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# Procurement Report D2.1

## Experiences achieved from the Procurements in WP2

Version 4.0

September 2015

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## **Abbreviations**

- BEST – Building Energy Specification Table
- HEMS – Home Energy Management System
- PV – Photovoltaic
- VPP – Virtual Power Plant

## 1. SMART SOLUTION I

### 1.1 STOCKHOLM

#### 1.1.1. Procurement Process of Measures:

Procurement will be done for the refurbishment of the following buildings (relevant BEST- tables indicated):

- IDLÅNGEN 3, Årsta (1 building) BEST 3
- SÄVLÅNGEN 1, Årsta (2 buildings) BEST 3
- SÄVLÅNGEN 2, Årsta (3 buildings) BEST 3
- Commercial venue Slakthusområdet Hudboden (1 building) BEST 1
- Commercial venue Slakthusområdet Tarmrenseriet (1 building) BEST 1

It is worth mentioning that BRF Årstakrönet does not need to undergo a procurement process given that is a private owned residential building

#### 1.1.2. Describe each Procurement:

The procurement of IDLÅNGEN 3, SÄVLÅNGEN 1 and 2 was conducted in a two-step procurement process. The first phase was opened in February and closed in March 2015. The result of this phase was two winning companies NCC and Skanska, which could leave an offer in the second phase. Phase two opened in March and closed in April. Only Skanska left an offer and was awarded the contract.

The procurement for Commercial venue Slakthusområdet Hudboden and Commercial venue Slakthusområdet Tarmrenseriet will be conducted in a one-step process. The procurement will be opened in November.

#### 1.1.3. Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed)

Building permits are needed for the refurbishment of the following buildings:

- IDLÅNGEN 3, Årsta (1 building) BEST 3
- SÄVLÅNGEN 1, Årsta (2 buildings) BEST 3
- SÄVLÅNGEN 2, Årsta (3 buildings) BEST 3
- Commercial venue Slakthusområdet Hudboden (1 building) BEST 1
- Commercial venue Slakthusområdet Tarmrenseriet (1 building) BEST 1

The plan for building permits in IDLÅNGEN 3, SÄVLÅNGEN 1 and 2 is to prepare all building permit documents in August-September and have the building permits approved the soonest January 2016 for SÄVLÅNGEN 2 (7G) and the latest June 2017 for SÄVLÅNGEN 1 (3b)..

The plan for building permits in Commercial venue Slakthusområdet Hudboden and Commercial venue Slakthusområdet Tarmrenseriet is to prepare all building permit documents in August-September and have the building permits approved latest April 2016 and July 2016 respectively..

There is an information and negotiation process with tenants in the following buildings:

- IDLÅNGEN 3, Årsta (1 building) BEST 3
- SÄVLÅNGEN 1, Årsta (2 buildings) BEST 3
- SÄVLÅNGEN 2, Årsta (3 buildings) BEST 3

This information and dialogue process started in December 2014 with general info about the refurbishment project. More detailed information in written form and meetings in March to all tenants. In this session tenants will get detailed info about the refurbishment and how it will affect their rental. The tenants will form a group for co-operation and negotiation. The rental negotiation process has started first with the general tenant association, thereafter the process will continue with the tenants group/tenant association.

## **1.2 COLOGNE**

### **1.2.1 Procurement Process of Measures:**

Task: Refurbishment housing (DEWOG – private partner) of about 33, 500 square meter living space:

- Insulation of buildings (front, basement ceiling, roof)
- Decentralized ventilation system with heat recovery
- Electricity supply by photovoltaics with battery as a virtual power plant (see 4.2.1)

Task: Heating renovation (RheinEnergie – public partner: 80% city owned, 20%RWE)

- Self-regulating, decentralized energy management system (see 4.2.1)
- Virtual power plant – intelligent management system for an optimization in energy and heat consumption (see 4.2.1)

DEWOG is a private company and is responsible for the procurement process for the first 2 topics above.

### **1.2.2 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed)**

A main feature of the “GrowSmarter” project is the integration of the project goals under socially acceptable conditions. Therefore, the refurbishment of the “Stegerwaldsiedlung” must be in accordance with the “Erhaltungssatzung” (social preservation statute as of 05.08.1996). A refurbishment of the settlement and the connected procurement will only be allowed by the city authorities if the increasing rents will not lead to a gentrification of the settlement. This means that increasing rents must be balanced with decreasing energy costs.

This principle is closely connected with a constant involvement of the inhabitants of the “Stegerwaldsiedlung”, the district of Mülheim and the city as a whole into the project. The communication should guarantee that the citizens do not feel to be left out by the planning of the city or their partners. Also any fears of tenants of the “Stegerwaldsiedlung” that increasing rents could lead to a loss of their homes must be addressed during the communication strategy. Further, a close communication can assure that the new technologies will also be accepted and used by citizens.

The building company DEWOG addressed the tenants so far by writing a letter announcing the refurbishment and asking for any difficulty concerning the increase in rent. So far from over 100 tenants only 5 said the increase in rent would be a problem for them. These tenants are offered an alternative living space with lower costs by DEWOG. Most tenants are waiting for a refurbishment. Half of the buildings were already refurbished about 10 years ago. And the tenants are looking forward to increased living standard.

241 % of the households in the district receive public support. This lead to an important discussion between the different city departments, the responsible of the GrowSmarter project and DEWOG. Building permits have to be provided very soon by the city council. Beforehand the topic of rising rents must be settled. The GrowSmarter Team is now calculating the value of lower energy costs.

To increase the speed in the permitting process the GrowSmarter team is involved in bundling the permitting units within the city council. The process is not finished by now.

Buildings permits are need and authorized by the city council.

