



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

Regional strategy Ireland (EN)

Deliverable

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

XD Sustainable Energy Consulting Ltd,
Kerry County Council,
Tipperary Energy Agency,
Ireland, 23.03.2017

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1. Introduction

This report recommends a number of measures to improve the technical, social, economic and policy framework for RES-DHC in Ireland. The analysis focuses on the regional and local framework which is so essential for district heating projects development. It is based on a comprehensive assessment of the barriers and opportunities for district heating here, and a review of best practice for its support in leading EU countries. The report has been prepared in consultation with key stakeholders in the district heating sector in Ireland and preliminary versions of this report were submitted to the Irish government in the framework of the national consultation on the Green Paper for Energy Policy in Ireland.

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
Pilot RES-HEAT Planning in one participating local authority			Q2-Q3 2015	Q3 2016
<p><u>Actions:</u></p> <ul style="list-style-type: none"> - Define the methodological framework for RES-Heat planning based on SRF WP3 activities and EU best practice; - Pilot the creation of a RES-Heat plan for the urban area of Tralee in Kerry; - Use the Tralee RES-heat plan as a framework for the planning & design of the town's RES-DHC; - Prepare a report with RES-Heat Plan and a case study on this action for SRF WP4 & WP5. <p><u>Stakeholders to involve:</u> Relevant departments at Kerry Co.Co., SEAI, SRF Kerry Task Force</p> <p><u>Resources/instruments required:</u></p> <ul style="list-style-type: none"> - Heat demand data - Methodological framework; - Planning guidelines - GIS & mapping capability 			<p><u>Results</u></p> <p>Heat demand maps for Tralee and county Kerry have been completed. Heat density maps for Tralee (100 x 100 m resolution) and County Kerry (250 x 250 m) have been created and used to support heat planning at local (town) and county level. A case study with heat plan for Kerry and Tralee have been completed. Results of the heat planning case studies have been presented at the international Smart Energy Systems & 4DH conference in Aalborg in September 16, at a SRF workshop in Kolding (DK) and at a webinar co-hosted by SRF and ProgressHeat. Heat planning case studies will be disseminated as templates for other local authorities in Ireland.</p>	

Pilot the public procurement of RES-DHC development in the framework of EPC & ESCo	Q3 2015	Q3 2017
<p><u>Actions:</u></p> <ul style="list-style-type: none"> - Review existing public RES-DHC projects' development process and consult with key stakeholders on current practice, barriers and opportunities; - Review SEAI public sector programme and recommended best practice in the area of procurement for energy projects using energy contracting models; - Develop guidelines and templates for public procurement of RES-DHC projects using energy contracting models; - Pilot the guidelines & templates in selected case studies. - Which stakeholders are needed? <p><u>Stakeholders to involve:</u> SEAI, OPW, heads of procurement in relevant departments, leaders in current projects</p> <p><u>Resources/instruments required:</u> SEAI's Public Sector Programme – Energy Contracting tools Experts in public procurement for energy projects</p>	<p>These actions will be progressed in the framework of follow up activities for DH projects in Tralee, Killarney and Claremorris, in partnership with Dublin City Council for their Docklands DH project.</p>	

Recommendations for improving the financial framework for RES-DHC projects to government and associated institutions	Q4 2015	Q3 2015
<p><u>Actions:</u></p> <ul style="list-style-type: none"> - Review existing framework & conditions for financing RES-DHC projects and consult with key stakeholders in that regard; - Analyse gaps and opportunities in existing financial support mechanisms available for investment in energy or similar infrastructure, in relation to RES-DHC investment; - Make recommendations to improve the financial framework for RES-DHC and engage with relevant authorities and stakeholders to push towards adoption and implementation. <p><u>Stakeholders to involve:</u> Department of Finance, Revenue, Irish Energy Efficiency Fund/SDCL, NTMA, key financial institutions, SEAI, European Investment Bank</p> <p><u>Resources/instruments required:</u></p> <ul style="list-style-type: none"> - Robust financial analysis of RES-DHC, including sensitivity/risk analysis with regard to financing. - Mobilised group of stakeholders and positive engagement at highest level of policy-making. 	<p>Consultation with key stakeholders including the Irish EE Fund/SDCL and NTMA at 2nd task force meeting (Dec.2014).</p> <p>Continued engagement with SDCL on opportunities for financing of the Tralee DH project, and associated requirements for project bankability. Submission to DCENR (Dept Energy) on financial support for RES-DH in the framework of the White Paper on Energy consultation. Submission to DCENR in the framework of the Irish Renewable Heat Incentive consultation and dissemination of recommendations to key stakeholders in the bioenergy sector. Case studies on Project feasibility studies have been disseminated to relevant department officials.</p>	

