



DeCarbCH Newsletter

December 2025

Dear DeCarbCH Partners,

We are pleased to share the latest updates from **SWEET DeCarbCH**. This

newsletter highlights key news from 2025 and outlines upcoming activities for 2026, covering:

- [Knowledge & Technology Transfer \(KTT\)](#)
- [Industry Heating & Cooling](#)
- [Thermal Networks & Buildings](#)
- [Thermal Energy Storage](#)
- [Deliverables & Highlights](#)
- [Publications 2025](#)

Phase 1 of SWEET DeCarbCH is complete. Phase 2 introduces new Work Packages and stronger industrial collaboration to ensure practical relevance and market application. A new KTT strategy is now available and will be presented at the **DeCarbCH Networking Meeting on 2 March 2026**.

We look forward to your participation in our Upcoming Events:

- **30 Januar 2026**, HSLU Luzern – [13th Swiss Symposium Thermal Energy Storage](#)
- **2 March 2026**, Olten – DeCarbCH Networking Meeting
- **18 March 2026**, OST Buchs SG – [IHW Forum - Marktplatz für Industrie- und Hochtemperaturwärmepumpen: SWEET DeCarbCH \(Programm und Anmeldung\)](#)
- **1 September 2026**, Bern – [SWEET Conference](#)

For questions, please contact us at info@sweet-decarb.ch, and don't forget to follow us on [LinkedIn](#).

We wish you peaceful holidays and a successful start to 2026 ✨

[The DeCarbCH Management Team](#)



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Knowledge and Technology Transfer (KTT)



1 October 2025, OST Buchs
KTT Strategy Workshop

Our KTT team developed a KTT strategy for DeCarbCH Phase 2, with professional support from Zoï Environment Network, focusing on the impact model and stakeholders. Strengthening these aspects will enable KTT to move beyond communication toward effective dissemination and exploitation.

[read more](#)

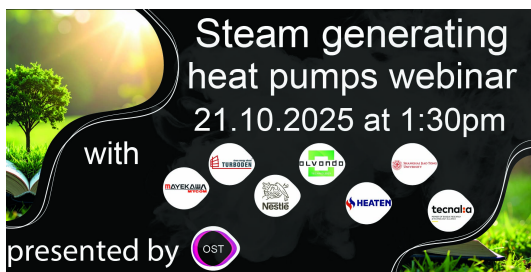


3 November 2025, Bern
KTT SWEET Workshop

The SWEET Office organized three KTT workshops this year for the current consortia. On 3 November 2025, a workshop titled "Making integration visible and encouraging it" was held, attended by 15 KTT and integration managers from the consortia.

[read more](#)

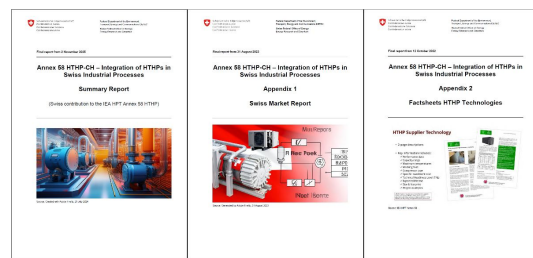
Industry Heating & Cooling



21 October 2025 Steam-Generating Heat Pumps OST Webinar 2025

OST IES hosted a successful 2025 Webinar on Steam-Generating Heat Pumps (SGHP), attracting over 730 registrations from 50 countries, highlighting strong global interest. Presentation slides and video recordings are now available on our YouTube channel, showcasing practical implementations, benefits, and shared experiences.

[read more](#)



4 November 2025 Annex 58 HTHP-CH – Integration of HTHPs in Swiss Industrial Processes

The final summary reports of Annex 58 HTHP-CH – Integration of High-Temperature Heat Pumps in Swiss Industrial Processes are now available. They highlight key outcomes and reference appendices with detailed insights and practical guidance.

