



**GovernEE – Good Governance in Energy Efficiency**

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**WP 3.1.1**  
**CROSS SECTORAL EVALUATION OF EXISTING ENERGY PROJECTS**  
**AND STRATEGIES ON PUBLIC HEATING**  
**An overview of the Friuli Venezia Giulia Region**

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## 1 REGIONAL AND LOCAL STRATEGY

Friuli Venezia Giulia regional strategies aim to plan an integrated energy policy in line with the recommendations contained in the European Commission's Green Paper "Sustainable, competitive, safe" energy. The Regional objective is to combine the efficiency improvement with renewable energy sources development.

About energy efficiency, renewable energy sources and their use in public and/or historical public building, the Region has adopted Regional and European instruments to gain its targets.

At regional level, the Regional Energy Plan<sup>1</sup> has been adopted. The Plan addresses the regional energy policy.

Moreover, the European Commission approved two Regional Operational Programme for Friuli Venezia Giulia Region:

- 2000-2006 period known as *Objective 2 Programme financed by ERDF*
- 2007-2013 period known as *Regional Operational Programme for Competitiveness 2007-2013 financed by ERDF*.

While the Regional Energy Plan addresses the planning of regional energy strategies focusing on the sustainable development in every sector in order to orient the operational actions toward a common objectives, the two Operational Programmes finance a fixed number of actions/projects, starting from specific priorities.

At local level, there is only one significant strategy on public heating, that is Energy Efficiency Action Plan for Sustainable Energy (in Italian: *Piano d'Azione per l'Energia Sostenibile*) of the Municipality of Udine which is joining the *Covenant of Mayors*, launched by European Commission to endorse and support the efforts deployed by local authorities in the implementation of sustainable energy policies.

### 1.1 Regional law of Friuli Venezia Giulia Region

The Friuli Venezia Giulia Region has promulgated some laws about energy efficiency and renewable energy sources even if nothing has been foresaw for historical public buildings:

- Decree of the President of the Region 1<sup>st</sup> October 2009, n. 0274/Pres. "Regulation laying down the VEA Protocol (in Italian: *Protocollo regionale VEA per la Valutazione della qualità Energetica e Ambientale degli edifice*) assessing the environmental and energy quality of buildings, referred to article 6 bis of Regional Law n. 23 August 18, 2005 - Dispositions on sustainable construction".
- Regional Law, 18<sup>th</sup> August 2005, n. 23 "Dispositions on sustainable building".  
The law promotes the sustainable development of urban planning and building, enhancing the historical, environmental, cultural and social heritage, so that Region Friuli Venezia Giulia promotes the principles of ecological architecture for new

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<sup>1</sup> Decree of the President of the Region, 21st may 2007, n. 137, LR 30/2002, art. 6 "Approval of the Energy regional Plan".

buildings and restoration of public and private buildings. Energy efficiency, energy savings and the use of renewable energy sources are some of the requirements.

- Regional law, 19th November 2002, n. 30 “Disposition on energy”.  
The law fixes functions and competences of local Authorities (Region, Provinces and Municipalities) in the field of energy.

## 2 REGIONAL STRATEGY

### 2.1 REGIONAL ENERGY PLAN OF THE FRIULI VENEZIA GIULIA REGION

The Regional Energy Plan (REP) was passed by the Decree of the President of the Region on May 21st, 2007 n. 0137/Pres. (Regional law 30/2002, art. 6).

The REP is the essential primary planning tool and the addressed key for the regional energy policy. The REP plays a leading role in the socio-economic development of the Region and so the connection of REP with regional economic planning is crucial. Therefore, Region fixes energy priorities in order to provide direction for an integrated planning of the resources, in a cross-sectorial view: energy enables growth for the territory. Energy, as engine for economic and social development, is therefore a strategic issue for government actions of the Friuli Venezia Giulia Region.

#### 2.1.1 Objectives and priorities

The Energy Plan strategic topics are energy and renewable energy sources.

The general objectives are:

- increasing efficiency of the regional energy system and reducing carbon emissions;
- increasing the use of renewable energy;
- reducing energy consumption in transport, productive sector, housing and service sector;
- increasing energy efficiency in the above-mentioned sectors.

