Energy Efficiency retrofit of the public buildings of the Region of Murcia.

Region of Murcia – Spain

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| OWNERSHIP | PUBLIC |
| Program authority | Government of Region of Murcia |
| Program Delivery unit | Collaboration structure composed of DGEAIM (Directorate General for Energy, Industrial and Mining Activities) and DGP (Directorate General of Heritage) |
| Implementation Model | Energy Performance Contracting (EPC)  Separate Based Contracting |
| Operating Services | Assessor  Aggregator  Integrator |
| Projects Financed | Energy Efficiency (building retrofits)  Renewable Energy Resources |
| Ambition/targets | Savings 17 MWh/year (23% of the total energy consumed by the 392 buildings of the Plan) |
| Beneficiaries | All public regional administrations of the Region of Murcia |
| Funding Vehicle | Own Funding  ESCOs |
| Financial Instruments | EPC Financing  Own funds |

# Summary

The retrofitting of the Region of Murcia’s regional administration buildings is one of the defined actions in the Region of Murcia’s Energy Plan 2016-2020. With this energy plan, which has gone through a large participation process with many regional stakeholders including the citizens, the Region of Murcia engages in its transition towards a new energy model.

The regional Energy Plan 2016-2020 has three strategic objectives: to guarantee a qualitative and secure energy supply, to boost energy savings and energy efficiency in all areas and to foster the use of sustainable energy sources while ensuring competitiveness.

The political commitment to the retrofitting of the regional administration buildings crystallised when the Regional Parliament of Murcia (*Asamblea General de Murcia*) urged, in October 2015, the Regional Government Council, the Executive body, to:

* Proceed to the carrying out of an energy audit of all buildings and installations owned by the Region;
* Elaborate a plan of efficient energy use of these buildings and installations for the period 2016-2020 which needs to include concrete objectives, an action calendar and related financial plan (business plan).

To that end the *Dirección General de Energía y de Actividad Industrial y Minera* (DGEAIM) -the Directorate General for Energy, Industrial and Mining Activity- was mandated to elaborate the Energy Efficiency Plan for the regional administration buildings.

The Energy Efficiency plan was approved by the Government Council of the Region of Murcia in March 2017 and is intended to be implemented taking into consideration the following specific objectives:

* To comply with the European Directives
* Decrease of the energy consumption of 23%
* Increase awareness at societal level
* Serve as an example
* Foster nearly zero energy buildings

In this context, the Energy Efficiency plan envisages the energy retrofit of the almost 400 buildings owned by the regional administration and addresses the full scale of energy efficiency measures related to the improvement of the energy performance of those buildings. The programme targets administrative buildings, landmark buildings and the education sector (schools).

For the preparation of the plan a collaborative structure has been set-up between the three regional public entities **DGEAIM** (Directorate General for Energy, Industrial and Mining Activity), the **DGP** *Dirección General de Patrimonio* or Directorate General of (Regional Administration) Properties and **INFO Murcia** (*Instituto de fomento de la Región de Murcia* or the Development Agency of the Region of Murcia) each with their own role, function and responsibilities.

After the completion of the preparation stage of the Building Efficiency Plan, the DGEAIM (Directorate General for Energy, Industrial and Mining Activity) and the (Directorate General Properties) DGEAIM (Directorate General for Energy, Industrial and Mining Activity) and the DGP (*Dirección General de Patrimonio* or Directorate General of (Regional Administration) Properties) are the programme delivery unit (PDU), that manages the whole implementation programme, from analysis and assessment of the savings potential of the buildings to public tendering, contract negotiation and works implementation and follow up. It act thus as assessor, aggregator and integrator.

Roughly the objectives of energy saving and emission reduction for the 392 buildings contained in the Energy Efficiency Plan are the following:

• Savings final energy: 16.906.283 kWh / year

• Savings primary Energy Foreseen: 36.503.397 kWh / year

• Avoided CO2 emissions 11,913,181 kg CO2 / year

For the year 2018 the region is considering two financial schemes to fund the energy efficiency investments that could contribute to the success of the project if they materialise:

1. **Operational program: 2014E516RFOP019 - FEDER 2014-2020 OF THE REGION OF MURCIA**

* Investment priority: 4c. The promotion of energy efficiency, of management smart energy and the use of renewable energy in infrastructure public, including public buildings, and in housing;
* Specific objective: SO.4.3.1. Improve energy efficiency and reduction of CO2 emissions in the building and in the infrastructures and public services
* Action: Energy efficiency in public schools.

