POCITYF: Positive Energy CITY Transformation Framework

Duration, budget and consortium:

60 months. The budget will be 22.5 M€ and Évora will benefit of an investment of 9,8M€ of which 8,1M€ will be financed by UE.

Consortium led by NEW R&D/EDP Labelec is made up by 46 entities coming from European countries: Portugal, Spain, Italy, Germany, Greece, Netherlands, Slovenia, Hungary, Denmark, Finland, Austria, Belgium e Switzerland

The project will be led by two lighthouse cities, which are Evora (Portugal) and Alkmaar (Netherland) and followed by six others, Granada (Spain), Bari (Italia), Celje (Slovénie), Ujpest (Hungary), Ioannina (Greece) et Hvidovre (Denmark).

The project is Co-financed by HORIZON 2020

The objective **is to make the environment of these cities more sustainable, accessible and healthier, achieving the concept of positive energy.** The concept of positive energy blocks goes beyond the perspective of the energetically positive building. The objective is to make the block energetically positive through the implementation of active or passive measures of energy production or storage. This project differs from others since it is dedicated to historic sites with world heritage, where the challenges for integrating renewables or implementing energy efficiency measures are greater.

So, its main objective is to create a set of Positive Energy Blocks – geographical delimited areas with a renewable local production of energy higher to consumption in terms of annual average. With the implementation of the referred Positive Energy Blocks.
POCITYF intends to transform the urban fabric of these cities, focusing on culturally and historically protected areas. To this end, a set of 10 integrated solutions will be implemented throughout the project, covering 73 individual elements (technologies, tools, methods), interconnected through the existing City Information Platforms.

The project will be developed through four lines of action (Energy Transition Tracks ETT):

1. **ETT#1: Buildings and energetically positive blocks** (transformation of new and existing buildings into energetically positive buildings);
2. **ETT#2: Energy management and storage systems** (application of strategies aimed at increasing the flexibility of the network and buildings, using, for example, energy storage systems);
3. **ETT#3: Electric mobility and MaaS - Mobility as a Service** (integration of electric mobility in city level planning, in order to boost the decarbonisation of the sector and reduce city traffic);
4. **ETT#4: social innovation for the citizen** (it aims to offer inclusive citizen empowerment services, as well as strategies for co-creating solutions with the main stakeholders of cities and industry, leading to the creation of a vision for 2050, specific to each city

With regard to energetically positive buildings and districts, the focus is on the use of renewable energy, the implementation of energy efficiency measures and the renovation of building, such as:

1. **Integration of photovoltaic system with solar skylight systems** (replacement of skylights by photovoltaic systems), tiles and solar pergolas, among others
2. **Installation of smart lamp post** - it is a street light with a charging point for electric vehicles, Wi-Fi and other potential of smart grid communications.
3. **The creation of fundraising campaigns for "green" projects, such as a community solar farm,** which will allow citizens who inhabit the historic center to have a virtual energy portfolio composed of renewable production of "green" ventures outside the city (integrated in the circular economy)
4. **In the scope of energy management and storage systems,** the bet will be on second life batteries (ex.: electric mobility) and advanced energy management systems (ex.: platform Peer-to-Peer).
5. **For the development of social innovation for the citizen,** there'll be created an Interpretative Center, new applications for smartphones, as well as gamification techniques. For example, giving a price to the waste that is produced in order to educate consumption or creating gamification logic between municipal buildings to encourage good energy behaviours. All energy consumption will be monitored through applications on mobile phones.
6. **The Electric Mobility and MaaS** component includes shared mobility services and V2G (Vehicle-to-Grid) smart charging.

Europe is generally characterised by a high number of relatively small cities and towns, distributed in a polycentric fashion. Indeed, relatively small cities with special characteristics and conditions (<300,000 population) now need to combine higher levels of efficiency and effectiveness to address major urbanization challenges requiring new and innovative ways to manage the complexity of urban living. Energy inefficiency issues become further more complicated when national or international rules impose limitations and legislation obstacles to retrofitting certain types of buildings, such as archaeological monuments or buildings of cultural interest. Many of the currently existing European cities have been formed through a continuous reconstruction/ rehabilitation of their existing infrastructure, mixing and matching masonry practices and renovation techniques from different periods. Such policies have led to a mixed building stock, where preserved historical buildings and districts can be found in city-centres with recently – past decades - rebuilt surrounding areas. The European Union devoted year 2018 to its cultural heritage with a special focus on:

A. its evolution throughout the centuries of European history
B. the perceived societal synergy between heritage and modernization.

Therefore, policies and practices which can preserve cultural heritage in urban regions are considered as one of the main priority lines for EU. This comes as an add on challenge for the European Energy Transition plan towards low – to zero carbon cities i.e. to contextualize energy efficiency measures in the preserved and historic urban districts

with strong territorial particularities and enhance their fundamental impact on locals and the respective regional authorities through a protected and safe manner leading to a sustainable yet functional urban environment, while preserving their cultural heritage background/character.

POCITYF brings together eight cities, all having cultural heritage areas in their territory. All are intrinsically motivated to participate in the necessary energy transition not only for their conventional city districts of mixed-used, but also for districts with individually Specificities as those belonging in their cultural heritage, which at the moment may be acting as barriers for their further environmental sustainability, but after POCITYF will be acting as a promising building retrofits roadmap for similar and other EU cities.