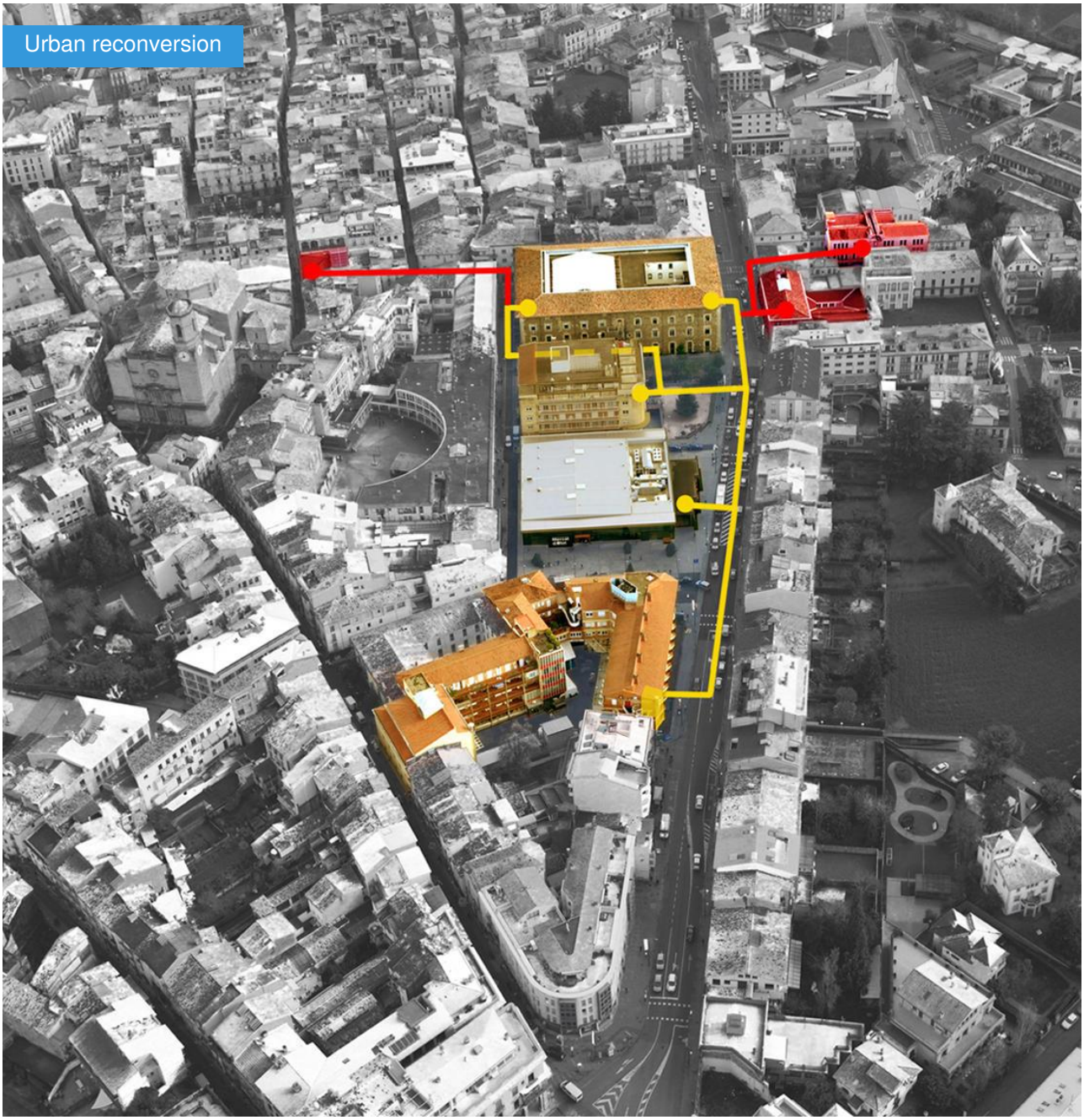
District Heating & Cooling network in Olot

by sander laudy / 2016-06-28 10:29:33 / España / 6990 / ES



Address 1 - street : 17800 C. MULLERAS, OLOT, España

Number of jobs : 10 empleos
Starting year of the project : 2014
Delivery year of the project : 2016
Key words : Climate Network from renewable energies in dense urban center

3 ha

935 085 €

Proposed by :

B01 arquitectes

ID CARD

The network of District Heating & Cooling in Olot relies exclusively in renewable energy and therefore means a step forward for the conversion of our existing cities in a zero-carbon systems.

Programme

- Public facilities and infrastructure

CO2 Impact

CO2 Impact : 570 tCO2

Method used to calculate CO2 impact

Expected consumption by buildings connected to the network is 2,908,714 KWh annually.
Calculating the factors CO2 emission standard fuel from IPCC / Intergovernmental Panel on Climate Change (source: Guide how to develop an action plan for sustainable energy European Union: European Commission, Joint Research Centre, Institute. for Energia, 2010) this represents 570 tonnes of CO2 emission savings per year.

