



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

Regional strategy of Emilia-Romagna (EN)

Deliverable

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

ANCI Emilia-Romagna
Emilia-Romagna, 21.02.2017

Supported by



Intelligent Energy Europe Programme
of the European Union

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1. Introduction

The main objective is the creation of better synergies between the SmartReFlex and the RES H/C SPREAD projects, both oriented to the diffusion of heating and cooling systems powered by renewable sources. In particular, the first meeting of the joint task force (involving stakeholders and professionals common to the two projects and listed in the chapter 3 of WP2 Survey ANCI ER.docx) has been organized for the 1st December 2014 in Bologna.

In Italy, the European legislation that regulates the district heating sector has been implemented through specific national regulations (Legislative Decree no. 28 of 03/03/2011, Legislative Decree No. 102 of 4/07/2014). In addition, there are national action plans specifically oriented to the development and spread of renewable energy sources and energy efficiency for thermal use.

At regional level, in Emilia Romagna, the energy aspects (including the district heating) are regulated by the Regional Law no.26 of 23/12/2004 and by the subsequent Regional Energy Plan (implemented through three-year plans and annual intervention programs). Recently, the Regional Law 26/2004 has been amended by the Regional Law no. 21 of 22/12/2011 and through the Regional Law no.7 of 27/06/2014, while the Regional Energy Plan is periodically updated through three-year implementation plans. Regarding the district heating and cooling systems, the key points of the Regional Law 26/2004 (as amended) are as follows (art. 25 decies):

- "In line with the national forecasts made as a result of the assessment of the article 14 of Directive 2012/27/ EU, the Emilia Romagna Region promotes the potential development of the high efficiency cogeneration and efficient district heating and cooling systems";
- "In the preparation of the urban and territorial planning tools, the municipalities make a preliminary assessment of the potential adoption of high efficiency cogeneration systems or efficient district heating and cooling systems, whose benefits outweigh the costs, also evaluating the effects on the air quality [...]".

Therefore, in order to achieve the objectives of the SmartReFlex project on the territory of the Emilia-Romagna region and considering the legal aspects and the synergies with the RES H/C SPREAD project, the most appropriate approach to support dissemination of heating and cooling systems powered by renewable sources consists on the implementation and the sharing within local authorities and stakeholders of practical tools, in particular:

1. Regulatory instruments: Regulatory indications in support of district heating and cooling also as decision and planning support;

2. Information tools: These tools could be of two types: tools implemented at the regional level through the data collection and their digitization through Geographic Information Systems, or methodological approaches identified at the central level and offered to local authorities as support to the quantification of their potential. In particular, these tools are used to:
 - map at local level the thermal energy demand and supply (eg. Heat Roadmap 2050, gas consumption, gas races, map of plants and energy facilities,...);
 - map the potential of the different thermal renewable energy sources (biomass, geothermal, solar thermal, high efficiency cogeneration, efficient heating and cooling district);
 - map the marginal areas;
 - map the potential city-industry symbiosis;
 - identify real and virtuous cases on the territory;
3. Evaluation tools: These tools allow the assessments about the presence and/or the planning of district heating and cooling systems and the impacts on the territory. In particular, these assessments will be conducted through:
 - indicators for assessment the energy, economic and environmental opportunities (eg. energy production, employment impacts, atmospheric emissions, costs, minimum benefits obtainable from the plant,...);
 - focus on particular areas of the region (eg. presence of a heating and cooling district? stakeholders interest?);
4. Discussion and dissemination with the structural funds managing Authorities: this tool allow the identification of the provided measures aimed to finance the implementation of operation on the territories (study, feasibility evaluation, construction, others).
 Currently, the choices made by the structural funds managing Authorities still have sufficient intervention margins, also to make them coherent and consistent with the projects purposes. In particular, this tool will be achieved through:
 - Discussion with the structural funds managing Authorities and with the stakeholders involved in SmartReFlex and the RES H/C Spread projects;
 - Dialogue and dissemination of the contents of the operational plans and calls;
 - Dissemination of the tool (through news and events)

Some meetings have already been conducted, in particular:

- April 10th, 2015: The European funds for the territorial economic development. The regional development plan and the municipalities in the 2014-2020 European programming;
- April 21th, 2015: Meeting with “Appennino Bolognese Local Action Group”;
- Various dates: “Unione terre d’acqua su distretti PMI: Energy Manager di Distretto PMI”;
- Various dates: “SiPRO Ferrara (Agenzia per lo sviluppo territoriale della provincia di Ferrara) per l’attuazione di Distretti PMI ecologicamente attrezzati”;
- Various dates: “Forlì: calore di processo per l’industria grazie al sole”
- July 3rd and July 9th meetings with invited local authorities, Emilia Romagna Region, Enti Gestioni Parchi (Parks management entity) for the “Piano di Sviluppo Regionale 2014-2020”.

