



# Passive House Regions with Renewable Energies (PassREg)

[Bulgaria]

## Context

The PassReg programme seeks to accelerate the implementation of buildings with virtually zero or zero energy consumption throughout the European Union, using the principle of the so-called "passive house", i.e. using Renewable energies resources. It is part of the "Intelligent Energy Europe" programme to help regions in Europe to perform in the field of renewable energies.

## Description and Main Objectives

Several European municipalities and regions have already committed themselves to the principles of the passive house (maximum heating and cooling requirements of 15 kWh/m<sup>2</sup>a in new buildings). The experiences of these regions, or PassREg, have helped pave the way for other UE regions to reach the 2020 energy targets.

Border regions that had implemented effective and cost-effective strategies were highlighted. The models used to promote the implementation of PassREg concepts have been adapted and applied in the emerging regions. The experiments were introduced into a set of web-based solutions tools that made best practices accessible to advance the large-scale adoption of new PassErg across the U.E.

The introduction of the experiences in the web tools was possible thanks to the realization of the project BEACON, which aimed to integrate the technologies of networks virtualization with the technologies of datacenters. Applications will have an integrated interface to specify their QoS requirements.

The outcomes being:

-  Realization of a guide featuring the experiences of the regions in order to help the local decision-makers to implement the same solutions appropriate for their market conditions;
-  Solutions and examples of good practice stemming mainly from examples of projects;
-  The Passive House Institute modified the Passive House standard and its Passive House Planning Package (PHPP) model to include renewable energy sources in the calculation. The "Passive House Plus" standard has been proposed as a model for buildings with almost neutral energy;
-  Adoption of Objective 2020 PassREg solutions for buildings with near zero energy consumption.

The Key lessons learnt are:

-  Empowerment of local and regional authorities and involvement of local politicians is key for the introduction of Passive House in construction practices. Current political will is a key factor in the development of sustainable energy;



This project has received funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 695923





-  The availability of financial incentives helps encourage the development of passive houses;
-  Training and sensitization activities of all stakeholders are important to strengthen the capacity of regions to design and build passive buildings.

The “Sun Kindergarten” is the first certified passive public building in Bulgaria.

## Implementation Strategy

In 2013, the municipality joined the Covenant of Mayors. Its Sustainable Energy Action Plan (SEAP) has a strong focus on the construction sector, e.g. in regards to nearly zero-energy buildings. Gabrovo Municipality is strongly involved in implementing the National Programme for Energy Efficiency of Residential Buildings and the EU Directive on Energy Performance of Buildings.

The project targeted a kindergarten in the municipality the "Sun Kindergarten". It allowed Bulgaria to obtain the first certified passive building in the country. It also obtains the energy rating "A" for net energy demand, and complies with passive house standards. This project represents the flagship energy efficiency project of Gabrovo.

The project results in a heating system; the building features floor heating and highly-efficient ventilation with heat recovery, as well as solar panels that are used to heat water Boilers mixing solar and electric energy ensure the heating of the buildings. Annual heating and cooling demand is approximately 15 kWh per square meter. When winter temperatures are very low, a central heating station is activated as an additional reserve capacity.

The goal is to offer new and modern buildings to the population, with better living conditions, especially, in this case, for children. It also aims to ensure savings for the municipality that can be redistributed to other projects for the population. The development of the project is also aimed at encouraging the municipality to further increase its efforts in the field of energy-efficient buildings and to serve as a model for local decision-makers in the implementation of similar projects.

## Budget

The project costed € 775.000 and received its funding mostly through a loan from the European Bank for Reconstruction and Development (EBRD). The return on investment is 9-10 years.

## Time frame

Start date: 2012 - End date: 2015

## Contacts & Links

Desislava Koleva  
Chief Expert, Covenant Coordinator  
e-mail: [desislava@gabrovo.bg](mailto:desislava@gabrovo.bg)  
[http://www.covenantofmayors.eu/IMG/pdf/Gabrovo\\_2016.pdf](http://www.covenantofmayors.eu/IMG/pdf/Gabrovo_2016.pdf)

*This project has been funded with support from the European Commission. The sole responsibility for the content of this factsheet lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.*



This project has received funding from European Union's Horizon 2020 research and innovation programme under grant agreement No 695923

