kind, to or from any party whatsoever, when such advantage constitutes an illegal practice or involves corruption, either directly or indirectly, in so far as it serves as an incentive or reward relating to the performance of the contract.

**II.4.4** The contractor shall pass on all the relevant obligations in writing to its personnel and to any natural person with the power to represent it or take decisions on its behalf and ensure that it is not placed in a situation which could give rise to conflicts of interest. The contractor shall also pass on all the relevant obligations in writing to third parties involved in the performance of the contract including subcontractors.

## Article II.5 – Confidentiality

**II.5.1** The contracting authority and the contractor shall treat with confidentiality any information and documents, in any form, disclosed in writing or orally in relation to the performance of the contract and identified in writing as confidential.

The contractor shall:

(a) not use confidential information and documents for any purpose other than fulfilling its obligations under the contract without prior written agreement of the contracting authority;

(b) ensure the protection of such confidential information and documents with the same level of protection it uses to protect its own confidential information, but in no case any less than reasonable care;

(c) not disclose directly or indirectly confidential information and documents to third parties without prior written agreement of the contracting authority.

**II.5.2** The confidentiality obligation set out in Article II.5.1 shall be binding on the contracting authority and the contractor during the performance of the contract and for five years starting from the date of the payment of the balance unless:

(a) the disclosing party agrees to release the other party from the confidentiality obligation earlier;

(b) the confidential information becomes public through other means than in breach of the confidentiality obligation, through disclosure by the party bound by that obligation;

(c) the disclosure of the confidential information is required by law.

**II.5.3** The contractor shall obtain from any natural person with the power to represent it or take decisions on its behalf, as well as from third parties involved in the performance of the contract, an undertaking that they will comply with the confidentiality obligation set out in Article II.5.1.

## Article II.6 – Processing of personal data

**II.6.1** Any personal data included in the contract shall be processed pursuant to Regulation (EC) 45/2001 of the European Parliament and of the Council of 18 December 2000 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. Such data shall be processed by the data controller solely for the purposes of the performance, management and monitoring of the contract without prejudice to its possible transmission to the bodies charged with monitoring or inspection tasks in application of Union law.

**II.6.2** The contractor shall have the right to access its personal data and the right to rectify any such data. The contractor should address any queries concerning the processing of its personal data to the data controller.

**II.6.3** The contractor shall have right of recourse at any time to the European Data Protection Supervisor.

**II.6.4** Where the contract requires the processing of personal data by the contractor, the contractor may act only under the supervision of the data controller, in particular with regard to the purposes of the processing, the categories of data which may be

processed, the recipients of the data and the means by which the data subject may exercise his rights.

**II.6.5** The contractor shall grant its personnel access to the data to the extent strictly necessary for the performance, management and monitoring of the contract.

**II.6.6** The contractor undertakes to adopt appropriate technical and organisational security measures having regard to the risks inherent in the processing and to the nature of the personal data concerned in order to:

(a) prevent any unauthorised person from gaining access to computer systems processing personal data, and especially:

(i) unauthorised reading, copying, alteration or removal of storage media;

(ii) unauthorised data input, as well as any unauthorised disclosure, alteration or erasure of stored personal data;

(iii) unauthorised use of data-processing systems by means of data transmission facilities;

(b) ensure that authorised users of a data-processing system can access only the personal data to which their access right refers;

(c) record which personal data have been communicated, when and to whom;

(d) ensure that personal data being processed on behalf of third parties can be processed only in the manner prescribed by the contracting authority;

(e) ensure that, during communication of personal data and transport of storage media, the data cannot be read, copied or erased without authorisation;

(f) design its organisational structure in such a way that it meets data protection requirements.

## ARTICLE II.7 – SUBCONTRACTING

**II.7.1** The contractor shall not subcontract without prior written authorisation from the contracting authority nor cause the contract to be de facto performed by third parties.

**II.7.2** Even where the contracting authority authorises the contractor to subcontract to third parties, it shall nevertheless remain bound by its contractual obligations and shall be solely responsible for the proper performance of this contract.

**II.7.3** The contractor shall make sure that the subcontract does not affect rights and guarantees granted to the contracting authority by virtue of this contract, notably by Article II.18.

## ARTICLE II.8 – AMENDMENTS

**II.8.1** Any amendment to the contract shall be made in writing before fulfilment of any new contractual obligations and in any case before the date of payment of the balance.

**II.8.2** The amendment may not have the purpose or the effect of making changes to the contract which might call into question the decision awarding the contract or result in unequal treatment of tenderers.

## ARTICLE II.9 – ASSIGNMENT

**II.9.1** The contractor shall not assign the rights, including claims for payments, and obligations arising from the contract, in whole or in part, without prior written authorisation from the contracting authority.

**II.9.2** In the absence of such authorisation, or in the event of failure to observe the terms thereof, the assignment of rights or obligations by the contractor shall not be enforceable against the contracting authority and shall have no effect on it.

## ARTICLE II.10 – OWNERSHIP OF THE RESULTS - INTELLECTUAL AND INDUSTRIAL PROPERTY RIGHTS

### II.10.1 Definitions

In this contract the following definitions apply:

(1) 'results' means any intended outcome of the performance of the contract which is delivered and finally accepted by the contracting authority.

(2) 'creator' means any natural person who contributed to the production of the result and includes personnel of the contracting authority or a third party.

(3) 'pre-existing rights' means any industrial and intellectual property rights, including background technology, which exist prior to the contracting authority or the contractor ordering them for the purpose of the contract execution and include rights of ownership and use by the contractor, the creator, the contracting authority and any third parties.

### II.10.2 Ownership of the results

The ownership of the results shall be fully and irrevocably acquired by the Union under this contract including any rights in any of the results listed in this contract, including copyright and other intellectual or industrial property rights, and all technological solutions and information contained therein, produced in performance of the contract. The contracting authority may exploit them as stipulated in this contract. All the rights shall be acquired by the Union from the moment the results are delivered by the contractor and accepted by the contracting authority. Such delivery and acceptance are deemed to constitute an effective assignment of rights from the contractor to the Union.

The payment of the price as set out in the order forms or specific contracts is deemed to include any fees payable to the contractor in relation to the acquisition of ownership of rights by the Union including all forms of use of the results.

The acquisition of ownership of rights by the Union under this contract covers all territories worldwide.

Any intermediary sub-result, raw data, intermediary analysis made available by the contractor cannot be used by the contracting authority without the written consent of the contractor, unless the contract explicitly provides for it to be treated as a self-contained result.

### II.10.3 Licensing of pre-existing rights

The Union shall not acquire ownership of the pre-existing rights.

The contractor shall license the pre-existing rights on a royalty-free, non-exclusive and irrevocable basis to the Union which may use the pre-existing right as foreseen in Article I.8.1 or in order forms or specific contracts. All the pre-existing rights shall be licensed to the Union from the moment the results were delivered and accepted by the contracting authority.

The licensing of pre-existing rights to the Union under this contract covers all territories worldwide and is valid for the whole duration of intellectual property rights protection.

### II.10.4 Modes of exploitation

The Union shall acquire ownership of each of the results produced as an outcome of this contract which may be used for any of the following purposes:

(a) giving access upon individual requests without the right to reproduce or exploit, as provided for by Regulation 1049/2001 of the European Parliament and of the Council of 30 May 2001 regarding public access to European Parliament, Council and Commission documents;

(b) storage of the original and copies made in accordance with this contract;

(c) archiving in line with the document management rules applicable to the contracting authority.

### II.10.5 Identification and evidence of granting of pre-existing rights and rights of third parties

When delivering the results, the contractor shall warrant that they are free of rights or claims from creators and third parties including in relation to pre-existing rights, for any use envisaged by the contracting authority. This does not concern the moral rights of natural persons.

The contractor shall establish to that effect a list of all pre-existing rights and rights of creators and third parties on the results of this contract or parts thereof. This list shall be provided no later than the date of delivery of the final results.

In the result the contractor shall clearly point out all quotations of existing textual works. The complete reference should include as appropriate: name of the author, title of the work, date and place of publication, date of creation, address of publication on internet, number, volume and other information which allows the origin to be easily identified.

Upon request by the contracting authority, the contractor shall provide evidence of ownership or rights to use all the listed pre-existing rights and rights of third parties except for the rights owned by the Union.

This evidence may refer, inter alia, to rights to: parts of other documents, images, graphs, tables, data, software, technical inventions, know-how etc. (delivered in paper, electronic or other form), IT development tools, routines, subroutines and/or other programs ("background technology"), concepts, designs, installations or pieces of art, data, source or background materials or any other parts of external origin.

The evidence shall include, as appropriate:

(a) the name and version number of a software product;

(b) the full identification of the work and its author, developer, creator, translator, data entry person, graphic designer, publisher, editor, photographer, producer;

(c) a copy of the licence to use the product or of the agreement granting the relevant rights to the contractor or a reference to this licence;

(d) a copy of the agreement or extract from the employment contract granting the relevant rights to the contractor where parts of the results were created by its personnel;

(e) the text of the disclaimer notice if any.

Provision of evidence does not release the contractor from its responsibilities in case it is found that it does not hold the necessary rights, regardless of when and by whom this fact was revealed.

The contractor also warrants that it possesses the relevant rights or powers to execute the transfer and that it has paid or has verified payment of all due fees including fees due to collecting societies, related to the final results.

### II.10.6 Creators

By delivering the results the contractor warrants that the creators undertake not to oppose that their names be recalled when the results are presented to the public and confirms that the results can be divulged. Names of authors shall be recalled on request in the manner communicated by the contractor to the contracting authority.

The contractor shall obtain the consent of creators regarding the granting of the relevant rights and be ready to provide documentary evidence upon request.

### II.10.7 Persons appearing in photographs or films

If natural, recognisable persons appear in a result or their voice is recorded the contractor shall submit a statement of these persons (or of the persons exercising parental authority in case of minors) where they give their permission for the described use of their image or voice on request by the contracting authority. This does not apply to persons whose permission is not required in line with the law of the country where photographs were taken, films shot or audio records made.

### II.10.8 Copyright for pre-existing rights

When the contractor retains pre-existing rights on parts of the results, reference shall be inserted to that effect when the result is used as set out in Article I.8.1 with the following disclaimer: © - year – European Union. All rights reserved. Certain parts are licensed under conditions to the EU.

### II.10.9 Visibility of Union funding and disclaimer

When making use of the results, the contractor shall declare that they have been produced within a contract with the Union and that the opinions expressed are those of the contractor only and do not represent the contracting authority's official position. The contracting authority may waive this obligation in writing.

## ARTICLE II.11 – FORCE MAJEURE

**II.11.1** 'Force majeure' means any unforeseeable and exceptional situation or event beyond the parties' control which prevents either of them from fulfilling any of their obligations under the contract, which was not attributable to error or negligence on their part or on the part of subcontractors and which proves to be inevitable in spite

of exercising due diligence. Any default of a service, defect in equipment or material or delays in making them available, unless they stem directly from a relevant case of force majeure, as well as labour disputes, strikes or financial difficulties, cannot be invoked as force majeure.

**II.11.2** A party faced with force majeure shall formally notify the other party without delay, stating the nature, likely duration and foreseeable effects.

**II.11.3** The party faced with force majeure shall not be held in breach of its contractual obligations if it has been prevented from fulfilling them by force majeure. Where the contractor is unable to fulfil its contractual obligations owing to force majeure, it shall have the right to remuneration only for the tasks actually executed.

**II.11.4** The parties shall take all the necessary measures to limit any damage due to force majeure.

## ARTICLE II.12 – LIQUIDATED DAMAGES

The contracting authority may impose liquidated damages should the contractor fail to complete its contractual obligations, also with regard to the required quality level, according to the tender specifications.

Should the contractor fail to perform its contractual obligations within the time-limits set by the contract, then, without prejudice to the contractor's actual or potential liability or to the contracting authority's right to terminate the contract, the contracting authority may impose liquidated damages for each and every calendar day of delay according to the following formula:

0.3 x (*V/d)*

*V* is the amount specified in Article I.3.1;

*d* is the duration specified in Article I.2.3 expressed in calendar days.

The contractor may submit arguments against this decision within 30 days of receipt of the formal notification. In the absence of a reaction on its part or of written withdrawal by the contracting authority within 30 days of the receipt of such arguments, the decision imposing the liquidated damages shall become enforceable.

The parties expressly acknowledge and agree that any sums payable under this article are in the nature of liquidated damages and not penalties, and represent a reasonable estimate of fair compensation for the losses incurred due to failure to fulfil obligations which may be reasonably anticipated.

## ARTICLE II.13 – SUSPENSION OF THE PERFORMANCE OF THE CONTRACT

### II.13.1 Suspension by the contractor

The contractor may suspend the performance of the contract or any part thereof if a case of force majeure makes such performance impossible or excessively difficult. The contractor shall inform the contracting authority about the suspension without delay, giving all the necessary reasons and details and the envisaged date for resuming the performance of the contract.

Once the circumstances allow resuming performance, the contractor shall inform the contracting authority immediately, unless the contracting authority has already terminated the contract.

### II.13.2 Suspension by the contracting authority

The contracting authority may suspend the performance of the contract or any part thereof:

(a) if the contract award procedure or the performance of the contract prove to have been subject to substantial errors, irregularities or fraud;

(b) in order to verify whether presumed substantial errors, irregularities or fraud have actually occurred.

Suspension shall take effect on the day the contractor receives formal notification, or at a later date provided in the notification. The contracting authority shall give notice as soon as possible to the contractor to resume the service suspended or inform the contractor that it is proceeding with the termination of the contract. The contractor shall not be entitled to claim compensation on account of suspension of the contract or of part thereof.