Project progress

- Delivery phase
- Operational phase

Procedure type

- Urban développement permit
-

Prescriptions and zoning

- Heritage protection area

Key points

- Governance
- Economic development
- Smart city
- Energy /Climate

Approaches used

- Agenda 21
- Local charter

More info

http://www.diba.cat/documents/479934/63881441/1.2.+Ajuntament+d'Olot.+Xarxa+Espavilada+de+clima+d'Olot.pdf/3bd8a530-1b80-4a4e-951d-c085debcec25

Data reliability

Self-declared

TERRITORY

Type of territory

The city of Olot is a town of about 33,000 inhabitants, capital of the region of the Garrotxa, Olot whose history dates back to the twelfth century and whose historic center has been largely preserved. The direct environment is marked by its wooded landscapes and volcanic hills, like Motsacopa, which is in the midst of the city itself. There is an awareness in the population of the landscape and natural value of this environment, also in economic terms. Companies such as cooperative La Fageda bind business projects with social integration and environmental protection. The Fageda will be the supplier of pellet that will burn the biomass plant.

Climate zone

[Cfb] Marine Mild Winter, warm summer, no dry season.

More info

http://www.olot.cat/skin/print.aspx?ACCIO=PORTALENC&NIVELL=6579D32CB08575F99AE681EE12821D85AF8662ACCC5DCF6484B8797DA3AD55F6D9377501909665C679A60AA52AF6FA3E6EF732F042E622604F89D6D5AB5B4179

KEY FIGURES

Public spaces area

Public spaces area : 21 900 m²

Total investment costs (before tax)

Total investment costs (before tax) : 935 085 € HT

Detail of subsidies

there have'nt been any

GOVERNANCE

Project holder

Name : UTE Watts INNOVA - NATURAL GAS - TOWN HALL OF OLOT

Type : City

General description :

The decision of the City of Olot to bet on a network of climate on the basis of renewable energy to connect a number of their own buildings, has been the sign of a convinced commitment to the cause of the energy transition, which is complicated to perform in an infrastructure that already exists and where room and management maneuver is limited. The conviction that we can not ignore the existing parts of our cities in this urban restructuring has been the main motivation to undertake this project.

Project management

Description :

The municipality of Olot has founded, together with the administration of the region of the Garrotxa, the SIGMA Consortium, in order to holistically manage environmental projects in the area. Office technicians working on projects on waste resource management, energy management, water cycle, natural development, health and food programs, green spaces and cleaning of public spaces. In the case of the Network of District Heating & Cooling City Hall, as property of the building where the central is located and connected buildings and as responsible for the public space where the network is built, has delegated the technical control to engineers of the Sigma Consortium.

From there on, there has been an UTE (Temporary Business Association in spanish) by the local engineering WATTIA and Natural Gas, that has managed the construction and future operation of the project.

Project stakeholders

Ayuntamiento de Olot - UTE Watts - Natural Gas

Function : Developer

The council awarded the work and operation of the network of green energy. She herself is its main customer by providing cold and heat to a number of municipal buildings. The UTE WATTIA - Natural Gas will run and operate the network for a period of 17 years.The Aiguasol engineering and architectural firm B01 arquitectes develop part of the project and central infrastructure.

mserrat@consorcisigma.org - b01sclaudy@gmail.com - fcomino@wattia.cat

Construction21 company page :

http://www.wattia.cat/es/

SOLUTIONS

green energy plant

Description :

Create within the city new points of generation and distribution of energy, new power stations, it is part of the great transition that will enable us to live exclusively with renewable energy. The de-centralization of its production close to consumers, adapting sources to the context both on the demand and the supply side, is very much on the Olot draft, where consumption (according to schedules and quantities) have carried out a reduced production by geothermal energy, photovoltaic and biomass.

The insertion of the central within an existing building, the old hospital of Sant Jaume, which eventually will become an administrative building, demonstrates that rehabilitation of buildings can be part of the energy transition process.

CO2 Impact : 570,00 tCO2

- Urban project governance

Company :

Company :

Company :

QUALITY OF LIFE

Ambient air quality and health

Dense urban centers are often not the healthiest. However, the city of Olot, due to its direct wooded environment, maintains a good air quality and the use of renewable energy for air conditioning of part of the municipal buildings reduces emissions caused by this urban core. It is part of the local identity of Olot to live together with the forest, not just as a leisure but even as a source of energy for urban needs.

SOLUTIONS

- Promotion of cultural/ historical identity
- Air quality

ECONOMIC DEVELOPMENT

% of public spaces

73

SOLUTIONS

Description :

Much of the energy supplied by the network comes from biomass. The fact that in the immediate vicinity of Olot there is a lot of forest, which requires continuous forest management, makes it is appropriate to create a supply-based pellet economy. Control of forest fires joins with creating a natural energy source. The local economy, in this case through the cooperative La Fageda, receives real economic momentum towards a more sustainable model.

- Business development
- Circular economy

SMART CITY

Smart City strategy

Linking the various uses housed by the seven municipal connected buildings and refining its energy needs on one hand and the possible supply from the green energy central, means the creation of an integrated urban management model, where the mixture provides efficiency.

