Renewable Heating & Cooling

European Technology and Innovation Platform

First set of RHC-ETIP expert information material

Deliverable 2.2

WP2

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PU	Public	X
RE	Restricted to a group specified by the Consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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ABBREVIATIONS

RHC ETIP: European Technology and Innovation Platform on Renewable Heating and Cooling

H&C: Heating and Cooling

HWG: Horizontal Working Group

RHC: Renewable Heating and Cooling

TP: Technology Panels

WG: Working Group

PARTNERS

BIOENERGY EUROPE: formely AEBIOM : Association Européenne pour la Biomasse

EUREC: the Association of European Renewable Energy Research Centre

EGEC: European Energy Council

EHP: Euroheat &Power

SHE: SolarHeatEurope

EHPA: European Heat Pump Association

The Association of European Renewable Energy Research Centres	Formerly known as AEBIOM: Association Européenne pour la Biomasse	European Energy Council	Euroheat & Power	Formerly known as ESTIF: The European Solar Thermal Industry Federation	European Heat Pump Association

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1. Introduction

Deliverable 2.2 “First set of RHC-ETIP expert information material” presents the RHC ETIP publication “2050 Vision for 100% renewable heating and cooling in Europe”, and explains the methodology and the process followed to draft and finalise the document. The Vision was developed between December 2018 and October 2019 with contributions from RHC ETIP technology experts and the RHC ETIP secretariat. Other national and European stakeholders that are not members have been involved to review the content and the main messages of the Vision. Chapter 2 provides details on the key actors involved, the methodology adopted, the main steps of the process. Chapter 3 gives an overview of the structure of the document and the link to the publication.

2. Process and methodology

2.1 Actors

The key actors involved in the process were:

- **Horizontal Working Groups (HWGs)**: as presented in Deliverable 2.1 "Report on the kick-off meetings of the Horizontal Working Groups", in January 2019 four new working group were created by the RHC ETIP Board next to the Technology Panels (TPs). Their mission is to address and identified challenges, opportunities and development potential of RHC technologies in 4 different areas of interest, respectively individual buildings (not connected to the gas grid or H&C networks), industries, districts and cities. These technology-related HWGs played a central role in the development of the Vision by issuing discussion papers (one for each HWG) that provided the basis for drafting the final document. The discussion papers included relevant information on the value-added of RHC technologies, the state-of-the-art regarding market uptake, the potential for further development, their role in the energy system and the issues to tackle to achieve fully decarbonise heating and cooling (H&C) in Europe by 2050.
- **Vision Working Group**: a temporary working group, called Vision Working Group, was set up by the RHC ETIP Board in February 2019 to review the contribution from the HWGs, overview and coordinate the drafting of the Vision and ensure consistency throughout the document. This WG, composed of the chair and vice-chair of all HWGs and the Chairs of Technology Panels and coordinated by EUREC, worked in parallel with the technical HWGs and played a strategic role to fine-tuning the Vision.
- **RHC ETIP Secretariat**: the secretariat provided support to the HWGs and the Vision WG to organise and manage meetings and conference call, as well as to draft and edit the discussion papers and the final. Each partner organisation of the secretariat was assigned a specific role:
    - EUREC: support to the Vision WG and editing of the Vision;
    - Bioenergy Europe: support to Buildings HWG;
    - EHP: support to Districts HWG;
    - EGEC: support to Cities HWG;
    - SHE: support to Industries HWG;
    - EHPA: providing further support to the Industries HWG
- **Technology Panels (TPs)**: Technology Panels contributed to the Vision by reviewing and updating the state-of-the-art and the potential for development of all RHC technologies. This contribution was added as annex to the Vision.
- **RHC ETIP Members**: all RHC ETIP members were offered the possibility to contribute to the Vision by reviewing the final draft in the framework of an on-line consultation. The feedback received was consolidated in the final document.
- **External stakeholders**: external stakeholders include national and European organisations who have an interest in H&C but are not directly represented in the RHC ETIP. External stakeholder included in the database of relevant stakeholders (see Deliverable 3.2) provided

feedback on the final document through a dedicated webinar organised by the Secretariat in September 2019.

