

The platform for
European Research &
Innovation in District
Heating, District Cooling
and kindred technologies

Progressing Research & Innovation for sustainable energy solutions

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STRATEGO reports and
maps are now online

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Interview with Susana Paardekooper, winner of the DHC+ Student Awards 2015

What is the topic of your research and why do you think it was highly evaluated by the jury of the Student Awards?

During my master's at Aalborg University, I studied the optimal use of heat pumps in European cities. I compared the use of building-scale heat pumps with the use of large-scale heat pumps and a District Heating network as an alternative to heating an average European city with gas. I looked at the costs of these different systems, and analysed how suitable they are for an urban area. The District Heating industry has become more and more interested in the environmental and economic savings possible for urban heating, especially when it comes to the dense and historic nature of many European areas. Now that this has been recognised as an issue of salience, I think there is a greater emphasis on how to solve it, and what the alternative solutions may be. Moreover, I think it is especially important to see how to create synergies between District Heating and technologies from different sectors.

Why did you decide to participate in this competition? Who or what inspired you?

I initially heard about the DHC+ Student Awards via my internship, but was hesitant about applying because it seemed more suited for PhD students. However, Associate Professor David Connolly (Aalborg University) convinced me to apply and I am very happy I did participate in the end!



Picture:
Susana Paardekooper

Did you appreciate the opportunity to be part of the 4DH conference in Copenhagen?

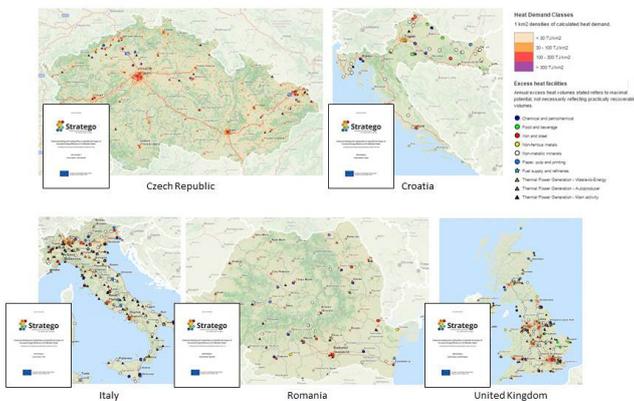
Presenting and being present at the 4DH conference was a really fantastic experience, and for me it was one of the most important parts of winning the Student Awards. Presenting your research, getting feedback, and discussing face to face was extremely helpful, because it encourages you to think about the different angles and approaches to your work. Learning about research being done in aspects of District Heating that I had never even considered really broadened my interest. It's also very exciting to hear about other people's work in similar areas and think about how that interacts with my research and related topics. As a new graduate in this field, I really think there is something invaluable about gathering lots of young, enthusiastic, and knowledgeable people under one roof to think about the future of District Heating and Cooling. ■



Stratego

ENHANCED HEATING & COOLING PLANS

STRATEGO reports and maps are now online!



States to simultaneously reduce energy demand, imported fossil fuels, carbon dioxide emissions, and the cost of the heating, cooling, and electricity sectors.

The final version of the country specific reports and maps can be accessed at the links below:

- * www.stratego-project.eu/pan-european-thermal-atlas/ (Pan-European Thermal Atlas)
- * www.stratego-project.eu/local-maps/ (local thermal maps for Czech Republic, Croatia, Italy, Romania and United Kingdom)
- * www.stratego-project.eu/nhcps/ (a new methodology for EU Member States to enhance their national heating and cooling plans and 5 reports on national heating strategies for each targeted country of the project)

This concludes round 3 of Heat Roadmap Europe and provides very useful input for those who are shaping European policy in the heating and cooling sector.

The STRATEGO project is a European co-funded project developed in the framework of the Intelligent Energy Europe Programme.

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EnergyPLAN



Co-funded by the Intelligent Energy Europe Programme of the European Union

One of the goals of the STRATEGO project (www.stratego-project.eu) is to quantify the impact of implementing various energy efficiency measures in the heating and cooling sectors of five EU Member States: Czech Republic, Croatia, Italy, Romania, and the United Kingdom. These countries vary considerably in terms of population, climate, resources, and energy supply, so the key results, conclusions, and recommendations presented in the STRATEGO reports can inform national energy policy across all of Europe.

The results from the conducted study indicate that a total investment of approximately €1.1 trillion in energy efficiency measures across all five of these countries, between 2010 and 2050, will save enough fuel to reduce the costs of their energy systems. After considering both the initial investment and the resulting savings, the total annual cost of the heating, cooling, and electricity sectors is reduced by an average of ~15% in each country. These initial investments are primarily required in heat savings for buildings, district heating in urban areas, and electric heat pumps in rural areas. In essence, energy efficiency measures in the heating sector will enable EU Member

Investing in Education & Training

DHC+ Student Awards 2015: winners rewarded in Copenhagen

The Student Awards ceremony took place on 26 August 2015 during the International Conference on Smart Energy Systems and 4th Generation District Heating in Copenhagen. The conference, organised by the 4DH Research Centre, gathered 190 researchers and experts from the energy and District Heating industry. The winners of the Student Awards were honored to present their work at the dedicated sessions and received the Awards from Bertrand Guillemot, Chairman of DHC+, during the special ceremony at the Closing Plenary Session.