[read more](#)



4 November 2025 Market Development of Industrial Heat Pumps – Diffusion Model and Action Options

Industrial heat pumps are key to decarbonizing process heat, yet their market potential remains underutilized. Based on interviews



21 August 2025 Switzerland-South Korea International Joint Research Workshop

World ENC hosted a Swiss–Korean workshop on heat pump and MVR (Mechanical Vapor Recompression) technologies for industrial steam production, sharing progress from the R&D project on waste-heat-driven steam

and workshops with Swiss industry, technology providers, and SWEET DeCarbCH researchers, the article from OST and ZHAW analyzes market development, outlines action options, and presents a dynamic impact model.

[read more](#)

systems. OST contributed as an international cooperation partner, providing knowledge in steam generation.

[read more](#)



23 April 2026

**Industrial Heat Pumps
Continuing Education Course
at OST 2026**

Industrial and high-temperature heat pumps are key to replacing fossil fuels for process heat at 90 to 150 °C. This 4-day course by OST IES offers hands-on insights, expert interaction, and networking opportunities.

Available in German (Sept/Oct 2026) and English (Apr/Oct 2026), with the option to attend individual days or the full course.

[read more](#)



18 March 2026

**IHW Forum at OST in Buchs
Marketplace for Industrial and
High-Temperature Heat Pumps**

For our German-speaking audience: On 18 March 2026, the first IHW Forum – Marketplace for Industrial and High-Temperature Heat Pumps will take place at OST in Buchs.

Whether steam, process heat, or district heating, discover solutions and partners for your decarbonization strategy and help shape the future of industrial heat generation.

[read more](#)

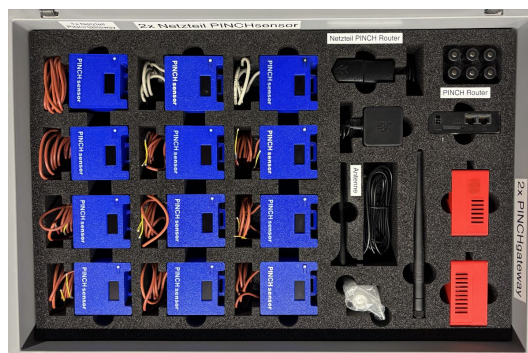


12 May 2026

Online Continuing Education Course «Energy Optimization with Pinch Analysis» at HSLU

This continuing education course (May/June 2026) covers fundamentals and practical applications of pinch analysis using PinCH 4.0 to optimize industrial processes and infrastructure. Available online in English and hybrid in German, targeting professionals in energy, process, environmental, and building engineering, as well as industry and public-sector managers.

[read more](#)

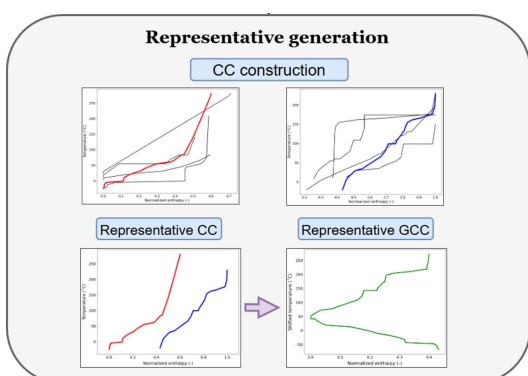


15 December 2025

Rethinking Measurement: How a Measurement Kit Accelerates PINCH Analyses

The new PINCH measurement kit simplifies data acquisition through wireless measurements, enabling higher data quality, faster evaluation, and reduced on-site effort. This system sets new standards for efficient and precise thermal measurements. An article was published in ChemieExtra, Issue 11-12/2025 (pp. 32-34).

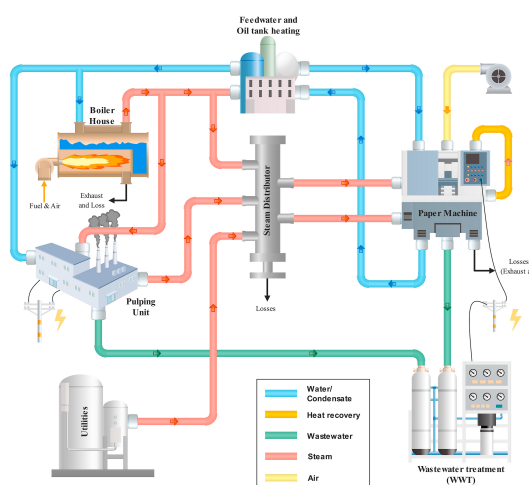
[read more](#)



1 November 2025

A Grey-Box Approach for Industrial Thermal Profiles

This research by the University of



30 November 2025

Decarbonizing the Pulp & Paper Industry

Geneva introduces a grey-box method combining data-driven and pinch-based approaches to build generic industrial thermal profiles. Based on key process temperatures and hot-utility contributions, the results support large-scale and early-stage assessments.

