DeCarbCH Newsletter November 2022

Von Cordin Arpagaus <cordin.arpagaus@ost.ch>
An info@sweet-decarb.ch <info@sweet-decarb.ch>
Datum 2022-11-09 15:49

sweet swiss energy research for the energy transition
DeCarbCH

DeCarbCH Newsletter
November 2022

Dear DeCarbCH Partners,

This is the 8th Newsletter of SWEET DeCarbCH.

The focus is on Work Package WP06 with the Case Study of the City of Zurich. The case study aimes to apply, test, validated, and improve approaches, tools and results developed in other work packages to concrete locations in the city of Zurich.

We present an exclusive interview with the WP leader, Prof. Dr. Armin Eberle from ZHAW School of Engineering, Institute of Sustainable Development.

In addition, we report on current research projects in the city of Zurich in the field of heating and cooling, such as:

- modeling and optimization of the district heating network,
- climate-friendly heat supply,
- strategic planning of infrastructure and energy supply concepts,
- socio-technical modeling of the implementation dynamics of heat networks,
- legal and factual obligation to switch to renewable energy,
- thermal energy storage options,
- lunch talk presentation of the case study of Zurich, and last but not least
- the campaign #dontforgetcooling to be prepared for the future temperature rise in the city of Zurich.

On September 20, 2022, Christiane Egger from the Austrian OÖ Energiesparverband presented a lunch talk on Renewable Heat: Is it Rocket Science?
If you missed it, you can still view it on our YouTube channel.
Future Lunch Talks will be announced soon.

Finally, we would like to draw your attention to our next DeCarbCH Annual Conference on February 27 and 28, 2023. Save the date.

Don't forget to follow us on LinkedIn and Twitter.

All the best!
The DeCarbCH management team

This Newsletter offers the following content:

Interview with Prof. Dr. Armin Eberle from ZHAW-INE

Armin is leading work package WP06 with the case study of the city of Zurich.

Question: Could you describe the topic of your WP?

Answer Prof. Dr. Armin Eberle**:** Workpackage 06 is called "Case Study Zurich". This already implies what it is about. In various other work packages, technologies are developed, framework conditions are studied, or modeling approaches are invented. The results from these developments are to be used and tested under real conditions, which allows us to see where we can implement the research ideas in a complex urban environment and where they still need to be adapted.

Question: How does it relate to DeCarbCH?

A. Eberle: The results of the work packages are integrated into a real situation. For example, in the city, we see what specific challenges decarbonization imposes on residents, authorities, and infrastructure. What barriers need to be overcome, and what technical, regulatory, and economic solutions need to be found? We explore which of these challenges can be addressed by the work package deliverables and how they interact. For example, we can see why the connection to a district heating network fails due to technical or legal hurdles or where more refined modeling approaches are needed. Ultimately, the results from DeCarbCH can be validated through real-world testing and how they can be multiplied.

Question: What are the main objectives?

A. Eberle: The work package aims to apply, test, validate and improve approaches, tools, and results developed in other work packages to concrete locations in the city of Zurich. Furthermore, we support the city in the process of transformation toward carbon neutrality. We will test and monitor our findings in a real situation in the complexity of a built-up city. We will gain insights into the barriers and success factors of strategies to support the transition. This will also allow us to understand the opportunities for applying the strategies to other cities.

From a methodological perspective, this work package will lead to a better understanding of whether our methods and strategies are sufficient and appropriate, where and how they successfully complement existing approaches, and where new approaches are needed.

Question: What are the main research questions?

A. Eberle: In the first part, we identify the current challenges and research contributions with respect to the challenges of the city and the planned transformation. The Zurich project will be interlinked with the topics and research questions from the other work packages. Methods from other work packages will be identified and tested in Zurich, completely new methods can be tested, and we will compare our methods with those already applied in Zurich.

From the learnings in the case study, we compare and validate our assumptions and the feasibility of proposed technical solutions under real conditions. Given the specific situations, we will draw conclusions about measures needed for a successful transformation considering structural, demographic, economic, and regulatory frame conditions.

Finally, we will explore whether a planning tool from WP03 can be used to identify optimized future thermal grids and associated renewables-based supply constellations in areas of Zurich. The question is whether it is possible to generalize the findings to other urban areas in Switzerland.