## **1.3 BARCELONA (GNF)**

### **1.3.1 Procurement Process of Measures:**

For this Smart Solution, procurements have not started given that communication process to tenants for a final agreement is still on-going. Before launching the procurement process it is necessary to sign a contract between the ESCo (Gas Natural Servicios SDG, S.A., onwards GNS) and the building owners (see **Section 1.3.2**). It is

worth highlighting that, since Gas Natural is a private company, the national law on public procurement is not applicable.

In accordance with the Grant Agreement, Gas Natural is going to refurbish 10,523 m<sup>2</sup> for residential buildings and 12,537 m<sup>2</sup> for commercial buildings. **Table 1** shows the preliminary variation on m<sup>2</sup> compared to the Grant Agreement.

Residential			
Grant Agreement		Update M6	
Clot Block	6,683 m <sup>2</sup>	Poblenou Blocks	tbd
Poblenou Block	3,840 m <sup>2</sup>		

Commercial			
Grant Agreement		Update M6	
Public School: Pere IV	3,120 m <sup>2</sup>	Public School: La Llacuna	3,315
Sport Centre: Can Felipa	3,000 m <sup>2</sup>	Sports Centre:	tbd
Hotel: Catalonia Sagrada Familia	6,417 m <sup>2</sup>	Hotel: Catalonia Sagrada Familia / Catalonia Atenas	6,417/5,500

**Table 1: m<sup>2</sup> of residential and commercial buildings update**

- Residential buildings (BEST 6,7 and 8)

Residential buildings selection has been performed considering that at least one building from each of the representative typologies (see table below) must participate in the project. This ensures that the selected buildings will be representative for a future replication of this smart solution in the city, as they represent a share of ≈75% from the total amount of residential buildings in the city of Barcelona.

Building typology	Passive measures:	Active Measures:
Mid XIX <sup>th</sup> -1930s (H3)	<ul style="list-style-type: none"> <li>• Building envelop improvements (facade, roof and windows).</li> </ul>	<ul style="list-style-type: none"> <li>• DHW consumption reduced</li> <li>• Connection to DH to profit the residual heat from CHP (≈ 100 kW).</li> <li>• HEMS and energy behaviour</li> </ul>
1940 – 1979 (H6)	<ul style="list-style-type: none"> <li>• Reducing heat loss by installing awnings and motorized blinds.</li> </ul>	<ul style="list-style-type: none"> <li>• DHW consumption reduced</li> <li>• Connection to DH to profit the residual heat from CHP (≈ 100 kW).</li> <li>• HEMS and energy behaviour</li> </ul>
2000 – 2007 (H8)	<ul style="list-style-type: none"> <li>• Reducing heat loss by installing awnings and motorized blinds.</li> </ul>	<ul style="list-style-type: none"> <li>• DHW consumption reduced</li> <li>• Connection to Barcelona DH</li> <li>• HEMS and energy behaviour</li> </ul>

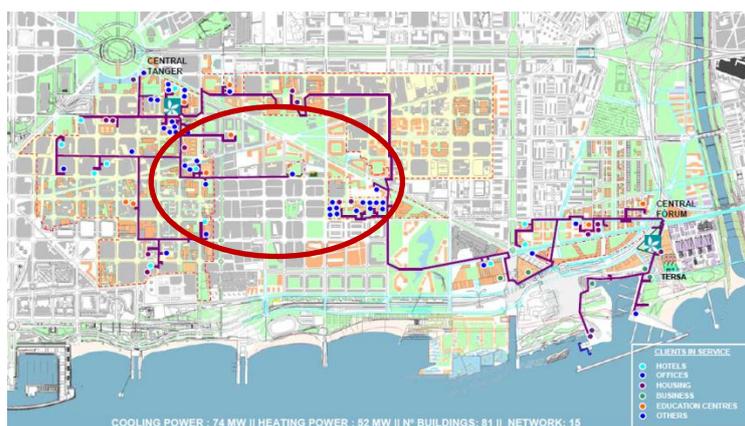
Initially, most of the square metres (6,683 m<sup>2</sup>) to refurbish were located in the Clot Block (Proposal: Catalonia Sagrada Família block formed by Enamorats [n. 120-146], Aragó [n. 555-579], Corunya [n. 25-31], Independència [n. 252-260]). After a market study, in which not only the main characteristics of the owners/tenants were assessed, but also their consumptions in heating and DHW, it was determined that most of them do not currently have a heating system, which makes the selection of buildings to be refurbished within this block difficult, since it was planned to construct a centralized DH not only for the hotel, but also to fulfil thermal needs in residential buildings. However, some actions are still planned to be implemented within this block (see 1.1 tertiary buildings and measure 4.2 in **Section 4.3.1** of this document). It is worth noting that this is not an unusual case: dwellings without heating system are more common in Mediterranean climate cities than in other locations, due to mild weather conditions in winter. According to the PECQ, only a share of 41.5% of the total number of dwellings in Barcelona have heating consumption. In addition, energy poverty is also more usual in southern countries than in northern countries, and this is also an important issue to consider in the technical solution to implement.



**Figure 1-1:** Initial residential building that was defined in proposal.

The other location proposed for the other 3,840 m<sup>2</sup> to be refurbished was next to the district heating infrastructure, also located in Sant Martí District. Currently, we are working in this second location for all the residential refurbishment (10,523 m<sup>2</sup>). The following aspects have been taken into account in order to identify the most suitable buildings to be refurbished:

- Proximity to the District Heating and cooling network: the following figure shows the area where a search of H3, H6 and H8 has been performed. The connection to the Districlima DH guarantees that active measures to be evaluated are the same as the ones proposed, which were the centralization of the heat production in a building and the usage of waste heat.



