



## **Smart and Flexible 100 % Renewable District Heating and Cooling Systems for European Cities**

### **Regional strategy of Catalonia (EN)**

#### **Deliverable**

WP 2	Improving the regional framework
Task 2.1	Survey of regional RES DHC framework
Del. 2.1	Regional strategy

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### 1. Introduction

Catalonia has 57 district heating and cooling networks in 2014 according to the census conducted by the Spanish Association of District Heating and Cooling (ADHAC). The installed power of heat is 241.88 MW and 174.40 MW of cold. These values represent a 37.5% of the total installed capacity in Spain. The majority of networks are only for heating and only four networks supply heating and cooling together. The main customers of the district heating and cooling (DHC) in Spain are the tertiary sector (66.09%), followed by housing (27.47%) and industry (6.43%). The ownership of the networks in Spain is mainly public –private ownership (51.7% expressed in terms of capacity). 62% of the registered networks in Spain consume renewable energy, accounting for only 30% if the percentage is expressed in terms of the installed capacity. The main renewable energy used is biomass in small DH networks.

The main examples of DHC in Catalonia with contribution of renewable energy are: **the Barcelona 22@**, a DHC network with heat recovery from a waste incineration plant and sea and river water to cool the equipment; **Marina - Zona Franca**, a DHC heating production of biomass boiler; **Mataró Tub Verd**, a DHC network with a biogas boiler; **Sant Pere de Torelló**, a DH networks with a biomass boiler, which was the first district heating network built in Catalonia in 1996 and **la Granja de Molins de Rei**, a DH with two biomass boilers .

There is no specific legislation for district heating networks; however there are several legislations which apply in different steps of the DHC networks. Currently there is no safety regulation of water distribution networks, but it is foreseen to be regulated in the coming future. Technical building requirements regulations consider DHC as an efficient technology which can contribute to fulfill energy efficiency requirements. The urbanism law is not mentioning DHC, but this could be addressed in its modification which is currently starting.

Regarding the potential of the DHC in Spain, the Energy Efficiency National Plan 2014-2020 establishes the evaluation methodology and the cost benefit analyses, referring to the draft of Royal Decree for transposition of the Directive 2012/27/EC and the new legislation of the retributive regime of cogeneration and renewable energy, established by the following laws: RD Law 1/2012, Law 24/2013, RD 413/2014, and Order IET/1045/2014. This new retributive regime is not very favourable for electricity production with renewable energy. Law RD 413/2014 reduces the primes assured by the previous law. The remuneration is based on market price with a special remuneration term only in some cases when the installation well managed does not recover the investment and operation costs. The remuneration can be calculated for each case by Order IET/1045/2014. This economic regime can change every three years, creating a regulatory risk. About renewable energy production, there are no prohibitions, only limitations to urban planning, environmental protection and minimal technical conditions.

In a survey carried among the main DHC stakeholders<sup>1</sup>, the majority consider there is a market for DHC, however it is difficult to attract investors. Good financing and the promotion of public funding and support in the commercial phase is of key importance. Some of the proposals collected on the survey are to create mix company with crowdfunding between public and user, tax reduction, to give security in consumes and supply, long contracts and expansion of the projects. Furthermore, there is a barrier which interacts with the economic feasibility of a DHC and the consumer protection: the obligation to connect to a DHC enters in conflict with the free choice of the customer. The promoters and legislators consider the lack of the obligation and the uncertainty of consumers' connection as a barrier, and the users and legislators see a risk of the thermal monopoly, against the free competition.

Nowadays there are some economic public funding to support the renovation and retrofitting of existing buildings (residential and hotel use) including DHC networks, and to promote installation of biomass, geothermal and solar thermal energy.

In Catalonia there is a lack of knowledge of DHC systems between the population. Besides that the high feeling of individual property creates a lack of confidence in the systems, as can be reflected by the replies of the majority of the survey repliers. The culture of joining consumers' associations/cooperatives is not as strong in the region as can be in other European Countries of northern regions. However, cooperative network is present in Catalonia social fabric, like in agriculture or food industry.

As regards the technical barriers, the difficulty of the civil work special in already urbanized areas is considered as a barrier. In addition, the lack of knowledge of the urban planners and inadequate call of tenders, does not give sufficient warranties. The reduction of consumption of the buildings due to the increase of energy efficiency measures is not perceived as a barrier for DHC.