Question: What are the main expected outcomes of your WP?

A. Eberle: These findings serve as transformational insights. The aim is to draw lessons for the researchers (What works in real-life situations?) and for other cities (What can be learned from Zurich?). With the experiences on the level of the largest city in Switzerland, there is a great potential for the multiplication of the solutions. With the clearly identified and validated technical and socio-economic conditions of the different approaches, it is possible to scale up the solutions, adapted to different framework conditions in other cities and even in rural areas.

Question: Could you provide some examples to illustrate the specialty of your WP?

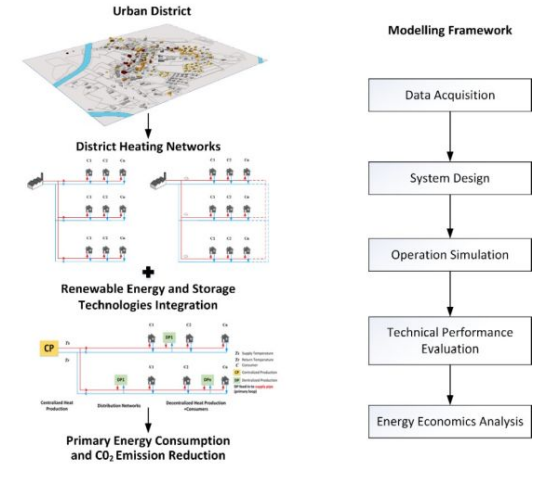
A. Eberle: In Zurich, we have an opportunity to bring science and implementation together. With the complexity of Zurich, its density, the different characteristics of districts, and energy sources and utilities, we will be able to test all kinds of solutions on a technical and socio-economical level. Freely cited from Frank Sinatra: "If we can make it there, we make it anywhere."

Question: A final word for our readers?

A. Eberle: Decarbonization is a major challenge. It needs to happen as fast as possible. Finding solutions in larger cities is both challenging and rewarding. Technical solutions are just as important as the population, which must support the process. That is why testing and learning in case studies is important.

read more

NEWS from WP06: Case study city of Zurich

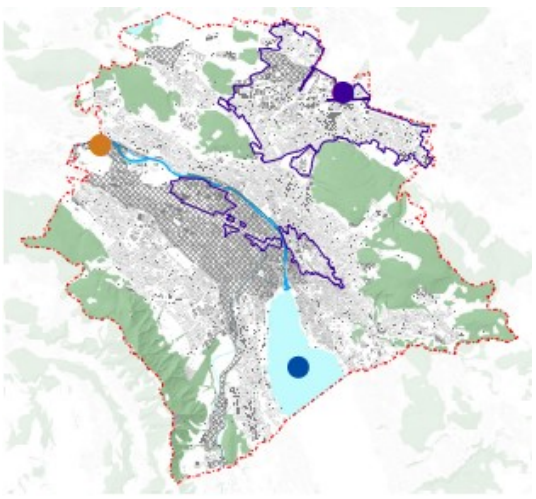


Ehub modeling and optimization of ERZ district heating network in Zurich

The Urban Energy System Laboratory at Empa is performing the analysis to decarbonize the district heating network.
read more

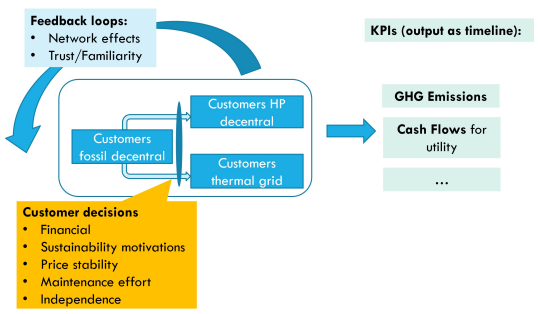
Climate-friendly heat supply in Zurich

The expansion of the district heating networks in Zurich is one of the most important measures for the city to achieve its net zero CO2 targets by 2040. Thermal networks are seen as a generation project.
read more



Strategic energy planning as a central collaboration topic

Strategic planning of infrastructure and energy supply concepts is essential to manage the energy transition in a city like Zurich. These activities are carried out on a rolling basis with frequent updates.
read more