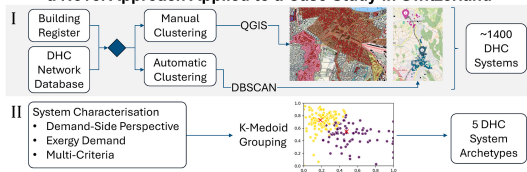
[read more](#)

New research by the University of Geneva demonstrates how process integration and high-temperature heat pumps (HTHPs) can significantly reduce fossil fuel use and CO₂ emissions in a real paper mill. Combining heat integration, innovative heat recovery, and HTHPs offers a practical path to deep industrial decarbonization.

[read more](#)

Thermal Networks & Buildings

Identification of District Heating and Cooling System Archetypes: a Novel Approach Applied to a Case Study in Switzerland

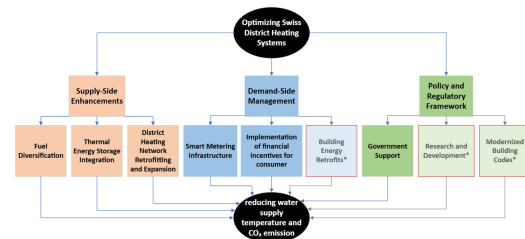


1 October 2025

Identification of District Heating and Cooling System Archetypes

This study from Lucerne University of Applied Sciences and Arts (HSLU) presents a novel bottom-up, multi-criteria method for characterizing and grouping DHC systems, using exergy and other demand metrics. Applied to Switzerland, it identifies five representative DHC archetypes, supporting improved system design, energy planning, and policymaking.

[read more](#)



16 July 2025

Modernizing District Heating Networks

ZHAW presents a strategic decision-support framework for retrofitting existing district heating networks to improve efficiency and achieve net-zero emissions. Based on literature and expert input, the framework outlines distinct modernization strategies and includes a portfolio analysis.

[read more](#)



10 September 2025
Best Paper Award for
DeCarbCH Researchers at the
19th International Symposium
on District Heating and
Cooling

The paper "Optimizing the Next Generation of District Heating and Cooling Systems While Ensuring Reliable Domestic Hot Water Supply" by Mohammadreza Kolahi and Prof. Martin K. Patel (University of Geneva) was selected as a Top 5 Best Paper. The study demonstrates how decentralized heat pumps, boosters, and thermal storage can improve flexibility, cut electricity use, and enable low- and ultra-low-temperature district heating for large-scale decarbonization.

[read more](#)

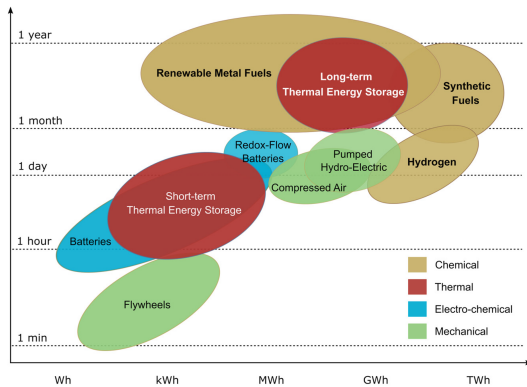


7 July 2025
topGrid Live – Watch the Video
Demo!

topGrid is a powerful web-based tool for strategic energy planning, simulation, and analysis of district heating and cooling networks in Switzerland. The demo showcases how it covers the full planning process, from demand assessment and network design to evaluation.

[read more](#)

Thermal Energy Storage



Heat Happens

– in buildings, industry and across districts. But do we always know which storage solutions are the right fit??