On the basis of these objectives, and listening also to associations, trade unions, and environmental associations, the priorities of REP are:

- 1) Ensuring, in medium and long term time horizon, energy supply to households and to enterprises in order to maintain and increase the economic growth of the Region.
- 2) Increasing energy efficiency of the regional energy system, reducing energy consumption and increasing rational use of energy in transport, productive sectors, housing and service sector.
- 3) Reducing energy costs for both business and home users with promotion of competition.
- 4) Minimizing environmental impact and harmonizing energy structures with environment and territory.
- 5) Promoting the innovation and the technological and management experimentation for energy production, transport, distribution and consumption.
- 6) Promoting the use of renewable energy sources in line with national objectives for Kyoto protocol.

### 2.1.2 Measures (EE and/or RES in public building and/or historical building)

**The measures of priority nr.2 and nr.6 concern the GovernEE project purpose: energy efficiency and/or renewable energy sources in public and/or historical buildings.**

- The general objective of priority 2 concerns increasing energy efficiency by technology innovation, good management and reducing energy consumption.  
The specific measures are: 1) improving efficiency of energy system and power plant through innovative technologies and rationalization of the energy transmission infrastructure; 2) improving use of cogeneration plants; 3) promoting energy saving by information, awareness and training campaign 4) reducing energy consumption of final users.  
The expected results for the measures is the energy costs reduction, the care for energy saving and for energy efficiency in renovation and new buildings.
- The general objective of priority 6 is the promotion of renewable energy sources to contribute to Kyoto Protocol.  
The specific measures in line with the project purpose are: 1) providing incentives for biomass-fuelled, geothermal, micro hydroelectric, photovoltaic and solar thermal power plant and waste incineration with energy recovery and wind turbines. 2) Making laws about renewable energy plants and rational use of them in public and private buildings.  
The expected result for the measures is the reduction of energy demand and the increase of environmental protection.

### 2.1.3 Funding scheme

The plan is implemented with energy and operational objectives, planning regional incentives for energy renewable sources and energy savings, as well as for innovation and research.

The presumed private investment is about 456 million euro and the public investment (European, National and Regional) to provide incentives is about 128 million euro.

### 2.1.4 Suggestion for improvements

The REPOf Friuli Venezia Giulia Region is a planning tool for regional energy policy. The strategy emphasizes as energy could enable growth for the regional territory.

Although the Plan, through some priorities, focuses both on renovation of public buildings and historical buildings, and energy efficiency and renewable energy, the plan should highlight the leading role of regional and local public authorities.

Public pilot projects, coordinating actions, programs and guidelines and methodologies for private investments and above all a coordination of laws and regulations should be some of the feasible actions.

## 2.2 OBJECTIVE 2 – Regional Operational Programme

The Objective 2 Operational Programme of Friuli Venezia Giulia Region was approved by the European Commission C2811 on 23<sup>rd</sup> November 2001 for the programming period 2000-2006.

The EU financial backing for Objective 2 was addressed mainly to faltering rural and industrial areas in a phase of socio-economic change. The Objective 2 provided also a phasing-out until 2005 for the areas which had benefited of Objective 2 and 5b in 1994-99 period and which can no longer use them in the new phase of programming.

The total area concerns by Objective 2 represented the 58,6% of the regional territory, to which is added the 11,3% of the phasing-out territory.

### 2.2.1 Objectives, priorities

The overall aim of the Programme is sustaining the region's restructuring process and developing its natural, environmental and cultural resources through some actions: increasing growth, job creation, conversion and productive innovation of Friuli Venezia Giulia territories admitted to Objective 2 – also through promoting sustainable development in the environmental, energy, transport and manufacturing activities fields – promoting welding and integration with the most dynamic areas of the Region; contributing to strengthen, also structurally, the mountain areas in order to regenerate these territories and promoting conversion of areas under phasing-out.

The Programme develops specific objectives as regard:

- 1) Revival of public investment, with particular reference to designs and works of the integrated transport system and social structures.
- 2) Protecting and supporting employment.
- 3) Reorganizing credits and financial instruments.
- 4) Finalizing reform of local self-government authorities.
- 5) Increasing services and investments in the economic sectors also with the rebalancing purpose of less-favoured areas.
- 6) Environmental protection and urban planning.