	Q1 2017	Q2 2017
<p>Recommendations for improving the Building Energy Performance Assessment procedures for residential and non-residential buildings for a level playing field for RES-DHC</p> <p><u>Actions:</u></p> <ul style="list-style-type: none"> - Review existing regulatory framework and methodology of Irish Building Energy Rating software (DEAP & iSBEM) in relation to treatment of RES DHC for energy and CO2 performance. - Compare to treatment of RES DHC in BER assessment procedures and methodology in other EU countries, notably DK. - Model proposed changes in RES-DHC treatment in DEAP and iSBEM to measure impact on overall building energy performance assessment, compared to standard heat supply alternatives - Make recommendations to improve the BER assessment procedure to provide a level playing field for RES-DHC to relevant officials in regulatory authorities. <p><u>Stakeholders to involve:</u></p> <p>Department of Communications, Climate Action and Environment. Department of Housing, Planning, Community and Local Government. Sustainable Energy Authority of Ireland</p> <p><u>Resources/instruments required:</u></p> <ul style="list-style-type: none"> - Update of Dwelling Energy Assessment Procedure and Irish Simplified Building Energy Model - Inform BER Assessors of change to procedure 		<p><i>Initial modelling of RES-DH with domestic examples in Tralee and Dublin done.</i></p> <p><i>Meeting with department officials (SEAI and DHPCLG) and exchange of views done (February 2017)</i></p> <p><i>Follow up exchanges with Dublin City Council engineers to prepare next engagement with department officials.</i></p>

3. Regional strategy

Goal 1: Improving the planning framework for RES-DHC at local/regional level.

Barriers:

Currently, the legislative framework for RES-DHC at a regional (and at a national level) in Ireland is weak and doesn't refer explicitly to it. In that context, local & regional authorities and their planning officers do not have a set of guidelines and directives on how to assess RES-DHC projects, and conversely project developers do not have a set of principles and regulations to adhere to.

Equally, heat planning doesn't feature in the policy framework in Ireland and local authorities are not mandated to develop renewable heat strategies – currently, local authority renewable energy strategies focus on RES-electricity, and in particular wind.

Specific Measures:

Measures	Outcome	Key enablers	Timeline
Enable local/regional authorities to undertake RES-HEAT plans for their area	Heat mapping (RES-heat & demand), RES-HEAT targets, designated area for RES-DHC, co-ordination with other municipal infrastructure. RES-HEAT plan included in Regional/County Development Plan	SEAI, local & regional authorities, consultancies	Regional Heat Plan published in Q1 2017 in pilot regions
Introduce fair and diligent planning application procedures for RES-DHC projects	Transparent evaluation guidelines and criteria for RES-DHC projects.	DoE&LG, regional & local authorities, project developers	RES-DHC guidelines published by SEAI in Q1 2017
Enable local authorities to introduce by-laws facilitating RES-DHC deployment	RES-DHC feasibility studies mandated for certain developments. Mandatory connection to DHC where deemed feasible.	Local authorities & elected representatives	2018 (update of county development plan and local area plan in Kerry)

Goal 2: Establish suitable legal and organisational models of ownership and operation for RES-DHC projects

Barriers

There is a limited experience of legal and organisational aspects of RES-DHC in Ireland and a limited understanding of suitable models of ownership and operation. The co-operative ownership model is of special interest in the SmartReFlex participating regions, given its success in Denmark, but hasn't been tested here and remains to be demonstrated. Equally, there remain a degree of uncertainty and lack of familiarity with ESCo and Energy Energy Performance Contracting for RES-DHC operations.

