



Project no. 691735
REPLICATE PROJECT
Renaissance of Places with Innovative
Citizenship And Technology



This Project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement N° 691735

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H2020-SCC-2015 Smart Cities and Communities

Innovation Action (IA)

D3.3 Report on DH construction including the maintenance program

***The report is confidential, only the Executive
Summary is public***

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Executive Summary

The District Heating (DH) project provides a system for distributing heat for Domestic Hot Water and heating generated in a centralized location through a system of insulated pipes for the new residential area Txomin Enea in Donostia - San Sebastian. The heat is obtained burning biomass and with the support of two gas boilers. The district heating scheme has been sized to meet the needs of 1500 dwellings, including the connection of 156 retrofitted houses.

The DH is promoted and coordinated by Fomento San Sebastian and is largely innovative because of the business model implemented. Fomento San Sebastian and the Municipality agent own the District Heating, and consequently the policies that will govern the operation of the systems will be public. In fact, the DH development project is also highly innovative for the city and region, as it is the first publicly owned DH system in the Basque Country.

This deliverable covers all the phases that were followed for the realisation of the construction project on the heat plant in the Txomin neighbourhood. The document is a summary of the work completed in relation to the analysis of the viability of the heat plant, taking into consideration the experiences of DH in other places and the technical and legal conditions that have been emerging over the years.

Special attention is paid to the energy efficiency requirements that have been fundamental to Fomento San Sebastian and the City Council that decided to invest and allocate resources into this project, considering its high environmental value. The project will drive emissions down from 2,900 tonnes of CO₂ emitted per year with conventional heating, to just 450, which within a period of 20 years would lead to a reduction of almost 50,000 tonnes.

In line with the aim of reducing emissions, a life-cycle approach has been considered. Local resources have also been studied in terms of primary fuels and the types of biomass that can be obtained from the near Ametzagaina Park, one of the bigger green parks in the city. The economic and management of the District Heating model consist on a public-private collaboration with the aim to generate a management system that allows aligning public and private sector objectives, while guaranteeing public policies, energy prices stability and maintenance for final users. At the same time, the DH project will deliver lower costs for residents.

It is expected that there will be significant savings from the first day of operation, amounting to a cost reduction of over 11%.

Regarding the construction of the plant, the technical description of the solution adopted is described here and the entire construction and installation process of the district heating is documented. Due to the large number of participating agents, the project has required a very high level of coordination. It has been included in detail every step for the commissioning (start-up and validation) process of the heat system for the Txomin neighbourhood, as well as all the

aspects related to the monitoring and control system, for the management of the plant, and related to the services offered to users.



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An operation platform has been developed to control the demand side through ICT, allowing residents to monitor their consumption. The main objective is to promote awareness between the users and show them their habits, to understand their energy use and the way they can reduce their costs by changing their use of the heat. Finally, it has to be mentioned that this intervention of District Heating is the first action of this kind for the city and the region, with an innovative public-private management model which guarantees quality of service and energy prices stability for final users. The intervention is considered with replication potential in new urban developments in the city, while replicating in existing districts seems more complicated. In fact, the city is analysing the possible implementation of similar systems in other potential areas of the city.