Call for papers for the 4th International DHC+ Student Awards has already been launched! Applicants are invited to submit their research papers till 20 January 2016. Please check studentawards.dhcplus.eu for more information. ■



From left: Wiet Mazairac (Eindhoven University of Technology); Susana Paardekooper (Aalborg University); Bertrand Guillemot (Dalkia, Groupe EDF); Spyridon Provatias (Blekinge Institute of Technology). Photo: Peter Kristensen

DHC+ Summer School 2015: DHC meets ICT in Torino!

After two successful editions in Berlin (2013) and Helsinki (2014), the DHC+ Summer School went south. The 3rd edition took place from 30 August to 5 September in Italy and was kindly hosted and co-organised by Politecnico di Torino and ISMB.

The DHC+ Summer School is designed to provide a clear introduction to the District Heating and Cooling technology, heat production processes, integration of renewable energy sources, operational issues of DHC networks and basic consumer applications.



Participants of the 3rd DHC+ Summer School during their visit to Langhe Area

For the first time, the programme featured the interaction between DHC and ICT technologies, Horizon 2020 funding rules, as well as design and modelling of DH networks. Participants have very much appreciated the involvement of the local energy companies – IREN and EGEA – who not only opened their doors for the technical visits to their CHP plants, but also provided lectures and practical demonstration of ICT tools.

Towards the end of the week the participants were invited to work in groups and solve one of the DHC Challenges:

- create a transformation strategy for a revolutionary future District Heating and Cooling system, or
- prepare a sound Horizon 2020 project proposal on waste heat recovery from urban facilities and re-use in DHC.

The Summer School in Italy wouldn't have been so pleasant if it hadn't included a welcome guided tour in Torino, wine tasting in Langhe Area and farewell pizza party.

DHC+ would like to thank the Italian hosts and supporters for the excellent organisation. The Platform and its Education & Training Working Group are looking forward to start planning the next DHC+ Summer School! ■

Driving Research in Innovation



FLEXYNETS

FLEXYNETS is a H2020 European Project about District Heating and Cooling (DHC). The project, started in July 2015 and with a duration of three years, is coordinated by EURAC, a research institute based in Bozen (Italy).

Besides EURAC, the project sees the involvement of other five partners: zafh.net (Germany), a research center of the "Hochschule für Technik" of Stuttgart, Solid Automation (Germany), a company specialised in control and monitoring design, PlanEnergi (Denmark), an engineering office specialised in District Heating, Soltigua (Italy), a producer of concentrating solar collectors, Acciona (Spain), a large company with dedicated energy departments.

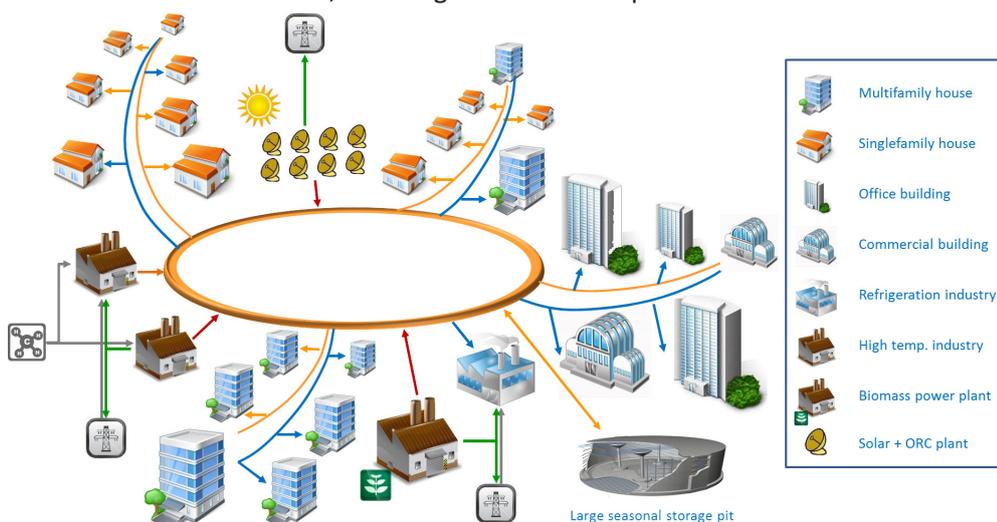
Traditionally, District Heating networks distribute energy from a centralised generation plant to a number of remote customers. As such, actual networks suffer from: (i) significant heat losses, (ii) highly unexplored integration potential of different available energy sources (e.g. renewables and waste heat) into the network, (iii) high installation costs.

FLEXYNETS will develop, demonstrate and deploy a new generation of intelligent District Heating and Cooling networks that reduce energy transportation losses by working at "neutral" (15-20°C) temperature levels. Reversible heat pumps will be used to exchange heat with the DHC network on the demand side, providing the necessary cooling and heating for the

buildings. Moreover, the heat normally rejected by buildings will be fed into the network by heat pumps working in "cooling mode" and recycled by other heat pumps that are producing domestic hot water.