Specific Measures

Measures	Outcome	Key enablers	Timeline
Review different models of RES-DHC ownership and identify best practice in EU and Ireland	Guidelines on ownership models incl. organisational and legal best practice	Existing DH companies, legal advisers, local authorities, ICOS	RES-DHC guidelines published by SEAI in Q1 2017
Assess ESCo and EPC models of development & operation of RES-DHC projects in EU & IRL	Guidelines on procurement procedures & contractual aspects of ESCo & EPCs.	SEAI, DCENR, Department of Finance, ESCos, project developers	RES-DHC guidelines published by SEAI in Q1 2017

Goal 3: Facilitate access to financing for RES-DHC projects.

Barriers

RES-DHC projects require long-term financing structures and access to affordable finance is a critical barrier to their development, not only for the actual capital investment but also for the steps involved in bringing projects to bankable stage. This is compounded by the low-level of familiarity among finance institutions on RES-DHC financing and, in certain cases, experience among project developers in bringing forward this type of project. In addition, the development of DHC infrastructure should receive the same level state support as is available for infrastructural investments such as energy networks and water supply.

Specific Measures

Measures	Outcome	Key enablers	Timeline
Review the different long-term finance options available at local, national and European level for infrastructural investment, engage with relevant financial institutions.	Identification of most suitable financing mechanisms for RES-DHC projects, and best pathways to secure finance.	Department of Finance, ELENA, Irish Energy Efficiency Fund, NTMA, financial brokers, project developers.	RES-DHC guidelines published by SEAI in Q1 2017

Analyse critical factors affecting the bankability of RES-DHC projects and framework of analysis applied by decision-makers on financing projects.	Guidelines on best practice for the development of projects to bankable stage, recommendations for improve financing mechanisms and modalities for state guarantee on loans.	Same as above	Irish SRF case studies with sensitivity analysis published Q1 2017.
Develop standardised feasibility study tools for the technico-economic analysis of RES-DHC.	Feasibility study methodology and models approved and trusted by relevant stakeholders.	Financial institutions & project developers.	Irish SRF case studies with sensitivity analysis published Q1 2017.
Identify and mobilise existing and potential funding schemes for RES-DHC	Inventory of funding streams, modalities of application and associated terms and conditions.	Local, national and European funding authorities, project developers	Q2 2017
Promote tax incentives for investors in RES-DHC	Recommend tax relief such as Employment & Investment Incentive, encouraging local ownership of RES-DHC projects	Revenue, Dept of Finance, project developers, DHC users co-operatives	Included in Green Paper Energy Policy Consultation in Q2 2015.

Goal 4: Support best practice for project development activities concerning the demand-side of RES-DHC

Barriers

Project developers might focus on the technical and financial aspects of RES-DHC projects, and can overlook the importance of ensuring the social acceptance of this innovative form of heat supply and the uptake by potential customers of the DHC system. Project developers and promoters might not have the capability in terms of methodology and soft skills to approach effectively the demand-side aspects of their project.

Specific Measures

Measures	Outcome	Key enablers	Timeline
Engage with potential heat users and identify key factors influencing uptake of DH connection	Recommend technical, financial & contractual models balancing the	Project developers, heat users representatives	Survey of heat users in Tralee and

	needs of project developers and heat users		Killarney, task force meetings.
Identify key factors fostering or impeding social acceptance of RES-DHC projects	Recommend best practice in terms of communication & consultation to improve social acceptance	Local authorities, local energy agencies, community champions, project developers	Q3 2017
Identify suitable mechanisms that incentive heat users to connect to DH	Recommend financial incentives (reduced VAT, local rates rebate, subsidies) for DH connection	Local authorities, Dept of Finance, Revenue, heat users	Q3 2017
Identify appropriate mechanisms to enforce connection to RES-DHC where accessible and feasible	Recommend by-laws for DH connection enforcement for new building developments & possibly for DH retrofits.	Local authorities, legal advisers, DoE&LG	Q3 2017
Define awareness-raising and information campaign for the RES-DHC project development	Recommended communication strategy and action plan.	Local authorities, community champions, project developers	Q4 2017

Goal 5: Develop capability in technico-economic analysis of RES-heat generation for intermittent RES-e integration in RES-DHC, and in design of RES-DHC system.