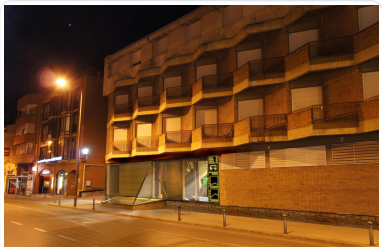
RESOURCES

SOLUTIONS

Description :

The fact that the operation of the energy plant can be seen from outside, helps citizens understand how energy is created from renewable sources. This 'window' is thus a tool for public awareness against the problem of climate change and that energy transition is beginning.

- Citizen-awareness



ENERGY/CLIMATE

Climate adaptation, resources conservation, GHG emissions

The essence of the proposed network of District Heating & Cooling Olot is the elimination of emissions of greenhouse gases because of the air conditioning of a series of seven buildings in an urban center. Replacing the original fossil sources for a renewables ones is an example of how the centers of our cities can be adapted to combat climate change.

Energy mix

The energy supply is based on a combination of three renewable sources. The installed capacity of the three is: Biomass: 600KW - Geothermal 60KW - PV: 2040 KW. Geothermal energy provides both cold and heat, biomass heat and PV allows pumping water at high or low temperatures.

Total electricity needs of the project area /year

Total electricity needs of the project area /year : 2 908 710,00 kWh

Total electricity production of the project area /year

Total electricity production of the project area /year : 2 908 710,00 kWh

SOLUTIONS

CO2 Impact : 570,00 tCO2

- Climate adaptation
- Renewable energies
- SmartGrids

BUILDINGS

Buildings

This is the cold and heat supply to two homes for the elderly, a market, a museum, a civic center, an administrative building and a school solely on the basis of renewable energies. The diversity of uses and therefore of the energy demands for different time periods, makes the network management efficient in their production.

Contest

Reasons for participating in the competition(s)

La creación de redes de clima al nivel de barrios no es nada nuevo y sus ventajas en cuanto a eficiencia energética por escala son ampliamente conocidas. Más innovador, complejo e interesante se hace cuando semejante infraestructura se quiera insertar dentro de un centro urbano denso, histórico,como el de Olot.

En 2014 el Ayuntamiento de Olot decidió de conectar una serie de hasta siete edificios municipales a una red de clima, cuyas fuentes energéticas iban a ser

exclusivamente neutrales en carbono. La propuesta ganadora de la UTE WATTIA - Gas Natural, incorporando en el equipo técnico también la ingeniería Aiguasol y B01 arquitectes, hizo un análisis de las demandas energéticas de usos tan diferentes como un mercado, un centro cívico,residencias de tercera edad y un museo. Y al final se han conectado también unos espacios comerciales. Justo en esta combinación diversa está la fuerza dela red, expresando a la vez la complejidad y las sinergias que tenemos que saber manejar y aprovechar cuando vamos a adaptar nuestras ciudades para la inminente transición energética.

A la vez se estableció que la central de energía funcionaría en base de una combinación de geotermia, biomasa y fotovoltaica, aquilatando las potencias de las demandas de frío y calor según la época. En el invierno se suelen registrar en Olot temperaturas de -5ºC y en verano de 35ºC y más. La elección para biomasa era obvia en el contexto de Olot, donde bosques frondosos marcan el paisaje y donde se puede generar una economía local de energía, basada en la gestión forestal. La energía fotovoltaica, que se instalará en la cubierta del mercado, será principalmente utilizada para el bombeo del agua a temperatura.

No solo se ha tenido que encajar la infraestructura en una parte de la ciudad muy densa y transitada pero a la vez se eligió para la ubicación de la 'Central de Energías Verdes', el corazón batiente de la red, una parte dela planta baja y sótano del antiguo hospital Sant Jaume, dando fachada a la arteria de la calle Mulleras. Aquí la central se convierte en un elemento visible dentro del espacio público y un escaparate para las energías renovables.Desde la calle los pasantes pueden ver las calderas de biomasa, losa cumuladores de frío y calor, las tuberías que salen del edificio hacía los otros edificios conectados y toda la demás maquinaría que forma parte de la instalación. Mostrando el funcionamiento de la red y explicando-lo a la población,la central, en su parte visible, crea conciencia en la población y puede servir como ejemplo para otras ciudades que quieran convertir sus centros en zonas cero-carbono.

No fue un ejercicio fácil convertir una edifico convencional en una central de energías, dado la normativa que se apoya en asunciones sobre energías como si exclusivamente pueden proceder de fuentes fósiles. En cuanto a esto tanto la creación de la red como de la propia central ha sido un trabajo pionero que debe servir para que más ciudades cojan el guante y se pongan a suministrar energías renovables a los edificios de sus cascos antiguos.

Con toda su complejidad se ha bautizado la red de clima con el nombre de 'La Red Espabilada de Olot'. Partes de la red ya están funcionando desde hace unos meses y se prevé inaugurar la Central de Energías Verdes en septiembre 2016. El año 2015 el proyecto ganó ex aequo el premio Europeo del European Heat Pump award.

Building candidate in the category

Gran Premio : Ciudad Sostenible

Green City Solutions Awards 2016
powered by Construction21.org

Premio des los usuarios

Date Export : 20230407005422