Friday,
30th January
2026

30 January 2026

13th Swiss Symposium on
Thermal Energy Storage,
HSLU Lucerne

26 April 2025

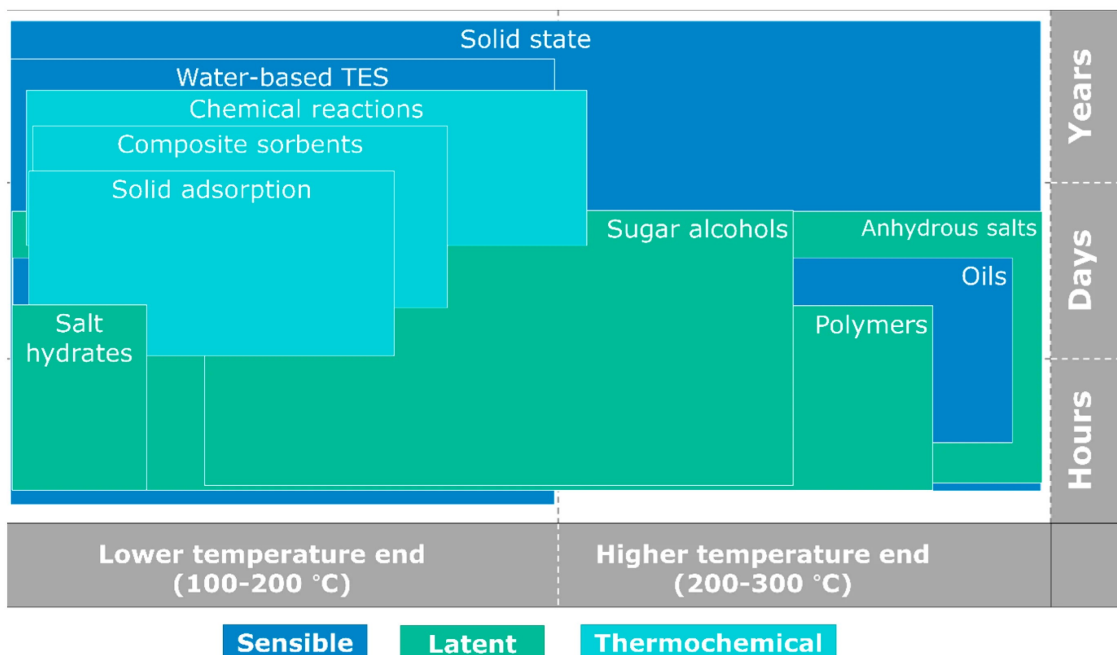
A Review of Seasonal Energy Storage for Net-Zero Industrial Heat

This study from OST SPF and OST IES reviews Thermal Energy Storage (TES) and Power-to-X (P2X) technologies for applications without thermal grids, assessing feasibility, state of the art, opportunities, and challenges.

[read more](#)

Theme: “Heat happens — in buildings, industry, and districts. But do we always know which storage solutions are the right fit?” The symposium focuses on the transition from technology-first to needs-first, exploring how real-world requirements guide the selection of Thermal Energy Storage (TES) for an electrified future. Join researchers and professionals onsite or online. Registration is open!

[read more](#)



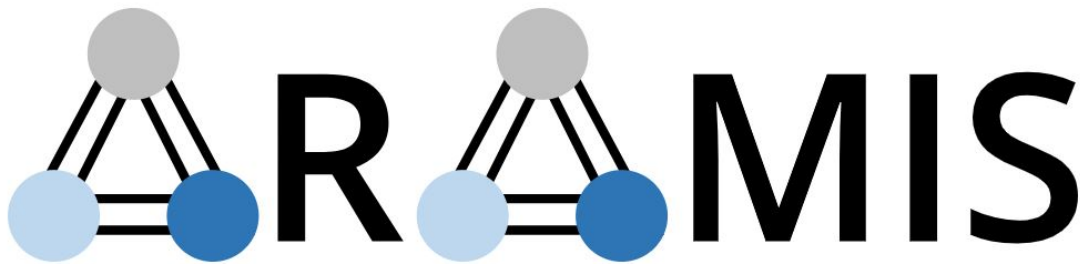
30 October 2025

Thermal Energy Storage Technology Roadmap for Decarbonising Medium-Temperature Heat Processes - A Review

This review paper by HSLU CCTES, OST SPF, and OST IES presents a roadmap for TES systems at 100–300 °C, addressing ~37% of Europe's industrial process heat demand. Eleven sensible, latent, and thermochemical technologies are evaluated using technical, environmental, and socio-economic KPIs, including energy density, cost, and TRL.