The DHC promoters interviewed consider in its majority that a DHC with 100% renewable energy or at least with a high percentage of renewable energy is feasible with a stable supply of energy. The most adequate renewable sources are biomass and solar thermal. However, for solar thermal, one technical barrier identified is that the demand profile does not match with the generation profile. Low temperature distribution network, energy storage, control system strategy and solar energy injection at the return line has been considered by the interviewees as very interesting technologies to apply to DHC from 100% renewable energy origin.

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<sup>1</sup> Survey carried out by INCASOL and IREC to 23 person from the following stakeholders: Promoters, Legislators, users and finance specialists

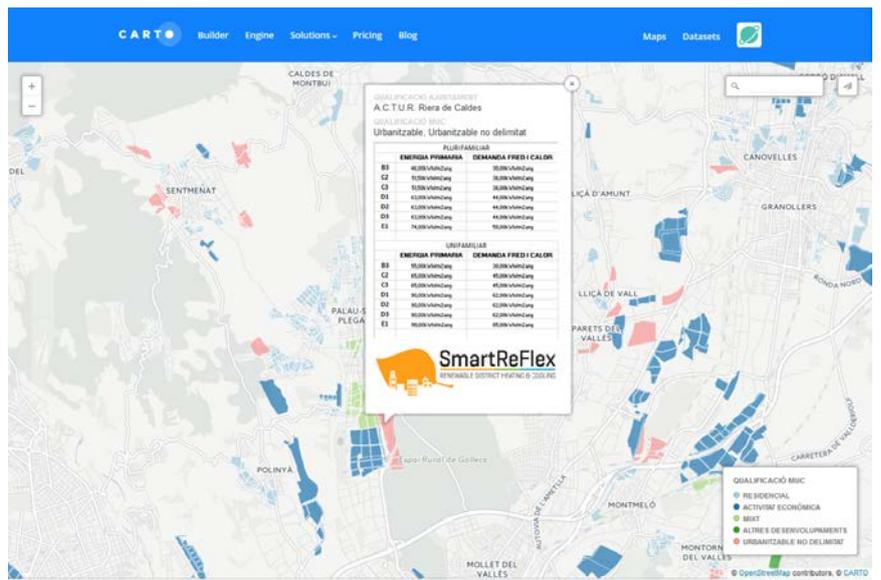
## 2. Action Plan

This section describes the most important actions planned for the project period (and beyond). This table is updated by the regional partners every 6 months.

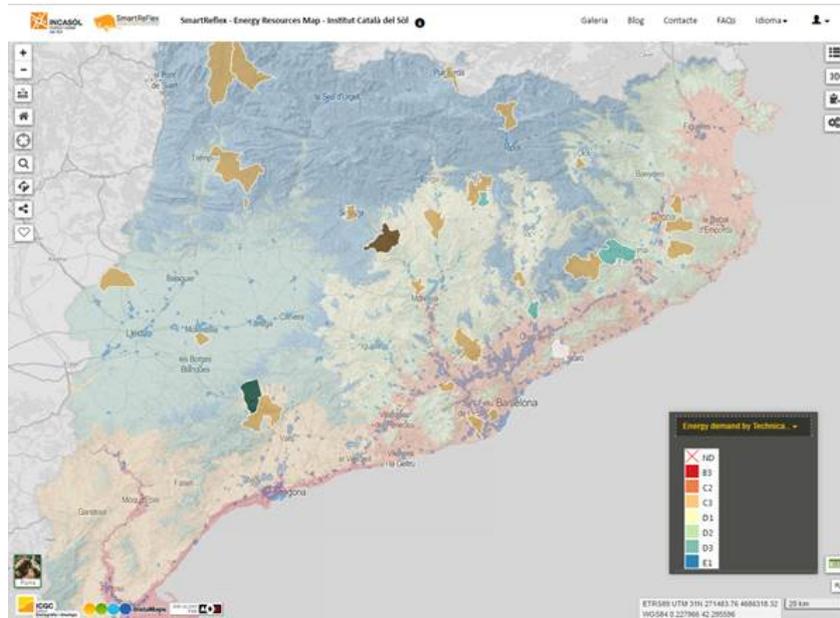
Required action	Stakeholders needed	Resources / instruments needed	Timeline	
			Planned date	Real implementation