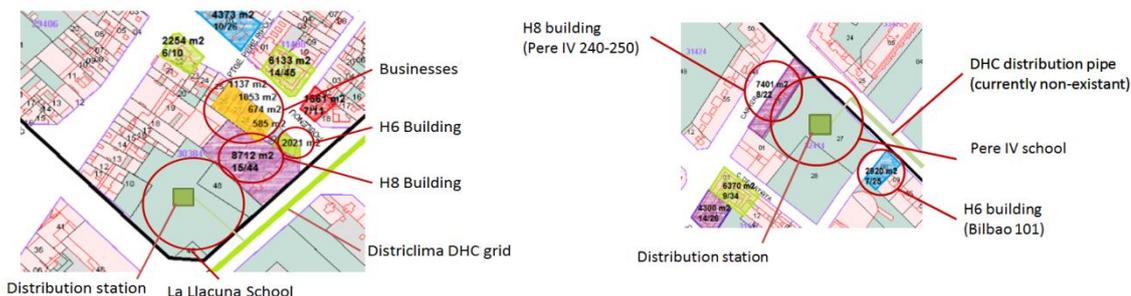
**Figure 1-2:** Districlima District Heating & Cooling network

- Energy needs from potential customers: at least the 30% of the dwellings in the selected buildings must currently have their heating and DHW demands covered (e.g. by an individual natural gas boiler or similar equipment). This percentage will have to be increased up to at least 80% once the project is finished. Although it will be not mandatory for all dwellings to have heating distribution systems, DHW needs will have to be satisfied by the district heating.
- Location in the same blocks where other public initiatives will take place: in Sant Martí District a new super island (Poblenou super island) is going to be developed by the Barcelona City Hall. A super island is an urban cell, which incorporates a group of blocks ( $\approx 400 \text{ m} \times 400 \text{ m}$ ), inside which different mobility and energy actions are implemented, as for example traffic reduction or pedestrian zones increase. As the goals of this initiative are in line with the Growsmarter project goals, the Barcelona City Council and Gas Natural have identified the Poblenou Superblock as a target location for implementing measure 1.1.
- Possibility of offering additional added value services to develop new business models: one example will be the project “La Casa por el Tejado”. Some H3 and H6 buildings in this area can increase their volume, since the maximum buildable area has increased since their construction. This means that additional dwellings can be constructed and added value services could be offered to owners additionally to the climate shell refurbishment and the active measure to increase the energy efficiency, as for example the construction of a new elevator. On the other hand, in case of not implementing additional added value services, economic bids for owners will become more competitive. A study of the number of potential buildings that could be suitable for this project has been carried out during this period of the project.

Taking into account these previous aspects, the following types of buildings have been selected as potential participants in the project:

- H6 (building constructed in the 60s-70s) and H8 (building constructed in the 00s): two different alternatives are being evaluated, either to refurbish H6 and H8 buildings in the block where school Llacuna is located or to refurbish H6 and H8 buildings in the block

where school Pere IV is located. In both cases, passive and active measures will be implemented and buildings will be connected to the Districlima district heating network (see measure 6.2).



**Figure 1-3:** Residential buildings to be refurbished in Llacuna and Pere IV blocks

- H3: several possible potential participants have been identified within the perimeter or next to the super island Poblenou, where passive measures, insulation and new windows, as well as active measures, e.g. connection to the district heating network could be implemented.

It is worth describing the most usual ownership model for residential buildings in Barcelona, since this has an important impact in the duration of this first phase before procurement. In Barcelona and, in general, all over Spain, multishare or horizontal property is the most usual model. With the aim of ensuring the replication in the future, buildings to be refurbished by Gas Natural will normally be owned by a homeowners association, i.e., each dwelling will have its own owner and all must agree before a refurbishment in the building by an ESCo takes place. Therefore, this model implies additional complexity and a longer negotiation phase in comparison to other models, as for example to have a building owned by a company or an individual person, where each dwelling is rented to a tenant.

Due to this fact, the communication channel agreed upon by Barcelona City Council and Gas Natural to engage residential buildings to participate in the project is the following:

- Evaluation of the most suitable buildings to be refurbished with Growsmarter project: this phase is finished, as it has been previously explained.
- Explanation to the district councilors of the new identified buildings and agreement of the most interesting locations where to propose the project. This phase is also finished and the result is the selection of buildings next to the super island Poblenou.
- Establishment of the contact with the homeowners associations through the district councilors to explain them the project, as a first step to reach to the identified building owners. In parallel, a technical and economical evaluation is performed in order to be

able to present a detailed business model to the building owners. This phase is under development, since some information must be provided by the owners.

- To open alternative official channels to guarantee that we reach to all the owners, as for example, through the building administrators' college. This phase is also under development.
- Once the homeowners associations will approve the project, meetings with building/dwelling owners will be organized and the technical proposal as well as the business model and economic conditions will be presented. In the buildings where the proposal will be accepted, a contract between the ESCo (GNS) and the owners will be signed.

It is important to highlight that this procedure can be slower than other alternatives but allows presenting the project as a city initiative, increasing the chances of success and directly involving citizens in the process. This is the main reason why not the regular channels to attract new customers used by Gas Natural haven't been followed.

An additional constrain has raised in the past months due to the local elections end of May. Due to the current regulation, some dissemination acts cannot be performed during the election period and has slowed down this process.

Growsmarter aims at fostering citizen participation and this has been taken into account since the design phase of the project. Thus, feedback from end-users (in this case dwelling owners) as well as the result from the detailed business model, once the meetings will take place, is key to develop the final measures to implement in the building. This means that the final scope could be somehow affected and the technical solution selected may vary, in case it presents advantages in terms of cost-benefit analysis (considering not only economic factors but also energetic factors). As an example, instead of constructing a centralized network to distribute heat from the district heating network, after the feedback from homeowner associations, it could be decided to compare both business models, i.e. to refurbish a building introducing individual high-efficient technologies or connecting the building to the district heating.

