

How to start your cooling business

DC as element of urban planning and retrofitting:
2 Spanish examples: Barcelona and Zaragoza

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COFELY
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REDUCE, RECYCLE, REPLACE: DOUBLING DHC NOW!

35th Euroheat & Power Congress, Paris May 9th and 10th 2011



DC as element of urban planning and retrofitting

Cities often need to be transformed to stay alive and face new times. This is the **reason**.

However, not just a simple urban transformation is needed, but requires also a socio-economic transformation that generates value to the city and its inhabitants in the future.

so, we have the **reason** but... what about the **opportunity**?

In the following two examples, we can see how some short-time events became an excuse to summon the will and social policies, to attract capital to transform the territory and, at the end, to start writing a new story of the city. In these stories, DC has an important role...

In Barcelona, the opportunity's name was *Olympic Games* in 1992 and *Forum of Cultures* in 2004 and, in Zaragoza, *Expo 2008*

Show case 1: Barcelona's DHC



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Show case 1: Barcelona's DHC



1860-1960: "Catalonian Manchester"

Show case 1: Barcelona's DHC



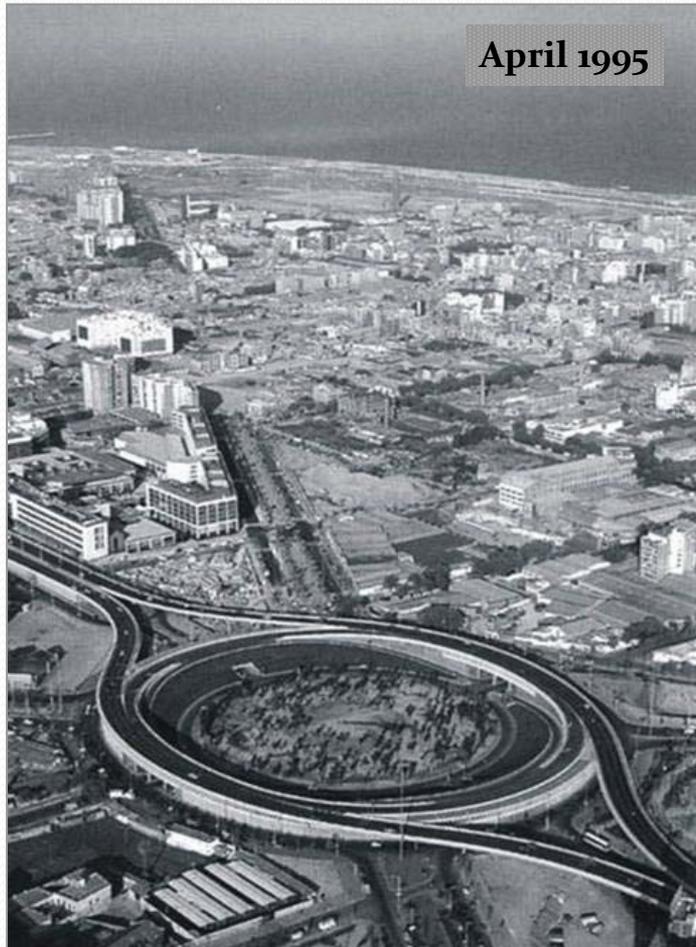
1960-1986: degradation of the area

Show case 1: Barcelona's DHC

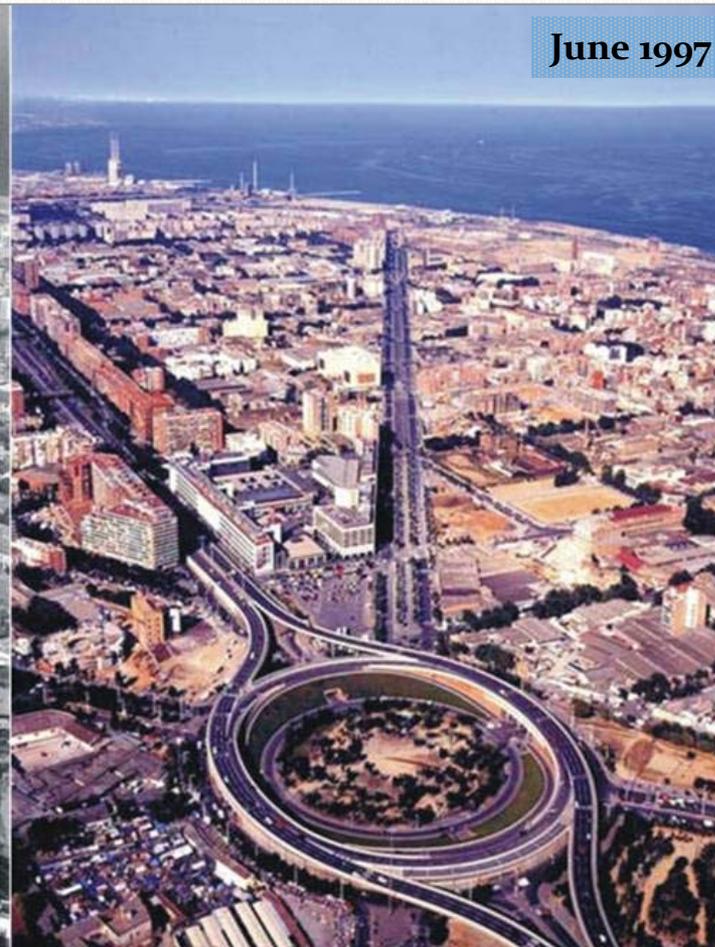


1986-1992: restoration of the coast line and infrastructure creation

Show case 1: Barcelona's DHC



April 1995



June 1997

1996-1999: Diagonal Avenue prolongation

Show case 1: Barcelona's DHC

Barcelona started its urban transformation with the *Olympic Games* in 1992. Until this date, the locals said that “*Barcelona was living back to the sea*”.

The second event was *Forum of the Cultures 2004*, a discrete international event, but an important excuse to make a deep urban transformation of the east area of Barcelona.