<p><b>Required action:</b> organization of several conferences in order to reproduce the main aspects learned from workshops in order to spread the knowledge related to RES DHC to a wider and to a diverse audience.</p> <p><b>Stakeholder needed:</b> ICAEN (Energy Catalan Institute)</p> <p><b>Resources</b> needed can be obtained from the framework of the Energy Week yearly organized by different Catalan institutions such as ICAEN, Barcelona Provincial Council, Network of Cities and Towns for Sustainability, Metropolitan Area of Barcelona, Girona Provincial Council, Center of Environmental Local Initiatives in of Girona Province (CILMA), Barcelona City Council, Tarragona Provincial Council of and Lleida Provincial Council.</p> <p><a href="#">See annex 1</a></p>	15/6/2016	
	<p>The expected result of this action will be the dissemination of RES DHC knowledge to a wide range of public such as technicians, students, consumers...</p>	

<p><b>Required action:</b> Designing three mapping viewers for helping DHC planning:</p> <ol style="list-style-type: none"> <li>1. Mapping viewer of Catalonia resources from the existing data.</li> <li>2. Mapping viewer of Catalonia residential heat and cold demand from the existing data compiled during workshops.</li> <li>3. Atlas viewer for standard Catalonia climatic zones according to CTE (Building Technical Code) categories.</li> </ol> <p>Proposals for creation of more specific maps including missing data will be requested to the competent authorities</p> <p><b>Stakeholders needed:</b> TES ( Territory and Sustainability Department)</p> <p><b>Resources:</b> technological GIS knowledge and resources for developing this tool will be given by INCASOL and heat and cooling demand data from IREC</p> <p><a href="#">DEMAND ESTIMATION</a></p>	29/7/2016	28/02/2017
	<p>The expected results are three basic viewers for helping DHC planning.</p>	



**DCH DATA CATALAN SOURCES**



**Required action:**

Study of the different case studies in the framework of the SmartReFlex project. There will be a focus on the identification of basic indicators which could be used for prior evaluation of the viability of new DHC networks or the introduction of RES in existing DHC's.

**Stakeholders needed:** ADHAC (DHC Spanish Association)

**Resources:** technological and urban planning knowledge and

1/1/2017

28/02/2017

The expected result of this action is useful indicators to be used for urban planners.



resources for *the study of the cases will be given by IREC and INCASOL.*

### 3. Regional strategy

<b>1 Setting legal conditions for RES DH</b>	
<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Unstable energy policy in Spain leading to regulatory risk</li> <li>• Lack of specific normative for DHC</li> <li>• Not possible to reduce the “Regulation of Low Voltage” in the case of districts / buildings with DHC</li> <li>• No specific consideration of DHC in urban planning legislation</li> <li>• Dichotomy between users free choice and having enough consumers</li> </ul> <p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>• DHC is mentioned as an efficient technology in building regulations</li> <li>• Tax instruments at local level</li> <li>• Safety of water distribution installations to be regulated in the coming months</li> <li>• A modification of the Urban Law is currently starting</li> </ul> <p><b>Guidelines to achieve the objective</b></p> <ol style="list-style-type: none"> <li>1. Proposals for adaptation of national, regional and national regulations:             <ul style="list-style-type: none"> <li>- Proposal for adaptation of the “Regulation of Low Voltage” RBT in the case of districts / buildings with DHC (AL_2)</li> <li>- Proposal for consideration of DHC in the new Law on Urban Planning.</li> <li>- Routing rules to targets 2020</li> <li>- Proposition of regional regulation of energy self-production for immediate consumption, which does not contradict state regulation</li> </ul> </li> <li>2. Study of the obligation of connexion using normative requirements</li> </ol> <p><b>Development and responsible stakeholders:</b></p> <p>Write proposals according initial studies together with the task force.          Consultation to the affected stakeholders.          Sending of selected final proposals to the competent agency/institution.          The proposals will be discussed within the task force members, creating thematic working groups.          The regional and national stakeholders to which the proposals should be addressed are:</p> <ul style="list-style-type: none"> <li>- Legal and technical departments of municipalities</li> <li>- Regional Ministry of Energy of the Government of Catalonia</li> <li>- Ministry of Energy of the Government of Spain</li> </ul> <p><b>Timeframe:</b></p> <p>The elaboration of the proposals will be started in the framework of the SmartReFlex project          The adaptation of the laws might require a longer timeframe</p>	
<b>2 Procurement and financial tools for RES DHC</b>	
<p><b>Barriers:</b></p> <ul style="list-style-type: none"> <li>• Difficulties to attract investors</li> <li>• Dichotomy between users free choice and having enough consumers</li> <li>• Long term amortization</li> <li>• Lack of bank financing</li> </ul>	