It was initially foreseen to finish this process at the end of month 9 and then, the procurement process would be started. Need for amendments cannot be defined until this citizen participation process ends. The main qualitative scope, in terms of measures to be implemented, is expected to be preserved and in accordance with the BEST tables. At this stage of the project, the only significant variation that could be introduced is, as aforementioned, the comparison between two different business models: refurbishment with and without connecting residential buildings to a district heating network.

- Tertiary buildings (BEST 10 Hotel, BEST 11 Sport Centre, BEST 15 School)

Procurements for tertiary buildings will take place in parallel with procurements for residential buildings, since the locations are dependant due to the construction of electricity and thermal grids within a block. In this case, it was foreseen to sign the

contracts at the end of month 7. Amendments cannot be requested before in most of the buildings.

Currently, energy audits have already been performed in the different tertiary buildings typologies:

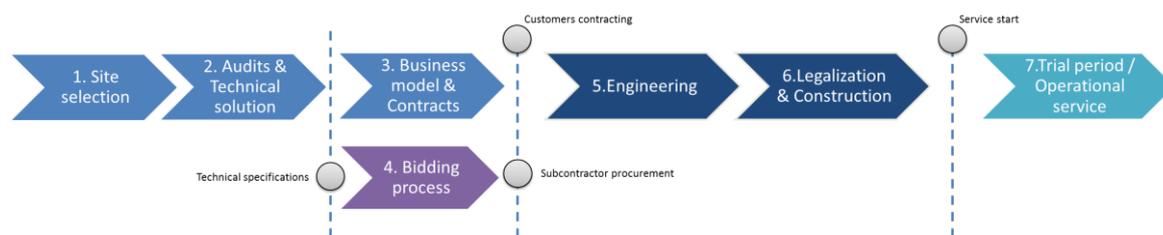
- Hotel: the Catalonia chain will participate in the Growsmarter project. This is the leading chain in the hotel sector in Barcelona, with more than 25 hotels in the Metropolitan area of Barcelona. Hotel Catalonia Sagrada Familia has been selected, where different passive and active measures will be performed. The result of the energy audit is the basis for the technical and economical bid and for the future contract signed between GNS and Catalonia. However, the final agreement with this hotel will depend on the feasibility of engaging residential buildings within this block to participate in the virtual microgrid (see measure 4.2). As aforementioned, these buildings have been rejected for refurbishment but not for the installation of renewable sources, in particular photovoltaic panels combined with energy storage (Li-ion batteries). In case the owners do not approve the participation, Catalonia Atenas (located in the surroundings of the former hotel) is already being audited. Main characteristics of this hotel are very similar to Catalonia Sagrada Familia and the measures to implement will be equivalent. Therefore, this alternative could be evaluated. The procedure to engage the residential buildings within the Catalonia Sagrada Familia block is exactly the same as the one explained before for residential buildings refurbishment. In this case, business models have been developed and meetings are being scheduled by the district councilors and technicians.
  
- Sports Centre: due to the neighborhood needs, the selected sports centre Can Felipa will not participate in the project, since it recently has been decided that its use will change in a near future. The area responsible of all the public sports centres in Barcelona (Consorci d'Esports de Barcelona) has proposed 7 alternative sports centres that can be suitable for the project. Potential suitability of each of the sports centres has been analyzed, taking into account energy consumption, savings potential, location and remaining duration of the exploitation contract. The analyzed sports centres are:
  - CE Nova Icaria
  - CE Verneda
  - CE Vitró
  - CE Júpiter
  - CE Bac de Roda
  - CEM Claror Marítim
  - Club Natació Atlètic Barceloneta

CE Bac de Roda, CE Júpiter, CE Nova Icaria and CE Vitró have already been rejected after the energy audit due to low energy saving potential. CEM Claror Marítim and Club Natació Barceloneta are being audited.

- School: Gas Natural and the area responsible of all the public schools in Barcelona (Consorti d'Escoles de Barcelona) have identified two possible schools for participating in the project. Both schools, La Llacuna and Pere IV have been visited and an energy audit has been carried out for La Llacuna. The technical and economical proposal is being elaborated and the final decision depends on whether they agree and on which residential buildings that will finally be refurbished. Pere IV was the school presented in the BEST tables, but characteristics of both schools as well as measures to be implemented are equivalent, hence, no amendments are expected for this building.

### 1.3.2 Describe each Procurement:

“Gas Natural Servicios” defines 7 stages in its project management process for the solution Growsmarter and its measures. In this context, the procurement process begins once the audits and technical solutions are completely determined and the contract with the building owner/s is signed. This characterization lets the definition of the technical specifications needed to start the bidding process that has different phases and ends with the selection of the subcontractors. These players are responsible for the development (engineering) and implementation (construction) of the measures considered in the technical solution related to the technical specifications defined for the bidding process. The start-up takes place after the construction, in the proper legal context.



**Figure 1-4:** Procurement process scheme for Gas Natural Servicios

Under these lines, we add other details that can help to understand the procurement process of “Gas Natural Servicios”:

- ***When did the procurement period open and close?***

The procurement period lasts around 2-4 months, starting from the end of Audits&Technical solution’s stage. Actually, the bidding process can begin when the technical specifications are published to let bidders provide their proposals (bids). In this case, it is expected to distribute the procurement process in two different processes: the first one to contract the retrofitting experts that will prepare the executive projects and the second one to contract the retrofitting works.

All this process will be performed with the subcontractors Aiguasol and COAC, since they are also participating in the building selection and energy audits phase.

- ***How many bids did the procurement get?***

In general, the bidding process lead by “Gas Natural Servicios” requires at least three bids.

- ***Which companies did send in bids?***

Today we are at the second stage (Audits&Technical solution) of the whole process. Also, in order to define the final technical solution, we are conditioned by the engagement of residential and tertiary buildings to the project Growsmarter. As described before (**See 1.3.1**), their participation depends on the agreement of all of the owners of the building. Since these buildings are not owned by a public administration, we have to deal with all the tenants, so that this stage is taking more time than expected. Consequently, the technical solution cannot be defined in “the technical specification’s level” required to boost the bidding process.