On the basis of these specific objectives, the Operational Programme has identified five priorities:

- 1) Competitiveness and attractiveness of the area.
- 2) Expansion and competitiveness of businesses.
- 3) Enhancement and protection of environmental, natural and cultural resources.
- 4) Strengthening of the mountain economy and recovery of socio-economic and market conditions in marginalized mountain areas.
- 5) Technical Assistance.

### 2.2.2 Funding

The program mobilizes a total of 335,7 million euro (Objective 2 and phasing-out) of public contribution, 100,7 million euro from EU contribution and 235 million euro from National contribution. The Region and other public beneficiaries contribute to the Programme



implementation with 67,6 million euro. This public expenditure will enable public and private investments which are evaluated for more than 512 million.

Breakdown of finances by priority axis:

Priority	EU Contribution	National Public Contribution	Total Public Contribution	%
1) Competitiveness and attractiveness of the territorial system	26.219.663	61.179.211	87.398.874	26%
2) Enlargement and competitiveness of the entrepreneurial system	43.007.880	100.350.569	143.358.449	43%
3) Protection and enhancement of environmental, natural and cultural resources	15.949.577	37.215.688	53.165.265	16%
4) Strengthening the economy in mountain areas and re-establishing socio-economic and marketing conditions in marginal, mountain areas	13.136.689	30.652.273	43.788.962	13%
5) Technical Assistance	2.414.229	5.633.202	8.047.431	2%
<b>Total</b>	<b>100.728.038</b>	<b>235.030.943</b>	<b>335.758.981</b>	<b>100%</b>

### 2.2.3 Measures (EE and/or RES in public building and/or historical building)

The purpose of GovernEE project, considering energy efficiency and /or renewable energy sources in public building and/or historical building, is in part highlighted by priority 1 “Competitiveness and attractiveness of the area “ and priority 3 “Enhancement and protection of environmental, natural and cultural resources”.

The priority 1 has three operational objectives: 1.1) Competitiveness and attractiveness of the transport system; 1.2) Urban competitiveness and attractiveness; 1.3) Competitiveness and attractiveness of infrastructure for the development of productive activities.

Regards GovernEE project purpose, the objective 1.2 focuses on public building but do not concern energy efficiency or the use of renewable energy sources. It promoted local development projects in order to increase the quality of life in urban areas, the attractiveness and the restoration of public building heritage in order to enhance small towns.

The latter, among other actions, finances facilities for tourism, and other services in order to enhance the socio-economic development of urban areas, to increase tourism attractiveness and to improve the quality of life in urban areas.

The priority 3 has two operational objective: 3.1) Protecting and enhancing resources and natural and environmental heritage; 3.2) restoring and enhancing cultural heritage; 3.3) Soil protection and protection from hydrogeological instability in mountain area.

The objective 3.1 focused on the promotion of renewable energy sources with the action 3.1.2.

The action aims to exploit low enthalpy geothermal resources in the plain of Friuli Venezia Giulia and in lagoon areas and to build a geothermal pilot plant. The activity aims also to build hydroelectric plants and biomass plants in mountain areas.

The objective 3.2 focuses only on renovation and enhancement of architectonic, cultural, historical-artistic and environmental heritage.

#### 2.2.4 Beneficiaries

The above-mentioned measures of the Programme are addressed to specific beneficiaries, as regard:

- for the measures 1.2: local community, local economic system and local tourist and productive system;
- for the measures 3.1: population, local productive system, industrial small-medium enterprises;
- for the measures 3.2: local productive system, public authorities which are owners of cultural heritage, local tour operator, users.

#### 2.2.5 Best practice

At the end of the Objective 2 Programme, for the mentioned project purpose, there is not any best practise to consider.

About the above-mentioned measures, for example:

- measures 1.2. Municipality of Trieste, renovation of the Square between Rive of Roiano.
- measures 3.1. Touristic facilities, exhibition, nature trial.
- measures 3.2. a) Renovation, recovery and preservation of the hydroelectric power plant of Montereale Valcellina. b) Recovery and preservation of “di Toppo Castle” C) recovery, preservation and enhancement of Tesis ex-dairy.

#### 2.2.6 Suggestions for improvement

The Operational Programme Objective 2 2000-2006 promotes a restructuring process of the Friuli Venezia Giulia Region.

The Programme promoted the energy efficiency and the use of renewable energy more in the productive sector (small-medium enterprises, industries, tourism, etc.) than in the public one.