## ARTICLE II.14 – TERMINATION OF THE CONTRACT

### II.14.1 Grounds for termination

The contracting authority may terminate the contract in the following circumstances:

(a) if a change to the contractor's legal, financial, technical or organisational or ownership situation is likely to affect the performance of the contract substantially or calls into question the decision to award the contract;

(b) if execution of the tasks has not actually commenced within three months of the date foreseen, and the new date proposed, if any, is considered unacceptable by the contracting authority, taking into account Article II.8.2;

(c) if the contractor does not perform the contract as established in the tender specifications or fails to fulfil another substantial contractual obligation;

(d) in the event of force majeure notified in accordance with Article II.11 or if the performance of the contract has been suspended by the contractor as a result of force majeure, notified in accordance with Article II.13, where either resuming performance is impossible or the modifications to the contract might call into question the decision awarding the contract or result in unequal treatment of tenderers;

(e) if the contractor is declared bankrupt, is being wound up, is having its affairs administered by the courts, has entered into an arrangement with creditors, has suspended business activities, is the subject of proceedings concerning those matters, or is in any analogous situation arising from a similar procedure provided for in national legislation or regulations;

(f) if the contractor or any natural person with the power to represent it or take decisions on its behalf has been found guilty of professional misconduct proven by any means;

(g) if the contractor is not in compliance with its obligations relating to the payment of social security contributions or the payment of taxes in accordance with the legal provisions of the country in which it is established or with those of the country of the

applicable law of this contract or those of the country where the contract is to be performed;

(h) if the contracting authority has evidence that the contractor or natural persons with the power to represent it or take decisions on its behalf have committed fraud, corruption, or are involved in a criminal organisation, money laundering or any other illegal activity detrimental to the Union's financial interests;

(i) if the contracting authority has evidence that the contractor or natural persons with the power to represent it or take decisions on its behalf have committed substantial errors, irregularities or fraud in the award procedure or the performance of the contract, including in the event of submission of false information;

(j) if the contractor is unable, through its own fault, to obtain any permit or licence required for performance of the contract.

### II.14.2 Procedure for termination

When the contracting authority intends to terminate the contract it shall formally notify the contractor of its intention specifying the grounds thereof. The contracting authority shall invite the contractor to make any observations and, in the case of point (c) of Article II.14.1, to inform the contracting authority about the measures taken to continue the fulfilment of its contractual obligations, within 30 days from receipt of the notification.

If the contracting authority does not confirm acceptance of these observations by giving written approval within 30 days of receipt, the termination procedure shall proceed. In any case of termination the contracting authority shall formally notify the contractor about its decision to terminate the contract. In the cases referred to in points (a), (b), (c), (e), (g) and (j) of Article II.14.1 the formal notification shall specify the date on which the termination takes effect. In the cases referred to in points (d), (f), (h), and (i) of Article II.14.1 the termination shall take effect on the day following the date on which notification of termination is received by the contractor.

### II.14.3 Effects of termination

In the event of termination, the contractor shall waive any claim for consequential damages, including any loss of anticipated profits for uncompleted work. On receipt of the notification of termination, the contractor shall take all the appropriate measures to minimise costs, prevent damages, and cancel or reduce its commitments. The contractor shall have 60 days from the date of termination to draw up the documents required by the special conditions for the tasks already executed on the date of termination and produce an invoice if necessary. The contracting authority may recover any amounts paid under the contract.

The contracting authority may claim compensation for any damage suffered in the event of termination.

On termination the contracting authority may engage any other contractor to execute or complete the services. The contracting authority shall be entitled to claim from the contractor all extra costs incurred in this regard, without prejudice to any other rights or guarantees it may have under the contract.

## ARTICLE II.15 – REPORTING AND PAYMENTS

### II.15.1 Date of payment

Payments shall be deemed to be effected on the date when they are debited to the contracting authority's account.

### II.15.2 Currency

The contract shall be in euros.

Payments shall be executed in euros or in the local currency as provided for in Article I.5.

Conversion between the euro and another currency shall be made according to the daily euro exchange rate published in the *Official Journal of the European Union* or, failing that, at the monthly accounting exchange rate established by the European Commission and published on its website, applicable on the day on which the payment order is issued by the contracting authority.

### II.15.3 Costs of transfer

The costs of the transfer shall be borne in the following way:

(a) costs of dispatch charged by the bank of the contracting authority shall be borne by the contracting authority,

(b) cost of receipt charged by the bank of the contractor shall be borne by the contractor,

(c) costs for repeated transfer caused by one of the parties shall be borne by the party causing repetition of the transfer.

### II.15.4 Invoices and Value Added Tax

Invoices shall contain the contractor's identification, the amount, the currency and the date, as well as the contract reference.

Invoices shall indicate the place of taxation of the contractor for value added tax (VAT) purposes and shall specify separately the amounts not including VAT and the amounts including VAT.

The contracting authority is, as a rule, exempt from all taxes and duties, including VAT, pursuant to the provisions of Articles 3 and 4 of the Protocol on the Privileges and Immunities of the European Union.

The contractor shall accordingly complete the necessary formalities with the relevant authorities to ensure that the supplies and services required for performance of the contract are exempt from taxes and duties, including VAT exemption.

### II.15.5 Pre-financing and performance guarantees

Pre-financing guarantees shall remain in force until the pre-financing is cleared against interim payments or payment of the balance and, in case the latter takes the form of a debit note, three months after the debit note is notified to the contractor. The contracting authority shall release the guarantee within the following month.

Performance guarantees shall cover performance of the service in accordance with the terms set out in the tender specifications until its final acceptance by the contracting authority. The amount of a performance guarantee shall not exceed the total price of the

contract. The guarantee shall provide that it remains in force until final acceptance. The contracting authority shall release the guarantee within a month following the date of final acceptance.

Where, in accordance with Article I.4, a financial guarantee is required for the payment of pre-financing, or as performance guarantee, it shall fulfill the following conditions:

(a) the financial guarantee is provided by a bank or an approved financial institution or, at the request of the contractor and agreement by the contracting authority, by a third party;

(b) the guarantor stands as first-call guarantor and does not require the contracting authority to have recourse against the principal debtor (the contractor).

The cost of providing such guarantee shall be borne by the contractor.

### II.15.6 Interim payments and payment of the balance

The contractor shall submit an invoice for interim payment upon delivery of intermediary results, accompanied by a progress report or any other documents, as provided for in Article I.4 or in the tender specifications.

The contractor shall submit an invoice for payment of the balance within 60 days following the end of the period referred to in Article I.2.3, accompanied by a final progress report or any other documents provided for in for in Article I.4 or in the tender specifications.

Upon receipt, the contracting authority shall pay the amount due as interim or final payment within the periods specified in Article I.4, provided the invoice and documents have been approved and without prejudice to Article II.15.7. Approval of the invoice and documents shall not imply recognition of the regularity or of the authenticity, completeness and correctness of the declarations and information they contain.

Payment of the balance may take the form of recovery.

### II.15.7 Suspension of the time allowed for payment

The contracting authority may suspend the payment periods specified in Article I.4 at any time by notifying the contractor that its invoice cannot be processed, either because it does not comply with the provisions of the contract, or because the appropriate documents have not been produced.

The contracting authority shall inform the contractor in writing as soon as possible of any such suspension, giving the reasons for it.

Suspension shall take effect on the date the notification is sent by the contracting authority. The remaining payment period shall start to run again from the date on which the requested information or revised documents are received or the necessary further verification, including on-the-spot checks, is carried out. Where the suspension period exceeds two months, the contractor may request the contracting authority to justify the continued suspension.

Where the payment periods have been suspended following rejection of a document referred to in the first paragraph and the new document produced is also rejected, the contracting authority reserves the right to terminate the contract in accordance with Article II.14.1(c).

### II.15.8. Interest on late payment

On expiry of the payment periods specified in Article I.4, and without prejudice to Article II.15.7, the contractor is entitled to interest on late payment at the rate applied by the European Central Bank for its main refinancing operations in Euros (the reference rate), plus eight points. The reference rate shall be the rate in force on the first day of the month in which the payment period ends, as published in the C series of the *Official Journal of the European Union*.

The suspension of the payment periods in accordance with Article II.15.7 may not be considered as a late payment.

Interest on late payment shall cover the period running from the day following the due date for payment up to and including the date of actual payment as defined in Article II.15.1.

However, when the calculated interest is lower than or equal to EUR 200, it shall be paid to the contractor only upon request submitted within two months of receiving late payment.

## ARTICLE II.16 - REIMBURSEMENTS

**II.16.1** Where provided by the special conditions or by the tender specifications, the contracting authority shall reimburse the expenses which are directly connected with execution of the tasks on production of original supporting documents, including receipts and used tickets, or failing that, on production of copies or scanned originals, or on the basis of flat rates.

**II.16.2** Travel and subsistence expenses shall be reimbursed, where appropriate, on the basis of the shortest itinerary and the minimum number of nights necessary for overnight stay at the destination.

**II.16.3** Travel expenses shall be reimbursed as follows:

(a) travel by air shall be reimbursed up to the maximum cost of an economy class ticket at the time of the reservation;

(b) travel by boat or rail shall be reimbursed up to the maximum cost of a first class ticket;

(c) travel by car shall be reimbursed at the rate of one first class rail ticket for the same journey and on the same day;

In addition, travel outside Union territory shall be reimbursed provided the contracting authority has given its prior written consent.

**II.16.4** Subsistence expenses shall be reimbursed on the basis of a daily subsistence allowance as follows:

(a) for journeys of less than 200 km for a return trip, no subsistence allowance shall be payable;

(b) daily subsistence allowance shall be payable only on receipt of supporting documents proving that the person concerned was present at the destination;

(c) daily subsistence allowance shall take the form of a flat-rate payment to cover all subsistence expenses, including meals, local transport which includes transport to and from the airport or station, insurance and sundries;

(d) daily subsistence allowance shall be reimbursed at the flat rates specified in Article I.3;

e) accommodation shall be reimbursed on receipt of supporting documents proving the necessary overnight stay at the destination, up to the flat-rate ceilings specified in Article I.3.

**II.16.5** The cost of shipment of equipment or unaccompanied luggage shall be reimbursed provided the contracting authority has given prior written authorisation.

**II.16.6** Conversion between the euro and another currency shall be made as specified in Article II.15.2.

**Article II.17 – Recovery**

**II.17.1** If an amount is to be recovered under the terms of the contract, the contractor shall repay the contracting authority the amount in question according to the terms and by the date specified in the debit note.

**II.17.2** If the obligation to pay the amount due is not honoured by the date set by the contracting authority in the debit note, the amount due shall bear interest at the rate indicated in Article II.15.8. Interest on late payments shall cover the period from the day following the due date for payment, up to and including the date when the contracting authority receives full payment of the amount owed.

Any partial payment shall first be entered against charges and interest on late payment and then against the principal amount.

**II.17.3** If payment has not been made by the due date, the contracting authority may, after informing the contractor in writing, recover the amounts due by offsetting them against any amounts owed to the contractor by the Union or by the European Atomic Energy Community or by calling in the financial guarantee, where provided for in Article I.4.

## ARTICLE II.18 – CHECKS AND AUDITS

**II.18.1** The contracting authority and the European Anti-Fraud Office may check or have an audit on the performance of the contract. It may be carried out either directly by its own staff or by any other outside body authorised to do so on its behalf.

Such checks and audits may be initiated during the performance of the contract and during a period of five years which starts running from the date of the payment of the balance.

The audit procedure shall be deemed to be initiated on the date of receipt of the relevant letter sent by the contracting authority. Audits shall be carried out on a confidential basis.

**II.18.2** The contractor shall keep all original documents stored on any appropriate medium, including digitised originals when they are authorised by national law and under the conditions laid down therein, for a period of five years which starts running from the date of payment of the balance.

**II.18.3** The contractor shall allow the contracting authority's staff and outside personnel authorised by the contracting authority the appropriate right of access to sites and

premises where the contract is performed and to all the information, including information in electronic format, needed in order to conduct such checks and audits. The contractor shall ensure that the information is readily available at the moment of the check or audit and, if so requested, that information be handed over in an appropriate form.

**II.18.4** On the basis of the findings made during the audit, a provisional report shall be drawn up. It shall be sent to the contractor, which shall have 30 days following the date of receipt to submit observations. The final report shall be sent to the contractor within 60 days following the expiry of that deadline.

On the basis of the final audit findings, the contracting authority may recover all or part of the payments made and may take any other measure which it considers necessary.

**II.18.5** By virtue of Council Regulation (Euratom, EC) No 2185/96 of 11 November 1996 concerning on-the-spot checks and inspection carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities and Regulation (EC) No 1073/1999 of the European Parliament and the Council of 25 May 1999 concerning investigation conducted by the European Anti-Fraud Office (OLAF), the OLAF may also carry out on-the-spot checks and inspections in accordance with the procedures laid down by Union law for the protection of the financial interests of the Union against fraud and other irregularities. Where appropriate, the findings may lead to recovery by the contracting authority.

**II.18.6** The Court of Auditors shall have the same rights as the contracting authority, notably right of access, for the purpose of checks and audits.

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## Annex A Statement of contractor concerning right to delivered result

I, [*insert name of the authorised representative of the contractor*] representing [*insert name of the contractor*], party to the specific contract [*insert title and/or number*] warrant that the contractor holds all transferred rights to the delivered [*insert title and/or description of result*] which [is][are] free of any claims of third parties.

The above-mentioned results were prepared by [*insert names of creators*]. The creators transferred all their relevant rights to the results to [*insert name of the entity that received rights from the creators*] [through a contract of [*insert date*]] [a relevant extract of which is] herewith attached.

The creators [received all their remuneration on [*insert date*]] [will receive all their remuneration as agreed within [*complete*] weeks from [delivery of this statement.] [receipt of confirmation of acceptance of the work]. [The statement of the creators confirming payment is attached].

Date, place, signature

## Annex B Statement of creator / intermediary in delivery

of the [*title of the result*]
within the framework contract No [*complete*]
[Specific contract No [*complete*]]
concluded between the contracting authority and [*name of the contractor(s)*]

I, [*insert name of the authorised representative of the intermediary*] representing [*insert name of the intermediary*] state that I am the right holder of: [*identify the relevant parts of the result*] [which I created] [for which I received rights from [*insert name*]].

