A CONCERTO Project

CONCERTO COMMUNITIES IN EU DEALING WITH OPTIMAL THERMAL AND ELECTRICAL EFFICIENCY OF BUILDINGS AND DISTRICTS, BASED ON MICROGRIDS

WP 3.1 - Del 3.1.4

ESCO founded and operable

Final version

June 2015

Prepared by

VISESA
Portal de Gamarra, 1 A – 2ª
01013 Vitoria-Gasteiz – Araba, SPAIN
www.visesa.com

DOCUMENT INFORMATION

Title: Del 3.1.4
ESCO founded and operable

Attached document:
None

Date: November 2014

Task(s): WP 3.1 Vitoria-Gasteiz demonstration

Task 4. Formal set up of the ESCO

Coordinator:	Alberto Ortiz de Elgea	VISESA	alberto.o@visesa.com
Other authors:	Andrea Traspaderne	VISESA	Apoyo-tecnico-visesa@visesa.com
	Guillermo Basañez	EVE	gbasanez@eve.es

INDEX

EXECUTIVE SUMMARY

During the implementation of the project, it was expected the creation of an ESCO (50% EVE, 50% VISESA). Due to the changes in the project (the non-construction of A31 and the inclusion of the retrofitting of the building in Zaramaga) and the current economic situation, the ESCO that was stated in the proposal had to be modified.

Due to Basque Government restrictions to set up new public companies (actually is completely forbidden to do it and some existing ones are going to be eliminated), it is impossible to set up the public (co participated by EVE and VISESA) ESCO for Salburua. Additionally, due to the reduction in the scope of the Salburua project (from 432 to 176 new flats) the set up of a new company does not make sense.

The solution EVE and VISESA have found is that VISESA would become the ESCO while EVE will not be involved in it. In this way, the general philosophy of the project regarding the role that the ESCO plays in the PIMES projects is maintained.

VISESA, under its new role as an ESCO, is in charge of the thermal installations and of offering thermal energy services to the tenants of the buildings constructed in PIMES project. EVE is in charge of the generation from RES side: electricity mainly from PV panels to be sold to the grid, not to the tenants.

In order to assume the role of ESCO, VISESA included energy services activity in their corporative purpose, additionally to the original: social housing promotion. The Basque Government approved it on May 2011.

Currently, VISESA has taken the role as an ESCO for the A32 building and is managing the energy services to the tenants, according to the following characteristics:

- Based on integral energy management, increasing the social, economic and environmental benefits and facilitating new partnerships.
- Being responsible for ensuring completion of all the planned activities. It is planned that the future owners (Alokabide) and residents of the development will participate in the management of the ESCO, as its main role to serve the community needs and engage them to share the benefits. The engagement of the community will also serve for energy awareness and optimization of the energy performance through energy efficient behaviour.
- Organise awareness-enhancing activities targeted at the residents of VG.
- Supplying heating and hot water to the building occupiers; carrying out maintenance work on the distribution networks and the generating facilities (CHP and renewable); injecting the produced electricity to the grid to sell it on the Spanish electricity market.

1. INTRODUCTION

I. Initial approach

The initial objective of the PIME´s project, as it was stated in the initial DoW (Annex I), was: *"The three communities' energy projects will be led by energy service companies (ESCOs) to be set up for the purpose. These ESCOs will be in charge of implementing each of the planned actions. In each community, the promoters will be the initial owners of the ESCO and will remain responsible for ensuring completion of all the planned activities".*

Within that framework and related to the Salburua community demonstration activities (WP 3.1), there was a specific task focused on that objective:

Task 4 Formal set up of the ESCO (initial DoW - Annex I)

In the initial DoW (Annex I), Task 4 (WP 3.1 Salburua demonstration) quotes:

"This task includes the formalisation of the Salburua ESCO, including the founding deeds, and company organisation charts. This ESCO will be based on integral energy management, evolved benefits and new partnerships, but might have particularities due to the national/regional differences.

VISESA and EVE will be the initial stakeholders of this new energy services company and will be responsible for ensuring completion of all the planned activities. It is planned that the residents of the development will be the partial owners of the ESCO set up to serve the community.

The ESCO will guarantee the supply of electricity, heating and hot water; carry out maintenance work on the distribution networks and the generating facilities (CHP and renewable); market the energy and organise awareness-enhancing activities targeted at the residents of Salburua.