[read more](#)

Deliverables & Highlights



DeCarbCH Deliverables and Highlight Reports are available on the [ARAMIS](#) data platform

Highlight Reports

- [Annual Report – Year 1](#)
- [Highlight Report – Year 2](#)
- [Highlights Report – Year 3](#)
- [Annual Report Public Part – Year 4](#)

Work Package 1 (Thermal Energy Systems Modelling)

- [D1.1.2 - Data sets for renewable resources, conversion technologies and storage technologies](#)
- [D1.2.1 - Model code and software infrastructure for thermal-ESM \(tool\)](#)
- [D1.2.2 - Model documentation for thermal-ESM"](#)
- [D1.4.1 - Net-zero scenarios 2050: Seasonal energy storage and negative emission technologies](#)

- [D1.4.2 - Net-zero scenarios 2050: The value of innovative technologies](#)

Work Package 2 (Legal and Socio-Economic Integration)

- [D2.3.1 - The SCOVILLE simulation framework: model documentation](#)
- [D2.3.2 - Implementation dynamics of district heating rollout as part of municipal decarbonization strategies](#)

Work Package 3 (Thermal Grids)

- [D3.1.1 - Selection of representative districts](#)
- [D3.1.2 - Techno-socio-economic assessment of storages and renewables in grids](#)
- [D3.2.1 - Guidelines for the integration of renewables in district heating networks](#)
- [D3.2.2 - Comparison of cooling capabilities of different network types and renewable sources](#)
- [D3.3.1 - Integral optimization of high-temperature BTES with thermal network parameters and deduction of design recommendations](#)
- [D3.3.2 - Case study for thermochemical DHC network concept analyzed and compared](#)
- [D3.4.1 - Guidelines on temperature reduction strategies](#)

Work Package 4 (Energy Demand Profiles of Industry)

- [D4.1.1 - Development of Standardised Evaluation Framework for Industrial](#)
- [D4.1.2 - Energy profiles for selected studies](#)
- [D4.3.1 - Exemplary energy profiles for chocolate and cocoa production](#)
- [D4.3.2 - Aggregated sectorial energy profiles for studied industrial sectors](#)

Work Package 5 (System Level Solutions for Heating and Cooling)

- [D5.1.1 - Database and simulation tool](#)

Work Package 7 (Case Studies Romandie)

- [D7.1.1 - Auditing method for existing SST](#)

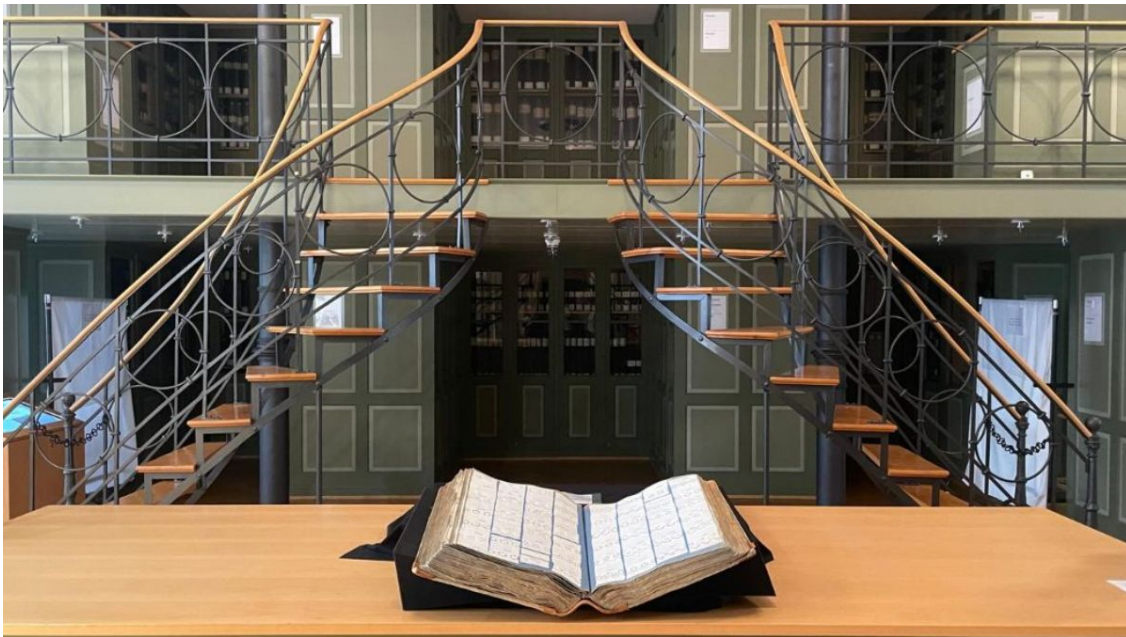
Work Package 12 (Generation of negative CO2 emissions)