I am aware of the above framework contract, especially Articles I.8, II.10 and I confirm that I transferred all the relevant rights to [*insert name*].

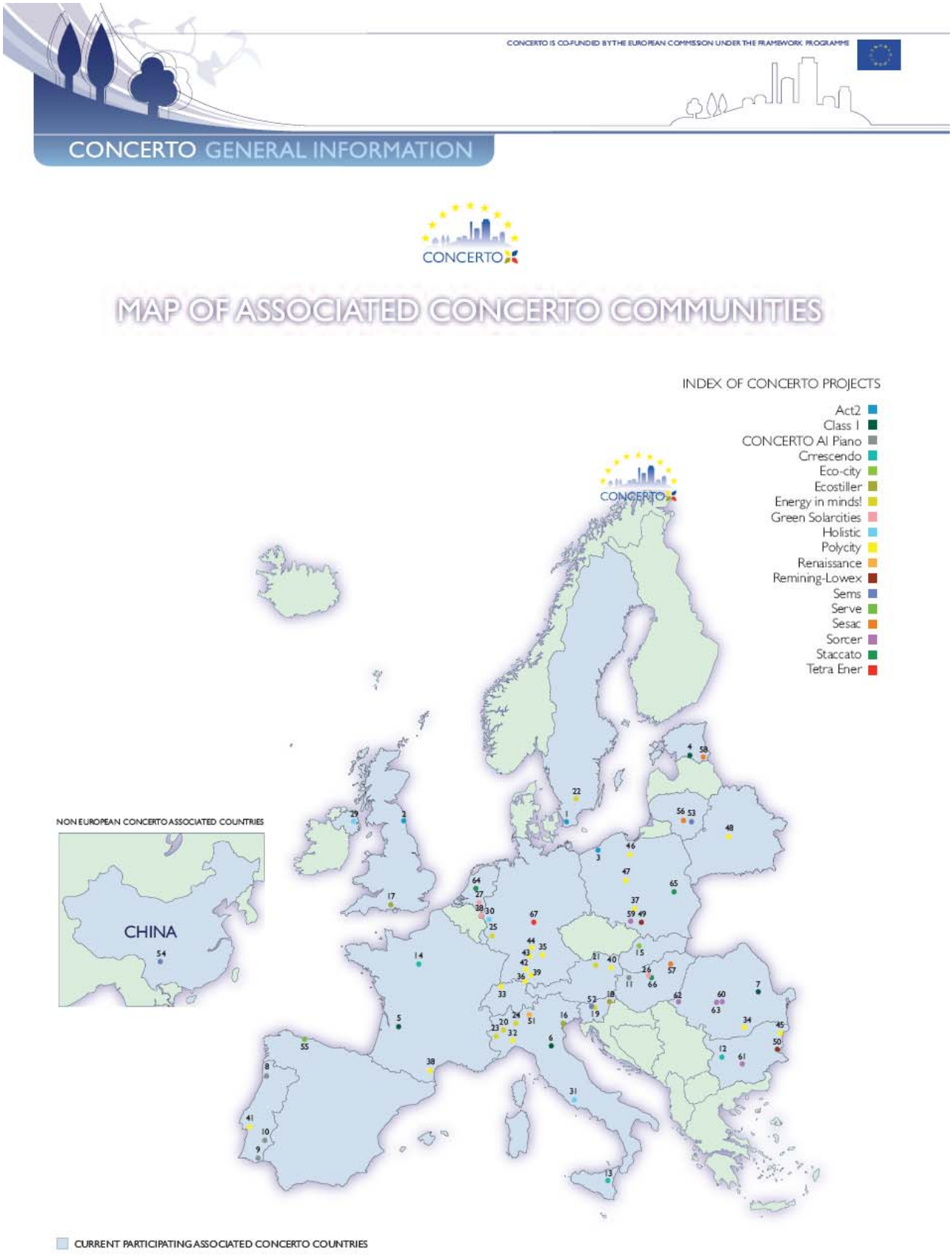
I declare that [I received full remuneration] [I agreed to receive remuneration by [*insert date*]].

[As creator, I also confirm that I do not oppose my name being recalled when the results are presented to the public and confirm that the results can be divulged.]

Date, place, signature

*Date, place, signature*

**ANNEX 5:** Associated Communities CONCERTO I, II and III



| | COUNTRY | ASSOCIATED COMMUNITY | PROJECT |
|---|---|---|---|
| 1 | SWEDEN | MALMÖ | ACT 2 |
| 2 | UNITED KINGDOM | NEWCASTLE | ACT 2 |
| 3 | POLAND | KOSZALIN | ACT 2 |
| 4 | ESTONIA | VALGA | CLASSI |
| 5 | FRANCE | BELGES | CLASSI |
| 6 | ITALY | BOLOGNA | CLASSI |
| 7 | ROMANIA | ODOBEŞTI | CLASSI |
| 8 | PORTUGAL | PORTO | CONCERTO AL PIANO |
| 9 | PORTUGAL | TAVIRA | CONCERTO AL PIANO |
| 10 | PORTUGAL | MOURA | CONCERTO AL PIANO |
| 11 | HUNGARY | MOSZONMAGYARÓVÁR | CONCERTO AL PIANO |
| 12 | BULGARIA | SOFIA | CRRESCENDO |
| 13 | ITALY | MISTERBIANCO | CRRESCENDO |
| 14 | FRANCE | SÉNART | CRRESCENDO |
| 15 | SLOVAKIA | ŽILINA | ECO-CITY |
| 16 | ITALY | VENEZIA | ECOSTILER |
| 17 | UNITED KINGDOM | SOUTHAMPTON | ECOSTILER |
| 18 | SLOVENIA | DESTRNIK | ECOSTILER |
| 19 | SLOVENIA | GORNJI GRAD | ENERGY IN MINDS! |
| 20 | ITALY | PROVINCE OF TORINO | ENERGY IN MINDS! |
| 21 | AUSTRIA | WIESELBURG | ENERGY IN MINDS! |
| 22 | SWEDEN | VÄRNAMO | ENERGY IN MINDS! |
| 23 | ITALY | COMUNITÀ MONTANA VAL PELLICE | ENERGY IN MINDS! |
| 24 | ITALY | PROVINCIA DI BIELLA | ENERGY IN MINDS! |
| 25 | GERMANY | TRIER | ENERGY IN MINDS! |
| 26 | HUNGARY | SZENTENDRE | GREEN SOLAR CITIES |
| 27 | NETHERLANDS | EINDHOVEN | GREEN SOLAR CITIES |
| 28 | NETHERLANDS | MAASTRICHT | GREEN SOLAR CITIES |
| 29 | UNITED KINGDOM | NEWRY AND MOURNE DISTRICT COUNCIL | HOLISTIC |
| 30 | GERMANY | AACHEN | HOLISTIC |
| 31 | ITALY | ITALIAN MINISTRY OF THE ENVIRONMENT AND LAND AND SEA | HOLISTIC |
| 32 | ITALY | ALBA | POLYCITY |
| 33 | SWITZERLAND | BASEL | POLYCITY |
| 34 | ROMANIA | BUCUREŞTI | POLYCITY |
| 35 | GERMANY | GÖPPINGEN | POLYCITY |
| 36 | GERMANY | KONSTANZ | POLYCITY |
| 37 | POLAND | OPOLE | POLYCITY |
| 38 | FRANCE | PERPIGNAN | POLYCITY |
| 39 | GERMANY | REGION HEGAU | POLYCITY |
| 40 | AUSTRIA | WIEN | POLYCITY |
| 41 | PORTUGAL | LISBOA | POLYCITY |
| 42 | GERMANY | ALBSTADT | POLYCITY |
| 43 | GERMANY | STUTTGART | POLYCITY |
| 44 | GERMANY | LUDWIGSBURG | POLYCITY |
| 45 | BULGARIA | UBBSLA – UNION OF BULGARIAN BLACK SEA LOCAL AUTHORITIES | POLYCITY |
| 46 | POLAND | GNIEW | POLYCITY |
| 47 | POLAND | GNIEZNO | POLYCITY |
| 48 | BELARUS | SOSNY/MINSK | POLYCITY |
| 49 | POLAND | CZELADZ | REMINING-LOWEX |
| 50 | BULGARIA | BURGAS | REMINING-LOWEX |
| 51 | ITALY | REGION OF LOMBARDIA | RENAISSANCE |
| 52 | SLOVENIA | GORNJI GRAD | SEMS |
| 53 | LITHUANIA | CITY OF ELEKTRENAI | SEMS |
| 54 | CHINA | NINGNAN COUNTY | SEMS |
| 55 | SPAIN | AYUNTAMIENTO DE EL FRANCO | SERVE |
| 56 | LITHUANIA | KAUNAS | SESAC |
| 57 | HUNGARY | MISKOLC | SESAC |
| 58 | ESTONIA | VASTSELIINA | SESAC |
| 59 | POLAND | SKOROSZYCE | SORCER |
| 60 | ROMANIA | SIBIU | SORCER |
| 61 | BULGARIA | PLOVDIV | SORCER |
| 62 | ROMANIA | TIMISOARA | SORCER |
| 63 | ROMANIA | TALMACIU | SORCER |
| 64 | NETHERLANDS | MUNICIPALITY OF NIEUWEGEIN | STACCATO |
| 65 | POLAND | MUNICIPALITY OF PULAWY | STACCATO |
| 66 | HUNGARY | EHÖSZ ASSOCIATION OF ENERGY EFFICIENT MUNICIPALITIES IN HUNGARY | STACCATO |
| 67 | GERMANY | FRANKFURT | TETRAENER |

**CONCERTO III** batch: 6 associated communities

| Project Acronym | Associated Community 1 | Associated Community 2 | Associated Community 3 | Associated Community 4 |
|---|---|---|---|---|
| SOLUTION | Preddvor (SI) | | | |
| PIME'S | | | | |
| ECO-Life | Palanga (LT) | | | |
| GEOCOM | Mszczonow (PL) | Oras Sacueni (RO) | Subotica (RS) | Kocani (MK) |

**Annex 6**

**Texts of the past Smart Cities calls for proposal (Horizon 2020 and FP7)**

From

# HORIZON 2020 WORK PROGRAMME 2014 - 2015

*10. Secure, clean and efficient energy*

**Important Notice on the First Horizon 2020 Work Programme**

**This Work Programme covers 2014 and 2015. Due to the launching phase of Horizon 2020, parts of the Work Programme that relate to 2015 (topics, dates, budget) are provided at this stage on an indicative basis only. Such Work Programme parts will be decided during 2014.**

## CALL - SMART CITIES AND COMMUNITIES[54]

H2020-SCC-2014/2015

Cities across Europe are forerunners in the transition towards a low carbon and resource efficient economy. 68% of the EU population lives in urban areas, a proportion that is growing as the urbanisation trend continues, and using 70% of the energy. To meet the increasingly complex challenges of urban areas an integrated and sustainable response is needed. Within the context of this integrated and sustainable urban approach there is a requirement for new, efficient, and user-friendly technologies and services, in particular in areas of energy,

[54] Comment added editing this call for tender: It derives from the nature of the different call topics that the SCC lighthouse projects of SCC1 are fully in the scope of this tender.

With SCC 2 – 2014, the contactor of this tender shall ensure complementarity.

SCC 3 and 4 are not at the centre of the scope of this call for tender, but the tenderer should be prepared to contribute to these, in particular with expertise and results of the demonstration project assessments.

transport, and ICT. These solutions however require integrated approaches, both at the level of research and development of advanced technological solutions, as well as at the level of deployment. The first part concerns enhancing the development and validation of the technology as such, whereas the second part concerns the need for validation of new business cases and financing models, standardisation, scalability and replicability of the solutions, user acceptance and engagement.

The focus on smart cities technologies will result in commercial-scale solutions with a high market potential in areas such as energy efficient and smart buildings, neighbourhoods and communities; smart digital services for better-informed citizens; identification, optimisation and integration of flows (data, energy, people, goods); smart and sustainable digital infrastructures; smart and sustainable energy systems and smart mobility services including through the use of space-enabled applications. A powerful combination of this focus area and the EIP as a deployment mechanism will thus develop a strong pipeline of long-term, sustainable urban solutions in the EU, reduce greenhouse gas emissions as well as in general improve the overall air quality.

As stated in the Communication on Smart Cities and Communities European Innovation Partnership, the EIP aims to:

- accelerate the roll-out of innovative technologies and services, organisational and economic solutions, for urban applications, which ask for a cross-sectorial approach to support the Europe-wide deployment of Smart Cities solutions
- disseminate the results of successful solutions to bridge innovation gaps and stimulate the convergence between value chains in the energy, transport and ICT sectors,
- support market oriented measures to validate and accelerate commercial deployment; and
- build constructively on the existing portfolio of "Smart Cities" initiatives, rationalising and consolidating them to ensure coherence between regulation and standards policies and project financing.

The challenge of deploying solutions related to the energy, transport and ICT sectors, including those which are at the intersection of these three sectors, in an urban environment is to overcome the local specificities. Consequently actions and actors which can ensure the transferability of solutions and create the framework for replicability of solutions should be prioritised and rewarded.

Therefore EU action for Smart Cities and Communities, with inputs from the Strategic Implementation Plan of the European Innovation Partnership Smart Cities and Communities, will focus on providing support to partnerships created between municipalities and industries which propose solutions answering to the complexity of projects in the intersection of the three sectors and which take actions for large scale deployment of those solutions in other cities across Europe.

This focus area is part of the societal challenges. Solutions proposed here need to be driven by demand side actors, while the generic technological platforms e.g. for smart lighting, the Internet of Things and cyber-security are being developed with strong industry drive in LEIT part of the programme.

The projects funded under the call "Smart Cities and Communities" of the Work Programme 2014-15 will participate in the Pilot on Open Research Data in Horizon 2020 in line with the Commission's Open Access to research data policy for facilitating access, re-use and preservation of research data. Projects have the possibility to opt out of the Pilot. A related new element in Horizon 2020 is the use of Data Management Plans (DMPs) detailing what data the project will generate, whether and how it will be exploited or made accessible for verification and re-use, and how it will be curated and preserved. The use of a Data Management Plan is required for projects participating in the Open Research Data Pilot. Further guidance on the Open Research Data Pilot is made available on the Participant Portal.