This solution will allow the end users of the energy to benefit from deregulation of the energy industry, participating actively in generation, distribution and marketing of their energy (power and heat)."

II. Final approach

During the project evolvement and based on the learning acquired during the five years of PIME'S activities, new knowledge and understanding of the legal situation of ESCO organisations in Spain has been acquired.

Due to Basque Government restrictions to set up new public companies, it is impossible to set up the public (co participated by EVE and VISESA) ESCO for Salburua. Additionally, due to the reduction in the scope of the Salburua project (from 432 to 176 new flats) the set up of a new company does not make sense.

Based on this, the work was modified in the amended DoW – Annex I (approved April 2014), as follows:

"VISESA will take on the function of ESCO, for which the Basque Government will authorize the enlargement of their corporative purpose.

According to this, VISESA will take on the responsibility of the investment of thermal installations and the management of the supply of heating and hot water to residents. In addition, within the framework of their active PIME´s project, EVE will take on the responsibility of the investment in electric energy production installations based on renewable sources, as well as their management and sale to the electricity system.

Thus, EVE and VISESA, will be in charge of implementing each of the planned actions; guaranteeing the supply of electrical and thermal energy; carrying out maintenance work on the distribution networks and the generating facilities; marketing the mentioned energy types and organising awareness-enhancing activities targeted at the residents of the Community.

It is planned that, in the future, each home will participate in the management of the ESCO through the tenants and the future building owners (Alokabide). This mechanism is innovative: the energy users themselves participate in making decisions on energy generation.

At the same time, this will ensure that the potential profits of the ESCO will be ploughed back into the awareness actions required to maintain the goals of energy saving and respect for the environment that underpin this project for a sustainable community.".

Task 4 Formal set up of the ESCO (amended DoW - Annex I, 2014)

"This task includes the formalization of the VG "ESCO", including the founding deeds, and company organization charts. During the project evolvement and based on the learning of the five years of PIME'S it has been established new knowledge and understanding of the legal situation of ESCO organizations in Spain.

There will not be established an independent ESCO for the Salburua project during the PIME'S life cycle, VISESA will take on this task as part of its services and responsibilities for the building. In order to do that, the Basque Government will authorize the enlargement of the Visesa´s corporative purpose.

VISESA will take the role as an ESCO for the A32 building.

- *will be based on integral energy management, evolved benefits and new partnerships, but might have particularities due to the national/regional differences.*
- *will be responsible for ensuring completion of all the planned activities. It is planned that the future owners (Alokabide) and residents of the development will participate in the management of the ESCO set up to serve the community.*
- *will guarantee the supply of electricity, heating and hot water; carry out maintenance work on the distribution networks and the generating facilities (CHP and renewable); market the energy and organise awareness-enhancing activities targeted at the residents of VG.*

In addition, within the framework of their active PIME´s project, EVE will take on the responsibility of the investment in electric energy production installations based on renewable sources, as well as their management and sale to the electricity system.

This solution will allow the end users of the energy to benefit from deregulation of the energy industry, participating actively in generation, distribution and marketing of their energy (power and heat)".

2. IMPLEMENTATION OF THE ESCO IN SALBURUA (VITORIA-GASTEIZ)

I. BACKGROUND

The objective of PIMES project in Vitoria-Gasteiz was to provide the set of buildings (432 units) of affordable energy services that take into account energy efficiency criteria, sustainability and security of supply, through the creation of an energy supply services company (ESCO) in the context of the urban development of SALBURUA neighbourhood. Such ESCO would be owned 50% by VISESA and 50% by EVE, having as main functions:

- The thermal energy production and subsequent sale to residents
- The production of electricity and its sale to the electrical system

In the business model, reasonable assumptions were made in order to assess the viability and profitability of the project. However , these assumptions contained elements with a high degree of uncertainty, as they were estimates of the future development of the neighbourhood, or planning and regulatory aspects which were out of the scope and area of influence of the PIMES project. Similarly, financial projections and recommendations were based on the economic, legal and market expectations at the time of preparation of the documents, and the economic and financial models were finalised with information from 2011.

The project took into account that at different stages would be required to review and, if necessary, to change the assumptions assumed.