### **1.3.3 Do the procurements lead to any amendments (such as the need to change industrial partner to a new winner of the procurement)? Describe the amendments in that case.**

As described previously, until we have the acceptance of participation of the residential and commercial buildings, we will not be able to decide the final site. This is a factor that determines the type of building and specific measures to be considered at the end, so may be modifications on initial budget would be required.

The Amendments needed in the Smart Solution 1 (also linked to measure 4) are mainly referred to the definition of buildings in the Barcelona Site Sant Martí district which is foreseen to be closed by month 9. However, fulfilling this task by this date will depend on the successful participation of the residents in the project and therefore, this date must be treated as our current best estimate. The General Assembly has delegated the final decision of this amendment to the Steering Group.

See the document planning (Gantt) and each measure description and evaluation documents to know more about the stages.

## **1.4 BARCELONA (Municipality)**

### **Ca l’Alier (BEST 12)**

#### **1.4.1 Procurement Process of Measures.**

Ca l'Alier is an example of the public-private partnership that Barcelona Municipality is promoting. The Foundation BIT for the Habitat (Barcelona Innovation Technologies for the Habitat) has agreed a contract with Schneider Electric and Cisco to renovate and operate this old industrial building as their technology innovation and R&D centres. Refurbishment of three industrial buildings (total project area: 68 m x 29 m) that were used, back in 1853, as a textile industrial building and was afterwards affected by a fire accident. The refurbishment project includes a number of passive and active measures in order to re-build a long-lasting building with minimum energy requirements (e.g. concept of Net Zero Energy Building).

#### **1.4.2 Describe each Procurement:**

- ***When did the procurement period open and close?***

The procurement process opened 10<sup>th</sup> September 2014 and closed 12th November 2014.

- ***How many bids did the procurement get?***

7 tenderers presented their proposals.

- ***Which companies did send in bids?***

- Ute Sacyr Construcción, SA – Valoriza Facilities, SAU
- Ute FCC Construcción SA – FCC Industrial e infraestructuras energéticas, SAU
- Ute Elecnor, SA – VOPI4, SA
- Ute CRC obras y servicios, SL - constructora calaf, SA- serveis integrals de manteniment rubatec, SE
- Ute vias y construcciones, SA - arids roma, SAU - cobra instalaciones y servicios, SA
- Ute emte service, SAU - emte, SLU - comsa, SAU
- Ute copcisa, SA-acciona infraestructuras, SA

- ***Which company was procured?***

- Ute Elecnor, SA – VOPI4, SA

#### **1.4.3 Do the procurements lead to any amendments (such as the need to change industrial partner to a new winner of the procurement)? Describe the amendments in that case.**

No impact on the project development. No need for amendments

### **Escocesa (BEST 9, 13 and 14)**

#### **1.4.4 Need for amendments**

Barcelona city council has to change one of the properties that were planned to be used in the GrowSmarter project. The building site known as the Escocesa will have to be replaced. The 8650 square meter facility has to be replaced due to administrative issues and rescheduling of city funding and project time lines. The new project timeline for the Escocesa would delay the GrowSmarter project timeline by at least 8 months.

Barcelona city council proposes to perform similar measures (i.e. external insulation and energy monitoring) in another building nearby that not only will fit into the GrowSmarter project scope and timeline but is also more than twice the square footage of the Escocesa. The proposed building to be refurbished is known as Big Blue and it is a residential property building built in 1999. Big blue is over 14000 square meters of energy refurbishment. Additionally, energy savings for the new building to be refurbished reach 43% while in the previous Escocesa residential building (BEST 9) were only 27,5% (as calculated in BEST tables).

### **Big Blue (BEST Annex I of this Report)**

#### **1.4.5 Procurement Process of Measures.**

The promoter of this renovation is the Housing Department of Barcelona Municipality. Housing Department has an agreement with the Barcelona Public Energy Agency to monitor a number of solar thermal installations in Barcelona city. This is the case for Big Blue that solar thermal production will be monitored throughout the year and data collected in an open source sensor and actuator platform called SENTILO. In addition, monitored data from dwellings in Big Blue will probably also be sent to the mentioned platform.

14,165 m<sup>2</sup> of residential housing to be refurbished including a number of passive measures (see Annex 1 – BEST table Big Blue)

#### **1.4.6 Describe each Procurement:**

- ***When did the procurement period open and close?***

The procurement process opened in May 2015 and closed in June. Construcciones Caler S.A has been awarded and has recently signed the contract to start the works during M10.

**Table 2:** Summary Table of Procurement Process for Measure 1

	<u>Procurements</u>	<u>Dates</u>	<u>Regulations/building permits</u>
<b>STOCKHOLM</b>	IDLÅNGEN 3, Årsta (1 building)	1 <sup>st</sup> Phase: February to Mars '15 2 <sup>nd</sup> Phase: Mars to April '15	All building permit documents in August-September and have the building permits approved latest July 2016. Information and negotiation process with tenants started in Dec.*
	SÄVLÅNGEN 1, Årsta (2 buildings)	1 <sup>st</sup> Phase: February to Mars '15 2 <sup>nd</sup> Phase: Mars to April '15	All building permit documents in August-September and have the building permits approved latest July 2017. Information and negotiation process with tenants started in Dec 2014.*
	SÄVLÅNGEN 2, Årsta (3 buildings)	1 <sup>st</sup> Phase: February to Mars '15 2 <sup>nd</sup> Phase: Mars to April '15	All building permit documents in August-September and have the building permits approved latest May 2017. Information and negotiation process with tenants started in Dec 2014 and will be completed by June 2015.*
	Commercial venue Slakthusområdet Hudboden	April to May '15	All building permit documents in August-September and have the building permits approved latest April 2016
	Commercial venue Slakthusområdet Tarmrenseriet	April to May '15	All building permit documents in August-September and have the building permits approved latest July 2016.