Proposals are invited against the following topics:

**SCC 1 - 2014/2015: Smart Cities and Communities solutions integrating energy, transport, ICT sectors through lighthouse (large scale demonstration - first of the kind) projects**

*Specific Challenge:* The EU policy and regulatory framework in the sectors of energy, transport and ICT supports the development of sectoral solutions, i.e. solutions with a limited degree of integration. However, for successful and accelerated implementation in real environments such as urban ones - that also have to take into account local specificities the test of integrated measures will pave the way for faster market roll-out of technologies. The key challenges for Smart Cities and Communities are to significantly increase the overall energy efficiency of cities, to exploit better the local resource both in terms of energy supply as well as through the demand side measures. This will imply the use of energy efficiency measures optimising at the level of districts, the use of renewables, the sustainability of urban transport and the needed drastic reduction of greenhouse gas emissions in urban areas - within economically acceptable conditions - while ensuring for citizens better life conditions: lower energy bills, swifter transport, job creation and as a consequence a higher degree of resilience to climate impacts (e.g. urban heat islands effects) etc.

Scope: To identify, develop and deploy replicable, balanced and integrated solutions in the energy, transport, and ICT actions through partnerships between municipalities and industries.

These solutions at the intersection of the three sectors will have a holistic approach and are still facing first mover risk. These will be the lighthouse projects as identified by the Communication on Smart Cities and Communities. Lighthouse projects will target primarily large scale demonstration of replicable SCC concepts in city context where existing technologies or very near to market technologies (TRL 7 and more, see part G of the General Annexes) will be integrated in an innovative way.

The proposals should address the following main areas:

- *(Nearly zero) or low energy districts:* through the integration and management of: i) the supply of energy with predominant exploitation of local resources (e.g. waste heat, renewables, storage) and the active participation of consumers (e.g. use of aggregators); ii) the cost-effective refurbishment of existing buildings without significant disruption for tenants (use of sustainable materials) with a special focus on residential buildings iii) the cross-cutting ICT solutions for the design and overall management of energy/ transport systems
- *Integrated Infrastructures:* through the integration of physical infrastructures such as core networks, street scenes, lighting, industrial sites etc to create new forms of value through re-use and repurposing. This should lead to quantifiable benefits such as reduction of capital /operational expenditure as well as reduced carbon / energy footprints. This might also imply exploitation of synergies between requirements for smart grids, broadband infrastructures and in general poly networks (eg district heating and cooling).
- *Sustainable urban mobility:* through the integration of energy/ fuelling infrastructure with vehicle fleets powered by alternative energy carriers for public and private transport, including logistics and freight-distribution. Implications on energy management, and in the case of electromobility, the impact on the electricity grid, of the deployment of high numbers of vehicles and/or the alternative fuel blends performance must be assessed.

The proposed proposals should address in addition to the main areas presented above a strategy that addresses appropriate enabler actions to support the commercial exploitation of the proposal. This includes (indicative list): commitment of authorities (even if changes of politicians/ majority, in the course of the project); citizens' engagement and empowerment;

optimising policy and regulatory frameworks; open, consistent data and performance measurements; dissemination and unlocking the market potentials worldwide.

According to the Communication on Smart Cities and Communities the light house projects should look for creating partnerships between industries, academics and cities, empower citizens and ensure the replicability of the solutions, ensure the funding from various sources[5556].

Therefore each project should:

- Be realised in 2 - 3 cities or communities (light house cities or communities);
- include industry, city planning authorities which should also reflect the view of the consumer organisations, research community, local Small and Medium Size Companies (SMEs);
- In addition each project should co-involve 2 - 3 *follower cities* i.e. cities willing to contribute to the process though the replication of solutions at the end of the project and having access to the knowhow and results of the project and a privileged contact with the project's partners. The involvement of the follower cities should be relevant (e.g. participating in definition of user requirements and methodology of transferability of solutions, data collection etc.). The follower cities should aim at improving their energy performance or the share of use of renewables (e.g. 60% reduction of primary energy for buildings, 20 - 30 % RES use for electricity as well as for heating and cooling). EU geographical coverage conditions should be also applied.
- Ensure that all proposed *activities are a part of ambitious urban plan.* These activities should also lead to the development of *integrated* urban plans. For the lighthouse cities or communities these plans should be finalised (e.g. those compiled for the Covenant of Mayors, Sustainable Energy Action Plans, plans committed under the Green Digital Charter etc., but without limiting to this list of initiatives). The urban plan shall integrate buildings planning, energy networks, ICT, transport/mobility planning; additional issues may be addressed as well if relevant for the city. These plans shall be submitted with the proposal as a supporting document(s).
- In order to ensure the success of the lighthouse projects, the *funding for the other parts of the programme or initiative in which the lighthouse projects are embedded should be secured from other sources,* preferably private ones, but also other EU funding sources (European Structural and Investment (ESI) funds for example), national or regional funding.
- Projects should demonstrate and *validate attractive business plans* that allow large scale replication of fast economic recovery in cities of varying degrees of economic conditions (from very poor to very rich), varying sizes but significant urban areas and varying climatic conditions to ensure high impact and replication potential .
- The industrial partners and municipality authorities should engage in replicating successful demonstration in their own and other cities, notably 'follower cities'; the replication plans are compulsory and are part of the evaluation.
- Consortia must have a clearly defined structure with roles and responsibilities properly spelled out for all involved entities.

Besides economic sustainability, proposals must also commit to scientific and technical

[55] C(2012)4701 final

requirements in support to reliability:

- Open and consistent data and interoperability of solutions in order to avoid locked -in customers.
- Contribution to common data collection systems (e.g. as those developed by European Commission under SCC2 of this Work Programme), measurement and disclosure methodology, in order to facilitate a common footprint calculation methodology and other metrics (especially for energy saving; CO2 reductions, financial savings, number of jobs created, environmental impact etc.).
- The performance monitoring should last for a period of at least 2 years. Longer term commitment (e.g. 5 years) will give an added value to the proposal. Consortia should develop an integrated protocol for monitoring energy, infrastructure, mobility and governance practices in the lighthouse projects, enabling documentation of improved performance over short and long term periods. The monitoring protocol should be robust and viable also after the end of the project, supporting and increasing municipal capacity over time Participants may be asked to introduce performance data into existing data bases (CONCERTO technical monitoring data base).

The grant will be composed of a combination of the reimbursement of eligible costs, and flat rate financing determined on the basis of unit costs[57] only for the building-related demonstration activities.

The building components of the proposals will be supported through the unit cost/$m^2$.

The Commission considers that proposals requesting a contribution from the EU of between EUR 18 to 25 million would allow this specific challenge to be addressed appropriately.
Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

The proposals are expected to have the impacts described below:

- deploy wide-scale, innovative replicable and integrated solutions in the energy, transport, and ICT;
- trigger large scale economic investments with the repayment of implementation costs in acceptable time lines (to facilitate the bankability of the projects);
- increase the energy efficiency of districts and of cities and foster the use of renewables and their integration energy system and enable active participation of consumers;
- increase mobility efficiency with lower emissions of pollutants and CO2;
- reduce the energy costs;
- decarbonise the energy system while making it more secure and stable;
- create stronger links between cities in Member States with various geographical and economical positions through active cooperation.

It is envisaged that the proposals will also bring societal benefits:

- reduction of energy bills for all actors and especially for citizens and public authorities;
- Increase quality of life by creating local jobs (that cannot be delocalised) in cities;
- Increase air quality.

[57] 90 The unit costs for the Energy societal challenge actions have been established in line with the methodology set up by the Commission Decision n° C(2013)8196.

*Type of action:* Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

## Enhancing the roil-out of Smart Cities and Communities solutions by stimulating the market demand

*Specific Challenge:* To drive structural changes and to catalyse development of new markets of smart city solutions, a number of support actions will be taken to deliver impact across-'silos' of policy areas, and groups of stakeholders.

**SCC 2 - 2014: Developing a framework for common, transparent data collection and performance measurement to allow comparability and replication between solutions and best-practice identification**

*Scope:* To develop a framework for common data and performance measurement collection system which should be open, transparent and allow comparability of solutions. It should consider KPI on energy, ICT and transport matters as well as joint indicators to measure possible rebound effects and systemic values. Work has to build on results from CONCERTO, CIVITAS, the Green Digital Charter as well as the ICT-PSP pilots and could embrace other initiatives as the Green Button of the DoE in the US and 'The Social Energy Collective' in the Netherlands. In addition to methodologies and tools proposals should establish a framework for cities' cooperation to exchange best practices and compare achievements.

Performance measurements should consider the solution's impact on greenhouse gas emission reductions, improved energy efficiency and increased integration of RES into a city's energy mix. Moreover quantification of economic, and possibly even social, performance of the solution at hand has to be included to evaluate the potential value for money and consumer engagement. In short, key performance indicators are to be developed at least along the environmental and economic dimensions of sustainability.

The work has to consider existing European initiatives such as the Reference Framework for sustainable Cities and the international dimension, notably the CityProtocol and ITU (International Telecommunication Union) initiatives.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 to 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

*Expected impact:*

- Involvement of society in data management processes of cities according to the value of information and improvement of level of trust of citizens.
- Stimulate market for data-enabled services/solutions (supporting entrepreneurship).
- Improved territorial knowledge for smart city planning.
- Recommendations to policy makers for collecting new sources of data and possibly form the basis for policy recommendations for a 'smart city index'.

*Type of action:* Coordination and Support Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

**SCC 3 - 2015: Development of system standards for smart cities and communities solutions**

*Scope:* Today the standards are developed for specific components or areas such as smart meters, smart grids, ICT etc. With the development of integrated solutions of Smart Cities and Communities a system approach is needed. Furthermore through standardisation the solutions identified by smart cities and communities can envisage costs reductions. It is expected that this work is carried out by the industries cities and communities contributing to the Smart Cities and Communities European Innovation Partnership in cooperation with the European Standardisation Organisations (CEN, CENELEC, ETSI) as well as other Standard Developing Organisations (SDOs) responsible for technical specifications in the area of Smart Cities. Social acceptance of developed solutions might be considered.

The process for developing smart cities and communities standards should ensure

- interoperability of solutions, i.e. adaptability of solutions to new user requirements and technological change as well as avoidance of entry barriers or vendor lock-in through promoting common meta-data structures and interoperable (open) interfaces instead of proprietary ones;
- open and consistent data, i.e. making relevant data as widely available as possible - including to third parties for the purpose of applications development - whilst using common, transparent measurement and data collection standards to ensure meaningfulness and comparability of performance/outcome measurements.

This action will cross-fertilise and cooperate with actions under topic SCC 1 - 2014/2015.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 to 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

*Expected impact:*

The project should lead to

- accelerating the deployment of Smart Cities and Communities solutions by ensuring the up-scaling of the process and lowering their costs,
- enabling the opening of market for multiple actors,
- ensuring the front run position for European smart cities solutions, at forefront worldwide.

Type of action: Coordination and Support Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

**SCC 4 - 2014: Establishing networks of public procurers in local administrations on smart city solutions**

Scope: These networks should aim at networking public procurement bodies in order to establish "buyers' groups" for innovative smart city solutions that improve the potential impact of the investment for cities and their citizens, and improve framework conditions for innovation. These networks will help public procurers to increase their capacity to undertake a better coordinated and articulated dialogue with suppliers about future needs by exchanging experience in procurement practices and strategies and by undertaking joint or coordinated actions. The networks must have core set of deliverables (additional actions can also be proposed):

- identifying procurement around a common need by European cities for which goods and services at the intersection of ICT, energy and transport in urban areas are bought as investment;

- prepare a number of formats/scenarios for possible future joint procurements; assessing the state-of-the art of potentially available solutions by developing different approaches for "market consultations" involving the supply chain (paying special attention to SMEs and locally-based businesses);
- carrying out legal work to ensure that the procurement of innovative solutions complies with European and national law;
- improving procurement capabilities by joint trainings, workshops and other networking activities.

It is envisaged that there will be a fairly small consortia (about 10 organisations) that will form the core consortium of public procurers and these will commit to organise dissemination activities for a larger group of public procurers in order to spread the findings in all EU Member States.

The members of the consortia must be public procurers, i.e. contracting authorities in the meaning of the public procurement Directives at all levels (local, regional, national and supra-national) that plan to establish implementation plans for improving the quality and efficiency of their public service offering by procurement of innovative solutions for use in cities and communities. This includes both contracting authorities in the meaning of the public procurement directive for public authorities (2004/18/EC) and utilities (2004/17/EC), for example public transport operators, relevant ministries, utilities, communes and cities, police or fire brigades, e-government administrations etc.

The list of deliverables should include, among others, an analysis of procurement examples already executed in EU Member States; an assessment of the most suitable cases for cross-border action; a set of generic draft procurements ready for adaptation to the particularities of the EU cities; an economic analysis on the benefits of simultaneous procurement from different cities. Work will also include the drafting of reports as well as dissemination activities to make these reports available to all interested parties.

This action will cross-fertilise and cooperate with actions under topic SCC 1 - 2014/2015.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.1 to 0.15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected *impact:* The project should mainly

- boost the market demand for smart city solutions by increasing consumer awareness about technologies and processes used in implementing smart city solutions.
- act as lever through procurement and investment planning tools for local administrations and business, a
- create better public acceptance and engagement.
- ensure the framework conditions for the participating organisations for organising joint, cross-border public procurements
- encourage the public procurement bodies active in cities and communities through networks' activities, to increasingly become "launch customers" for innovative smart solutions which are not yet available on a large-scale commercial basis and which may entail a higher risk than purchasing products that are already commercially widely available.