The integration and the coordination between planed actions of historical architectonic cultural heritage protection – and related buildings - and planned actions of energy efficiency and for the use of renewable energy sources, would be required, enhancing also the role of local communities in decision-making.



### 2.3 Regional Operational Programme for Competitiveness 2007-2013

The Regional Operational Programme for Competitiveness 2007-2013 of Friuli Venezia Giulia Region identifies the areas that benefit of European, National and Regional structural funds in the period between 2007 and 2013.

Friuli Venezia Giulia promotes projects to sustain regional economy in order to increase the National and International competitiveness of the Region.

#### 2.3.1 Objectives and priorities

The overall aim of the Programme is to improve the general quality of life of the region's inhabitants through boosting competitiveness and supporting sustainable development.

The Programme develops specific objectives as regard:

- strengthening enterprises competitiveness;
- promoting environmental sustainability;
- increasing regional accessibility and breaking down barriers for productive sector;
- promoting internal cohesion and balanced spatial development;
- promoting long-term sustainability for economic growth;
- increasing effective and efficient actions of regional administrative-technical structures in the context of planning and programming the implementation process, through technical support to management and control, to evaluation and visibility of the Programme and to planning and implementation phase.

On the basis of these specific objectives, the Operational Programme has identified six priorities.

- 1) Innovation, research, technology transfer and entrepreneurship.
- 2) Environmental sustainability.
- 3) Accessibility.
- 4) Territorial development.
- 5) Energy, eco-sustainability and efficiency for the productive system.
- 6) Technical assistance

#### 2.3.2 Funding

The Operational Programme falls within the framework laid out for the Regional Competitiveness and Employment Objective and has a total budget of around €303.001.323. Community funding through the European Regional Development Fund (ERDF) amounts to €74.069.674, which represents approximately 0,3% of the total EU investments earmarked for Italy under the Cohesion Policy for 2007-2013.

Breakdown of finances by priority axis:

Priority	EU Contribution	National Public Contribution	Total Public Contribution	%
1) Innovation, research, technology transfer and entrepreneurship	33.810.000	104.190.000	138.000.000	45,5%
2) Environmental sustainability	8.538.250	26.311.750	34.850.000	11,5%
3) Accessibility	9.800.000	30.200.000	40.000.000	13,2%

4) Territorial development	9.800.000	30.200.000	40.000.000	13,2%
6) Energy, eco-sustainability and efficiency for the productive system	9.317.661	28.713.608	38.031.269	12,6%
7) Technical assistance	2.803.763	9.316.291	12.120.054	4%
<b>Total</b>	<b>74.069.674</b>	<b>228.931.649</b>	<b>303.001.323</b>	<b>100%</b>

### 2.3.3 Measures and expected results

Some of the Programme priorities focus on the purpose of GovernEE project, considering energy efficiency and /or renewable energy sources in public building and /or historical building.

The project purpose is highlighted in priority nr. 4 “Territorial development”. Moreover, the priority 5 focused on “energy, eco-sustainability and efficiency for the productive system” with an operational objective aimed to energy efficiency and the use of renewable energy sources, and it is oriented towards small-medium enterprises and big enterprises and also for local public authorities and Region.

The priority 4 has three operational objectives: 4.1) increasing urban land attractiveness by stimulating development, through an efficient and effective use of its resources; 4.2) contributing to the overcoming of mountain areas difficulties.

The operational objective 4.1 about urban development, among other activities, finances initiatives for the protection and enhancement of cultural, historical and architectural heritage, and through enhancing and networking museums (City Museum); moreover it promotes energy efficiency and the use of renewable sources in buildings and public building stocks.

The operational objective 4.2, about overcoming mountain area difficulties, focuses on enhancing and using of natural, cultural resources and cultural heritage. Particularly, it promotes renovation and recovery projects from a historical, artistic cultural, archaeological and ethnoantropological point of view.

The expected result of priority 4 is the reduction of the growth gap between every territorial areas of the Region, promoting an homogeneous growth of urban centers, a greater integration between mountain areas and the other productive system and an increase of lagoon areas from economic and social point of view.

The priority 5 has two operational objectives: 5.1) promoting energy efficiency and the use of renewable energy sources; 5.2) supporting environmental friendly productive processes through promoting the reduction of emissions in atmosphere.