Within this line there are budgeted, for the year 2018, 1.400.000 € for the realization of energy assessments in public schools.

1. **ESCO financing**: in January 2018, DGEAIM/DGP was in the stage of finalising the drafting of the technical specifications to tender, award and sign a first EPC contract for a pool of 23 administrative buildings for which energy audits and diagnoses have already been executed. This project comes along with an investment value 67.097.642 € (Maximum bidding budget calculated in January 2018) and savings of 4.270.329 kWh/year of final energy, 8.875.257 kWh/year of final energy, and 2.937.710 kgCO2/year.

# How does it work?

The Region of Murcia’s retrofitting programme is based on the principle of aggregation of selected buildings owned by the regional administration and targets all types of energy efficiency measures including heating, air-conditioning and ventilation, relighting, thermal insulation, the design and the installation of IT-tools based smart energy monitoring systems aiming at improving the whole process of energy management of the owned buildings.

The execution of the programme is basically being carried out by the PDU along two principal activities or workflows:

* One activity focuses on the carrying out of energy diagnosis, energy audits and the energy performance certification of the owned buildings as well as on the implementation of a monitoring system,
* And the other is oriented towards the conclusion of contracts with energy services companies for the energy management of selected buildings or with other contractors for the implementation of the energy conservation measures.

Both principal activities of the PDU rely on the information included in the General Building Inventory of the building stock of the regional administration that is being compiled and managed by DGEAIM with the effective help of INFO Murcia and DGP. This inventory of the building stock is a continuous work-in-progress effort and as of September 2017 it included 392 buildings for which typology, relevant general information and indicators had been gathered.

The purpose of the **first principal activity** is to gather all relevant information on the owned buildings in order to be able to assess the energy performance of the buildings and the factors influencing the energy consumption and to identify and value the possible energy efficiency measures to be implemented in the light of their technical and economic viability.

* DGEAIM is accountable for the energy diagnosis, for the technical assessment of the building, the electrical equipment and the thermal installations, for the energy performance certification, for the execution of the energy audits and for the review of current maintenance contracts and the technical and administrative information of the technical installations in the buildings.
* To this end DGEAIM initiates a public tender process for the execution of the energy audits, energy diagnosis and energy performance certifications (for the buildings that have no Energy Performance Certificate yet) and for the implementation of an energy monitoring and invoicing system. As purchasing body it represents in fact the beneficiaries or the occupants of the buildings in the tendering process and consequently acts as an integrator.
* The selected auditors, contractors or service companies perform the energy audits and provide the energy performance certifications.
* Installation and commissioning of the Energy monitoring system is being done by the selected system provider.
* DGEAIM updates the building inventory system with all gathered relevant information.

The **second activity** encompasses the tendering process of preparation, licensing and implementation of the energy efficiency works basically based on Energy Performance Contracting (EPC).

* Based on the information obtained in the previous phase which is complemented by real current energy consumption and maintenance information, DGEAIM advises DGP on the buildings to be retrofitted. Buildings are being aggregated in order to obtain sufficient volume and economies of scale.
* DGEAIM drafts the agreement to be used to contract the ESCOs. During this task DGEAIM is supported by INFO. Standard public procurement rules apply in the designation of an ESCO and to this end the DGP, in its capacity of central purchasing body, initiates a tender process for the execution of the energy efficiency works.
* The selected ESCO installs the guaranteed energy efficiency measures, delivers the service and carries out measurement and verification during the agreed contract period.
* Although the Region of Murcia has chosen to implement the first pilot project of 23 buildings based on the EPC concept of financing, i.e. the investments are being financed by the ESCO it has not discarded the implementation of energy efficiency measures on a separate contractor based. This type of investments will then be financed with the Region’s own funds or by classic third party financing (financial institutions and similar).
* In this second activity the PDU acts again as an integrator.

