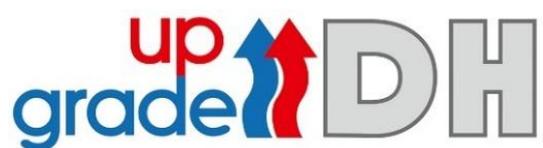
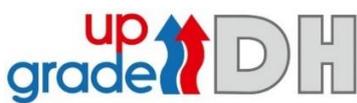


Report on the public Upgrade DH webinars



- Authors:** Aksana Krasatsenka, Euroheat & Power, Belgium
- Reviewers:** Alessandro Provaggi, Euroheat & Power, Belgium
Dominik Rutz, WIP Renewable Energies, Germany
- Contact:** Euroheat & Power
Aksana Krasatsenka
ak@euroheat.org
Tel: +32 (0)2 740 21 10
Cours Saint Michel 30a Box E
B-1040 Brussels, Belgium
www.euroheat.org
- Dissemination Level:** Public
- Website:** Upgrade DH project website: www.upgrade-dh.eu
- Cover:** Image from <https://pablo.buffer.com/>
- Project relation:** WP6, Task 6.3, Deliverable 6.3
- Disclaimer:** This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785014. The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Union nor of the Executive Agency for Small and Medium-sized Enterprises (EASME). Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785014.

Project Consortium and National Contact Points:

WIP Renewable Energies, project coordinator, Germany
 Dominik Rutz [Dominik.Rutz@wip-munich.de]
www.wip-munich.de



Steinbeis Research Institute for Solar and Sustainable Thermal Energy Systems, Germany
 Thomas Pauschinger [pauschinger@solites.de]
www.solites.de



Lithuanian District Heating Association
 (Lietuvos Šilumos Tiekėjų Asociacija), Lithuania
 Audrone Nakrosiene [audronenakrosiene@gmail.com]
www.lsta.lt



Salcininku Šilumos Tinklai, Lithuania
 Elena Pumputienė [elena.pumputiene@sstinklai.lt]
www.sstinklai.lt



JP Elektroprivreda BiH d.d.-Sarajevo, Bosnia-Herzegovina
 Anes Kazagic [a.kazagic@epbih.ba]
www.epbih.ba



AGFW Projektgesellschaft für Rationalisierung, Information und Standardisierung mbH, Germany
 Sebastian Grimm [s.grimm@agfw.de]
www.agfw.de



University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Croatia
 Tomislav Pukšec [tomislav.puksec@fsb.hr]
www.fsb.unizg.hr



COWI A/S, Denmark
 Reto Michael Hummelshøj [rmh@cowi.com]
www.cowi.com



OPTIT Srl, Italy
 Matteo Pozzi [matteo.pozzi@optit.net]
www.optit.net



Gruppo Hera, Italy
 Simone Rossi [simone.rossi@gruppohera.it]
www.gruppohera.it



Euroheat & Power – EHP, Belgium
 Alessandro Provaggi [ap@euroheat.org]
www.euroheat.org

Contents

Contents	4
Acknowledgements	5
Introduction	6
1. Webinar #1	7
1.1 Summary	7
1.2 Minutes	7
1.3 Participant list	8
2. Webinar #2	8
2.1 Summary	8
2.2 Minutes	9
2.3 Participant list	9
3. Webinar #3	9
3.1 Summary	9
3.2 Minutes	10
3.3 Participant list	11
4. Webinar #4	11
4.1 Summary	11
4.2 Minutes	12
4.3 Participant list	13
5. Webinar #5	13
5.1 Summary	13
5.2 Minutes	14
5.3 Participant list	15

Acknowledgements

The authors would like to thank the European Commission for supporting the UpgradeDH project, as well as the KeepWarm project and the Celsius Initiative for the fruitful collaboration.

Introduction

The overall objective of the Upgrade DH project is to improve the performance of district heating (DH) networks in Europe by supporting selected demonstration cases for upgrading, which can be replicated in Europe.

The Upgrade DH project supports the upgrading and retrofitting of DH systems in different climate regions of Europe, covering various countries: Bosnia-Herzegovina, Denmark, Croatia, Germany, Italy, Lithuania, Poland, and The Netherlands. In each of the target countries, the upgrading process was initiated at concrete DH systems of the so-called Upgrade DH demonstration cases (demo cases). The gained knowledge and experiences is further replicated to other European countries and DH systems (replication cases) in order to leverage the impact.