Socio-technical modeling of the implementation dynamics of thermal grids

The planned development of thermal grids in Zurich entails uncertainties regarding customer acceptance. As a result, necessary investments into the distribution infrastructure are difficult to estimate a priori. DeCarbCH will support decision-making in this area through applied socio-technical research.
read more

Legal and factual obligation to switch to renewable energy when replacing heating systems in Switzerland

When replacing heating systems, there is an obligation to switch to renewable energies. In the Canton Basel-Stadt this is the case since October 2017, followed by the Cantons Zurich and Geneva since September 2022.
read more

Thermal energy storage possibilities for Zurich

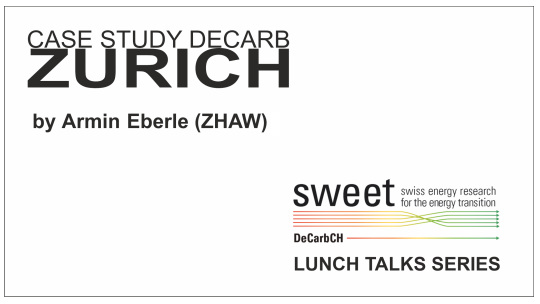
Thermal energy storage helps accelerate the decarbonization of thermal grids: DeCarbCH explores possibilities for Zurich.
read more

Heating networks are being installed in several Swiss cities but many cities have no plans to install cooling networks!

Due to global warming, researchers predict that the climate in Zurich in 2050 will be like that in Milano today.
#dontforgetcooling is a campaign by SWEET DeCarbCH to make the Swiss population aware of the discrepancy between the temperature rise in cities and the lack of plans for cooling networks. The aim is to ensure that cooling networks are higher in the priority lists of Swiss cities when planning for the future.

#dontforgetcooling

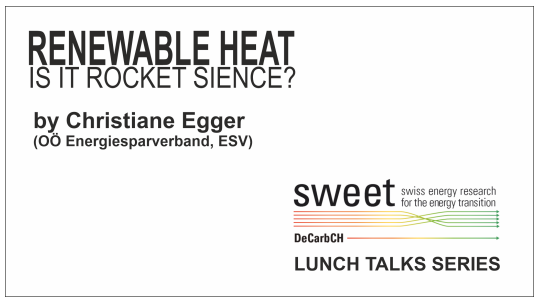
LUNCH TALKS



Lunch Talk - Case Study Zurich

Presentation given by Prof. Dr. Armin Eberle (ZHAW)

In this talk, Armin Eberle shows how the city of Zurich is on the way to decarbonization and how the findings from the DeCarbCH research groups can be applied in Zurich. The talk also presents the challenges and the main fields of collaboration.
read more



Lunch Talk - Renewable heat: Is it rocket science?

Presentation given by Christiane Egger (OÖ Energiesparverband, ESV)

In this talk, Christiane Egger, Manager of the Cleantech-Cluster Energy and Deputy Manager of OÖ Energiesparverband (the energy agency of the region of Upper Austria) presents how Upper Austria is tackling the clean heat transition, a region of 1.5 million inhabitants.
read more

YouTube

Watch our previous Lunch Talks on our YouTube Channel

- *Pinch Analysis*
- *Socio-Economic Challenges*
- *Industrial Heat Pumps*
- *Thermal Networks*
- *Long-term Thermal Energy Storages*
- *Temperature Reduction in District Heating*
- *Solar Energy for Networks / Industry*
- *Perspectives on Thermal Grid Modelling under Uncertainty*
- *Negative Emission Technologies*
- *Case Study – Decarb City of Zurich*
- *Renewable Heat: Is it rocket science?*

are available on YouTube and the presentation slides on our DeCarbCH Website.

All the News on the Website

EVENTS

- Next Lunch Talks will be anounced soon -

- Next Annual Conference
February 27 and 28, 2023
Save the date -

Any question can be sent to info@sweet-decarb.ch

DeCarbCH has received funding from the SFOE in their SWEET programme.

Our mailing address is:
SWEET DeCarbCH
Room B 609
Boulevard Carl-Vogt 66
Genève 1205
Switzerland