Fig 1. Operational and financial model

**Remuneration of services and installations**

**Fuensanta ELENA grant (EIB) through INFO Murcia**

**Maintenance and EPC-agreement**

**Remuneration of services and investments**

**ESCO provides:**

**Retrofit works**

**Guaranteed savings**

**PDU acts as integrator of the energy efficiency projects**

***Property occupants, regional public administrations***

**DGEAIM + DGP**

**Program Delivery Unit**

**Region of Murcia**

**Program Authority**

Funding for technical assistance

**Provide:**

**Energy diagnosis**

**Energy audits**

**Building certifications**

**Energy monitoring System**

**Energy efficiency works and engineering on a separate contractor basis**

**Installers, Contractors, Auditors, Engineering companies**

**ESCO**

**Debt Service**

Bank

**Loan**

# The program delivery unit

A collaboration structure between three administrative departments of the Region of Murcia acts as the programme delivery vehicle of the Energy Efficiency plan.

It consists of the following regional administrative departments or public entities:

* DGEAIM, *Dirección General de Energía y de Actividad Industrial y Minera* or Directorate General for Energy, Industrial and Mining Activity,
* DGP, *Dirección General de Patrimonio* or Directorate General for Patrimony, and
* INFO Murcia, *Instituto de Fomento de la Región de Murcia* or Development Agency of the Region of Murcia (In the preparation stage of the Plan)

DGEAIM has the lead in the Program Delivery Unit as it has been designated to handle and facilitate the programme execution with the support of DGP and INFO Murcia

This department provides engineers, administrative and other supporting staff.

It is accountable for the carrying out of energy diagnosis, energy audits and the building performance certifications. It provides to this end the technical specifications for the contracts related to the energy audits and the energy assessments and is the contracting authority for the execution of those audits, diagnosis and certifications by third party contractors.

It prepares and facilitates the projects pipeline. This encompasses economic and technical assessments to define the scope of works to be executed within the selected projects or buildings, the organisation of the phases of execution (pool of works and/or buildings) and the timeframe of implementation.

DGEAIM also advises DGP in the EPC procurement process and provides the technical specifications required for the tendering of the energy efficiency works based on EPC..

DGP is in charge of the tender execution up to the contract awarding (through a Centralised Purchasing Office) and the monitoring, supervision and acceptance of the energy efficiency works. DGP acts as the Contracting Authority.

INFO provides technical advice to DGEAIM and DGP mainly in the field of technical requirements of EPC-contracts and support in the preparation of EPC contracts. It is also responsible for monitoring and reporting progress of implementation of Pilot Murcia within the CITYnvest project.

The PDU as a whole operates as an integrator of services, programme promotor, assessor, aggregator, facilitator and as contracting authority for the energy retrofit of the regional administrative buildings..

The working of the PDU will normally be assured as all staff involved are public servants employed by the Region of Murcia. The technical assistance provided by INFO Murcia has been funded by the ELENA Fuensanta grant from the EIB.

The PDU strives at increasing its skills and knowledge in the field of energy efficiency and innovative energy efficiency financing through its participation in the Horizon 2020 project CITYinvest (INFO Murcia) and the Interreg Sudoe Programme Rehabilite project (DGEAIM).

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| Legal structure | None |
| Shareholder description | N/A |
| Equity | N/A |
| Shareholders | N/A |
| Program dedicated staff | 4-6 |
| Program operational costs | 636.000 € |

# Organization and partnerships

**Comunidad Autónoma de la Región de Murcia (MUI):** The autonomous Region of Murcia is the program owner and political initiator of the Energy Efficiency Plan for the regional administration buildings.

**Dirección General de Energía y de Actividad Industrial y Minera (DGEAIM), Directorate General for Energy, Industrial and Mining Activity:** DGEAIM is part of the Regional Ministry of Economic Development, Tourism and Employment and is the regional public entity managing and coordinating all regional energy efficiency and renewable energy matters. Has the lead in the Program Delivery Unit as it has been designated to handle and facilitate the programme execution with the support of DGP and INFO Murcia

**Instituto de Fomento de la Región de Murcia (INFO):** Is the Region of Murcia’s Regional Development Agency. It promotes regional development and economic growth. It also provides technical support for energy investments in the public sector in the Region of Murcia and is coordinator of the Covenant of Mayors for the municipalities of the region. Is part of the Program Delivery Unit and provides technical support and technical expertise to the other PDU departments.

**Direccion General de Patrimonio e Informática (DGP), Directorate General of Regional Administration Properties:** Is part of the PDU as Central Purchasing Body and acts as the contracting party. It is responsible for the tendering process including contract awarding and acceptance of the energy efficiency works.

# **ESCO:** Energy Services Company selected through public tendering. Performs the work planned under the program and guarantee agreed savings to the contracting authorities.