Barriers

The availability of RE resources to fulfil the heat demand of RES-DHC projects at an affordable cost can be challenging, especially for large-scale projects. Over-reliance on biomass as sole fuel, as is typically the case in Irish projects so far, can create vulnerability in terms of security of supply and fuel price variation, especially in a context where the primary resource (mostly wood chips from forestry) is constrained at a local and national level. Yet, there is a lack of familiarity and capability among project stakeholders with the different aspects of assessing the potential of other resources such as solar thermal, geothermal, waste heat, etc. and the engineering of their integration into 100% RES-DHC systems. Equally, the potential for RES-DHC to harness excess RES-e from intermittent sources such as wind and solar PV and help balance the electricity system, particularly in combination with large thermal storage, is largely unexplored in Ireland.

Specific Measures

Measures	Outcome	Key enablers	Timeline
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Develop a methodological framework for RES-Heat resource assessment for Irish conditions	Guidelines on methodology for quantifying the resource potential (using Sieve approach) and for mapping them, tools to facilitate the analysis (GIS, models, etc.)	SEAI, research institutions, local authorities, relevant government departments	Guidelines and template provided with Kerry Heat Plan report Q2 2017
Develop a methodological framework for the technical & economic analysis of thermal energy production systems & intermittent RES-e harnessing options	Guidelines and models for the technico-economic analysis of RES-Heat generation, RES-e to thermal energy conversion, thermal storage.	SEAI, research institutions, engineers & financial analysts	Guidelines and template provided with Kerry Heat Plan report Q2 2017
Develop capability among design professionals for RES-DHC system	Guidelines on system design, M&E design tools, training workshops	SEAI, research & educational institutions, engineers & associated professional bodies	SRF Training Workshops Q2 2015-Q1 2017

4. Improving the framework

At a broader national level, a number of measures are recommended to improve the framework for RES-DHC development, in particular with regard to the policy & economic framework, to complement the measures implemented at a local/regional level. These include:

Recommended measures	Key stakeholders	Timeline
Revise the National Spatial Strategy (NSS) and the Regional Planning Guidelines (RPG) to include an appropriate framework for RES-DHC deployment	DoE&LG, regional authorities	Submission to National Development Plan Q2 2017
Define a 2050 National Energy Transition Plan, with revolving 5-yr NREAP and NEEAP, based on participative consultation process engaging all stakeholders. Plans to integrate RES-DHC as key element of decarbonised energy system and define clear targets for its deployment in Ireland.	DoECNR, SEAI	Q4 2015 (White Paper Energy Policy)
Compel all public authorities to undertake feasibility study of RES-DHC for their own building stock. Set departmental targets, enforceable through legislation and backed by clear mandates for implementation, and with adequate human & financial resourcing.	DoECNR, SEAI,	Submission to National Development Plan Q2 2017
Support investment in RES-DHC by: <ul style="list-style-type: none"> • Mandating the National Energy Efficiency Fund and the NTMA to facilitate finance for RES-DHC projects and provide state loan-guarantees to facilitate access to bank finance; • Using revenue from carbon taxes & public service obligations while protecting vulnerable households and export-oriented businesses; • Launching the Renewable Heat Incentive without delay (or other similar production-based incentives); • Introducing specific subsidies to support demonstration of exemplary projects; • Create a favourable VAT regime for RES-DHC thermal energy and/or fuels. • Introduce tax relief for investment in RES-DHC projects e.g. in the framework of the Employment & Investment scheme. 	Dept of Finance, Revenue, NTMA, SDCL, SEAI	Q4 2015 (White Paper Energy Policy) Q1 2017 (Renewable Heat Incentive submission)

5. Survey Results

See annex.