2.2 Process

Between January and February 2019, the Secretariat agreed on a clear set of guidelines to define the role of the HWGs and manage them according to the provisions of the grant agreement. In February 2019, all HWGs, supported by the secretariat, kicked off their activities and defined annual work programmes setting the priorities and the internal management structure. In parallel, the Vision WG reviewed and approved a provisional outline of the Vision document proposed by the Secretariat. Based on the Vision outline the Secretariat developed a template to be used by the HWGs to draft the discussion papers (see annex I).

All HWGs held two physical meetings and several conference calls between February 2019 and June 2019, in order to brainstorm, draft and review the discussion papers. The Secretariat played a strategic role providing logistic support, clarifying the scope of the activity, giving direction, drafting the discussion papers and liaising with the Board and the Vision WG. By the end of June 2019 all HWGs delivered their discussion paper.

In July 2019, EUREC, in its position of scientific coordinator, analysed all discussion papers and drafted the first version of the Vision, which was reviewed by the Secretariat and by the Vision WG. A second draft was then prepared and published on the RHC ETIP for consultation in the beginning of August 2019. The members of the RHC ETIP were informed of the opening of the consultation through several emails, posts and advertisements on social networks and other platforms. The consultation was open until August 31st, 2019. The Secretariat received several comments from over 30 RHC ETIP stakeholders. These comments were thoroughly analysed by EUREC and included in the third version of the document.

The third version of the Vision was presented by the Secretariat to external stakeholder in a webinar organised September 16th, 2019. The draft Vision was shared in advance with participants, in order to facilitate the discussion. 25 people form national and European associations participated in the webinar and provided additional feedback (see in annex II the list of participants).

The final draft was discussed and approved by the RHC ETIP Board on September 20th, 2019. In the following weeks the final text was thoroughly proof-read to eliminate all typos and mistakes, while EUREC worked with the graphic designer to define the final layout of the publication. The Vision was published on the RHC ETIP website in the end of October 2019 and officially presented at the RHC ETIP annual conference in Helsinki on October 28th, 2019.

2.3 Methodology

Drafting the Vision was a relatively long process characterised by multiple interactions. Several stakeholders were involved in the process at different stages, in order to ensure the development of a broadly shared vision for the sector. A prominent role was assigned to the technology experts organised in the HWGs. Their input and recommendations were used to set the content of the Vision

and to develop the key messages. Know-how, expertise and ideas from the platform members and external organisation was beneficial to verify, confirm and sharpen the conclusions of the HWGs.

To develop the discussion paper each HWG adopted the approach that better fitted their internal governance (e.g. brainstorming session, mind mapping, issue groups) in line with the guidelines and the timeline provided by the secretariat. For the fine-tuning of the document an expert review approach was adopted, asking relevant stakeholders to provide their comments directly on the draft text. Overall, the secretariat tried as much as possible to include in the final version of the Vision the feedback received. When contrasting positions emerged, the issues were addressed with the Vision WG in order to find a balanced synthesis.

3. The 2050 Vision

3.1 Structure of the Vision

The Vision is organised in six chapters, which partly reproduce the division in areas of interest created with the HWGs. In fact, the Secretariat and the Board agreed that putting the focus on market segments and end users allows to better envision the contribution of RHC technologies in a renewables-based energy system. Moreover, focusing on market uptakes and the needs of end users foster the emergence of a multidisciplinary approach and unveils synergies between different technologies, which is hardly the case when looking at each technology in isolation.

The first chapter is to be considered as an umbrella for the following, as it generally defines the value-added of RHC and the key elements of a renewables-based H&C system. The following four chapters looks more in details at the challenges and the potential of RHC solutions at city and district level, in individual buildings and in industrial processes. Finally, chapter six discuss es the essential role of policy and social innovation to boost RHC. To complement the Vision, annex I briefly presents the state-of-the-art and the potential development of each technology (solar thermal, biomass, geothermal, heat pump, thermal energy storage, district heating and cooling), while annex II provides a comparison of the different technologies according to several parameters.