5. Financial models and sources of funding: this tool will be realized through the creation of working groups with the aim to analyze the access mode to the thermal incentives and to verify the access mode through Energy Performance Contract or through PPP approaches, as defined by the Regulation 1303/2013 and by the Italian legal framework. Some meetings have already been conducted (material available at the following links: <http://www.anci.emilia-romagna.it/Aree-Tematiche/Economia-Energia-e-Turismo/Le-novita/Tavolo-Operativo-FESR-con-ESCo-e-Conto-termico> - <http://www.anci.emilia-romagna.it/Aree-Tematiche/Economia-Energia-e-Turismo/Le-novita/Conto-Termico-per-i-Comuni-modello-senza-ESCo>):
- February 23th, 2015
 - March 10th, 2015
 - March 17th, 2015
 - April 3th, 2015
 - April 20th, 2015

The models that emerged can be used for small operations (single building) and for large projects (district heating) and the results are also useful for the RES H/C project.

Finally, it is planned to launch further discussion on the Equity Crowdfunding tolls (standardized and regulated in Italy).

Once defined and identified the tools, the task force will be the mean for their diffusion on the territory.

One “general” Regional task Force and four specific “sub task forces” have been identified. The four sub task force are:

- Integration and/or extension of existing district heating networks with renewable energy or industries thermal waste
- Integration and/or extension of existing networks with spread solar thermal micro-plants
- Small rural or mountain RES networks with the cooperative model and/or crowdfunding
- New DHC networks with renewable or waste heat (Medium municipalities where there are no DHC networks)

For detailed activities on task forces see the document: SmartReFlex_WP2_TaskForceEmiliaRomagna.

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.

			Timeline	
Required action	Stakeholders needed	Resources / instruments needed	Planned date	Real implementation
- Support during the preparation of plans and strategies on district heating and cooling - The necessary stakeholders to the process are local authorities (municipalities, unions of municipalities), the central administration (Emilia-Romagna Region) and all stakeholders identified in the SmartReflex and the RES H / C SPREAD projects - The resources / instruments needed are a detailed knowledge of district heating and cooling systems and stable or planned local and national priorities			<i>Throughout project</i>	<i>Throughout project</i>
			The main results are: <ul style="list-style-type: none"> • Implementation and dissemination of information tools • Collection, processing and analysis of local data • Preparation of approaches for continuous monitoring data 	
- Implementation and dissemination of information tools which support local and central Authorities on local heat planning for communities - The necessary stakeholders to the process are local authorities (municipalities, unions of municipalities), the central administration (Emilia-Romagna Region) and others subjects involved in a different way in the management and the protection of the territory (e.g. Regional Environmental Protection Agencies) - The resources / instruments needed are a detailed territories knowledge (e.g. potential of the different thermal renewable energy sources) and data continuously recorded (e.g. the thermal energy demand and supply at local level)			<i>summer-autumn 2015</i>	<i>...</i>
			The main results are: <ul style="list-style-type: none"> • Implementation and dissemination of information tools • Collection, processing and analysis of local data • Preparation of approaches for continuous monitoring data 	
- Assessments of the district heating and cooling systems - The necessary stakeholders to the process are local authorities (municipalities, unions of municipalities), the central administration (Emilia-Romagna Region) and others subjects involved in a different way in the management and the protection of the territory (e.g. Regional Environmental Protection Agencies) - The resources / instruments needed are the spatial data descriptive of district heating and cooling systems and data representative of the environmental, economic and social impacts.			<i>Throughout project</i>	<i>Throughout project</i>
			The main results are: <ul style="list-style-type: none"> • Collection, processing and analysis of local data • Analysis and evaluation of the impacts of the district heating and cooling systems 	