In the same way, these networks allow to recover and recycle waste heat available along the network path, even at very low temperatures, contrary to traditional District Heating networks, that can harvest thermal energy only at high temperature (greater than 100°). Following this logic, it is possible to also reuse waste heat e.g. from supermarkets' chillers, data centers and several industrial processes. Moreover, working at low temperatures reduces heat losses to the ground, increasing network efficiency.

This system does not necessarily substitute nor is opposed to traditional networks. Indeed, in cities already making use of District Heating, low temperature DHC networks could use thermal energy from the return pipes of high temperature networks. This would allow them to sell additional energy with the same infrastructure and to make the network more efficient, reducing the return temperature.



The main work packages of the projects include: (i) analysis and simulation of possible substations (including solar sources), (ii) analysis of possible network configurations, (iii) development of smart control and metering solutions, and (iv) laboratory testing.

Two laboratories will be exploited, a Spanish laboratory managed by Acciona (focused on tri-generation technologies) and an Italian laboratory under development at EURAC (more focused on network related aspects).

Both research in general and the laboratory in particular are addressed to:

- District Heating networks operators.
- Producers of equipment and components for District Heating networks.
- Local administrators developing policies for waste heat recovery and efficient DHC networks.

More information:

<http://www.eurac.edu/en/research/technologies/renewableenergy/Pages/default.aspx>





New Horizon 2020 Energy Work Programme: draft published

The draft versions of the Horizon 2020 work programmes for 2016-2017 have been published. The documents are being made public before the adoption process in order to provide potential participants with the expected main lines of the Horizon 2020 funding for 2016-2017. They are not yet endorsed by the Commission and do not in any way prejudice its final decision. The adoption and the publication of the final work programmes are expected in mid-October 2015.

More attention for heating and cooling

Energy Efficiency (EE) calls focus on consumer-related issues, propose more topics in heating and cooling and introduce a multi-level approach to eliminate market barriers to finance for energy efficiency.

The funding areas for EE calls are:

Heating & cooling: moderate the demand, increase energy efficiency in supply, maximise use of local sustainable and renewable energy sources at affordable costs;

Consumers: achieve a deeper understanding of consumer behaviour and motivation structures; inform, engage and activate consumers;

Buildings: remove existing barriers to the development of energy efficiency in buildings;

Industry, services and products: tackle technological and non-technological barriers faced by large companies and SMEs in order to improve their energy efficiency;

Innovating financing: address the gap between financial sector and energy efficiency projects and thus improve supply of large-scale finance at a low cost for energy efficiency investments. ■

Summer School of Forum Zukunftsenergien in Brussels

At the end of August DHC+/EHP had – thanks to AGFW's engagement – the opportunity to shed some light on technical, legal and economic issues around DHC for European policymakers. The German Forum Zukunftsenergien organises Summer Schools on energy-related issues on an annual basis in Berlin and Brussels. The aim is to provide political stakeholders with insights in order to enable them to base policy decisions on solid grounds.

This year's edition in Brussels which was hosted by the Representation of the State of Nordrhein-Westfalen focused on technical, legal and economic aspects of gas, electricity and heat markets. For the first time DHC was part of the curriculum and Ingo Wagner, Policy & Project Officer at DHC+, presented the relevant aspects, explaining the system as such, technicalities behind its functioning, benefits and problems as well as the economics. The two-day course brought together a variety of energy stakeholders from trade associations, utilities and research institutions with solid experience in their sectors painting a comprehensive picture of European energy markets and impacts of policy files such as the Emissions Trading Scheme. Forum Zukunftsenergien was able to attract close to 20 parliamentary assistants as well as one Member of the European Parliament. The participants represented a broad variety of national backgrounds and all major parliamentary party groups.

The presentation on District Heating and Cooling attracted a lot of interest and detailed questions. The understanding for and the visibility of DHC were tangibly increased and follow-up actions including a number of meetings will build on this. It will be considered whether DHC+ could engage in the field further in order to provide more stakeholders and policymakers with this kind of technical knowledge. Next year's edition of this Summer School will focus on energy-intense industries and DHC+ would be delighted to contribute again. ■



Become a member!

Set up under the umbrella of Euroheat & Power, the DHC+ Technology Platform is today a strong group of stakeholders from academia, research, business and industry. DHC+ is a unique networking platform as well as the perfect place to disseminate work results, develop new projects and get informed about EU trends and opportunities.

Contact us at dhcplus@euroheat.org and become part of DHC+!

Stay connected on social media!

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Share your ideas and news with us!

UPCOMING EVENTS

DHC+ Steering Committee Meetings

Would you like your organisation to host the next Steering Committee meeting and introduce DHC+ members to the District Heating system of your country?

Please contact the Secretariat at dhcplus@euroheat.org for more information

DHC+ partner at the 7th EIS



Deadline for applications - 20 January 2016!



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SAVE THE DATE! 19-21 APRIL 2016