<b>COLOGNE</b>	DEWOG is a private company and does not perform public procurement processes		
<b>BARCELONA</b>	Ca l'Alier	10th September 2014 and closed 12th November 2014.	Building permits required and already obtained. Civil preparation works on-going.
	Escocesa: No procurement possible. Measure replaced due to administrative and planning reasons. Replaced by Smart Solution Big Blue	NA	NA
	Big Blue: public procurement in preparation	Opened in May 2015 and closed in June 2015.	Façade rehabilitation permit required
	Residential Poblenou superblock Residential Sagrada Familia superblock	Pending. Before launching the procurement process, a contract between the ESCo and the property owner must be signed.	Façade rehabilitation permit and/or building permits required. Social participation procedure required (on-going): contact with owner association through District Councillors as well as building administrator college and finally with owners/tenants in order to reach an agreement on technical/economic conditions of the contract. However, due to existing regulation, dissemination and communication activities have to be postponed until the end of the Barcelona Municipal local elections by the end of May.
	Tertiary (Hotel, Sport Centre and	Pending. Procurements will be	Façade rehabilitation permit and/or building permits

	School)	carried out in parallel with the residential buildings.	required. In the case of the hotel, permits to install a cogeneration are required, in accordance with the Spanish Electrical Sector Law.
*Tenants will form a group for cooperation and negotiation. The rental negotiation process has started with the general tenant association, afterwards will continue with the tenant association.			

## **2. SMART SOLUTION 2**

### **2.1 STOCKHOLM**

#### **2.1.1 Procurement Process of Measures.**

No procurement needed, but the use of the construction logistics center was included as information in the procurement process of refurbishment of residential buildings in Valla Torg, Årsta.

#### **2.1.2 Do the procurements lead to any amendments (such as the need to change industrial partner to a new winner of the procurement)? Describe the amendments in that case.**

The procurement is not leading to amendments.

#### **2.1.3 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed)**

Neither permits nor citizen engagement is needed.

## **3. SMART SOLUTION 3**

### **3.1 STOCKHOLM**

#### **3.1.1 Procurement Process of Measures.**

Procurement will be done for the open home net for the parts not covered in Measure 1.1 in the following buildings:

- IDLÅNGEN 3, Årsta (1 building) BEST 3
- SÄVLÅNGEN 1, Årsta (2 buildings) BEST 3
- SÄVLÅNGEN 2, Årsta (3 buildings) BEST 3

#### **3.1.2 Describe each Procurement:**

The procurement will be conducted after the refurbishment procurement process described above is finalized.

**3.1.3 Do the procurements lead to any amendments (such as the need to change industrial partner to a new winner of the procurement)? Describe the amendments in that case.**

The procurement is not leading to amendments

**3.1.4 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed)**

No permits needed.

**3.2 COLOGNE**

**3.2.1 Procurement Process of Measures. .**

Task: Installation smart home systems (RheinEnergie – semi-public partner-80% City owned, 20% RWE)

Task: Home energy management system (AGT – private partner)

Procurements will be made for the measure 3.1: active house/HEMs/Smart Home System. The measure includes the procurement of Smart Home – Technology devices and Smart Meters.

**3.2.2 Describe each Procurement:**

- ***When did the procurement period open and close?***

The procurement is for the installation of smart home systems and energy visualization. These tools will allow creating a dynamic price model. The procurement period will open at the end of 2015 and close by 2017.

- ***How many bids did the procurement get?***

RheinEnergie will do the necessary procurement with long term partners of the company. The value of procurement is below the threshold of VOL 200.000 Euro. Thus, there will not be any bids.

Due to the long term cooperating and a trustful relationship between our partners, it can be expected that procurement data will be formulated to the satisfactory of our companions.

**3.2.3 Do the procurements lead to any amendments (such as the need to change industrial partner to a new winner of the procurement)? Describe the amendments in that case.**

For the time being, amendments are not expected.

**3.2.4 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed). Describe the permissions need to implement the measure and the status and plan to receive the permission.**

No permits needed

**3.3 BARCELONA (GNF)**

**3.3.1 Procurement Process of Measures.**

- Residential buildings

Installation of an Energy Management System to control and monitor the variables of dwellings, using as a basis the existing solution commercialised by Gas Natural (called Servicontrol)

A market analysis, started in March and still on-going, is identifying the new features to implement in accordance to project goals and end-user needs.

Servicontrol will be upgraded, integrating in the existing product additional added value services. The following table shows some of the features that are being evaluated:

Confort control	Air conditioning/boiler control
Energy consumption monitoring and control	Submetering (smart plugs) Energy efficiency advisor
Energy invoice	Access to dynamic prices information
Other added value services	Gaming Security elements

**Table 3:** Example of new features analysis

Moreover, an energy platform that aggregates all the information from the measures implemented by Gas Natural will be developed. This platform will communicate with the global GrowSmarter platform.

Although the main scope of this measure have been decided and no amendments are expected, since the scope haven't changed, the exact number of units to install cannot be known until the exact set of participant residential buildings is defined. Procurement is postponed until the new features will be confirmed and the number of units to install will be known.

- Tertiary buildings and self-sufficient blocks

Once the final solution will be defined, BEMS and control system to manage generation and consumption within the electrical block (virtual microgrid) will be designed and this will be the basis of the procurement.

No amendments are expected, as the technologies to implement as well as the type of buildings where to implement this measure haven't change.

In order to reduce the impact on the use and management of the buildings by the users, in addition to the installation of BEMS & HEMS, an energy management procedure will be implemented among the users of each building. These kinds of procedures are based in zero-cost and low-cost measures and are aimed to stimulate and promote the change of habits among users. In tertiary buildings, this procedure can be implemented through an organizational learning program, which will train building management staff in efficient use and management of buildings. In residential buildings, the change of habits among users will be carried out also through dissemination and communication activities.