<p>- Evaluation of the Structural Funds available and / or planned</p> <p>- The necessary stakeholders to the process are the structural funds managing authorities, the local authorities (municipalities, unions of municipalities), the central administration (Emilia-Romagna Region) and all stakeholders identified in the SmartReflex and the RES H / C SPREAD projects</p> <p>- The resources / instruments needed are local data descriptive of district heating and cooling systems</p> <p>- Identification of a first experimental call at Regional level (around 4 million Euros) focusing on H/C district in mountainous and disadvantaged areas by means of meetings between ANCI ER and the structural funds managing authorities (at regional level) .</p> <p>Update 2016: Definition of a second call at regional level for the energy renovation of public buildings including DH substation and pipes</p>	<p><i>February 2015</i></p>	<p><i>march 2016</i></p>
<p>- Evaluation of the financial models and sources of funding for the district heating and cooling systems</p> <p>- The necessary stakeholders to the process are all stakeholders identified in the SmartReflex and the RES H / C SPREAD projects, the possible lenders and the local and central authorities</p> <p>- The resources / instruments needed are the funding models available and applicable to the territories</p> <p>- Needed availability of main trade and cooperative association to activate cooperative activities focused on the renewable energy plant implementation and management</p> <p>- Obtain availability and interest from banks and financial institution in the specific topic of loans for social activities related to renewable energies.</p> <p>- Investigate equity crowdfunding as an opportunity for H/C district implementation.</p>	<p><i>July 2015</i></p>	<p><i>December 2016</i></p>
	<p>The main results are:</p> <ul style="list-style-type: none"> • Comparison, dialogue, support with structural funds managing authorities • Dissemination • Meetings between ANCI ER and the structural funds managing authorities (at regional level) • Definition of a first experimental call at Regional level (around 4 million Euros) focusing on H/C district in mountainous and disadvantaged areas • Update 2016: Definition of a second call at regional level for the energy renovation of public buildings including DH substation and pipes 	
	<p>The main results are:</p> <ul style="list-style-type: none"> • Evaluation of the available models • Identification of the optimal approaches • Dissemination • Checked and found availability of the main trade and cooperative association • Bank network can not be the only financial support and integration with other model is needed • Equity crowdfunding might be an opportunity for H/C district implementation. 	

Update 2016:

<p>- In November 2015 Emilia Romagna Regional government started the renewal process of its regional energy planning. ANCI ER with the support of the Italian partners is committed to make the regional energy planning favourable to RES DH development.</p> <p>- The necessary stakeholders to the process are local authorities (municipalities, unions of municipalities), the central administration (Emilia-Romagna Region) and all stakeholders identified in the SmartReflex and the RES H / C SPREAD projects</p> <p>The resources / instruments needed are a detailed territories knowledge (e.g. the thermal energy demand and supply Mapping developed by RES H/C Spread) and the knowledge of existing regional policies regarding energy</p>	<i>November 2015- end of 2016</i>	<i>November 2015- end of 2016</i>
<p>The main results are:</p> <ul style="list-style-type: none"> • Creation of a framework favourable to DH in the Regional Energy Plan • Improvement of the thermal energy planning at regional level 		

Update 2017

<p>The regional energy plan has been approved by the regional government of Emilia Romagna in december 2016. The final version of the plan foresees two major issues regarding DH:</p> <ul style="list-style-type: none"> • The institution of a Regional Energy Observatory managed by ARPAE (Regional Agency for Environment and Energy) • The new Observatory will produce a Study on the Regional Potential of DH. <p>ANCI ER will participate to the works of the observatory together with some of the main regional stakeholders. Within this context it will continue to support the development DH with RES and bring the know-achieved with Smartreflex</p>	<i>After February 2017</i>	<i>...</i>
<p>The main result are:</p> <ul style="list-style-type: none"> • Study on the Regional Potential of DH; • to continue the dialogue on DH with RES with institutional stakeholders and foster a better framework 		

<p>After the end of the project ANCI Emilia Romagna will include the outcomes of Smartreflex in its normal schedule.</p> <p>ANCI Emilia Romagna will use the know-how achieved, the documents produced to support the municipalities planning the construction of a new DH network or the extension of an existing one. ANCI ER will carry on this activity in collaboration with AIRU.</p> <p>Periodically ANCI ER will include DH in the agenda of its meeting with the municipalities and regional stakeholders in order to feed the discussion on this topic.</p>	<i>After February 2017</i>	<i>...</i>
<p>The main result are:</p> <ul style="list-style-type: none"> • Support to the municipalities planning the construction of a new DH network or the extension of an existing one 		