- Few public investment

**Opportunities:**

- The State Plan to promote rental, refurbishment and urban renovation 2013/2016. Among others it covers the works for improving energy efficiency, including DHC
- PAREER: Aid Programme for the Energy Renovation of Existing Buildings used in the residential sector (housing and hotel use). It gives loans up to 90% of the cost for improvement of thermal installations, using of biomass and geothermal energy
- JESSICA-FIDAE: fund for financing the renovation or extension of existing DHC, as well as for solar thermal energy production and biomass, among other measures
- Program Biomcasa II, Geotcasa and Solcasa from IDAE (Spanish Energy Agency) to promote new systems bases on biomass, geothermal and solar thermal energy.

**Guidelines to achieve the objective**

**A- Provide favorable financial conditions for RES DHC**

1. Identify the basic financial conditions related to NPV, IRR and Payback for different types and casuistic of DHC (RES, non RES and waste heat)
2. Dissemination of SmartReFlex project in the public and private financial sector and investment entities
3. Developing a list of banking entities and financial products specifically for RES DHC

**B- Introduce public aid for RES DHC**

1. Analysis of possible public funding support measures, either to DHC promoters or building promoters or users.
2. Proposals of tax benefits: reduced municipal tax, reduced building permit costs, bonus company tax for ESE / energy cooperatives.
3. Proposal for simplified contract of public - private partnerships that allow feasible implementation of RES DHC.

**Development and responsible stakeholders:**

During the study of the case studies in the SmartReFlex project, the basic financial conditions will be analyzed.

The financial conditions and the introduction of public funding plans will be discussed within the task force members, creating thematic working groups.

The regional and national stakeholders to which the results of the analysis should be addressed are:

*Private banking and financial departments / bodies of:*

- *Municipalities, the Government of Catalonia and the Government of Spain.*
- *Private companies of energy services that build and operate DHC*

**Timeframe:**

The analysis and proposals will be done in the frame of the project SmartReflex

The adoption of the favorable financial conditions and the public fundings, could take longer time

**3 Technical and economic feasibility and best available technologies**

**Barriers:**

- Civil works are expensive and usually have unforeseen issues in already built areas.
- Lack of knowledge of the urban planners
- Inadequate call for tenders
- Mild climate
- Lack of guarantee of consumers

### Opportunities

- Existing strategies to promote renewable energies, like the Catalan Strategy for the Biomass
- Assessment of national heating and cooling potentials referred to in Article 14 of Directive 2012/27/EC
- Background existing in Catalonia: several experiences (57 DHC networks; some of them with renewables) have been already developed and they are in operation.

### Guidelines to achieve the objective

#### A- Increase the use of local energy sources

1. Promote collection of information about the types of local energy sources that can supply RES DHC (industrial waste heat, biomass, solar thermal, geothermal, biogas, etc..)
  - Participation in the Catalan Strategy to promote energy use of forest and agricultural biomass
2. Creating strategies "soft law" that support industrial symbiosis

#### B- Establish DHC in new areas and incorporate of renewable energies in existing DHC

1. Consider implementing RES DHC in the new urban plan developments, where there is available waste heat or renewable energy availability, through development of feasibility studies in the framework of 'Case Studies' analysis of SmartReflex project
2. Analyze the possibility of introduction of RES to existing nonRES DHC in Catalonia, their costs and feasibility. through development of feasibility studies in the framework of 'Case Studies' analysis of SmartReflex project
3. Create a specific office to provide support and advice to DHC and all actors involved in its creation (energy developers, real estate / property developers, municipalities, financial / investment entities, users, etc..)