II. THE INITIAL PROJECT

Following the PIMES criteria for energy efficiency, indoor environmental quality, optimized energy management and cost-effectiveness of the project, , the initial proposal considered a centralized system of heat distribution (District Heating) supplying heating and hot water to all 432 homes are to be built, spread over 3 buildings in the new urban development of SALBURUA (Vitoria-Gasteiz)

The energy system included a geothermal exchange system, cogeneration units and natural gas boilers, all connected to a heat distribution network providing to each household. Energy efficiency, security of supply and sustainability criteria were also considered for the building design. In addition, a photovoltaic electricity generation plant would be built into the system , taking the benefits of the feed-in tariffs existing in Spain at the time.

SALBURUA future community would become an urban development with a very efficiency energy system , integrating renewable energies, and in which its neighbours would actively participate in a project to improve the quality of life and reducing environmental impact.

a) Energy efficiency and savings

The District Heating system proposed for the urban development of SALBURUA had the ultimate aim of increasing energy efficiency and energy savings, actively contributing to achieve the European objectives and those contained in the 2020 Basque Country Energy (3E-2020 Strategy)

This system offered a number of benefits to the different stakeholders:

For the users, energy savings directly reflect on a reduction in their monthly bills in relation to useful heat consumed. For the developer, the system proposed directly allows the compliance with the requirements from the Spanish Building Code without the need for including additional individual facilities to meet the demand for hot water and heating of houses. For the ESCO, there was a business case to obtain some profits from the sale of thermal energy to building users, and for selling the electricity produced by the cogeneration units and the photovoltaic system to the energy grid , taking benefit of feed-in tariffs.

These advantages for all the aforementioned actors, together with the environmental impact reduction due to decreased CO2 emissions, were presented as clear reasons to implement this energy system in the new urban development of Salburua.

b) The promoters

The initial project sponsor would be an ESCO created for this purpose, owned 50% by CADEM (EVE) and VISESA.

The ESCO would register the electricity production installations (cogeneration and photovoltaic) as a production plant for electricity in special regime, according to the administrative guidelines set by Royal Decree 661/2007. Compliance with the requirements of this regulation, and availability of the feed-in tariff to ensure a fix price per kWh injected to the grid was key in the economic study for the viability of the ESCO.

The main objective of the future ESCO was to provide energy services ensuring energy-efficient network management and integrating renewable energies, in order to translate this into energy and economic savings to the neighbours. .For the proper achievement of this objective, the future ESCO assume the design, construction and operation of the heat distribution system.

The specific objectives of the ESCO SALBURUA included:

•Optimize the overall scheme of operation of the plant, in order to get a good return on the project.

• Optimize the cost of fuel (natural gas) used in the heating system, in order to maximize the profitability of the project.

• Achieve the most energy savings resulting from the use of renewable energies, efficient cogeneration systems and distribution networks properly insulated.

Maximized energy efficiency in comparison with the supply of heat and electricity by conventional energy transformation systems and distribution networks.

Ensure the security of supply for the neighbours, covering the thermal energy use with the optimal use of the different systems (geothermal exchange, cogeneration engines and natural gas boilers).

• Managing the entire system professionally, including the billing for the users. Ensure security of supply and minimizing system faults over its lifetime, by implementing an efficient maintenance plan The actual operation and maintenance of the thermal power production and primary and secondary networks, including thermal substations, might be subcontracted.

• Get the most hours of operation of the cogeneration engines to achieve the greatest economic benefit , from the combination of thermal energy production and supply to the neighbours and the sale of electricity into the grid availing of the feed-in tariffs. .

• Minimising CO2 emissions per kWh generated.

• Minimize visual and acoustic impact (noise and vibration emissions).

III. IDENTIFICATION OF POTENTIAL RISKS

The commissioning of this type of installation involves a series of external and internal risks, as identified in the initial stages of the project

Those identified risks included:

• Construction and planning risks: A variation on the expected number of users and / or periods of occupation can occur due to changes on construction and planning timelines for the neighbourhood area.

• Energy demand risk. There is the possibility that the revenues from the sale of thermal energy are reduced, either because constructed homes are not sold or occupied, or neighbours consume less energy than it would be expected.