*Type of action:* Coordination and Support Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

***CONDITIONS FOR THIS***

***CALL*** Publication date: 11 December 2013
Deadline(s)[58] [59]:

| | | | | |
|---|---|---|---|---|
| SCC 1 | 07/05/2014 | | [03/03/2015] | |
| SCC 2, SCC 4 | 07/05/2014 | | | |
| SCC 3 | | | [03/03/2015] | |

Indicative budget:

- EUR 92.32 million from the 2014 budget [60]
- EUR 108.18 million from the 2015 budget [61]

| | 2014<br><br>EUR million | 2015<br><br>EUR million | |
|---|---|---|---|
| Topic SCC1 | EUR 90.32 million | EUR 106.18 million | ***All single stage*** |
| Topic SCC2 | EUR 1 million | | ***All single stage*** |
| Topic SCC3 | | EUR 1 million | ***All single stage*** |
| Topic SCC4 | EUR 1 million | | ***All single stage*** |

Eligibility and admissibility conditions: The conditions are described in parts B and C of the General Annexes to the work programme. Evaluation criteria, scoring and threshold: The criteria, scoring and threshold are described in part H of the General Annexes to the work programme.
Evaluation procedure: The procedure for setting a priority order for proposals with the same

[58] The Director-General responsible may delay this deadline by up to two months.

[59] The deadlines provided in brackets are indicative and subject to a separate financing decision for 2015.

[60] The budget amounts for 2014 are subject to the availability of the appropriations provided for in the draft budget for 2014 after the adoption of the budget for 2014 by the budgetary authority or if the budget is not adopted as provided for in the system of provisional twelfths.

[61] The budget amounts for 2015 are indicative and will be subject to a separate financing decision to cover the amounts to be allocated for 2015.

score is given in part H of the General Annexes.

The full evaluation procedure is described in the relevant guide associated with this call.

- Indicative timetable for evaluation and grant agreement:

| | Information on the outcome of the evaluation (single or *first stage)* | Information on the outcome of the evaluation (second stage) | Indicative date for the signing of grant agreements | |
|---|---|---|---|---|
| SCC1-SCC4 | Maximum 5 months from the final date for submission | | Maximum 3 months from the date of informing applicants | |

Consortium agreements: In line with the Rules for Participation and the Model Grant Agreement, participants in Research and Innovation Actions or in Innovation Actions are required to conclude a consortium agreement prior to grant agreement.

# *FP7 WORK PROGRAMME 2013*

# *COOPERATION*- THEME 5 - *ENERGY*

**[…]**

Area Energy.8.8: Smart Cities and Communities

Urban communities often share residential, public or commercial spaces that lend themselves to the early adoption of innovative technologies that can dramatically **reduce energy consumption**. Smart cities and communities are planning and acting for a more sustainable future characterised by investments in innovative, integrated technologies and services such as heating, mobility, lighting, broadband communications and other utilities. They are developing and implementing, at district or corridor level or larger, intelligent solutions, enabled by ICT and the mobilisation of their social, industrial and environmental capital, that will empower citizens and coordinate the delivery of more efficient, integrated and enhanced energy and transport services for their inhabitants.

In this context, the Commission wishes to support a greater level of integration of topics that relate to Smart Cities and Communities in the energy, transport and ICT areas. Thus, Horizon2020 funded projects – which are few in number and large in scale - supported under this area will have a high level of ambition in terms of integrated technology demonstration. It is envisaged that this approach will be continued and extended in future calls, providing a coherent set of activities from technology development to demonstration and ultimately laying the foundations for commercial roll-out via horizontal actions and market measures. This area of the Work Programme therefore encompasses energy-related topics such as energy efficiency, energy (electricity, heating and cooling) networks, and renewable energy production and urban planning. Innovative solutions are sought at the interfaces of these challenges as well as with other urban issues in the areas of ICT and transport.

Cross-sector Industry-led consortia are invited to take the lead in close collaboration with cities to devise innovative measures that accelerate the deployment of low carbon technologies. In each project, the cross-sector industry-led consortium drawn from three Member States and/or Associated Countries is expected to team up with ideally one or two cities to enhance the replication potential of the measures, to ensure their EU-wide impact and to facilitate the exchange of knowledge. Financial support will be given to measures that would help cities to substantially reduce greenhouse gas emissions in an innovative and integrative manner and represent a high replication potential.

Projects supported under this area will contribute to the Energy-efficient Buildings Public-Private-Partnership and are part of the Smart Cities and Communities coordinated call between the Energy and ICT Themes (FP7-SMARTCITIES-2013). For example, the topic under this area is complementary to the topic "Optimising Energy Systems in Smart Cities of ICT theme" in which the focus is on demonstrating the integration of renewable energy sources into electricity grids (including through the use of power electronics) and optimisation of heating and cooling systems for high performance energy efficient buildings.

Topic ENERGY.2013.8.8.1: Demonstration of optimised energy systems for high performance-energy districts

***Open in call:*** FP7-SMARTCITIES-2013

***Contents/scope:*** The objective of this topic is to demonstrate, at the level of cities or districts, an innovative integrated energy system, optimised both in terms of increase in energy efficiency and $CO_2$ reduction.

This objective may be achieved with a balance of supply-side measures based on a high share of renewables and demand-side measures to reduce consumption. Although the balance shall be optimised for each city, it should lead to a good business case for replication.

The proposals should address all of the following three aspects through a credible and coherent integrated approach.

1. **Retrofitting of a district towards zero energy buildings.** The proposed measures should aim to demonstrate innovative technical, economic and financial solutions which significantly increase overall energy efficiency. All types of buildings can be addressed, with a focus on residential buildings. All elements and systems of the buildings that could in a life-cycle perspective (thus including embedded energy) contribute to a better energy efficiency and sustainability through integrated design and planning should be envisaged, the measures shall be chosen based on a sound assessment of the social, economic and environmental performances of the different technology options. The detailed metering/monitoring programme should last at least for one full year, however, longer term commitment and programmes of the building operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal. The monitoring programme should include behavioural aspects (see additional information on the next page).
2. **Proposing innovative solutions for the medium and low voltage electricity distribution grid,** with the objective to improve the integration of a large share of power generated from renewable energy sources (for example photovoltaic installations) with the power supplied a conventional centralised installation (for example a Combined Heat and Power plant), and to increase energy efficiency of the distribution grid by implementing smart solutions and new efficient network components. In case of photovoltaic installations, the integration in the built environment of standardised PV building components requires both electric and architectural optimization, combining electricity production with substantial ICT part. Proposals should also consider electricity storage devices and strategies to better match supply with demand, optimise district and single building storage approaches, and provide ancillary services for the grid quality In addition, proposals can cover technological and economic assessment of the integration of electric vehicles into the local grid, with intelligent charging/discharging systems and assessment of the best balance of stationary versus mobile storage.
3. **Proposing innovative solutions for district heating and cooling energy supply,** with the objective of improving the overall efficiency of the system (heat generation, distribution and final use). The applicants should propose district heating and/or cooling systems based primarily on recovering waste heat and adapting the temperature levels of the grid to the applications. Additional energy sources might include a significant share of local renewable energy sources supply. In doing so, the proposals could envisage links with industrial parks. The proposals

should consider innovative applications for hot water, such as white goods supply. It should also make the best use of heat or cold storage devices or systems. Both short term and long term storage systems can be envisaged.

The activities proposed by the applicants should be based on a convincing city and mobility planning exercise with special consideration of innovative energy technology integration and participation of all relevant actors, completed at an earlier stage. Costs related to this planning exercise are not in the scope of this topic. All proposals should present a sound business model of all measures envisaged to be carried out in the project. This model should pay particular attention to assess economics and benefits for industry and the customers and end-users. The proposals will be asked to report performance data into existing horizontal activities for good-practice sharing, such as CONCERTO and the Smart Cities Stakeholder Platform. Thus, they should allocate appropriate resources for comprehensive reporting and innovative dissemination measures.

***Expected Impact:*** In addition to the impacts outlined for this Area in general, successful projects should set-up clusters of cities, and partnerships between cities and industries. Through integrated actions, projects should demonstrate their viability as new innovative market solutions and show a high replication potential for large-scale market deployment before 2020. An ambitious dissemination and market deployment plan should be included in the proposal. The credibility of this plan will form part of the evaluation.

***Funding scheme:*** Collaborative Project with a predominant demonstration component

***Additional eligibility criterion:*** The maximum requested EU contribution per project must not exceed EUR 30 million.

***Additional information:*** The grant will always be composed of a combination of: the typical reimbursement of eligible costs, and flat rate financing determined on the basis of scale of unit costs only for the building-related demonstration activities part of the buildings.

This action supports the implementation of the Smart Cities and Communities Initiative of the SET-Plan. The European Commission reserves its right to ask the project during the negotiation, in case not already highlighted in the proposal, to establish strong links, where appropriate, with relevant R&D projects at EU, national or regional level.

It is envisaged that three to five projects could be funded.

**Additional information concerning aspects 1, "Retrofitting of a district towards zero energy buildings"**:

The scale of unit cost for European Union financial contribution is fixed at EUR 100 /m² eligible costs and thus EUR 50 /m² European Union contribution. The amounts determined on the basis of the scale of unit costs are reimbursed by applying the upper funding limits specified in Article II.16 of the model grant agreement. Therefore, the reimbursement rate will be up to 50%, i.e. EUR 50/m². The eligible costs per m² for the building demonstrated in the project(s) are fixed costs. The total of European Union financial contribution based on scale of unit costs may not exceed EUR 15 million per project. The evaluation of the proposals will also take into account under the "S&T excellence" criterion the degree of excellence and innovation of the technology used, the level of projects ambition and the most cost effectiveness of the practices to be demonstrated, given the local context

(euros/efficiency gain; euros/CO2 reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal. It is strongly suggested for participants to complete and include in the proposals the Building Energy Specification Table (BEST) summarizing this information for every type of building proposed. The template of the BEST table is made available through the relevant Guide for Applicants.

From

**SMART CITIES AND COMMUNITIES EXTRACT OF THE**

# *WORK PROGRAMME 2012*

# *COOPERATION*

# THEME 5

Energy

**[…]**

## AREA ENERGY.8.8: SMART CITIES AND COMMUNITIES

The following topics are part of the SET-Plan Smart Cities and Communities Initiative. In the framework of this initiative, cities are expected to devise innovative measures to accelerate the deployment of low carbon technologies.

The initiative encompasses a broad range of energy related topics such as energy efficiency, energy networks and renewable energy production as well as other urban issues in the area of for electricity, heating and cooling, transport, waste and water management. The topics under this theme are focused on the energy dimension, including the topic from the Energy-efficient Buildings (EeB) Public Private Partnership.

In addition, the Work Programme 2012 of the Transport Theme – in particular topics under the Sustainable Surface Transport (SST) sub-theme including the European Green Car Initiative (EGCI) Public Private Partnership – addresses some aspects which are relevant for the Smart Cities and Communities Initiative. Accordingly, the topics "*GC.SST.2012.1-2 Smart infrastructures and innovative services for electric vehicles in the urban grid and road environment"* and "*SST.2012.3.1-3 Take-up of transport innovation in urban and regional transport"* can be seen as complementary activities. The projects funded under the topic *Energy.20123.8.8-1* will be invited to establish strong links with those funded under *GC.SST.2012.1-2* and *SST.2012.3.1-3* as well as with other relevant projects financed at EU, national or regional level to stimulate exchanges and cross-fertilization.

European cities are diverse in terms of size, economic morphology, organisational structure, climatic and geographic conditions, proximity to transport networks and progress towards sustainability achieved so far.

Smart Cities and Communities Initiative intends to promote replication of successful solutions through clustering of cities with similar framework conditions and similar ambitions. To enhance this replication potential, ensure an EU-wide impact of the measures and to facilitate the exchange of knowledge, cities from at least three Member

States and/or Associated Countries are expected to team up for a project proposal under the call FP7-ENERGY-SMARTCITIES-2012. Financial support will be given to measures proposed in these topics on the basis that such measures would help cities to substantially reduce greenhouse gas emissions in an innovative and integrative manner and represent a high replication potential.

The topics "ENERGY.2012.8.8.1: Energy planning and screening of city plans" and "ENERGY.2012.8.1.2: Large scale systems for urban area heating and/or cooling supply" can be addressed on their own or in combination with each other.

**Topic ENERGY.2012.8.8.1: Strategic sustainable planning and screening of city plans**

***Open in call*:** FP7-ENERGY-SMARTCITIES-2012

***Contents/scope:*** This action aims at i) creating the models for strategic sustainable planning by addressing the efficiency of energy flows across various sectors in various types of cities across Europe and ii) supporting cities with the development of ambitious and innovative projects embedded in comprehensive urban planning. All key aspects that are relevant for the whole city need to be addressed, such as urban planning covering the whole city (communities and districts) and addressing energy efficiency in: renovating a major share of the building stock, energy systems, heating/cooling smart grids, electricity smart grids, climate adaptation and mitigation, efficient water networks and use, efficient waste collection, treatment, recycling and energy use, efficient transportation and mobility systems, promotion of efficient vehicles.

The successful project(s) will gather cities with proven credible and ambitious targets and innovative planning, while finding the optimal mix of all these measures and indicating the time line, the costs and pay-back periods. The pay-back period analysis should build on different regulatory and market conditions. These plans must be validated by experts on technology and finance and be supported by the public authorities on the highest political levels as well as show commitment from the key public and private stakeholders involved in its implementation.

***Funding scheme:*** Coordination and Support Action – Coordinating

***Expected impact:*** The planning exercise is expected to show that the integrative approach achieves much better economics than individual actions without integrative planning. The project will help exchange of best practices and dissemination of Key Performance Indicators.

***Additional information:*** Smart cities will be evaluated according to their credible targets, innovative planning and robust calculations under the "Scientific and Technological" criterion.

This action supports the implementation of the Smart Cities and Communities Initiative of the SET-Plan. The European Commission reserves its right to ask the project, during the negotiation, to establish strong links, where appropriate, with relevant R&D projects at EU, national or regional level.