#### C- Realize a pilot plant

1. Promote the development of a DHC RES considering and evaluating the application or the outcome of all guidelines necessary for achieving each of the goals that shape the strategy.

### Development and responsible stakeholders:

Guideline A1. The available local energy sources and industrial waste heat will be identified using the available information from the regional institutions competent in this field. Proposals for creation of more specific maps including missing data will be requested.

Guideline A2. According results of map of local energy sources, proposal of "soft law" will be developed for the areas with highest potential for deployment of RES DHC.

Guideline B1 and B2. Potential technical and economic solutions will be proposed for feasible RES-DHC, through the analysis of Case Studies in the framework of Smartreflex.

Guideline B3. Procedures to create DHC Information Office will be initiated.

Guideline C1. Call for tender documentation will be produced as a result of Case Studies work.

The regional and national stakeholders which will be essential in the development of this objective are:

- Legal and technical departments of municipalities
- County councils
- Regional Ministry of energy of the Government of Catalonia
- Regional Ministry of territory of the Government of Catalonia
- Ministry of energy of the Government of Spain
- Spanish Association of District Heating and Cooling (ADHAC)

### Timeframe:

The analysis will be done in the frame of the project SmartReflex through the case studies.

The realization of heat maps, the adoption of soft law strategies and the creation of a specific office could take a longer time.

The realization of the pilot plant will depend on the economic results of the study.

#### 4 Improving the social acceptance

##### Barriers:

- Dichotomy between users free choice and having enough consumers
- Mistrust from the user's side about technology and service
- DHC is not a popular system
- Individualist culture
- How to intervene in cases of energy poverty

##### Opportunities

- The cooperative network is present in Catalonia social fabric.
- Existing background

##### Guidelines to achieve the objective

###### A- Improving the social acceptance

1. Conducting an information campaign on DHC
2. Training and dissemination of knowledge related to DHC to consumer protection agencies
3. Promoting of the public building connection to DHC

###### B- Strengthening the "energy cooperative format"

1. Comparison in Case Studies work about different managing scheme: energy cooperative format vs private-public format.
2. Write simplified specifications for implementation of Energy Cooperative RES-DHC, to be applied in future Calls for Tenders. This information could be available in the DHC Information Office. ).
3. Simplify the requirements of the procurement specifications for energy services to allow the largest contingent of stakeholders, with particular attention to the inclusiveness of SMEs.
4. To promote the unification of energy management and production, including thermal and electrical energy, as well as public and private services that are derived from them.
  - Allowing to unify the management of DHC for private and public users, the management of public lighting, electricity supply in buildings, etc.

###### C- Improving the consumer protection

1. Development of a proposed Code of Protection of the end user to ensure the supply of DHC on predefined conditions and supported by the local administration.
2. Development of "soft law" directed to the building promoter to facilitate the DHC supply to homes, and communication of the technical conditions necessary to ensure proper connection to the DHC.
3. The DHC Information Office (objective 3; guideline B3) will provide contractual protection of end users and of the building developer.

##### Development and responsible stakeholders:

The capacity building seminar on organizational and financial issues can be a tool to stimulate the creation of energy cooperatives and to train the consumer agencies.

The guidelines will be discussed within the task force members, creating thematic working groups

The regional and national stakeholders with whom there will have a key role in the development of this objectives are:

- DG Industry, ICAEN, OCUC, AEB
- The entities and organisms affected by regulation and consuming issues.
- Producers associations DHC, Consell Comarcal Ripollés (Local governments)

**Timeframe:**

During the project SmartReFlex, the basis for this consumer protection code could be initially set as well as recommendations for the tender documents for energy managers.

The adoption of soft law strategies and the creation of an specific office could take a longer time.