3.2 Accessibility

The full text of the Vision is publicly available on the RHC ETIP website at the following link: https://www.rhc-platform.org/content/uploads/2019/10/RHC-VISION-2050-WEB.pdf

Paper copies of the Vision may be also requested to the RHC ETIP Secretariat by contacting info@rhc-platform.org

3.3 Visibility and dissemination

The RHC ETIP Secretariat is strongly committed to disseminate the 2050 Vision. The Vision was officially presented at the RHC ETIP annual conference in Helsinki on October 28th, 2019. On this occasion, about 100 printed copies were distributed to participants. Moreover, the publication of the document was highly publicised among platform members and external national and European stakeholders, as well as through social networks and press releases.

Annex I – Template for the discussion paper provided by the HWG

DISCUSSION PAPER
on
2030 – 2050 COMMON VISION FOR RENEWABLE HEATING AND COOLING IN EUROPE

TEMPLATE

NB: Include graphs, tables and images that support the statements, in order to reinforce the messages and make the document more fluent.

NB: When useful HC demand and supply, market structure, solutions and best cases can be divided by regional areas (e.g. Mediterranean, Nordic countries, central Europe, etc.)

1. HEATING AND COOLING DEMAND AND SUPPLY IN EUROPE IN BUILDINGS/CITIES/DISTRICTS/INDUSTRIES

- *What is the current demand for HC in building/cities/districts/industries in Europe (divided in regions where needed)?*
- *How does the supply side currently look like? Which market share is currently covered by RHC?*
- *How is the market currently structured (stakeholders, customer types, etc.)?*
- *How is the demand expected to evolve?*
- *What is the potential of RHC to cover the future demand?*
- *How will the industry look like (stakeholders, emergence of new actors, etc.)?*

Insert text here

2. RENEWABLE HEATING AND COOLING: STATE OF TECHNOLOGY AND FUTURE OUTLOOKS

- *Which technologies are relevant for HC in building/cities/districts/industries in Europe?*
- *How can these technologies be integrated?*
- *Are there hybrid or systemic solutions that can provide more added value?*
- *Showcase best cases from existing solutions to provide concrete examples and demonstrate feasibility*
- *Based on the best cases, discuss how research can further increase cost-effectiveness, efficiency and market uptake and reduce environmental footprint*

Insert text here

3. NON-TECHNOLOGICAL CHALLENGES

- *What are, if any, the main legislative and regulatory issues (including subsidies) influencing RHC development in building/cities/districts/industries in Europe? How do they influence RHC uptake? How may they be shaped in order to foster RHC?*
- *What are, if any, the main financial issues influencing RHC development in building/cities/districts/industries in Europe? How do they influence RHC uptake? How may they be shaped in order to foster RHC?*
- *Are there information asymmetries with or in the general public and wider stakeholders? How do they affect RHC development? How can the situation be improved?*

Insert text here

4. THE CONTRIBUTION OF RENEWABLE HEATING AND COOLING TO SUSTAINABLE DEVELOPMENT AND ECONOMIC GROWTH

- Which are the potential benefits of RHC in terms of business development, job creation, sustainable use of resources and less reliance on natural gas and energy imports?

Insert text here

Annex II – List of participants to the webinar with external stakeholders

Last Name	First Name	Organisation	Country
Ban	Horia	Termoline	Romania
Bonciani	Dario	Cosvig	Italy
Briens	François	IEA	International
Casillas	Ana	Geoplat	Spain
Day	Tony	Ierc	Ireland
Dossche	Veerle	CAN Europe	European
Garabetian	Thomas	EGEC	European
Gheorghe	Ilisei	Celynx AG	Switzerland
Lenz	Volker	DBFZ	Germany
Manzella	Adele	CNR	Italy
Marsnjak	Rebeka	REHVA	European
Minini	Carlo	Turboden	Italy
Moll	Christian	Swissolar	Switzerland
Mühlenhoff	Jörg	CAN Europe	European
Piedra	Diego	FNR	Germany
Porcheyre	Edwige	Enerplan	France
Provaggi	Alessandro	EHP	European

Simeoni	Ugo	ETN global	Belgium
Stefanica	Dan	EHPA	European
Travasaros	Costas	Prime Laser Technology	Greece
Van Nieuwenhoven	Quentin	Engie	Belgium
Venendaal	René	BTG	Netherland
Weiss	Werner	AEE	Austria
Zachariou	Alexander	Fichtner	Germany
di Padua	Irene	SHE	European