The only objective focusing on the GovernEE project purpose is the first one. One of the planed action focuses about renewable energy sources in local public authorities buildings and regional buildings. It aim to promote the use of renewable energy and awareness campaign.

#### 2.3.4 Beneficiaries

The above-mentioned measures of the Programme are addressed to specific beneficiaries, as regard:

- for the measures 4.1: public authorities, public and private bodies, small-medium enterprises;
- for the measures 4.2: public authorities and public bodies, enterprises.
- for the measures 5.1: local public authorities and the Friuli Venezia Giulia Region.

#### 2.3.5 Calls

For the above-mentioned analyzed measures there are some call for proposals.

- Call for measures 4.1: urban development.  
The expected projects have to promote renovation and recovery projects for private and public existing buildings both in the economic-productive sector and of the cultural, historical and architectural heritage, to promote energy savings and the use of renewable energy sources.  
The beneficiaries are local public authorities, chamber of commerce, small-medium enterprises and its consortium.
- Call for measures 4.2: overcoming mountain area difficulties.  
The expected projects have to renovate and to recovery buildings or small buildings from a historical, artistic cultural, archaeological and ethnoantropological point of view.  
The beneficiaries are local public authorities as owner of the above-mentioned buildings, micro and small enterprises.
- Calls for measures 5.1: promoting energy efficiency and the use of renewable energy sources.  
Call nr. 1: the expected projects are structures and infrastructures for the exploitation of geothermal sources in the first seven hundred meters deep of known geothermal source areas. The geothermal energy will be used for heating, hot water and also district heating.  
The beneficiaries are local public authorities and region Friuli Venezia Giulia.  
Call nr. 2: the expected projects are structures and infrastructures for the exploitation of geothermal sources over seven hundred meters deep. The geothermal energy is used for heating, hot water and also district heating.  
The beneficiaries are local public authorities and region Friuli Venezia Giulia.  
Call nr. 3 and nr. 4: the expected projects are structures and infrastructures for the exploitation of geothermal sources with geothermal well and geothermal heat pumps. The geothermal energy is used for heating, hot water and also district heating.  
The beneficiaries are local public authorities and region Friuli Venezia Giulia.

### 2.3.6 Suggestions for improvement

The Regional Operational Programme for Competitiveness 2007-2013 sustains regional economy.

Compared to Operational Programme Objective2 2000-2006 some objectives are improved:

- All the areas of Region Friuli Venezia Giulia are eligible and can be founded.
- Focusing on small and medium enterprises development, on environmental protection and avoiding risk.
- Promoting of sustainable urban development from a environmental point of view.

Although the Operational Programme highlights energy efficiency and the use of renewable energy sources also for public buildings, it doesn't focus on joining them with the architectural public heritage, for example with pilot projects for renovation of legislative regional framework.

## 3 LOCAL STRATEGY

### 3.1 ACTION PLAN FOR SUSTAINABLE ENERGY OF THE MUNICIPALITY OF UDINE

The Covenant of Mayors is a voluntary initiative which commits European cities to establish, within one year of signing a binding Action Plan with the goal to reduce more than 20% greenhouse gas emissions through local policies and measures, to increase the use of renewable energy sources and to improve energy efficiency.

The municipality of Udine has joined the initiative, formally endorsing the above-mentioned document known as "Covenant of mayors" with Council resolution No. 106 of 11/30/2009.

The Action Plan includes measures which the Administration would implement on its assets and the whole municipal area until 2020.

On 12th October 2009 the Municipality has approved the Local Energy Plan that contains the assessment of energy consumes and climate change emissions generated from the municipality with reference to the last five years (2003-2007).

#### 3.1.1 Objectives, priorities

The proposed strategy focuses into two general aims:

- A. The Municipality is committed to become a leader and an example for its citizens, programming and implementing actions aimed at reducing fuel consumption and carbon emissions especially for public buildings and heating plants.
- B. The Municipality is committed to convey the culture of energy savings, energy efficiency and use of renewable sources to its citizens and enterprises, enhancing achieved results on its assets in order to facilitate wide dissemination of low energy consumption buildings.

The Action Plan is divided in a long and short plan.

The short term actions, focused about energy efficiency and the use of renewable energy sources in public building, are divided in four categories:

- Energy efficiency projects for Municipality buildings.