## 4. Improving the framework

### Technical, Organizational and legal issues

*The guidelines proposed in the previous chapter will be tackled with the creation of thematic working groups composed by the taskforce members to improve the framework and propose solutions. There will be periodical meetings with the groups and visits to existing cases will be done. Incasòl and IREC will also participate in the working groups and both will manage their operation and organization.*

*The proposed different working group would be as an example:*

- *Legal*
- *Financing*
- *Energy sources*
- *Technic*
- *Promoters*
- *Users*

## 5. SURVEY RESULTS

*IREC and Incasòl have realized sectorial meetings within the task force members and a survey among the regional stakeholders. The survey was targeting four different profiles: DHC developers, legislators, users and financing specialists. Each profile had common and specific questions. The survey was answered by 23 persons, among them 12 promoters, 4 legislators and 7 users. No financing specialist replied the survey. In the coming paragraphs there is a compilation of the results of the survey together with a regional analysis. The results are organized with technical issues, organizational issues and legal issues.*

Technical issues	
	<p>In the survey, the main barriers identified by the DHC developers are the difficulty of the civil work in already built areas, the lack of knowledge of the urban planners and inadequate call of tenders, which does not give sufficient warranties. They did not consider the increase of energy efficiency in the buildings as a major barrier.</p> <p>One of the opportunities was to incorporate DHC at the urban planning. The best would be to identify new urbanization areas where there is residual heat source, with cold climate and mix of consumption (residential and tertiary) which fits with the heat load.</p> <p>According to the survey respondents, the DHC in residential is feasible depending on certain factors like the power needed, the simultaneous consumption, the heating and cooling demand, and the number of clients. One remark is the high cost of the individual distribution systems. It might only be feasible in the coldest parts of Catalonia, however the 50% of the promoters interviewed do not consider it a limiting barrier, if combination of heating and cooling demand is balanced</p> <p>The impact of having generation systems nearby the residential areas is only considered as a barrier by legislators and users; however they consider that the environmental impact of the generation can be minimized with adequate technology and budget.</p> <p>According to the replies of the interviewees, the relation consume rate per km to make feasible a residential DHC depends on each individual case, depending on the part the building promoter pays, de fix term of the bill, the energy used among other parameters. The number of dwellings necessary to make feasible a residential DHC is diverse, one interviewee said 30 while another 2000 dwellings, mainly depending on the specific case.</p> <p>Mainly all the promoters and legislators who replied the survey knows a DHC and with renewable energy, mainly biomass, waste heat, solar thermal. Only a third of the users interviewed know a DHC. The promoters interviewed consider in its majority that a DHC with 100% renewable energy or at least with a high percentage of renewable energy is feasible with a stable supply of energy. The most interesting energies are biomass and solar thermal. However, for solar thermal, one technical barrier identified is that the demand curve does not fit with the generation curve. There is the feeling that cold technology with renewable energies is limited. One proposal is to impulse research.</p> <p>Low temperature distribution network, energy storage, control system strategy and solar energy injection at the return line has been considered as a very interesting technology for DHC from 100% renewable energy origin.</p>

<b>Organizational issues</b>	
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**FINANCIAL**

The majority of the interviewees consider there is a market for DHC, however it is difficult to attract investors. Some of the promoters interviewed consider that a promoter alone can face the investment on a DHC, depending on the case of several factors: investment, income, time of the concession, yield return, Internal Rate of Return (IRR) and minimal base connection. However good financing is crucial and the promotion of public help and support in the commercial action is appreciated.

Proposals are mix company with crowdfunding between public and user, tax reduction, to give security in consumes and supply, long contracts and expansion of the projects. In reference to a contracting model, one legislator proposed a collaboration contract between public and private sector based on competitive negotiation.

Regarding the minimal expected IRR it is difficult to know, two of the survey's respondent said a payback of 10 years maximum. Another one gave approximate numbers or IRR: 2005: 8% el 2008: 10% el 2011: 15% el 2014: 13%.

Regarding financing schemes, there are several examples in Europe. The French Government introduced in 2008 a heat fund (Fonds Chaleur) in order to support the production of heat through renewable energy plants. In order to be eligible, the district heating network shall use at least 50% of heat from renewable energy sources. The financial support cannot exceed 60% of the eligible costs. The support is managed on a regional level by the regional agencies of the ADEME (French Environment and Energy Development Agency)[1]

The European Investment Bank (EIB) has a broad range of instruments from senior loans to equity for example loans to large individual projects like cogeneration, district heating. Some of the specific instruments are: RSFF, Marguerite, carbon funds, GEEREF, Energy Efficiency Finance Fund, Green for Growth, etc. The EIB project criteria for district heating networks are: Heat coming from RE, high efficiency cogeneration or heat recuperation, competitive long term heat supply costs and clear long term vision on heat demand. They provide other instruments as advisory services like Jessica, Elena or Jaspers [2]

Some of the survey's respondents highlighted the benefits of existing DHC managed by an ESE. A proposal is to start with small projects with 3 or 4 buildings and if it is successful to extend it.