Core activities of the Upgrade DH project include the collection of the best upgrading measures and tools, the support of the upgrading process for selected district heating networks, the organisation of capacity building measures about DH upgrading, financing and business models, as well as the development of national and regional action plans.

In addition, an image raising campaign for modern DH networks is being carried out in the Upgrade DH project. The outcome will be the initiation of DH upgrading process in the above-mentioned target countries and beyond.

A series of public thematic webinars were organised by Euroheat & Power in order to outreach and discuss project activities. The topics included both technical and non-technical aspects:

- 1) **30 April 2020: Non-technical aspects of the DH upgrading process.** Speakers included WIP, UNIZAG, AGFW and EPBIH.
- 2) **4 June 2020: Upgrading heat distribution and piping technologies.** Speakers included: Optit, LDHA, AGFW.
- 3) **12 November 2020: Integrating heat-use infrastructure upgrades into strategic planning.** Workshop in the framework of the KeepWarm final conference. Speakers included: WIP, EPBIH, LDHA.
- 4) **26 January 2021: Retrofitting with renewable energies – finding the right mix.** Speakers included: Solites, Optit.
- 5) **23 February 2021: Retrofitting DHC – How to develop a successful action plan.** Speakers included EHP, AGFW.

The present report summarizes the discussions, contains minutes and participation rates of the above-mentioned webinars. For more information, please refer to the webinar recordings.

1. Webinar #1

1.1 Summary

30 April 2020: Non-technical aspects of the DH upgrading process.

Usually, the overall upgrading process to improve the efficiency of DH grids is complex and sophisticated. It is time-consuming, long-lasting and implies high investments. UpgradeDH partners aim at simplifying this process by providing guidance and their expertise in strategies, contracts, stakeholder engagement, business models, and other non-technical aspects of upgrading projects.

Speakers:

[Dominik Rutz](#) – WIP Renewable Energies [[UpgradeDH project](#)]

Dominika Moczko – AGFW | Der Energieeffizienzverband für Wärme, Kälte und KWK e. V. [[Standard contract](#)]

[Anes Kazagic](#) – JP Elektroprivreda BiH d.d. Sarajevo (EPBiH) [[Stakeholder involvement](#)]

[Borna Doračić](#) – University of Zagreb [[Financial aspects](#)]

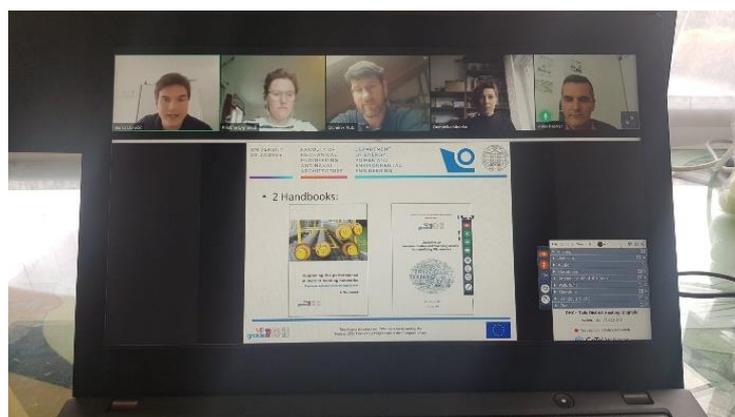
Moderator:

[Kristina Lygnerud](#) – IVL, The Swedish Environment Research Institute

Recording of the webinar is available [here](#).

1.2 Minutes

The first in a series of UpgradeDH webinars was held in the framework of DHC+ Talks and was moderated by Kristina Lygnerud, Vice-Chair of the DHC+ Technology Platform and coordinator of the Horizon 2020 project ReUseHeat, where she is also leading the work on business models and non-technical barriers for urban waste heat recovery.



Dominik Rutz, the coordinator of UpgradeDH opened the webinar with a presentation of the project and its objectives. He emphasized the high potential of district heating for the transition of the heat sector, explained the upgrading process and different upgrading measures. Dominik stressed the fact that the upgrading process is often complex and sophisticated, it should be very carefully planned in the long-term and should, ideally, involve various stakeholders.

Some interesting legal aspects in the context of DH upgrading projects, and in particular, Standard contract and the adjustment of prices were presented by Dominika Moczko, Policy Officer at the German district heating and energy efficiency association.