# Beneficiaries

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| --- | --- |
| Beneficiaries | All public regional administrations of the Region of Murcia occupying buildings owned by the Region of Murcia |
| Type of projects | Energy Efficiency (building retrofits) |
| Operational support | Project integration through the Programme Delivery Unit |
| Financial support | N/A |

# Funding mechanism

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| --- | --- |
| Program delivery unit funding | Region of Murcia’s own budget |
| Projects Funding | Projects are being funded by the ESCOs and based on own funding by the Region. |
| Funding Vehicle | ESCOs  Property Owner (Regional Government) |
| Fund size | Not applicable |
| Fund type | Not applicable |
| Fund sources | Not applicable |
| Financial Instruments | EPC Financing  Own funds (Annual General Budgets of the Autonomous Community of the Region of Murcia) |

# Achievements

In September 2017 a total of 392 buildings have been listed and planned for energy assessment or energy audits. The Energy Efficiency Plan for Buildings includes **two lines of work:**

**a) In Line of Work I:** audits, diagnostics and energy assessments; implementation of monitoring systems, the following actions have been carried out:

• Of the total of buildings and centers inventoried in the Ministry of Education, 30 certifications and energy evaluations have been completed so far (contract for an amount of 25,967.43 euros), with the contracting of the certification and energy evaluation works of 117 centers being planned for an amount of 217 201.52 euros. (announcement in the OJEU of August 4)

• The Region has 611 public educational centers: 147 dependent on the Ministry of Education and 464 dependent on City Councils. In the 2018 budget an amount of 1,400,000 euros has been foreseen to continue with the energy evaluations of all the educational centers of the Region (the university ones, at the moment, are not contemplated)

• The contract for the supply and installation of electricity meters and a system for monitoring energy consumption (based on 3G technology) and billing management for 14 buildings of the CARM have been finalized. (amount of the contract 11,470.80 euros)

**b) In Line of Work II:** energy management of buildings through contracting with energy service companies, the actions carried out are:

* Publication of contract notice in the OJEU, we do not know if it has been published or not. Performances:
* The submission phase of the allegations to the technical specifications document for contracting the Energy Services Supply and Maintenance with Total Guarantee of 23 buildings owned by the Autonomous Community (amount of 67,097,642.08 € including VAT) has been completed, remitted by the different ministries.
* Pending start of the contract processing phase.

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# Contact details

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# Factsheet

**General Info**

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| --- | --- |
| Country | Spain |
| Model Name | Energy Efficiency retrofit of the public buildings of the Region of Murcia |
| Date of creation | 2015 |

**Model Description**

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| --- | --- |
| Ownership | Public |
| Program authority | Region of Murcia |
| Program delivery unit | DGEAIM/DGP |
| Operating services | Assessor  Aggregator Facilitator |
| Implementation model | Energy Performance Contracting (EPC)  Separate Base Contracting |
| Types of projects financed | Energy Efficiency (Buildings retrofit)  Renewable Energy Sources |
| Beneficiaries | All public regional administrations of the Region of Murcia occupying buildings owned by the Region of Murcia |
| Geographical coverage | Regional  1,5 M inhabitants |

**Financial Model Description**

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| --- | --- |
| Project funding | Public |
| Project funding vehicle | ESCOs |
| Financial instruments | EPC Financing |
| Repayment model | Guaranteed savings agreement |

**Project risk Profile**

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| --- | --- |
| Performance risk | ESCOs |
| Recourse | Property Owner |
| Financial risk | ESCO  Property Owner |

**Model Requirements**

|  |  |
| --- | --- |
| Staff Requirements | Moderate |
| Equity Requirements | n/a |
| Funding Requirements | Unknown |

**Model Key indicators**

|  |  |
| --- | --- |
| Investment volume since creation | None |
| Size of project (or project portfolio) | Unknown |
| Level of average energy savings | 23% |

**Development maturity**

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| --- | --- |
| Development/implementation stage | Start-up |
| Operational development maturity | Growth |
| Financial development maturity | Start-up |

**Model Qualification**

|  |  |
| --- | --- |
| Level of establishment | Well established |
| Growth potential | Large |
| Scalability of the model | Moderate |
| Replicability of the model | High |
| Impact on public balance sheet | Low |

# Sources

Internal documents from CITYnvest project.