• Regulatory risk. The remuneration system for installations connected under the "special regime" (cogeneration units and photovoltaic system) , corresponded to that defined by the RD 661/2007, which are actual feed-in tariffs, resulting in a regular and predictable income. Any change in the current regulation in this sense, could affect the profitability of the project.

IV. CHANGES TO INITIAL PROJECT

Since the preparation of the proposal PIMES (October 2008) and the signing of the contract with the European Commission (November 2009), a series of events and changes that clearly question the initial approach have occurred:

a) Cancellation of part of the promotion (256 VPO):

- The number of buildings of the project is reduced from three to one (only A32) .

- The volume of exploitation for future ESCO is drastically reduced (from 432 to 176 homes), and therefore its economic viability.

b) Type of housing

Initially there was a mix of uses, distinguishing between housing for sale in ownership and rental housing. The ESCO makes more sense in the exploitation of energy services for home ownership. Currently, all of the dwellings in the building A32, are for social rent, managed through the public company Alokabide, (176 social housing).

c) Management model

- The original management of the ESCO oriented to building owners corresponded to a single supply contract for the building's Community of Owners. With the change of use to social rental housing, the signature of a single supply contract for each tenant is necessary, a significant change and added difficulty in management of the ESCO.
- A new added risk affecting to the ESCO's profitability is that of payment defaults for energy services, more common in rental buildings. .
- The company Alokabide, which already manages other promotions in social rent, wants for the A32 a model common energy management similar to the rest of its buildings: an independent prepaid system that might not be fully compatible with the ESCO operation.

d) Regulatory changes:

One of the risks already mentioned in the original regulatory risk analysis, has fully materialized with the electric energy reform being carried out by the Government of Spain over the last two years. As a brief summary is given below, explaining recent regulatory changes of the special regime, which changed the existing feed-in tariffs and greatly affecting the economic performance of the project approach:

- Royal Decree 2/2012, elimination of bonuses (feed in tariffs) to electricity production in the special regime => reduction in income from the sale of photovoltaic electricity by 85% and 75% of cogeneration.
- Law 15/2012, on tax measures for energy sustainability, which included a the new 7% tax on the export of electricity, billing all production of electricity exported, and the application of the tax on the consumption of natural gas for electricity generation (0,65 euros per gigajoule)

- Royal Decree-Law 9/2013, laying down urgent measures to guarantee the financial stability of the electrical system . This repealed RD 661/2007 whereby the energy sales rates for the renewable energy plants were determined. It also articulates, in addition to the disappearance of tariff supplements, the foundation of a new remuneration framework, introducing the concept of reasonable profitability, which rotate, before taxes, on the average yield in the secondary market of state obligations to ten years, applying the appropriate differential (300 basis points), which will place it at around 7.5% and the base of backdated to July 14, 2013.

From that date onwards the renewable energy sector is waiting with the hope that new regulations are published, but there is a large uncertainty in the regulatory development of renewable energy plants and those in special regime) .

Given these changes, it was decided to reconfigure the cogeneration installation for self-consumption within the building (slightly more profitable than selling network), keeping the photovoltaic installation connected to the grid for electricity sale.

e) Others changes to the initial project:

The planned energy services company (participated 50/50 by EVE & VISESA) expected the realization of other similar development projects, which have also been affected by similar problems and have even led to the complete abandonment of projects . This would mean having to create a specific and unique partnership for this project, losing the benefits of a larger scale company.

The creation of a new public company has a certain political problems in the current economic downturn, especially when no guaranteed minimum return.

V. PROPOSED ALTERNATIVE TO THE OWNERSHIP OF FACILITIES

In the situation described, particularly due to the unfavourable effect both due to the downsizing of the urban development promotion an the economic impacts resulting from the regulatory energy reforms, a new scheme for the project is proposed as follows:

- That VISESA assume ownership and management of the thermal installations, including the high efficiency boilers and cogeneration installations. VISESA will be therefore in charge of the thermal energy supply in the building, managing the service as an ESCO. VISESA has already changed its legal objectives to contained this feature, therefore not requiring the creation of a new company..
- EVE assumes ownership and management of renewable plant (photovoltaic plant of 60 kWe), using its experience of management other similar facilities (329 power plants with 5 MWe each).

In conclusion, VISESA will assume the role of ESCO in the A32 building, having ownership the boiler room and managing the supply and invoicing to tenants.