Anes Kazagic, representing the power utility in one of the demo sites of UpgradeDH - EPBiH, presented the topic of the stakeholder involvement in the upgrading projects. He shared some general recommendations on setting up local working groups and described achievements in this process in Tuzla.

Financial aspects and business models of DH upgrading were brought by Borna Doračić from the University of Zagreb who is leading this work in the UpgradeDH project. He referred to two main documents: the UpgradeDH Handbook on technical and non-technical approaches to upgrading the performance of district heating networks and the Guideline o business models and financing schemes for retrofitting DH networks which were elaborated in the context of UpgradeDH.

The Q&A session kicked-off with a quick poll on the main non-technical barriers to the DH upgrade. The results of the poll showed that significant investment is considered to be the main barrier. European / national / local policies and contractual or business model issues followed the list of important barriers. The discussion then focused on practical challenges faced by the operators when upgrading DH systems, on the possibilities for cities to develop new DH networks, and on the subsidies and other drivers for retrofitting DH.

1.3 Participant list

48 pax attended the webinar. For more detailed information, please refer to the internal version of the report.

2. Webinar #2

2.1 Summary

4 June 2020: Upgrading heat distribution and piping technologies.

An essential part of DH systems is the heat distribution network, which connects heat generators with heat sinks. The objective is to guarantee a reliable heat supply which is adjusted to the grid needs and which is as efficient as possible.

UpgradeDH focuses on improving the performance of district heating networks in Europe, including the upgrading of heat distribution and piping technologies.

Speakers & presentations:

[Matteo Pozzi](#) – Optit [[Network optimisation](#)]

[Evaldas Čepulis](#) – Lithuanian District Heating Association [[Heat distribution in Lithuania](#)]

Sebastian Grimm – AGFW Projekt GmbH [[Cured-in-place-Pipe](#)]

[Peter Jorsal](#) – LOGSTOR [[Modern pre-insulated pipes](#)]

Moderator:

[Aksana Krasatsenka](#) – DHC+ Technology Platform

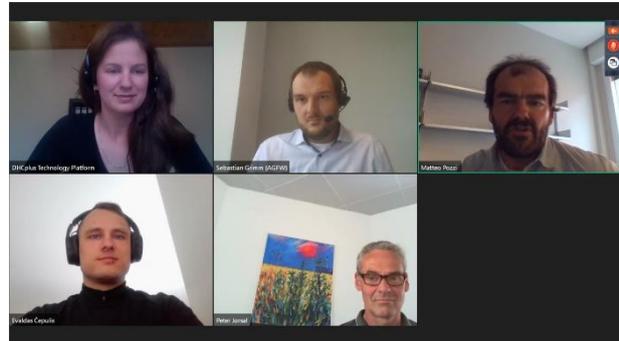
Recording of the webinar is available [here](#).



2.2 Minutes

The second in a series of public UpgradeDH webinars focused on the technical aspects and more specifically, on upgrading distribution and piping technologies. The webinar was held, once again, in the framework of DHC+ Talks and was moderated by Aksana Krasatsenka, Project and Communication Officer at DHC+.

Matteo Pozzi introduced the UpgradeDH project to the audience and focused on the issues of DH network development and strategic optimisation. He also presented the Optit tool which supported the transition from the commercial to the engineering departments, speeding up the project execution at the UpgradeDH demo in Milan (Italy). The tool was also applied in Marburg (Germany) and Salcininkai (Lithuania).



Lithuanian district heating sector and distribution technologies were presented by Evaldas Čepulis from the Lithuanian District Heating Association. One of the challenges in Lithuania is DH technological heat loss. It is being tackled by annual replacement of networks, leak detection and corrosion speed identification. Evaldas also mentioned the project BSAM - Baltic Smart Asset Management whose purpose is to develop methods, transnational collaboration processes and knowledge for smart asset management.

Sebastian Grimm from AGFW Projekt GmbH gave an overview of another relevant project FW-Liner which stands for „Possibilities and restrictions of district heating pipe renovations – with Cured-in-place pipe (CIPP) systems“.

An external expertise to the project was brought by Peter Jorsal from LOGSTOR. He elaborated on the concepts of “modern” and “green” choice of pipe system. Peter insisted on the need to always base the choice of piping system on the Total Cost of Ownership, to choose the solution with lowest possible heat loss, to use recycled materials when producing new products and to digitalise the pre-insulated network.