**Topic.ENERGY.2012.8.8.2: Large scale systems for urban area heating and/or cooling supply**

***Open in call*:** FP7-ENERGY-SMARTCITIES-2012

***Contents/scope:*** This topic aims to demonstrate technically and economically innovative concepts of urban heating or cooling systems in support to the Smart Cities initiative.

The successful project(s) should address energy efficiency integration of city districts with industrial parks. More and more industrial parks do offer innovative energy services business to business, within the parks. This approach aims to extend such services to cities or city districts, ideally through heating/cooling smart grids. Low temperature heat that is wasted today in nearby industrial cooling towers, air conditioning systems, cooling of data centres, etc. or heat from manufacturing industry, industrial buildings, office buildings, data centres, private homes, shall be collected and used to provide heating and cooling for end users in city districts. Space heating and domestic hot water production might be complemented by high efficiency heat pumps. Cooling can be supplied through the use of cold from rivers, lakes, sea/ocean water, ground source water, liquefied natural gas terminals, cooling or freezing warehouses to provide cooling systems for end users in urban environment. The objective is to demonstrate the high energy efficient innovative technologies and measures resulting in very low energy districts. All elements and systems that could contribute to a better energy efficiency and sustainability through integrated design and planning should be envisaged, including heat recovery technologies and very efficient water/waste management, enhanced systems for energy behaviour monitoring and demand response and load control systems. The system should be based primarily on recovering waste heat (or using heat from e.g. waste incineration) and adapting the temperature levels of the grid to the applications: floor and radiant wall heating for example allows very efficient use of low temperatures (mostly below 30°C); radiant wall and ceiling cooling allows efficient cooling with water temperatures up to 20°C. High efficiency heat pumps may adjust the temperature to 60°C for domestic hot water production if needed. Also the most efficient forms of renewables (solar thermal, biomass boilers or combined heat and power) shall be used to supply a significant part of the remaining energy needs, while the return on investment for the energy saving measures should be calculated and presented and should be acceptable under current market standards.

Building energy management systems should be combined with district energy management systems and city energy management systems.

***Funding scheme*:** Collaborative Project with predominant demonstration component

***Implementation/management:*** The projects should have a high potential of replication contributing to large scale market deployment before 2020. The demonstration should happen at district level, but with the aim to deploy at city wide level in the near future. The detailed metering/monitoring programme should last at least for one heating and one cooling season; however, longer term commitment and programmes of the energy system operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal. An ambitious dissemination and market deployment programme shall be included in the proposal and will be evaluated under the "implementation" and "impact" criteria.

***Expected impact:***

• Cost effective highly energy efficient practices, devices (heating, cooling and/or electrical) and techniques.

• Acceleration of the market uptake of the most innovative tools for efficient city energy management.

• Creation of best practice examples for the Data Centre design and construction sector based on innovation and competitiveness, with benefits for the operators and the environment.

• Contribution to raise the performance standards and regulations on European, national and local level, in the urban design and construction sector, through the best practice examples.

***Additional information:***

This action supports the implementation of the Smart Cities and Communities Initiative of the SET-Plan. The European Commission reserves its right to ask the project, during the negotiation, to establish strong links, where appropriate, with relevant R&D projects at EU, national or regional level.

**Topic EEB.ENERGY.2012.8.8.3: Demonstration of nearly Zero Energy Building Renovation for cities and districts**

***Open in call*:** FP7-2012-ENV-ICT-ENERGY-NMP-EeB

***Contents/scope:*** This topic aims to demonstrate innovative technical, economical and financial solutions to significantly increase overall energy efficiency of cities and districts. The objective is to renovate a district of existing buildings, in support to the Smart Cities initiative.

Retrofitting existing individual buildings to very high performance buildings will result in excessive costs for extremely ambitious levels. Previous programmes have shown high added value and significant economies of scale to optimise a large amount of buildings in a fully integrated concept. Optimising a whole district consisting of a large number of buildings in a fully integrated way, with extension of the building energy management system to the whole district, and including efficient urban planning allows further significant savings. Mixed societies bringing together living with working, leisure, shopping, etc may result in reduced needs for transportation, but also allow for better peak management of energy (energy peaks on offices happen at different times of the day than for private homes), water, wastes, etc.

A systemic approach is expected in the measures to be taken. All elements and systems of the buildings that could contribute to a better energy efficiency and sustainability through integrated design and planning should be envisaged, including heat recovery technologies and very efficient water/waste management, enhanced systems for energy behaviour monitoring and demand response and load control systems as well as ICT tools in a district level.

Building Information Modelling and other methods of integrated project delivery should also be used.

While the proposed measures can encompass all types of buildings (residential, commercial, public) the focus should lie on retrofitting of residential buildings. The retrofitting should be as cost effective as possible. The return on investment for the energy saving measures should be calculated and presented and should be acceptable under current market standards. Priority will be given to buildings of which typology and use could be representative for large geographical areas in Europe.

Innovation should rely in the technologies to be demonstrated and in the innovative integration of the whole city/district with appropriate and cost-effective balance between energy efficiency measures and the integration of active systems for energy generation, distribution, storage and use.

For the city area to be affected, detailed information should be provided on the current and future energy use, with emphasis on the building(s): their design, their current and future energy use, the energy efficiency measures to be applied should also be described extensively. The gross floor area of the building(s) should be specified together with the targeted annual energy use per m2 (kWh/m²/year, broken down by space heating, cooling, domestic hot water heating, electricity (including lighting) consumption etc.).

In addition to the detailed description of the buildings and the measures to be taken, it is strongly suggested for participants to complete and include in the proposals the Building Energy Specification Table (BEST) summarizing this information for every type of building proposed. The template of the BEST table is made available through the relevant Guide for Applicants.

Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases.

Additional accompanying measures affecting the future operation of the building (e.g. behavioural changes, post occupancy evaluation, active training of the occupants, training of professionals and architects in view of the replication of the project in other European regions) should be clearly addressed. Social and economic issues should also be addressed. Buildings utilising thermal masses through their architecture while being of high aesthetic quality that people like to live and work in should be envisaged.

***Funding scheme: Funding scheme:*** Collaborative Project with predominant demonstration component – Scale of Units (CP-SoU)

***Implementation/management:*** The leading role of relevant industrial partners is essential to achieve the full impact of the project. This will be evaluated under the "implementation" and "impact" evaluation criteria.

***Expected impact:***

• Cost effective highly energy efficient practices, devices (cooling and/or electrical) and techniques.

• Acceleration of the market uptake of the most innovative tools for efficient city energy management.

• Creation of best practice examples for the construction sector based on innovation and competitiveness, with benefits for the operators and the environment.

• Contribution to raise the performance standards and regulations on European, national and local level, in the urban design and construction sector, through the best practice examples.

The projects should have a high potential of replication contributing to large scale market deployment before 2020. It is expected that the successful project(s) will be replicated at the level of the entire city resulting in an accelerated refurbishment rate – double the EU average. An ambitious dissemination and market deployment programme should be included in the proposal. The detailed metering/monitoring programme should last at least for one year, however, longer term commitment and programmes of the building operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal. This will be evaluated under the "impact" evaluation criterion.

***Additional information:***

The evaluation of the proposals will also take into account under the "S&T excellence" criterion the degree of excellence and innovation of the technology used, the level of projects ambition and the most cost effectiveness of the practices to be demonstrated (euros/efficiency gain; euros/$CO_2$ reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.

The form of grant applied is based on additional energy efficiency measures in buildings. The grant will always be composed of a combination of: the typical reimbursement of eligible costs, and flat rate financing determined on the basis of scale of unit costs only for the building-related demonstration activities part of the buildings. The scale of unit cost for European Union financial contribution is fixed at EUR 100 /m² eligible costs and thus EUR 50 /m² European Union contribution. The amounts determined on the basis of the scale of unit

Costs are reimbursed by applying the upper funding limits specified in Article II.16 of the model grant agreement. Therefore, the reimbursement rate will be up to 50%, i.e. EUR 50/m². The eligible costs per m² for the building demonstrated in the project(s) are fixed costs. The total of European Union financial contribution based on scale of unit costs may not exceed EUR 15 million per project.

This action supports the implementation of the Smart Cities and Communities Initiative of the SET-Plan. The European Commission reserves its right to ask the project, during the negotiation, to establish strong links, where appropriate, with relevant R&D projects at EU, national or regional level.

**For further details concerning the implementation of the PPP calls please see Annex 5 of the Cooperation work programme.**

Annex 7: EASME's and DG Energy's Energy Efficient Buildings PPP calls:

# HORIZON 2020 WORK PROGRAMME 2014 - 2015

## *10. Secure, clean and efficient energy*

## A - Buildings and consumers

Buildings account for 40% of EU final energy demand. Most of those existing today will still be standing in 30 years' time; the rate of new construction remaining generally low. The renovation of existing buildings represents more than 17% of the primary energy saving potential of the EU[62] up to 2050.

The biggest challenge when reducing energy use in buildings is to increase the rate, quality and effectiveness of building renovation (currently only at 1.2%/year[63]).To do this, it is necessary to reduce renovation costs and also to increase the speed at which it can be carried out in order to minimise disturbance for occupiers. To achieve an ambitious increase of the renovation rate (up to 2-3% per year), effective solutions need to be widely demonstrated and replicated.

Both the recast of the Energy Performance Building Directive (EPBD) and the Energy Efficiency Directive (EED) contain provisions to increase renovation rates, especially for public buildings. However, a number of non-technological barriers hamper the implementation of these provisions in the public sector and prevent market actors in the residential and private sectors from following the example that the public sector is expected to set. Likewise some market barriers also hamper the implementation of the Renewable Energy Sources Directive and its obligation to have minimum requirements of renewable energy use in new buildings and in existing buildings that are subject to major renovation.

Specific attention should be paid to historic buildings given their number and the fact that specific renovation constraints often need specialised techniques. Consumer behaviour can reduce energy consumption by 20% . Smart metering and other consumption feedback systems, building design and capacity building activities that encourage and enable energy conscious behaviour can help to fulfil this potential. Solutions to manage household energy demand patterns (demand response technologies and measures) should also be developed to further reduce greenhouse gas emissions.

To deliver innovative, affordable and applicable technologies for energy efficiency, the Energy-efficient Buildings Public-private partnership (EeB PPP) call, established under the LEIT Pillar of Horizon 2020, will be channelled towards a range of predominantly technology-related energy efficiency R&D topics, such as materials for building envelopes, self-inspection techniques and quality check measures, design tools for renovation at building

[62] http://www.isi.fraunhofer.de/isi-media/docs/e/de/publikationen/BMU Policy Paper 20121022.pdf

[63] Renovate Europe Campaign

and district level, integrated solutions for building renovation and thermal energy storage for building applications. Also, the EeB PPP will address new methodologies to reduce the gap between the predicted and actual energy performance of buildings.

This Energy-Efficiency call will complement the call of the EeB PPP with both technology-related, and (mostly) non-technology related topics, focusing on the removal of existing barriers through market uptake measures in order to build capacity, provide support for sustainable energy policy implementation, mobilise financing for sustainable energy investments and foster uptake of technologies relevant for energy efficiency in buildings.

A proposal may cover two or more topics at the same time, but should nevertheless be submitted under the main topic of the proposal and achieve at least the expected impact of that topic.

**EE 1 - 2014: Manufacturing of prefabricated modules for renovation of buildings**

*Specific challenge:* Prefabricated components are more and more commonly used in the construction sector. Compared to traditional construction processes, prefabrication aims at reducing costs without compromising quality and facilitating the installation/dismantling/reuse of components. It also facilitates the re-use of residue materials from the construction and industrial sectors. Building components could, when relevant, be prefabricated in factories to reduce construction time and to improve on-site health and safety. Reducing the time for installation is particularly suitable for renovation while being occupied. Prefabrication should be adaptable to individual renovation solutions as well as to mass production for appropriate projects and should be linked to computer design tools.

Further research is needed to improve understanding of material and component behaviour in the whole life cycle and, consequently, to be able to produce better performing products, taking into account important aspects such as the overall thermal performance and airtightness. Innovative technologies for energy efficiency (e.g. HVAC components) and for renewable energy sources (e.g. photovoltaics, solar collector) can also be integrated into prefabricated multi-functional modules and components. Such prefabricated elements are to be developed, prototyped, optimised and transferred from individual manufacturing to mass production.

*Scope:* Innovative mass manufacturing processes must be investigated to lower prefabrication costs and ease building integration processes, also taking into account the challenge of aesthetics for existing buildings. This requires the development of new controlled processes and cost-effective automated/robotised tools.

These innovations should be combined with integrated processes and the use of advanced computer based tools like Building Information Modelling which will facilitate the industrialisation of the whole construction process and integrate the value chain over the life cycle of the project. Durability of proposed solutions will have to be evaluated in real installation conditions, incorporating integrated and embedded reliable monitoring systems, as this is a crucial factor that influences final product performances. The criteria and methods for evaluation of the benefits should be transparent and simple.

During the development of technology and components for prefabricated facade elements, the use of recycled materials should be investigated and structural engineering aspects must be taken into account to enhance the automated and robotized construction technologies. A business model addressing cost-optimality aspects for given building types and geo-clusters across Europe should be addressed in the proposals.

The proposals should cover mainly demonstration activities. Prototypes and pilot implementations in real industrial settings would represent a clear added-value, as would the participation of SMEs involved in the manufacture and installation of prefabricated modules.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic will be implemented under the PPP on Energy-efficient Buildings. The activities are expected to be implemented at Technology Readiness Level (TRL) 5-7 (please see part G of the General Annexes).

*Expected impact:*

- Reduction in total buildings (primary) energy consumption by at least a factor of 2 with respect to the current situation, and a cost-level better than traditional renovation activities.
- Significant reduction of renovation operations while ensuring low intrusiveness and impact for users.
- Reduction in installation time by at least 30%, compared to a typical renovation process for the building type.
- Better quality standard and performance guarantee for the installed prefabricated modules and their integrated components, while enhancing indoor air quality.
- Demonstration of replicability potential.
- A maximum return on investment of less than 10 years for end-users.
- Generation of new high-tech SMEs specialised in renovation with prefabricated modules.
- Creation of high-skill jobs for workers who could master innovative construction tools.