For VISESA to assume this role as an ESCO, sufficient human resources (own and / or subcontracting) will be allocated, in order to manage installation related maintenance and ensure the energy supply service to users, and to manage invoicing and payments,

Taking into account the calendar of occupancy of homes (mid-2014), VISESA has negotiated with the owner of the buildings (Alokabide), and agreement to comply with this exceptional procedure .

VI. FINAL DECISION ON THE OWNERSHIP OF FACILITIES

Taking into account the previous options, the final decision for the ownership and management of the energy services in this building was agreed as follows:

- VISESA sells to Alokabide the whole building, including the boiler room with the high efficiency boilers and cogeneration engines.
- Alokabide proceeds to the implementation of a prepaid system for the occupiers
- VISESA acts as an energy manager.
- The photovoltaic installation operates as a separate installation, subject to agreement between EVE and VISESA regarding ownership.

VII. CONCLUSIONS

Despite the modifications of the construction project (non-execution of the A31) and the different regulatory, economic and management impacts:

- The presence of an ESCO is maintained as initially planned. From the initial approach of a company owned by EVE and VISESA, it has changed to be only operated by VISESA. The justification is that reducing the number of housing does not make feasible or cost-effective the creation of a joint venture. However it still made sense for an existing company (VISESA), who has changed its corporate purpose to have the ability to act like an ESCO.
- All planned energy installations have been executed in the A32, and upon an agreement between partners, VISESA assumes the operation of the common facilities and EVE assumes the PV system.
- The management of the energy systems is maintained as described in the original project, ensuring the compliance and achievement of objectives and of PIMES project.
- Grants and subsidies to the various assets will be received by the installation owners.

ANNEX I: PUBLISHED NEWS REGARDING –THE CHANGE ON VISESA'S CORPORATIVE PURPOSE –27TH MAY 2011

VISESA'S CORPORATIVE PURPOSE MODIFICATION TO INCLUDE THE SUPPLY OF ENERGY SERVICES HAS BEEN APPROVED

The Basque Government cabinet The Cabinet has given the green light to a Decree authorizing the modification of VISESA's corporative purpose , authorizing the company to include in its purpose the provision of energy services, primarily within the scope of its public housing developments.

The provision of these services involves the design, development, installation and financing of energy efficiency and cogeneration projects, with the objective to reduce primary energy consumption, greenhouse gases emissions , maintenance and operating costs , and to improve service quality to the customer and to the general public. The provision of the new service also means the assumption of the technical and economic risks associated with this type of service. Payment for the provided services will be based (partially or completely) in the achieved energy efficiency targets and the fulfillment of the other agreed performance criteria.

Directive 2006/32 / EC of the European Parliament and of the Council on energy end use of energy and energy services, calls for the public sector to fulfill an exemplary role in relation to adopting measures to improve energy efficiency, focusing on cost-effective measures which generate the largest energy savings in the shortest possible time. The directive shows a wide variety of ways for the public sector to fulfill its exemplary role, most notably the launch of pilot projects for energy efficiency.

In this context, VISESA has selected some of its buildings on which to implement design and construction alternatives for high efficiency energy systems and the directly managing the provision of energy services to ensure optimum efficiency and the security of supply to the building occupiers.

In some cases this management of energy services could lead to the acquisition of shares in companies whose corporate purpose consists precisely in providing energy services, as is the case of the Energy Service Companies (ESCOs). In other cases the direct or indirect subcontracting might be required for the implementation and management of the provision of energy services by VISESA.

Regarding investment and financing operations, they must be taken into account within the framework of the property development, reporting benefits to end users and ensuring the return of the investment on the installations from the operation of the service.

Section VI of VISESA's corporate purpose is, therefore, formulated as follows:

"The provision of energy services related to improving energy efficiency, particularly in the area of its housing developments, which may include energy supply and commercialization through its acquisition to energy providers, energy management, operation and maintaining of energy facilities, directly by VISESA or by having shares in other companies, including the management and administration of those subsidiaries."

ANNEX II: DECREE 96/2011, BY THE DEPARTMENT OF ECONOMY AND FINANCE, AND THE DEPARTMENT OF HOUSING, TRANSPORT AND PUBLIC WORKS, AUTHORISING THE CHANGES ON VISESA'S CORPORATE PURPOSE