The questions during the Q&A session concerned a decentralised feed into the grid, new connections in a twin pipe system, the choice of pre-insulated medium pipe material and the expected lifetime of CIPP repaired pipes. At the end of the webinar, Aksana Krasatsenka introduced the image raising campaign #DHCitizen and invited all interested stakeholders to actively participate in order to improve the perception of district heating.

2.3 Participant list

39 pax attended the webinar. For more detailed information, please refer to the internal version of the report.

3. Webinar #3

3.1 Summary

12 November 2020: Integrating heat-use infrastructure upgrades into strategic planning. Workshop in the framework of the KeepWarm final conference.

KeepWarm’s online International Inspire Event explored the role which district heating (DH) has, especially for DH retrofits (i.e. increasing DH networks’ efficiency and/or decarbonisation through more sustainable energy sources), in relevant strategies at multiple levels of governance.

Workshop organised by UpgradeDH focused on local aspects, challenges and policy solutions for energy efficiency in DH systems.

Speakers & presentations:

Ina Bērziņa-Veita – President; Latvian District Heating Association

Valdas Lukoševičius – President; Lithuanian District Heating Association, Lithuania

Ajla Merzić – Lead Expert Associate for Power Generation Unit Development; JP Elektroprivreda BiH d.d., Bosnia and Herzegovina

Susana Paardekooper – PhD Fellow; Aalborg University, Denmark

[\[All slides combined\]](#)

Moderator:

Dominik Rutz – Head of Unit Bioenergy & Bioeconomy, WIP Renewable Energies

The summary of the UpgradeDH workshop was performed in plenary session by Aksana Krasatsenka – Project and Communication Officer; DHC+ Technology Platform c/o Euroheat & Power [\[presentation\]](#)

Recording of the event is available [here](#).

3.2 Minutes

The online workshop of UpgradeDH which ran in parallel with the KeepWarm workshop, focused on the efficiency side of district heating systems. Dominik Rutz, being the project coordinator, introduced UpgradeDH and retrofitting approaches promoted within this project. This includes improvements for heat use (efficient integration of substations, predictions of future insulation status of houses, etc.), heat distribution (optimised piping, reduction of leakages, temperature levels, etc.) and heat generation (optimised mixture of heat sources, storage, etc.).



Ina Bērziņa-Veita – President of Latvian District Heating Association, opened the panel debate by providing some context into the Latvian DH market challenges and potential solutions. In particular, she insisted on the need to promote DH network extension, new connection to DH (substations), RES & zero emission technologies as well as electrostatic filter. On the regulatory and financial side, Ina highlighted the importance of equal

regulations and taxes for individual and DH solutions.

The Lithuanian perspective to increase energy efficiency in DH chain was presented by the President of the Lithuanian District Heating Association Valdas Lukosevicius. One interesting point concerned State support available for engineering system renovation which consists in the modernization of heat substations, heat balancing, individual regulation of each apartment, etc. For the period 2021-2027, Lithuanian policies foresee the following measures: diversification of RES with solar technologies, heat pumps and similar, expansion of efficient biomass firing CHP plants, the use of residual energy (waste heat from industry, water treatment, cooling systems or power plants), the development of integrated district heating and cooling systems with heat storages, the modernisation and expansion of district energy pipelines by lowering of temperature in DH networks, smart DH networks and integration and synergies of various energy sectors.

Ajla Merzić – Lead Expert Associate for Power Generation Unit Development at JP Elektroprivreda BiH d.d., elaborated on policy-related challenges and needs in Bosnia and Herzegovina. Among the possible solutions, she mentioned the need of changing from surface-based billing to consumption-based billing, which should be included into Law on thermal energy; installing thermostatic valves for heating room temperature regulation and developing a pilot project as showcase example; introducing funds for financial assistance at the local level.

Finally, the Danish perspective was brought by Susana Paardekooper from Aalborg University. Starting from the standpoint that energy efficiency is complex and energy infrastructure needs clarity, they managed to achieve remarkable results. Susana pointed out that transition of other energy sectors, enhanced regulation on noise pollution, indoor air quality, energy poverty and social responsibility is also driving the DH sector for action. She concluded that methodologies and instruments for improving energy efficiency should be developed at different governance levels by combining local approaches.

3.3 Participant list

38 pax attended the webinar. For more detailed information, please refer to the internal version of the report.