*Type of action:* Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

**EE 2 - 2015: Buildings design for new highly energy performing buildings**

*Specific Challenge:* By the end of 2020 (2018 for buildings occupied and owned by public authorities), all new buildings should comply with the Energy Performance of Buildings Directive obligations and thus meet 'nearly zero-energy' performance levels using innovative, cost-optimal technologies with integration of renewable energy sources on site or nearby. Moreover, the construction of 'plus-energy' buildings - i.e. buildings producing more energy than they consume - should also be encouraged in order to reduce energy use whilst increasing the share of renewable energies. However the costs of these highly energy performing buildings still represent a barrier for investors. Therefore the construction industry needs to deliver more affordable solutions.

*Scope:* Projects should focus on development and demonstration of solutions which significantly reduce the cost of new buildings with at least 'nearly zero-energy' performance levels, whilst accelerating significantly the speed with which these buildings and their systems are taken up by the market. The focus should lie on solutions for appropriate indoor air quality and comfort, design adapted to local climate and site, passive solutions (reducing the need for technical building systems which consume energy) or active solutions (covering a high share of the energy demand with renewable energies), building energy management systems (where appropriate), highly efficient Heating, Ventilation and Air-Conditioning (HVAC, e.g. low temperature systems, solar cooling), electric and/or thermal energy storage of renewable energy onsite and nearby. Projects should also provide solutions for automated and cost-effective maintenance of the installed equipment, and assess differences between predicted and actual energy performance. Such differences should be documented and minimized.

The applied solutions should address the challenge to move towards a 'nearly-zero energy' buildings standard at large scale with demonstration projects that go beyond 'nearly-zero energy' buildings levels to the point where buildings are active contributors to energy production and environmental quality in particular when new districts are planned (e.g. net-

zero energy neighbourhoods). The energy balance should be calculated by means of a LCA approach, considering among other issues embodied energy.

Projects should also focus on design methods for on-site and nearby-generation of renewable energy for new buildings (electricity as well as heating and cooling generation, e.g. heat pumps, integrated photovoltaics, or other options) accompanying energy efficiency measures to achieve standards higher than those of 'nearly zero-energy' buildings.

The performance of innovative technologies may be verified through technology verification schemes such as the EU Environmental Technology Verification (ETV) pilot programme[64].

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic will be implemented under the PPP on Energy-efficient Buildings.

The activities are expected to be implemented at TRL 5-7 (please see part G of the General Annexes).

Expected *Impact:* Significant increase of the share of 'nearly zero-energy' buildings with the aim of 100% market uptake by the end of 2020. Costs reductions of at least 15% compared to current situation, with additional benefits in terms of energy reduction. Demonstration for net-zero energy districts taking advantage of onsite or nearby-generation of renewable energy.

Type *of action:* Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

**EE3 - 2014: Energy strategies and solutions for deep renovation of historic buildings**

*Specific Challenge:* Around a quarter of the existing building stock in Europe was built prior to the middle of the last century. Many such buildings, often valued for their cultural, architectural and historic significance, not only reflect the unique character and identity of European cities but include essential infrastructure for housing, public buildings etc. A significant number of these historic buildings continue to use conventional inefficient fossil-fuel based energy systems typically associated with high energy costs and with greater than average CO2 emissions and cost of refurbishment.

The need to save costs increasingly leads to tighter rationing or shutdown of heating or cooling systems, further worsening conditions for conservation of the buildings, for artworks or collections as well as for living conditions.

Furthermore, changes in building-use and higher indoor comfort expectations than in the past are driving up demand for energy, a particular challenge when buildings of historic value are used or converted for residential, educational, retail, office or other purposes.

Due to the need to preserve authenticity and integrity, many recently developed solutions in the field of renovation are not compatible with or adequately adapted for use in historic buildings. This is particularly the case for listed or protected buildings.

It is also difficult to fully assess and model reliably the energy performance of the many different types of historic buildings across Europe or to assess the effect of energy efficiency measures or more sustainable solutions.

[64] http://iet.irc.ec.europa.eu/etv/

The scope for improved energy-efficiency of historic buildings is significant if addressed by holistic[65] and deep[66] renovation schemes that integrate innovative technologies, adapted standards and methodologies which consider the district dimension and stakeholder involvement.

Energy strategies and solutions for historic buildings have been identified as one of the priority areas in the roadmap of the EeB PPP.

Scope:

Project proposals should focus on the development of innovative and affordable building renovation solutions for historic buildings that can deliver significant improvements in energy performance while ensuring indoor comfort requirements and non-invasive, reversible solutions.

The emphasis should be on eco-innovation and sustainability by integrating cost-effective technologies for energy efficiency and renewable energy solutions.

Projects may address specific aspects such as innovative energy and environmental assessment methodologies (based on life-cycle and including specific non-monetary aspects in the cost/benefit and return on investment analysis), tools for planning and implementing the renovation of historic buildings, monitoring and control technologies and systems, non-invasive and non-destructive methods of surveying and diagnosis together with appropriate standards and information management for building maintenance.

Projects should clearly demonstrate the effectiveness of the technologies, methodologies, systems or tools developed and prove the replication potential of the proposed solutions with, where appropriate, the use of case studies.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic will be implemented under the PPP on Energy-efficient Buildings. The activities are expected to be implemented at TRL 4-6 (please see part G of the General Annexes).

*Expected Impact:* Optimised design and implementation of renovation projects for historic buildings and for listed and protected buildings in particular, delivering significant improvements in energy performance at both building and district level through more tailored solutions. Provision of effective guidelines and contribution to standardisation activities in this field. Reduced fragmentation in this sector through increased collaboration and cooperation and fostering of a more interdisciplinary approach and support to the implementation of the roadmap of the EeB PPP.

Type of *action:* Research & Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

**EE 6 - 2015: Demand response in blocks of buildings**

*Specific challenge:* Demand response enables end users to participate actively in energy

[65] Considering all the refurbishment possibilities at building level together with opportunities at district level such as biomass, geothermal, district heating, etc.

[66] Deep renovation should lead to a refurbishment that reduces both the delivered and the final energy consumption of a building by a significant percentage compared with the pre-renovation levels (cf Directive 2012/27/EU on Energy Efficiency).

markets and profit from optimal price conditions, making the grid (heat, cold, electricity) more efficient and contributing to the integration of renewable energy sources. The Energy Efficiency Directive adopted in 2012 contains provisions to encourage market actors to facilitate demand response. At the building level, increasing use of energy management technologies for both thermal and electric loads will act as an enabler for the deployment of demand response in both residential and non-residential buildings (e.g. offices). Such systems may be integrated with thermic/electric storage technologies and micro combined heat and power installations (CHP). Considering the important contribution of buildings and occupants to energy efficiency, there is therefore a need for ensuring that buildings have proper energy management systems in place to ensure consumers' engagement and demand response activations.

*Scope: At* the level of a block of buildings, the focus should be on real time optimisation of energy demand, storage and supply (including self-production when applicable) using intelligent energy management systems with the objective of reducing the difference between peak power demand and minimum night time demand, thus reducing costs and greenhouse gas emissions. Cost-effective and interoperable solutions that do not compromise the comfort of occupants should be demonstrated for a block of buildings consisting of at least 3 different buildings in real life operating conditions. Solutions should be compatible with smart grids and open international standards and with the distribution network infrastructure.

The activities are expected to be implemented at TRL 6-7 (please see part G of the General Annexes).

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected *impact:* Proposals showing that demand response can be implemented at the level of blocks of buildings with the help of intelligent energy management systems and without unreasonable effort and complexity while triggering substantial energy and cost savings. Moreover, proposals that shed light on the added value of installing demand response facilities for building blocks instead of individual buildings and on the willingness of consumers to participate in demand response solutions. Impacts should be measured in energy and cost savings. Impacts should also be measured for the willingness and capability of consumers to participate in demand response solutions.

Type of *action:* Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

**EE 11 - 2014/2015- New ICT-based solutions for energy efficiency**

*Specific Challenge:* To motivate and support citizen's behavioural change to achieve greater energy efficiency taking advantage of ICT (e.g. personalised data driven applications, gaming and social networking) while ensuring energy savings from this new ICT-enabled solutions are greater than the cost for the provision of the services.

*Scope:* The focus should be on the creation of innovative IT ecosystems that would develop services and applications making use of information generated by energy consumers (e.g. through social networks) or captured from sensors (e.g. smart meters, smart plugs, social media) and micro-generation. These applications range from Apps for smart phones and tablets to serious games to empower consumers stimulate collaboration and enable full participation in the market. The proposed solutions should be deployed and validated in real life conditions in publicly owned buildings (including administrative offices, social housing) and buildings in public use or of public interest. Validation should provide socio-economic

evidence for ICT investment in the field and include detailed plans for sustainability and large-scale uptake beyond the project's life time.

Specific attention should be given to development and testing of 'cleanweb' solutions, which not only bring opportunities for consumers, but also represent a promising investment field.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

*Expected impact:* Systemic energy consumption and production and emissions reduction between 15% and 30%. Accelerate wide deployment of innovative ICT solutions for energy efficiency. Greater consumer understanding and engagement in energy efficiency.

Type of *action:* Research & Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

## B - Heating and cooling

### EE 13 - 2014/2015: Technology for district heating and cooling

*Specific Challenge:* District heating and cooling systems need to be more efficient, intelligent and cheaper. It is necessary to develop and deploy intelligent systems using smart metering and control solutions for optimisation and consumer empowerment and exploiting multiple energy resources, including waste heat recovery, heat pumps, thermal storage, cogeneration and renewable energy integration, and to roll-out solutions for the integration of intelligent thermal networks with smart electricity grids.

*Scope:* Project proposals should address one or more of the following areas:

- Develop, demonstrate and deploy a new generation of highly efficient, intelligent district heating and cooling systems which are capable of integrating multiple efficient generation sources, including different kinds of renewable energy, cogeneration, waste heat from industrial or other sources and storage, and which can be operated at different temperature levels. Such systems can be new schemes or refurbished and optimised existing DH systems. These systems might combine hybrid technologies and/or new thermal carrier fluids to improve the overall efficiency; help decrease the end user cost of transporting heating and cooling energy, be compatible and connected with intelligent electricity and gas networks; and utilize surplus electricity from the grid. Such systems should be compatible with and capable of integration with low-energy buildings, including nearly zero energy buildings (e.g. by means of low-temperature district heating).
- Bring down *heat distribution losses* and integrate storage through the use of innovative pipe and storage design, high performance insulation materials, reduced operating temperatures, intelligent, efficient system for fluid handling or intelligent metering, control and grid optimisation strategies, including from analysing smart meter data, consumer interaction and behaviour.
- Develop optimisation, control, metering, planning and modelling tools such as intelligent thermal agile controllers embedding self-learning algorithms which help to optimise the overall efficiency of technology-hybrid systems and IT supervision systems capable of delivering real-time performance indicators, which are likely to modify consumption behaviour.
- Develop new solutions for low temperature heat recovery and recirculation.

The activities are expected to be implemented at TRL 4-6 (please see part G of the General

Annexes).

The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Innovative energy systems integrating the electricity grid and the heating/cooling grid (and possibly also energy storage), TRL 6-8, should be addressed in LCE7 and/or LCE8 (please see part G of the General Annexes).

*Expected Impact:*

- Reduce the energy consumption of space and water heating by 30 to 50% compared to today's level.
- Contribute to the wider use of intelligent district heating and cooling systems and integration of renewables, waste and storage.

Type of *action:* *Research &* Innovation Actions

The conditions related to this topic are provided at the end of this call and in the General Annexes.

# *WORK PROGRAMME 2010*

## 2010 COOPERATION THEME 5: ENERGY-2 DEMONSTRATION

[…]

**Topic EeB.ENERGY.2010.8.1-2: Demonstration of Energy Efficiency through Retrofitting of Buildings**

***Content/scope:***

Demonstrate in the building sector, high energy efficient innovative **retrofitting** technologies and measures for low energy performing buildings, the typology of which is representative for large geographical areas in Europe.

The project(s) shall use innovation in technology, design, planning, operation or systems integration with a strong preference for residential buildings and address socio economic issues.

While the project(s) could contain a single building or a number of buildings, located in one or more countries, effort and budget should be balanced amongst participants from at least three Member States/Associated Countries.

Retrofitting should be as cost effective as possible. The return to investment for the energy saving measures should be calculated and presented and should be reasonable under current market standards.

Detailed information should be provided on the building(s) existing envelope and its current energy use and the energy efficiency measures to be applied should also be described extensively. The gross floor area of the building(s) should be specified together with the targeted annual energy use per m2 (kWh/m²/year, broken down by space heating, cooling, domestic hot water heating, lighting, etc)

In addition to the technical measures to be undertaken, additional accompanying measures affecting the future operation of the building (e.g. behavioural changes, post occupancy evaluation) should also be clearly addressed.

The energy use should achieve at least the national limit values for new buildings according to the applicable legislation based on the Energy Performance of Buildings Directive (for 2010).

A holistic approach is expected in the measures to be taken and all elements and systems of the building that could contribute to its becoming more energy efficient should be envisaged. The space heat use (kWh/m²/year) should be reduced by about 75%.

The project(s) should have a high potential of replication contributing to large scale market deployment before 2020; a dissemination and market deployment programme should be included in the proposal. The detailed metering/monitoring programme should last at least for one year, however, longer term commitment and programmes of the building operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal.

***Funding scheme:*** Collaborative Project.

***Expected impact:***

- Large scale market deployment in retrofitting of buildings before 2020
- Accelerate the retrofitting uptake of low efficient building stock.
- Offer cost effective highly energy efficient retrofitting practices.
- Accelerate the market uptake of the most innovative ICT tools for efficient buildings management
- Create best practice examples for the construction sector based on innovation and competitiveness, with benefits for the citizens and the environment.
- Contribute to raise the performance standards and regulations on European, national and local level, in the construction industry and building sector, through the best practice examples.