<p>AIRU will continue to support the case studies of the regione</p>	<i>Dopo febbraio</i>	<i>...</i>
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<p>milia Romagna:</p> <ul style="list-style-type: none"> • For new network (i.e. Maccaretolo and Monte San Pietro) AIRU will commit to facilitate the connection with its local member (utilities) that could be interested in investing in the project. • For Network extension (Monchio delle Corti), AIRU will continue its support in optimizing the network and monitoring consumption in its annual report. • 	<p>2017</p>	
	<p><i>The main result are:</i></p> <ul style="list-style-type: none"> • Support to the regional case studies 	
<p>AIRU e ANCI ER will continue to collaborate to pinpoint the small DH network of the region (existing and new ones) to include them in AIRU annual report.</p> <p>This inclusion will allow AIRU to monitor their annual consumption.</p> <p>AIRU is also evaluating the elaboration of a methodology to assess cost/benefit of new DH network to support Municipalities to elaborate the “Municipal plan for the development of DHC” (D.lgs. 28/2011 art. 22).</p>	<p><i>Dopo febbraio</i> 2017</p>	<p>...</p>
	<p><i>The main result are:</i></p> <ul style="list-style-type: none"> • Take a census of small DH networks and include them in AIRU’s Annual Report • Guidelines to assess cost/benefit of new DH network for Municipalities. 	

3. Regional strategy

1. Goal - Create synergies between private sector and local authorities for future RES/DHC installation (industry-city symbiosis)

- Creation and operation of the regional task force, through the participation of the stakeholders and professionals representatives of the public authorities and the private sector;
- Application and dissemination of the regulatory, information and evaluation tools;
- Identification of the specific criticalities;
- Dissemination of the results and best practices identified;

2. Goal - Set the base to empower local authorities

- Creation and operation of the regional task force, through the participation of the stakeholders and professionals representatives of the public authorities and the private sector;
- Encourage the establishment and operation (including associated through the union of municipalities) of the “Energy Function” within local authorities, as well as support tools to the application of the regulatory, information and evaluation tools aimed at heating and cooling district (eg. data collection and cognitive framework) and on the whole energy sector;
- Support local authorities to align with regulatory requirements;
- Application and dissemination of information and evaluation tools;
- Identification of the specific criticalities;
- Dissemination of the results and best practices identified;

3. Goal - Consider metering as a key issue on RES/DHC

- Identification of regulatory obligations;
- Application and dissemination of the regulatory, information and evaluation tools;
- Technical meetings with gas distribution and heating and cooling district operators to know the plans for the replacement of current meters with smart meters;
- Identification of the specific criticalities;
- dissemination of the results and best practices identified;

4. Goal - Consolidate cooperative and PPP approach for RES/DHC

- Creation and operation of the regional task force, through the participation of the stakeholders and professionals representatives of the public authorities and the private sector;
- Analysis of collaborative and PPP approaches available/applied and evaluation of its benefits and limits;
- Application and dissemination of the information and evaluation tools;
- Identification of the specific criticalities;
- Dissemination of the results and best practices identified;

5. Goal - Increase use of local renewable energy sources (including residual heating from industries)

- Creation and operation of the regional task force, through the participation of the stakeholders and professionals representatives of the public authorities and the private sector;
- Analysis of the regulatory framework;
- Application and dissemination of the information and evaluation tools;
- Identification of the specific criticalities;
- Dissemination of the results and best practices identified;

6. Goal - set legal conditions for RES/DHC

- Creation and operation of the regional task force, through the participation of the stakeholders and professionals representatives of the public authorities and the private sector;
- Analysis of the regulatory framework;
- Identification of the specific criticalities;
- Dissemination of the results and best practices identified;

4. Improving the framework

Technical, organizational and legal issues	<i>Recommendations to improve the framework regarding technical topics.</i>
<p><i>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.</i></p> <p><i>The groups and the task forces are described in the document "SmartReFlex_WP2_TaskForceEmiliaRomagna"</i></p>	

5. SURVEY RESULTS

The regional strategy bases on the elaborations of the separate document **SmartReFlex Survey ANCI Emilia-Romagna**.

The sectoral meetings are conducted together with the European project RES D/H SPREAD (www.res-hc-spread.eu).