The 22@ project is the third step: a long term urban, economical and social transformation of around 200 Ha to attract new activities through media, IT, energy and medical clusters.



Show case 1: Barcelona's DHC

6/30/2004
Barcelona 22@ area in 2004...



Show case 2: Zaragoza's DHC



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Show case 2: Zaragoza's DHC

Zaragoza's a medium size city of around 700.000 inhabitants, in the mid way between Barcelona and Madrid.

The celebration during three months in the summer of 2008 of ExpoZaragoza 2008, under the issue of “water and sustainable development” was the opportunity to transform the banks of Ebro river and a meander of Ranillas into a big public park and a new generation business park.



Show case 2: Zaragoza's DHC

6/30/2005
DC area in 2005...



Image © 2011 DigitalGlobe

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Fecha de las imágenes: 6/30/2005 2001

41°40'09.87" N 0°54'11.30" O elev. 194 m

Alt: ojo 1.23 km

Show case 2: Zaragoza's DHC



The common success factor: District Cooling

In both cases, Barcelona and Zaragoza, one of the **keys success factors** to make a singular urban transformation, able to attract new high value activities and a new type of development, was to have first class infrastructures (communications, waste collection... and ENERGY PRODUCTION & DISTRIBUTION).

The best answer for this new intelligent question was **DISTRICT COOLING**



District Cooling in Barcelona

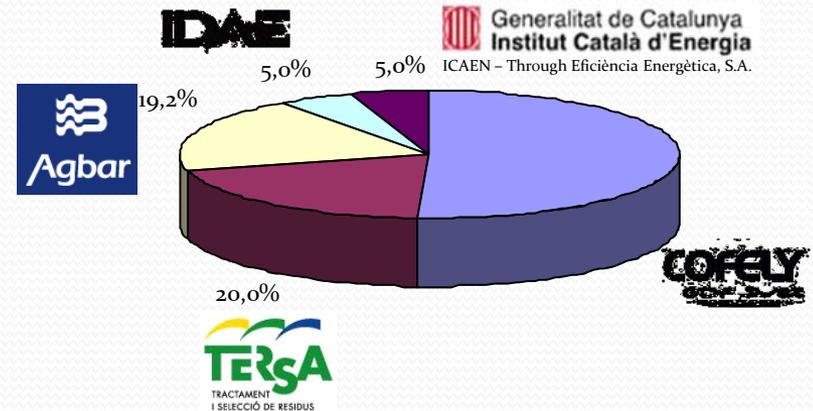


Distribució climàtica, S.A. develops since 2004 the biggest Spanish heating and cooling urban distribution network in Barcelona, in the Forum and 22@ technologic district.

Distribució climàtica has one operating production plant generating hot and cold water using the steam coming from the urban waste-to-energy plant and with sea water cooled sets. A second pick up plant is under construction.

Currently the key figures of the project are:

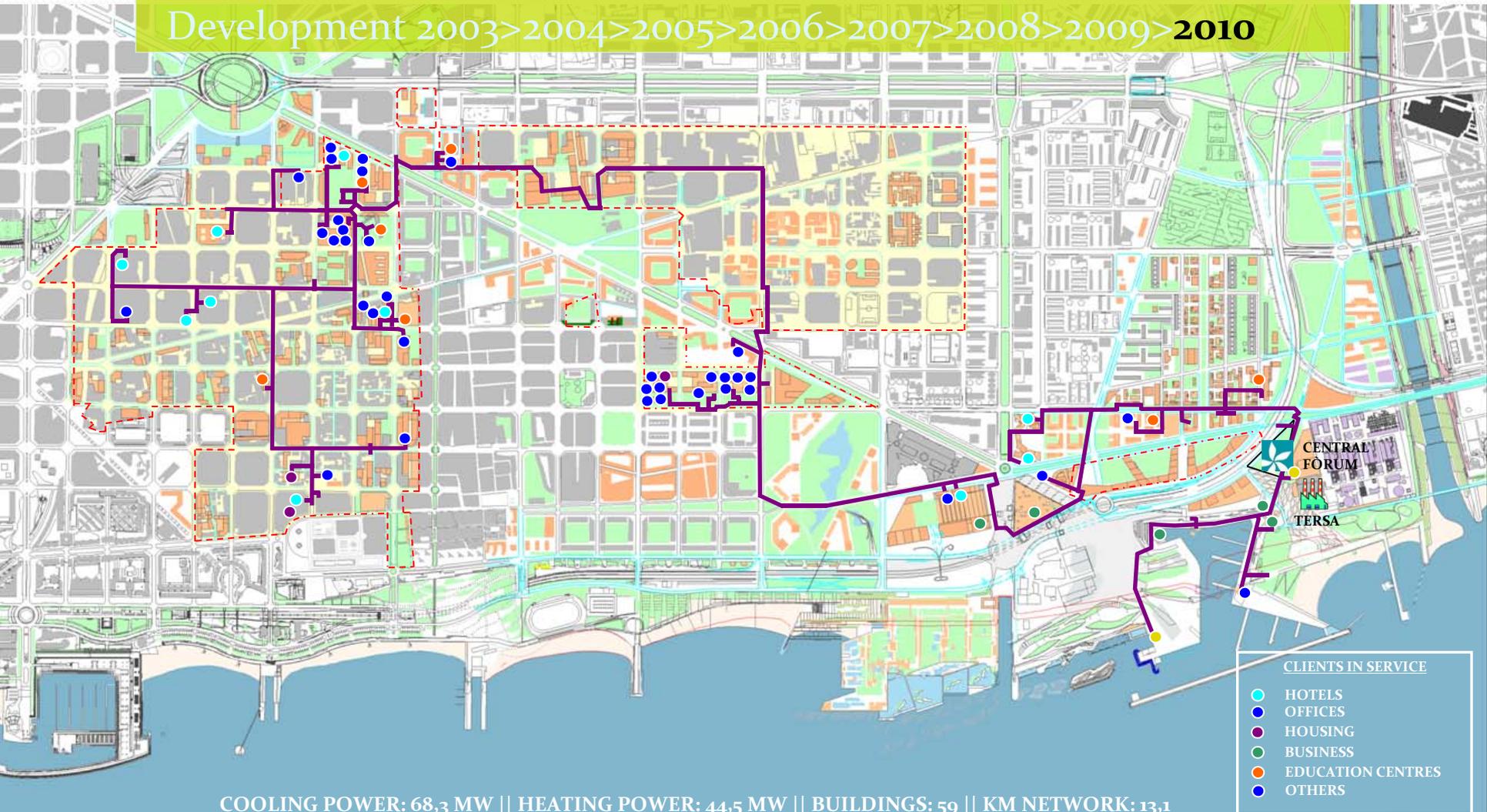
Number of clients:	60
Climatized roof surface (m ²):	≈ 597.000
Contracted heating power (MW):	44,45
Contracted cooling power (MW):	68,29
Network (km) :	13,1
Installed cooling power (MW):	29,2 + 5.000 m ³ tank (≈ +10,4 MW)
Installed heating power (MW):	20,4 exchangers + 20 gas boiler (backup)
Total investments (M€):	47



District Cooling in Barcelona



Development 2003>2004>2005>2006>2007>2008>2009>2010



COOLING POWER: 68,3 MW || HEATING POWER: 44,5 MW || BUILDINGS: 59 || KM NETWORK: 13,1

Is District Cooling a good business?

YES, of course, because...

- It's a win-win business: good for the citizens, good for the users, good for the city and good for the exploitation company.
- You'll have a recurrent turnover, less sensible to crisis periods than other activities.
- It has important entrance barriers because of the requested capital.
- If good service is provided, the costumers will be long term costumers.
- Energy will be more expensive in the future, so DC is in the good line as an efficient solution which saves energy.
- CO₂ emissions will be more and more penalized in the future legislation. Once more DC is in the good way.

Which are the 12 gold rules for a successful District Cooling business?

- 🍪 Use **free / efficient energy sources** or efficient solutions: steam from waste-to-energy, sea or river water, ice or water storage...
- 🍪 Use a **mix of technologies**: the best one is not always the same.
- 🍪 The **more types of costumers**, the less investment in production sets.
- 🍪 Be careful with the **pass through of your energy costs**.
- 🍪 **Think big** to be big: the bigger the network is, the closer the new customer is.
- 🍪 **Think long term**: have always in mind your long term strategic approach.
- 🍪 If possible, select your **target market**: houses aren't the same as big offices or hotels.
- 🍪 **Public partnership is welcome**: travelling alone is so hard...
- 🍪 **Take your own risks** as exploitation or investor, but not your customer's risks.
- 🍪 Bear in mind that **you can't know the future**. If you aren't comfortable living with some risks, this is not a business for you.
- 🍪 **Put in value ALL the benefits of DC**, it could be a cheaper solution, but it's a better solution.
- 🍪 **Be excellent**: you will need technical expertise, financial muscle and a good team.

Thank you. Don't hesitate to visit our website about DHC:

www.redesurbanascaloryfrio.com



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