4. Webinar #4

4.1 Summary

26 January 2021: Retrofitting with renewable energies – finding the right mix.



As the general trend in the energy sector and the supporting policies aim towards 100% renewable energies for 2050, upgrading heat generation with renewable energy sources and including innovative heat storage technologies will be key.

The goal is clear but how to get there is uncertain and will vary from city to city. To get some inspiration and exchange on possible ways forward, the Celsius Initiative has teamed-up with RES-DHC and UpgradeDH, two European projects at the forefront of modernizing district heating systems by integrating renewable energy sources.

Speakers & presentations:

[Thomas Pauschinger](#), Management Member at [Solites](#). His presentation starts at 06:02.

[Matteo Pozzi](#), General Manager at [OPTIT](#). His presentation starts at 19:47.

[Wolfgang Götzhaber](#), Unit Leader of Energy and Climate at the [City of Graz](#). His presentation starts at 30:33.

Moderator:

[Emilia Pisani](#), Communications Officer at [Johanneberg Science Park](#)

[\[All slides combined\]](#)

Recording of the webinar is available [here](#).

4.2 Minutes

During this Celsius Talk on “Retrofitting with renewable energies – finding the right mix”, the moderator of the webinar Emilia Pisani, Communications Officer at Johanneberg Science Park, introduced the Celsius Initiative and the link to other projects such as RES-DHC and UpgradeDH.

Thomas Pauschinger, representing the RES-DHC and UpgradeDH projects, focused on the challenges and opportunities for the transformation towards renewable-based district heating and cooling and the integration of solar thermal and other RES based sources.

Matteo Pozzi, representing the UpgradeDH project, looked at how to harmonise these with existing production assets and the challenges of sector coupling.

For a concrete example, Wolfgang Götzhaber from the City of Graz, shared his story of switching to renewable district heating.



During the Q&A session, the discussions touched upon the integration of geothermal sources into DH networks. Matteo Pozzi mentioned the example of the UpgradeDH demo in Ferrara, which has a very high potential of geothermal to be integrated, if important investment is provided. Other questions concerned public perception of district heating and waste heat from low-temperature sources.

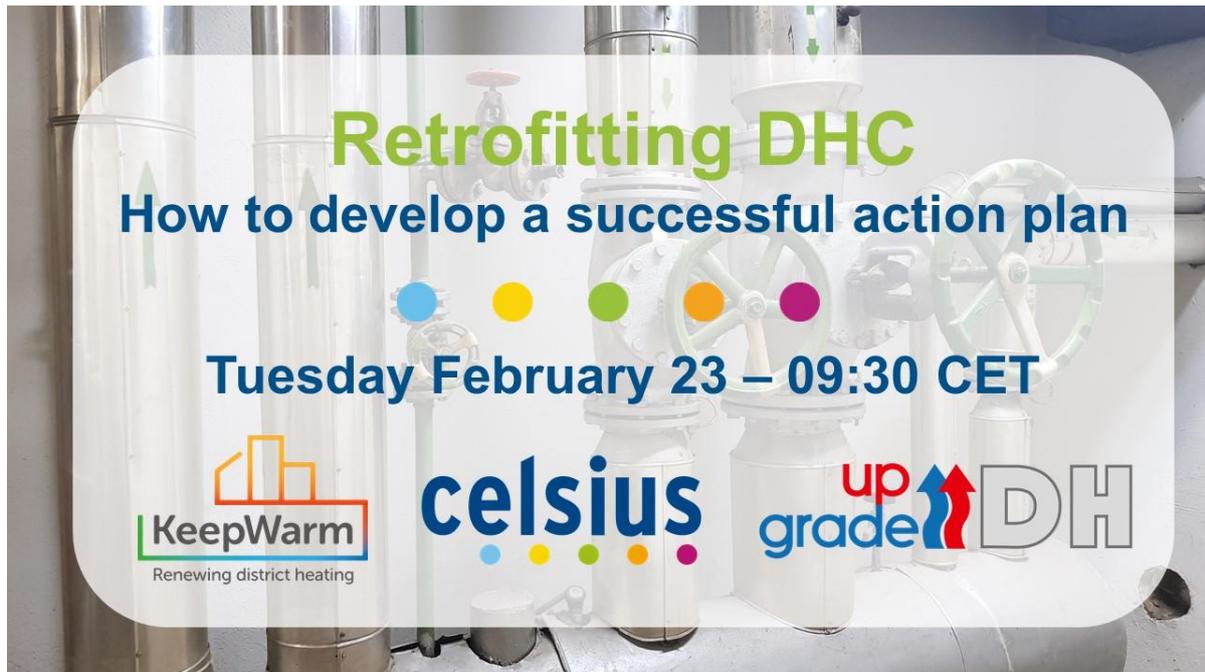
4.3 Participant list

52 pax attended the webinar. For more detailed information, please refer to the internal version of the report.