### **3.3.2 Describe each procurement:**

Answers to those questions are equal to the ones in Measure 1 (See Section 1.3.2)

## **3.4 BARCELONA (Municipality)**

### **3.4.1 Procurement Process of Measures. .**

Public Platform of Energy Assessment; it provides real time electricity consumption data to dwellings.

### **3.4.2 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed)**

Issues related to privacy and confidentially information to be respected. In some cases and depending on the final implementation selected from the end-user, this will require specific authorization for the end user to the DSO in order to transfer information from the smart meter to the Energy Advisor platform hosted by the Barcelona Municipality.

### **3.4.3 Describe each Procurement:**

- ***When did the procurement period open and close?***

The procurement opened in February 2015 and it closed in April 2015. The winning tender is Enerbyte, a venture supported by KIC Innoenergy, an European Knowledge and Innovation Community.

**Table 4:** Summary Table of Procurement Process for Measure 3

	<u>Procurements</u>	<u>Dates</u>	<u>Regulations/building permits</u>
<b>STOCKHOLM</b>	IDLÅNGEN 3, Årsta (1 building)	The procurement will start after the refurbishment procurement process in Smart Solution 1	No permits needed
	SÄVLÅNGEN 1, Årsta (2 buildings)		
	SÄVLÅNGEN 2, Årsta (3 buildings)		
<b>COLOGNE</b>	Procurement of Smart Home-Technology devices and Smart Meters	The procurement period will open at the end of 2015 and close by 2017	No permits needed
<b>BARCELONA</b>	Procurement of Smart Home Energy management system (Energy Advisor) –by Barcelona Municipality	Procurement on-going. The procurement process started November 2014 and finished on April 2015	No permits required. In some cases, end-user permission required to provide smart meter information from DSO to Energy Advisor platform.
	Procurement of Energy Management System in residential and Building Energy Management System in tertiary building- by GNF	Procurement is postponed until the new features will be confirmed and the number of units to install will be known.	

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## 4. SMART SOLUTION 4

### 4.1 STOCKHOLM

#### 4.1.1 Procurement Process of Measures. .

Procurement will be done for the photovoltaics in the following buildings (relevant BEST-tables indicated):

- IDLÅNGEN 3, Årsta (1 building) BEST 3
- SÄVLÅNGEN 1, Årsta (2 buildings) BEST 3
- SÄVLÅNGEN 2, Årsta (3 buildings) BEST 3
- Commercial venue Slakthusområdet Hudboden
- Commercial venue Slakthusområdet Tarmrenseriet

#### 4.1.2 Describe each Procurement:

- ***When did the procurement period open and close?***

The procurement will be part of the refurbishment procurement process described above (all the following questions are idem to **Section 1.1** ).

#### 4.1.3 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed)

Building permits are needed for the installations of photovoltaics in the following buildings:

- IDLÅNGEN 3, Årsta (1 building) BEST 3
- SÄVLÅNGEN 1, Årsta (2 buildings) BEST 3
- SÄVLÅNGEN 2, Årsta (3 buildings) BEST 3
- Commercial venue Slakthusområdet Hudboden BEST 1
- Commercial venue Slakthusområdet Tarmrenseriet BEST 1

The plan for building permits in IDLÅNGEN 3, SÄVLÅNGEN 1 and 2 is to prepare all building permit documents in August-September and have the building permits approved latest in December 2016.

The plan for building permits in Commercial venue Slakthusområdet Hudboden and Tarmrenseriet BEST 1 is to prepare all building permit documents in September-October and have the building permits approved latest January 2016.

## 4.2 COLOGNE

### 4.2.1 Procurement Process of Measures.

Task: Energy storage, installation battery (RheinEnergie – public partner)

Task: Energy production, installation photovoltaic (tenant electricity) (RheinEnergie – public partner)

The procurement will be made for the measure 4.1 virtual power plant (VPP). The VPP will function as a managing tool for the energy sector. The procurement will contain PV and storage devices (e.g. batteries) and VPP related software. As a semi-public company, RheinEnergie is not subject to public procurement law up to the EU threshold of 200.000 Euro (VOL). The procurement is expected to be below this threshold for each of the both tasks.

### 4.2.2 Describe each Procurement:

- ***When did the procurement period open and close?***

The earliest start for the procurement period for PV modules will be by the end of the year. A precondition for the start of the procurement is that the DEWOG finished their first construction phase on the roofs of the “Stegerwaldsiedlung”.

The procurement period for storage devices have started July 2015; the earliest starting period for the procurement of the software will be August 2015. This procurement is in addition to the software and the hardware for the establishment of the VPP. If required, the necessary information can be delivered once the procurement is finalized. Since the procurement has not been started yet, following questions cannot be answered at this moment.

- ***How many bids did the procurement get?***

Since the procurement has not yet started, these and the following questions cannot be answered.

### 4.2.3 Do the procurements lead to any amendments (such as the need to change industrial partner to a new winner of the procurement)? Describe the amendments in that case.

For the time being, amendments are not expected.

**4.2.4 Describe the regulations needed to be fulfilled in order to implement the measure. Planning to handle the regulation (e.g. information to tenants or permissions needed).**

This will be covered with the information to tenants

**4.2.5 Describe the permissions need to implement the measure and the status and plan to receive the permission.**

Building permits are not required because the battery will be set up on private ground. Also the PVs need no building permits only a contract with the Dewog as owner of the buildings.