**USERS**

The dichotomy between user free choice and the guarantee of having enough consumers for a DHC has been considered as a barrier.

Among the interviewees, the main success of DHC in other countries is the cooperatives and the tradition of centralized systems as well as a stability of energy markets.

Some of the users considered that the DHC is a good option, with lower costs, better supply, better efficiency, only one of the 5 users interviewed preferred to be connected to a traditional system.

The environmental benefit is one of the reasons why the users would like to be connected to a DHC. They would like to connect if there would be a low cost, good service and correct, individual counters, cooperative managed. To incorporate users in a DHC management can create a consciousness of neighborhood and pride according to a survey respondent.

Regarding tertiary consumers, a lesson learned from existing DHC is that some hotels connected to a DHC gained space in the terraces for other uses: panoramic views, solarium, restaurants or pools. Another lesson learned was some users which connected without being forced to.

<b>Legal issues</b>	
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Currently the energy policy is not very stable in Spain. There is a legislation which is not very favourable for renewables. There is a lack of incentives and legal requirements. The transposition to Spanish law of the Directive 2012/27/EC is only partially done. However in the draft of February 2014 in Chapter II regulates the promotion of energy efficiency in the heat and cold production. The energy efficiency national plan 2014-2020, published on the 30<sup>th</sup> of April 2014, describes in paragraph 4.5 about cogeneration of high efficiency and district heating and cooling, according article 14 of the Energy Efficiency Directive. For the evaluation of potential of the DHC in Spain, remarks that the analysis has not been initiated however refers to the law draft and introduces an evaluation methodology and regarding to the cost benefit analyses, refers to the revision of the retributive regime of cogeneration and renewable energy.

The building technical code (CTE) and RD 235/ 2013 refer to DHC. The Technical Code of Construction of 2013 accepts the DHC instead of the installation of solar thermal panels if it consumes less or the same non-renewable primary energy and CO<sub>2</sub> emissions. RD 235/2013 basic procedure for the energy efficiency certification includes in the methodology to consider DHC networks. As well, in the recently modified Royal Decree 1027/2007, Regulation Thermal installations in Buildings, updated by Royal Decree 238/2013, establishes that new buildings or with big reforms, should cover part of their thermal energy demand with waste or renewable energy sources, either in the building or by a district heating network. There are several programs for the promotion of building and urban renovation (RD 233/2013) where possible subsidies for heating, cooling and DHW production with increasing energy efficiency or renewables introduction is described, and also it is mentioned the DHC.

About renewable energy production, there are no prohibitions, only limitations to urban planning, environmental protection and minimal technic conditions.

A legislator identified that there are no security norms for the design and construction of distribution networks which stablish the reglamentary distances with the parallelism of other services and crosses. (Electric lines, gas, etc....), also there are no norms if there should be a register of DHC energy suppliers.

The survey compiled a very interesting proposal of how the public aid should be directed. The proposal is:

1. Create a DHC office support.
2. Stablish Public-Private collaboration mechanisms.
3. Promote the R&D.
4. Cluster enhancement.
5. Reduce the difficulties for companies and cooperatives to enter the market, establishing a minimal norm and administrative procedures. Homogenization among all municipalities by a soft law.
6. Promotion of exemptions and reductions on taxes (ICIO, IBI) and promote grants and deductions of company tax of DHC companies for an specific period of time.
7. Promote the reduction of the IBI for the users for a specific time.
8. Boost the financing lines with interesting interest and long payback times, with low costs and reduced guarantees, with a guarantee fund.
9. Conventions between the DHC office support and entities for boosting competitiveness and innovation for the companies of DHC sector.
10. Establish legislative and financial mechanisms to secure promoters and users in front of regulatory risk.
11. Communication plan to promote DHC.

## 6. References

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