- Energy saving for street light and traffic lights.
- Projects for elimination of heating diesel oil in every buildings, replacing it with methane.
- Project for renewable energy plants, especially solar thermal plants, photovoltaic power plants and biomass plants.

### 3.1.2 Measures (EE and/or RES in public building and/or historical building)

The specific short-term actions are:

- Energy management of municipal assets;
- Energy efficiency of municipal building assets;
- Photovoltaic power plants on schools;
- Solar thermal power plants on sport facilities and gyms;
- Energy efficiency of municipal traffic lights network;
- Street light technology innovation;
- Reduction of public building energy consumption with thermal insulation;
- Energy efficiency criteria and use of renewable energy in the Triennial Plan of Works;
- Biomass heating plants for municipal greenhouse;
- Hydroelectric power plants in the Palma stream and Udine stream;
- Create purchasing groups of photovoltaic/solar thermal;
- Methane for transport;
- Energy saving for public housing.

Some actions are focused on the GovernEE project purpose:

- Action 2: Energy efficiency of the Municipality building assets.  
The specific objectives are: 1) implementation of the energy service contracting for building heating. 2) implementation of the energy service contracting for electricity; 3) purchase of environmental friendly energy.  
For the objective 1, the expected results are the reduction of 40% carbon emissions until 2020, of 990 ton of CO<sub>2</sub> due to electric efficiency, of 700 ton of CO<sub>2</sub> due to condensing boiler efficiency, of 60 ton of CO<sub>2</sub> due to removal of oil fired boilers, of 500 ton of CO<sub>2</sub> due to heating plant efficiency.
- Action 3: photovoltaic power plants on schools.  
The operational objective is to increase energy independence of schools through renewable energy plants. Moreover the action aims at educating school students about the basics behind traditional renewable energy.  
The action have to achieve a reduction of 600 ton of carbon emission.
- Action 4: solar thermal power plants on sport facilities and gyms.  
The objective is to reduce energy consumption of municipal gyms and swimming-pools through the use of renewable energy.  
The action have to achieve a reduction of 600 ton/year of carbon emission.
- Action 7: reduction of public building energy consumption with thermal insulation.  
The roof and walls thermal insulation reduces energy consumption of 50%.  
The action have to achieve a reduction of 275 ton/year of carbon emission.

### 3.1.3 Beneficiaries

The above-mentioned actions of the Action Plan are addressed to specific beneficiaries, as regard:

- for action 2: energy managers, Regional Territory and Environmental Department, Regional Infrastructure Department, artisanal and energy service firms, local energy supply (AMGA), ESCOs.
- for action 3: Municipality, artisan energy service firms, ESCOs.
- for action 4: Regional Territory and Environmental Department, artisan energy service firms, ESCOs.
- for action 7: Regional Territory and Environmental Department, contracts office, artisan energy service firms, local energy supply (AMGA), ESCOs.

### 3.1.4 Suggestions for improvement

The Action Plan for Sustainable Energy highlights the importance of operational actions on public heating, both with the use of renewable energy and the thermal insulation.

## 4 **ASSESSMENT OF STRATEGY, CONCLUSIONS, PROBLEMS, SUGGESTIONS FOR IMPROVEMENT**

Each strategies, action plans and operational programme above-mentioned focus on public heating with the purpose to improve energy efficiency.

Starting from the Regional Energy Plan and complying the analysis of its overall objective, priority and actions planned for Friuli Venezia Giulia energy policy with the other “tools” brings out the gap between REP and the latter, the POR FESR.

Given that the legislative regional framework needs to be updated complying with new European directive, the REP has to focus its objectives and actions in order to cut greenhouse gases by 20% (30% if international agreement is reached), reduce energy consumption by 20% through increased energy efficiency and meet 20% of our energy needs from renewable sources. Moreover the carried on strategies and the achieved results can contribute to updating the regional legislative framework.

The Municipality of Udine, in line with the European Commission target, has joined the Covenant of Mayors and approved its Action Plan for Sustainable Energy. The planned short and long term actions are focused on public buildings energy efficiency both with the use of renewable energy and with the thermal insulation.

The assessment of Objective 2 (2000-2006) and the Regional Operational Programme for Competitiveness 2007-2013 reveals the latter have improve the weak point of the former, strengthen actions on energy efficiency in public buildings.