- [D12.3.1 - Process Integration study on an industrial process with CO2 capture](#)

Additional Deliverables

- [Abegg, A.: Nutzung von Erdwärme – 9 Hypothesen zu aktuellen Rechtsfragen, BR 2024, Baurecht, S. 97-105, Institut für Schweizerisches und Internationales Baurecht, ISSN 1017-0588, Schulthess Juristische Medien AG](#)
- [Kayser, M.: Von Überlingen nach Strassburg, Staatshaftung aus Unterlassung und die Dekarbonisierung, 2024](#)
- [Kayser, M.: Recht und Politik, Dekarbonisierung im Spannungsfeld, 2024](#)
- [Fontaine, C., Söderström, Th., Muriset, C., Chambers, J., Boegli, M., Peletier, M., Guex, F., Jaquet, B., Cavin, J.-Y.: Réseaux anergie avec sources d'énergies décentralisées Cas d'étude à Grandvaux, 2 mai 2024](#)
- [Makhloufi, Y., and Moscariello, A.: Multi-Criteria Analysis for Geothermal Energy Planning to Reduce CO2 Emissions in Switzerland, April 2024](#)

Publications 2025



See our list of 2025 Publications

Work Package WP01 (Thermal Energy Systems Modelling)

1. Babaei, S.M. and Patel, M.K.: Optimizing energy use in the pulp and paper industry: Pinch, techno-economic, and sensitivity analyses on an innovative heat recovery system, Journal of Cleaner Production, Volume 520, 2025, 146109, <https://doi.org/10.1016/j.jclepro.2025.146109>
2. Babaei, S.M. and Patel, M.K., Deep decarbonization of the pulp and paper industry: Heat integration and techno-economic analysis combined

- with tailored heat pumps, *Energy*, Volume 338, 2025, 138881, <https://doi.org/10.1016/j.energy.2025.138881>
3. Kolahi, M.R., Chambers, J., Mennel, S. and Patel, M.K., Reducing pumping energy in thermal grids: A study on hydraulic modeling and design approaches, *Energy*, Volume 327, 2025, <https://doi.org/10.1016/j.energy.2025.136410>
 4. Kolahi, M.R., Mennel, S., Chambers, J. and Patel, M.K. (2025, November): Energy-efficient pumping and decarbonization in thermal grids through advanced hydraulic modeling, *Journal of Physics: Conference Series*, 3140(2), 022006, CisBat 2025 Conference, Lausanne, Switzerland, <https://doi.org/10.1088/1742-6596/3140/2/022006>
 5. Kolahi, M.R. and Patel, M.K. (2026, February): Optimizing the Next Generation of District Heating and Cooling Systems While Ensuring Reliable Domestic Hot Water Supply, *Proceedings of the 19th International Symposium on District Heating and Cooling, IDEA 2025, Genk, Belgium*
 6. Mahmoudan, A., Ong, B.H.Y., Bhadbhade, N., Olsen, D.G., Wellig, B., Patel, M.K.: A grey-box approach for constructing generic industrial thermal profiles, *Energy Conversion and Management*, Volume 343, 2025, <https://doi.org/10.1016/j.enconman.2025.120246>