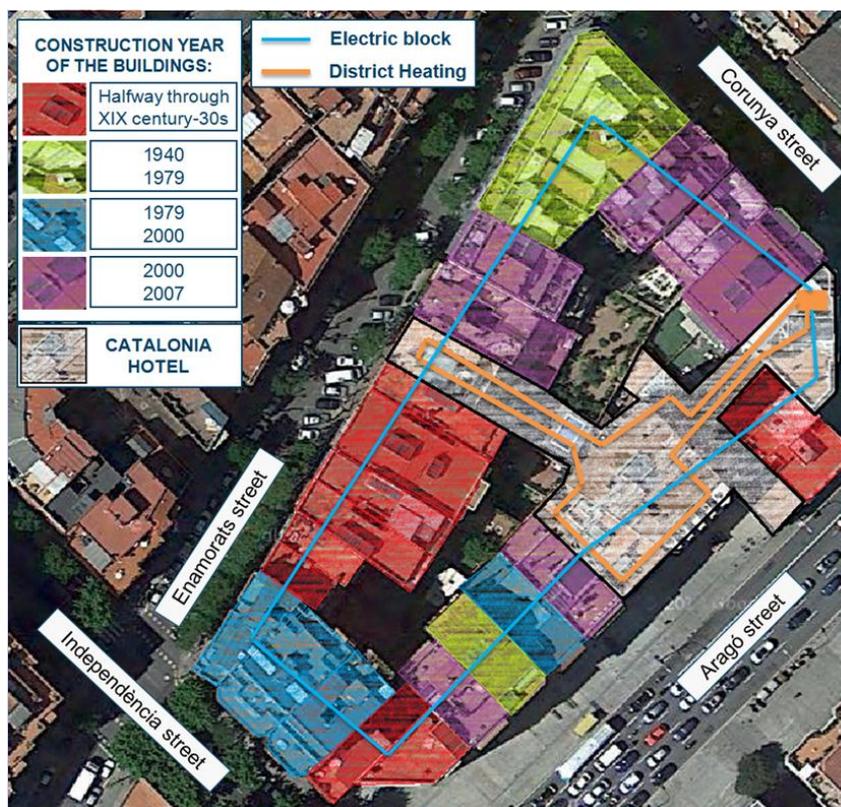
**4.3 BARCELONA (GNF)**

**4.3.1 Procurement Process of Measures.**

As mentioned in smart solution 1.1., the preliminary location that has been selected to implement measure 4.2. is the Catalonia Sagrada Familia hotel block, located in the Clot area (formed by formed by Enamorats [n. 120-146], Aragó [n. 555-579], Corunya [n. 25-31], Independència [n. 252-260]). Procurement will not start until the participation of all of the owners of the building is confirmed.

The main proposed scope of this measure is the following, being possible to introduce minor changes once the customers have been confirmed and the energy audits have taken place:

- **Tertiary building, Hotel Sagrada Família:** construction of a centralized heat production plant formed by a 100 kW<sub>e</sub> cogeneration power plant and condensing boilers to supply heating and DHW needs (except some particular heating demands, to be covered by current heat pumps). The hotel is formed by 4 buildings, with a total surface of 6,417 m<sup>2</sup> (209 rooms) and an approximate yearly occupation of 126,180 guests. The plant will be constructed in one of the buildings and heat will be distributed by a district heating network (see description).
- **Residential buildings:** construction of a photovoltaic power plant with energy storage in 5 residential buildings (total surface ≈10,000 m<sup>2</sup>) to supply residential consumptions. Moreover, lighting in community areas will be optimized replacing current equipment with LED technology. HEMS will be offered and installed for those tenants who are interested within these homeowners associations as well as in the other residential buildings from this block (total surface ≈32,000 m<sup>2</sup>) (for this measure see 3.1).



**Figure 4-1:** Catalonia Sagrada Familia hotel block, located in the Clot area

As in measure 1.1, procurement will start once the contract is signed between GNS and residential and tertiary customers.

In case of not achieving the approval of all the building owners, the block in which hotel Catalonia Atenas is located will be evaluated. Although the quantitative scope of the measures to implement may be affected depending on the final selection of buildings (e.g. installed power of renewable and cogeneration), the result of energy audits and the degree of engagement of the neighbours, this implies no qualitative variation: the measures implemented would stay the same, but at a different scale.

At this point, Gas Natural has defined the technical solution as well as the business model. An energy audit of the hotel is being carried out. The district councilors are in charge of scheduling the meetings with homeowners associations where the proposal will be presented by Gas Natural.

Thus, amendments cannot be requested until the final solution will be defined.

#### 4.3.2 Describe each Procurement:

Answers to those questions are equal to the ones in Measure 1 (See **Section 1.3.2**)

	<u>Procurements</u>	<u>Dates</u>	<u>Regulations/building permits</u>
<b>STOCKHOLM</b>	IDLÅNGEN 3, Årsta (1 building)	Part of the procurement process in Smart Solution 1	All building permit documents in August-September and have the building permits approved latest Dec 2016
	SÄVLÅNGEN 1, Årsta (2 buildings)		
	SÄVLÅNGEN 2, Årsta (3 buildings)		All building permit documents in September-October and have the building permits approved latest Jan 2016
	Commercial venue Slakthusområdet Hudboden		
Commercial venue Slakthusområdet Tarmrenseriet	All building permit documents in September-October and have the building permits approved latest Jan 2016		
<b>COLOGNE</b>	The procurement will be made for the VPP including the PV, storage devices and VPP related software.	PV modules: by the end of the year Storage devices: July 2015 Software: August 2016	Building permits are not required because the battery will be set up on private ground.
<b>BARCELONA</b>	Smart Energy and Self-sufficient	Outstanding. Procurement will	Building permits required in accordance with the

	Block in Catalonia Sagrada Familia Hotel Block	start once the contract is signed between GNS and residential/tertiary customers	Spanish Electrical Sector Law. Social participation procedure required (on-going): District Councillors are in charge of scheduling meetings with property owners associations.
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**Table 5:** Summary Table of Procurement Process for Measure 4