***Additional information:***

- In addition to the detailed description of the buildings and the measures to be taken, it is strongly suggested for participants to complete and include in the proposals the Building Energy Specification Tables (BEST) summarising this information for every type of building proposed. The template for the BEST table can be downloaded from the following web address: ftp://ftp.cordis.europa.eu/pub/fp7/docs/wp/cooperation/energy/e_best_2010_en.xls
- Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases (e.g. CONCERTO data base).
- The form of grant applied in area 8.1.2. 'Energy efficiency in Buildings' is based on additional energy efficiency measures in buildings. The grant will be composed of a combination of:

  the typical reimbursement of eligible costs, and

  flat rate financing determined on the basis of scale of unit costs only for the demonstration part of the buildings.
- The scale of unit cost of Community financial contribution is fixed to EUR 100 /m² eligible costs and thus EUR 50 /m² Community contribution.
- The eligible cost per building used in the projects are fixed costs.
- The total of Community financial contribution based on scale of unit costs may not exceed EUR 6 million for one demonstration site.
- The evaluation of the proposals will also take into account the degree of excellence and innovation of the technology used and the most cost effective practices (euros/efficiency gain; euros/$CO_2$ reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.
- Up to four (4) projects will be supported.

- ***Open in call*:** FP7-2010-NMP-ENV-ENERGY-ICT-EeB

# *WORK PROGRAMME 2011*

# *COOPERATION*

# THEME 5

## *ENERGY*

[…]

**Topic EeB.ENERGY.2011.8.1-1: Demonstration of very low energy new buildings**

***Open in call*:** FP7- 2011-NMP-ENV-ENERGY-ICT-EeB

***Contents/scope:*** The objective is to demonstrate in the building sector, high energy efficient innovative technologies and measures resulting in very low energy new buildings. The performance calculation should take into account all types of energy use: consumption for space heating and cooling, water heating, air conditioning, as well as consumption of electricity, including lighting. In any case the total annual energy consumption of the building(s) should not exceed 60 kWh/m²/year (primary energy). Both residential and non-residential buildings are addressed.

A systemic approach is expected in the measures to be taken. All elements and systems of the building that could contribute to a better energy efficiency and sustainability through integrated design and planning should be envisaged, including heat recovery technologies and very efficient water/waste management , enhanced systems for energy behaviour monitoring and demand response and load control systems. Building Information Modelling (BIM) and other methods of integrated project delivery should be used. The project shall use innovation in technology, design, planning, operation and/or systems integration.

The construction should be as cost effective as possible. The return on investment for the energy saving measures should be calculated and presented and should be acceptable under current market standards.

The project could contain a single building or a number of buildings, located in one or more countries. In the latter case, the added value of the joint demonstration effort should be clearly described. The effort and budget should be balanced as much as possible amongst project partners. The CO2 and energy savings should be calculated and compared to standard buildings in the respective country.

Detailed information should be provided on the building(s) design, envelope and its/their future energy use. The energy efficiency measures to be applied should also be described extensively. The gross floor area of the building(s) should be specified together with the

targeted annual energy use per m2 (kWh/m²/year, broken down by space heating, cooling, domestic hot water heating, electricity (including lighting) consumption etc.).

Additional accompanying measures affecting the future operation of the building (e.g. behavioural changes, post occupancy evaluation, active training of the occupants, training of professionals and architects in view of the replication of the project in other European regions) should be clearly addressed. Social and economic issues should also be addressed. Buildings utilising thermal masses through their architecture while being of high aesthetic quality that people like to live and work in should be envisaged.

The project should have a high potential of replication contributing to large scale market deployment before 2020. An ambitious dissemination and market deployment programme should be included in the proposal. The detailed metering/monitoring programme should last at least for one year, however, longer term commitment and programmes of the building operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal.

***Funding scheme*:** Collaborative Project with predominant demonstration component

***Expected impact:***

- Large scale market deployment of very low/zero energy buildings before 2020.
- Cost effective highly energy efficient practices and techniques.
- Acceleration of the market uptake of the most innovative ICT tools for efficient buildings Management.
- Creation of best practice examples for the construction sector based on innovation and competitiveness, with benefits for the inhabitants and the environment.
- Contribution to raise the performance standards and regulations on European, national and local level, in the construction industry and building sector, through the best practice examples.

***Additional information:*** In addition to the ambitious energy efficiency target mentioned above, a significant share of energy supplied by renewable energies integrated into the buildings would give an added value to the proposal during the evaluation.

In addition to the detailed description of the buildings and the measures to be taken, it is strongly suggested for participants to complete and include in the proposals the Building Energy Specification Tables (BEST) summarizing this information for every type of building proposed. The template for the BEST table can be downloaded from the following web address:ftp://ftp.cordis.europa.eu/pub/fp7/docs/wp/cooperation/energy/e_best_2010_en.xls

Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases (e.g. CONCERTO data base).

The form of grant applied is based on additional energy efficiency measures in buildings. The grant will always be composed of a combination of: the typical reimbursement of eligible costs, and flat rate financing determined on the basis of scale of unit costs only for the building-related demonstration activities part of the buildings. The scale of unit cost for European Union financial contribution is fixed at EUR 100 /m² eligible costs and thus

EUR 50 /m² European Union contribution. The amounts determined on the basis of the scale of unit costs are reimbursed by applying the upper funding limits specified in Article II.16 of the model grant agreement. Therefore, the reimbursement rate will be up to 50%, i.e. EUR 50/m². The eligible costs per m² for the building demonstrated in the project(s) are fixed costs. The total of European Union financial contribution based on scale of unit costs may not exceed EUR 6 million.

The evaluation of the proposals will also take into account the degree of excellence and innovation of the technology used and the most cost effective practices (euros/efficiency gain; euros/$CO_2$ reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.

Priority will be given to buildings the typology and use of which could be representative for large geographical areas in Europe.

It is envisaged that up to five projects could be funded.

**Annex 8: List of data that Concerto projects and EeB projects have been asked to collect before the more advanced data collection sheets and guides developed by CONCERTO Premium[67] were available:**

# TAB "CONSUMPTION": BUILDINGS

## BUILDING

| | |
|---|---|
| name | [TEXT] |

## STATUS

| | |
|---|---|
| open questions | [TEXT] |
| demonstration activity completed | [y/n] |

## PARAMETER

### general information

| | |
|---|---|
| building type | [detached one-family house / semi-detached one-family house / apartment building / office building / school / home for students, young workers or old people / other] |
| | [new / refurbishment] |
| this building type is a demonstration building | [y/n] |
| this building type is not a dem. Building | [y/n] |
| this building type corr. to one single building | [y/n] |
| this building type corr. to many single buildings | [y/n] |
| numbers of buildings covered by this type | [-] |
| occupancy | [-] |
| gross floor area | [m²] |
| heated floor area | [m²] |
| floor area according to local definition | [m²] |

[67] http://concerto.eu/concerto/library/library-concerto-guidelines.html

| | | |
|---|---|---|
| heated volume | | [m³] |
| cooled floor area | [m²] | |
| short description | [TEXT] | |
| address of building | [TEXT] | |
| construction period (for refurbished buildings) | [before 1914 / 1920 – 1940 / 1945 – 1960 / 1960 – 1970 / 1970 – 1980 / 1980 – 1990 / 1990 – 2000] | |
| construction year | [-] | |
| **data about building fabric value/actual value]** | **for new buildings: [reference** | |
| | **for existing buildings: [before refurbishment/after refurbishment]** | |
| façade/external wall | | |
| average u-value | | [W/m².K] |
| roof | | |
| average u-value | | [W/m².K] |
| ground floor | | |
| average u-value | | [W/m².K] |
| glazing | | |
| average u-value | | [W/m².K] |
| windows | | |
| average u-value | | [W/m².K] |
| glazing | | |
| average g-value | | [-] |
| external shading device | | |
| shading factor calculated | [y/n] | |
| shading factor not calculated | | [y/n] |
| infiltration | | |
| blower door test realised | [y/n] | |
| n50-air change rate | [air changes/hr] | |
| blower door test not realised | | [y/n] |
| ventilation | | |
| average mechanical ventilation rate | | [air changes/hr] |

mechanical ventilation with heat recovery [y/n]

**energy performance certificate**

name of certificate [TEXT]

main indicator used in certificate [heating energy needs / primary energy use for heating ( total primary energy use]

threshold value according to certificate [TEXT]

unit for indicator [TEXT]

value of indicator [TEXT]

additional information regarding the certificate [TEXT]

upload certificate

download

**monitoring strategy**

the energy use is metered in detail [y/n]

only delivered energy figures [y/n]

general comments [TEXT]

**ENERGY PERFORMANCE**

**electricity**

metering period [TEXT]

electricity delivered to the building for [space heating (direct) / dhw / space heating + dhw / cooling + dehumidification / ventilation + humidification / hvac total / lighting / cooking / domestic appliances / office appliances]

electricity use of reference building [kWh/m².yr]

calculated electricity use before refurbishment [kWh/m².yr]

calculated electricity use of concerto building [kWh/m².yr]

there is no measure aiming at reducing el. use [y/n]

there are measures aiming at reducing el. use [substitution of direct electrical heating (reference heating system / use of low-energy appliances / use of a building automation system aiming at reducing electricity use / use of user feedback systems / use of soft awareness measures]

metered electricity use [kWh]

metered electricity use before refurbishment [kWh]

additional note on met of delivered electricity [TEXT]

**heating**

metering period [TEXT]

*heating energy needs*

calculated heating energy needs before ref. [kWh/m².yr]

heating energy needs of reference building [kWwh/m².yr]

calculated heating energy needs of con. build. [kWh/m².yr]

*heating energy carrier*

heating energy carrier before refurbishment [oil / gas / district heating / electricity / only res]

heating energy carrier of reference building [oil / gas / district heating / electricity / only res]

heating energy carrier of concerto building [oil / gas / district heating / electricity / only res]

*heating energy use*

calculated energy use for heating before ref. [kWh/m².yr]

metered energy use for heating before ref. [kWh]

energy use for heating of reference building [kWh/m².yr]

calculated energy use for heating of con. buil. [kWh/m².yr]

there is no measure aiming at red. heat en. use [y/n]

there are measures aiming at red. heat en. use [thermal insulation of outside walls / thermal insulation of roof or upper slab / thermal insulation of basement / replacement of windows / special treatment of thermal bridges / improvement of air tightness / ventilation system with heat recovery / reduction of distribution losses / use of a building automation system aiming at reducing heating energy use / use of user feedback systems / use of soft awareness measures]

metered energy use for heating after ref. [kWh]

there are gen. systems producing RES heat [y/n]

there is no gen. system producing RES heat [y/n]

**cooling**

no active cooling system before and after ref. [y/n]

comments on the acceptance [TEXT]

metering period [TEXT]

*cooling energy needs*

calculated cooling energy needs before ref. [kWh/yr]

cooling energy needs of reference building [kWh/m².yr]

calculated cooling energy needs of con. buil. [kWh/m².yr]

*cooling system*

cooling system before refurbishment [no cooling / on-site cooling system / district cooling]

cooling system of reference building [no cooling / on-site cooling system / district cooling]

cooling system after refurbishment [no cooling / on-site cooling system / district cooling]

*cooling energy use*

calculated cooling energy use before ref. [kWh/m².yr]

metered cooling energy use before ref. [kWh]

calculated cooling energy use of ref. building [kWh/m².yr]

the ref. include the inst. of a new cooling syst. [y/n]

the existing cooling system is not replaced [y/n]

calculated cooling energy use of con. build. [kWh/m².yr]

metered cooling energy use after refurbishment [kWh]

local generation system producing cooling en. [TEXT]

**COSTS**

investment costs [EUR]

total eligible costs [EUR]

investment grants from concerto [EUR]

# TAB “GENERATION”: ELECTRICITY / HEATING / COOLING / CHP

| | |
|---|---|
| **electricity** | [large scale PV / small scale PV / wind turbine / hydro power plant] |
| **heating** | [biomass heating plant / large scale solar thermal / small scale solar thermal / individual biomass boiler / individual gas boiler] |
| **cooling** | [chiller] |
| **CHP** | [CHP] |
| **Micro-CHP** | **[micro-CHP)** |

All forms are structured on the same way (energy input/output, expected (design) and metered data). The only difference concerns technology specific parameters. Here the example of PV plants is given.

**PV LARGE SCALE**

| | |
|---|---|
| name | [TEXT] |

**STATUS**

| | |
|---|---|
| open questions | [TEXT] |
| demonstration activity completed | [y/n] |

**Location of PV plant**

| | |
|---|---|
| plant situated on a building | [y/n] [SELECT] |
| free standing plant | [y/n] |

**General parameters**

| | |
|---|---|
| installed surface | [m²] |
| installed kWp | [kWp] |
| integration of PV modules | [flat roof / sloped roofs / lsoped roof (integrated) / façade / façade (integrated)] |
| type of PV modules | [monocristalline / polycristalline] |
| tracking system | [y/n] |
| azimuth angle of PV modules | [°] |

| | |
|---|---|
| tilt angle of PV modules | [°] |
| product name and manufacturer | [TEXT] |
| efficiency (from manufacturer) | [%] |
| metering device for inc. sol. rad. on PV modules | [no metering device / pyranometer / reference cell] |

**Energy performance**

| | |
|---|---|
| metering period | [TEXT] |
| expected global solar radiation on hor. surface | [kWh/m².yr] |
| metered global solar radiation on hor. surface | [kWh/m²] |
| expected global solar radiation on PV module | [kWh/m².yr] |
| metered global solar radiation on PV module | [kWh/m²] |
| expected electricity production from PV | [MWh/yr] |
| metered electricity production from PV | [MWh/yr] |

**Costs**

| | |
|---|---|
| investment costs | [EUR] |
| total eligible costs | [EUR] |
| investment grants from concerto | [EUR] |