Work Package WP02 (Legal and Socio-Economic Integration)

1. Bahadori, R., Speich, M., & Ulli-Beer, S.: Modernizing District Heating Networks: A Strategic Decision-Support Framework for Sustainable Retrofitting. *Energies*, 2025, 18(14), 3759, <https://doi.org/10.3390/en18143759>
2. Speich, Matthias, Arpagaus, Cordin, Bless, Frédéric, Ulli-Beer, Silvia: [Marktentwicklung für industrielle Wärmepumpen: Verbreitungsmodell und Handlungsoptionen](#), 4. November 2025
3. Speich, M., Ulli-Beer, S., Arpagaus, C., Bless, F.: Wärmepumpen für die Industrie: Der Weg aus der Nische, *Swiss Engineering* 6/2025, [Download PDF](#), Online Artikel: [de](#), [fr](#))

Work Package WP03 (Thermal Grids)

1. Brauchli, L., Duran Adroher, N., Villasmil, W., Auer, M., Lucas, E., Schuetz, P., Worlitschek, J. (2025): Identification of district heating and cooling system archetypes: a novel approach applied to a case study in Switzerland, *Energy*, Volume 333, 137159, <https://doi.org/10.1016/j.energy.2025.137159>
2. Koirala, B., Bendiek-Laranjo, A., Biéron, M., Chen, Y.C., Humbert, G., Hunhevicz, J., Mutschler, R., Obrist, M., Romano, E., Vulic, N., Yazdanie, M., Mavromatidis, G. (2025): Ten questions concerning the design of

urban energy systems, Building and Environment, Volume 283, 2025,
<https://doi.org/10.1016/j.buildenv.2025.113348>

Work Package WP04 (Energy Demand Profiles of Industry)

1. Berchtold, M., Lauber, A., Frink, E., Olsen, D., Wellig, B., Zumbühl, Ch.:
Wie ein Messkoffer Pinch-Analysen beschleunigt – Messen neu
gedacht, ChemieExtra, 11–12/2025, S. 32-
34, [https://issuu.com/sigwerbgmbh/docs/chemiextra_11-12_2025?](https://issuu.com/sigwerbgmbh/docs/chemiextra_11-12_2025?fr=sNzl3Mjg0MjgyMTk)
[fr=sNzl3Mjg0MjgyMTk](https://issuu.com/sigwerbgmbh/docs/chemiextra_11-12_2025?fr=sNzl3Mjg0MjgyMTk)

Work Package WP05 (System Level Solutions for Heating and Cooling)

1. Palacios, A., Krabben, Y., Linder, E., Thamm, A.-K., Arpagaus, C.,
Paranjape, S., Bless, F., Carbonell, D., Schuetz, P., Worlitschek, J., &
Stamatiou, A. (2025). Thermal Energy Storage Technology Roadmap for
Decarbonising Medium-Temperature Heat Processes—A
Review. *Sustainability*, 17(21), 9693. <https://doi.org/10.3390/su17219693>
2. Bäuerle, Y.I., Arpagaus, C., Michel Y. Haller, M.Y. (2025): A Review of
Seasonal Energy Storage for Net-Zero Industrial Heat: Thermal and
Power-to-X Storage Including the Novel Concept of Renewable Metal
Energy Carriers, *Energies*, 2025, 18(9),
2204, <https://doi.org/10.3390/en18092204>
3. Famiglietti, J., Acconito, L., Arpagaus, C., Toppi, T.: Environmental life
cycle assessment of industrial high-temperature to residential small-size
heat Pumps: A critical review, *Energy Conversion and Management: X*,
Volume 26, 24 February 2025,
100947, <https://doi.org/10.1016/j.ecmx.2025.100947>
4. Arpagaus, C., Bless, F., Brendel, L.P.M., Gstöhl, D., Bertsch, S.S.:
Wärmepumpen für industrielle Trocknungsprozesse, 31. Tagung des
BFE-Forschungsprogramms «Wärmepumpen und Kältetechnik», 12. Juni
2025, Eventfabrik, Bern, Schweiz, [Tagungsbeitrag](#)

All the News on the Website

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



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