5. Webinar #5

5.1 Summary

23 February 2021: Retrofitting DHC – How to develop a successful action plan.



In order to decarbonise the energy system in the shortest possible time, it is essential to implement practicable and available solutions now. To decarbonise the heating sector, specifically, it is key for this transition to be systematically defined, so that all those relevant stakeholders at the EU, national and local level, are involved in a harmonised way.

The main objective of the EU projects UpgradeDH and KeepWarm is to support further uptake of district heating in Europe, in particular by making recommendations to national governments and local authorities on how to approach DHS retrofitting. On one hand, Upgrade DH is developing concrete national action plans for the retrofitting of inefficient networks in Bosnia & Herzegovina, Croatia, Denmark, Germany, Italy, Lithuania, Poland and the Netherlands. On the other hand, the action plans developed in the framework of the KeepWarm project focus on Central and Eastern Europe, and in particular Austria, Croatia, Czech Republic, Latvia, Serbia, Slovenia and Ukraine.

During this webinar we explored how to develop successful action plans to retrofit DH networks in Europe, learning from concrete case studies from the two abovementioned projects, such as Germany and Slovenia. Our speakers analysed expected legislative challenges and recommended solutions to successfully overcome them.

Speakers & presentations:

Werner Lutsch, Managing Director and CEO of [AGFW](#), the German Energy Efficiency Association for District Heating, Cooling and CHP

[Jure Čižman](#), Senior Advisor at the [Jožef Stefan Institute](#) in Slovenia

[Jacqui Cullen](#), Project Manager District Heating and Cooling at the [Eurometropolis of Strasbourg](#)

Moderator:

[Giulia Forgnone](#), Policy Officer at [Euroheat & Power](#)

[\[All slides combined\]](#)

Recording of the webinar is available [here](#).

5.2 Minutes

The moderator of the webinar Giulia Forgnone introduced the topic “Developing action plans favourable for retrofitting district heating”. In the framework of UpgradeDH, 8 national actions plans have been developed, which include policy recommendations to national governments and local authorities on how to approach district heating retrofitting.



Werner Lutsch from AGFW told the audience about the German action plan developed as part of UpgradeDH and the activities of the German Energy Efficiency Association for District Heating, Cooling and CHP in this respect. According to Werner, the highest barrier for practicable solutions at the moment is the national and European policy. There are too many laws, rules and regulations, changing all the time, coming

from different sides and blocking the companies in doing business or building something. Werner advocates for technical “Codes and Standards of Best Practice for the district heating process chain”.

Jure Čižman from the Jožef Stefan Institute provided an overview of the KeepWarm project results, as well as the KeepWarm approach to developing DHC action plans. The project consortium compared the DH state of art in the target countries and main barriers for retrofitting. They also performed an analysis of the impact of stakeholders and their involvement in strategic planning. KeepWarm policy recommendations can be found at <https://keepwarmeurope.eu/learning-centre/policy-recommendations/>.

Finally, Jacqui Cullen from the City of Strasbourg brought the local perspective to the debate. She introduced the 2050 Roadmap Strasbourg’s vision which includes the target of 100% renewable energy. In the field of district heating, the goals of Strasbourg are to reduce operating temperatures, continue to retrofit pipes and equipment, continue to integrate renewable energy in the mix and interconnect existing and future networks. Strasbourg is currently developing District Heating and Energy Networks Master Plan (2022-2030).

The Q&A session opened with a discussion on challenges and opportunities brought by the Green Deal. Werner Lutsch highlighted the importance of long-term policies and horizons. Jure Čižman insisted on the need to have clear goals and strategic perspectives. Jacqui Cullen pointed out that in France local energy plans are much more important drivers for financing of district heating projects. Other questions concerned



private financing of retrofitting projects, cost competitiveness of district heating and gas systems, integration of heat pumps into DH systems and CO₂ taxation issues.

5.3 Participant list

45 pax attended the webinar. For more detailed information, please refer to the internal version of the report.