



Club de Excelencia  
en Sostenibilidad

spain  
20.20

BEST PRACTICES  
CATALOGUE IN  
**energy  
efficiency**





## URBAN HEATING AND COOLING NETWORK OF BARCELONA: A SMART ENERGY SOLUTION FOR SUSTAINABLE DEVELOPMENT

### SECTOR PRODUCTION AND URBAN DISTRIBUTION OF HEAT AND COLD

#### NUMBER OF EMPLOYEES

Over 20 direct employees at the headquarters and several hundred indirect employees

#### WEBSITE

[www.districlíma.com](http://www.districlíma.com)  
[www.resdesurbanascaloyfrio.com](http://www.resdesurbanascaloyfrio.com)

#### CONTACT

David Serrano, General Manager

#### LOCATION

22@ Technological District and Forum Area, Barcelona (Spain)

#### STAKEHOLDERS

Public authorities, town planners, users, manufacturers of goods and equipment, environment

#### RESOURCES

- Financial: over 50,000,000 €

#### MAIN AIM

- Design, construction and operation of an urban network in Barcelona for the supply of heat and cold for air-conditioning and hot water purposes for buildings, as part of an administrative concession until 2032. Progressive development connecting new buildings and providing new branches and connections for its growing presence in the territory

#### SPECIFIC AIMS

- Cost savings: 10% on clients' energy bills  
- Energy savings: 50% savings on fossil fuels  
- Emission reduction: 10,900 t CO<sub>2</sub>

#### TAGS

Security of supply, waste management, smart grids



Since 2004, the company, Districlíma, S.A., with the participation of Cofely Spain SAU (Grupo GDF-Suez), Aguas de Barcelona, TERSA, ICAEN and IDAE, has operated the urban heat and cold distribution network in Barcelona, in the Forum Area and 22@ Technological District.

Thanks to its shareholders, administrations and clients, Districlíma is currently the largest network in the country in terms of size, diversity of clients and implementation in the urban area of a large city.

Energy production takes place mainly in the Fòrum Plant, near the exhibition centre where the Forum of Cultures 2004 was held, which also gave rise to this project. Substantially all heat supplied as driven water at 90°C and a good part of the cold supplied as driven water at 5°C is produced from the steam from the neighbouring TERSA waste incineration plant. There is a second plant to meet peak demands and pumping requirements, which has been recently opened, namely in April 2012 and which is worth mentioning, due to its sophisticated ice accumulation system.

The Fòrum plant features two absorption units and four electric coolers (29 MWh in total), all condensed by seawater, and four steam - water exchangers (20 MWh) and a 20 MW back-up gas boiler.

The distribution network runs across the Besòs area and the 22 @ technology district, supplying over 70 buildings of all kinds, from business parks, universities, social housing, health centres and hotels, to shopping centres, restaurants or office buildings.

### Intangible benefits

The connected buildings benefit from increased energy efficiency ratings, gain useful spaces and make other architectural solutions possible, eliminate maintenance costs and future replacement of equipment; eliminate noise and vibration and the presence of combustible gases or hazardous elements; facilitate power increases with hardly any additional investment; and have supply guaranteed thanks to the large number of plants and equipment available. Another aspect to consider is that they always get the most economical and efficient energy, since they automatically benefit from the technological improvements and updates carried out at the plants.

Cities and the society, meanwhile, benefit from a minor dependence on foreign energy, the overall reduction in electricity consumption and the minimization of electricity and gas infrastructure; health risks are avoided; greenhouse gas emissions are reduced; smart cities are made up, architecturally avant-garde, with sustainable buildings that are technologically "updatable" in terms of heat production; it is possible to integrate various energy sources, also on a local level, which would otherwise be wasted, among others.

### Lessons learned

The development of this type of projects in urban areas is closely linked to housing development and urban transformation and should be part of the planning from the beginning. Such long-term development rarely respects the original estimates so it is necessary to have a significant investment capacity, concessional-type entrepreneurial attitude and the involvement of several agents.

Thanks to this system, energy savings of 61,960 MWh PCI and a reduction in CO<sub>2</sub> emissions of 10,900 t were achieved in 2011.

“THE DISTRIBUTION NETWORK SUPPLIES OVER 70 BUILDINGS OF ALL KINDS”

# Club's partners

