

Solar District Heating in Practice: From Concepts to Scale

Webinar from SolarPACES & EuroSun 2026

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Magdalena Berberich

Research, consulting &
transfer for sustainable
thermal energy systems in
the Steinbeis network

Meitnerstr. 8
D-70563 Stuttgart
www.solites.de



Solarthermal to decarbonise District Heating



- Around 16,000 district heating networks with 495.6 TWh supply across Europe*.
- Share of renewable and waste heat sources in DH: 46.2% in 2024*
- solar heat is one of the proven, available, cost-effective and emission-free measures to help complete decarbonization of DH.

Photo: Guido Bröer

*Source: <https://www.euroheat.org/data-insights/outlooks/dhc-market-outlook-2026#Overview%20-%20The%20heat%20transition%20in%20action%20>

346 towns and cities use solar district heating

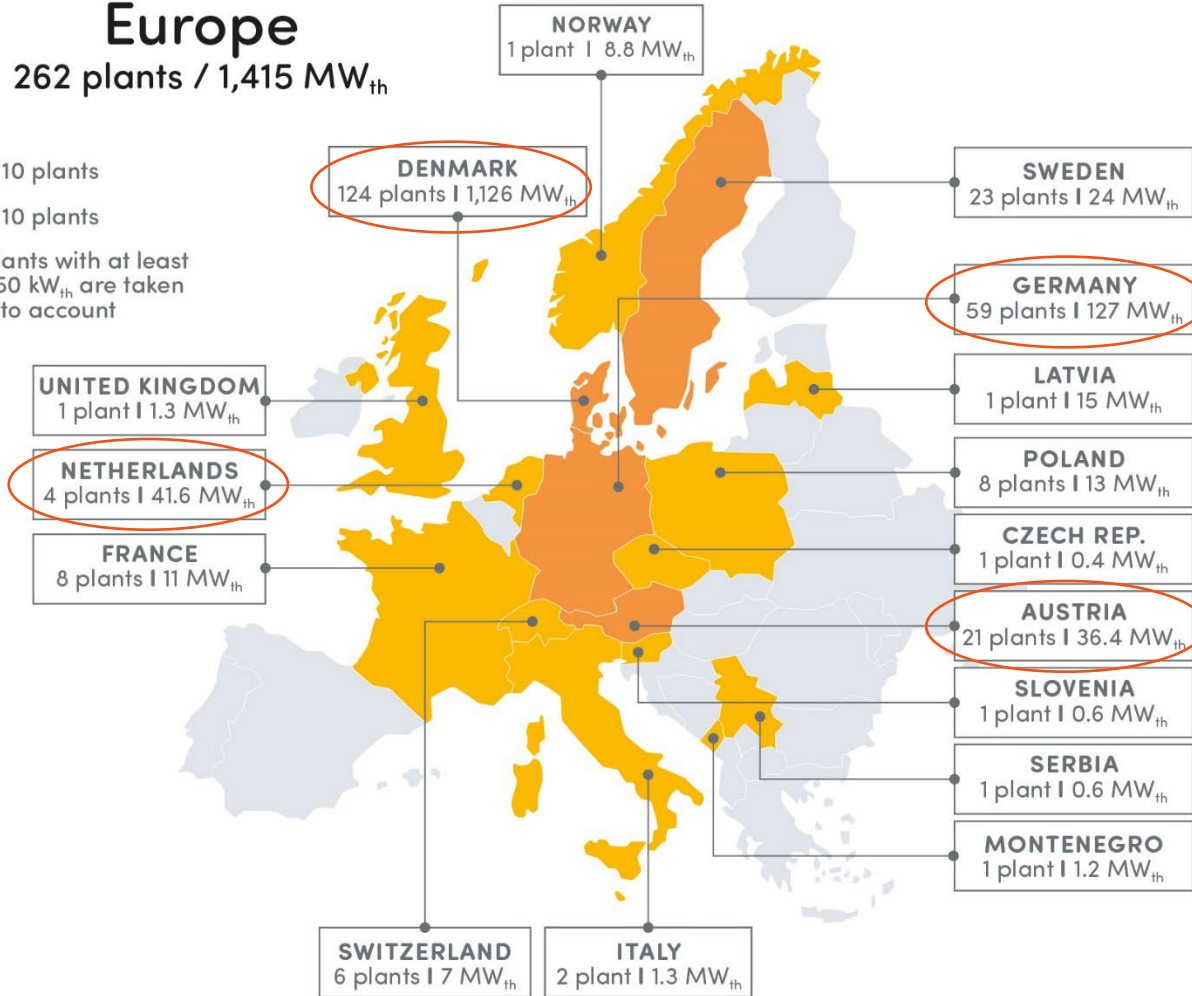
(Status: End of year 2024)

Europe

262 plants / 1,415 MW_{th}

- > 10 plants
- < 10 plants

Plants with at least 350 kW_{th} are taken into account



Outside Europe

84 plants / 569 MW_{th}

CHINA	76 plants 535 MW _{th}
SAUDI ARABIA	1 plant 25.4 MW _{th}
SOUTH AFRICA	2 plants 0.8 MW _{th}
CANADA	1 plant 1.5 MW _{th}
JAPAN	1 plant 0.9 MW _{th}
USA	1 plant 1.3 MW _{th}
RUSSIA	1 plant 3.1 MW _{th}
KYRGYZSTAN	1 plant 0.5 MW _{th}

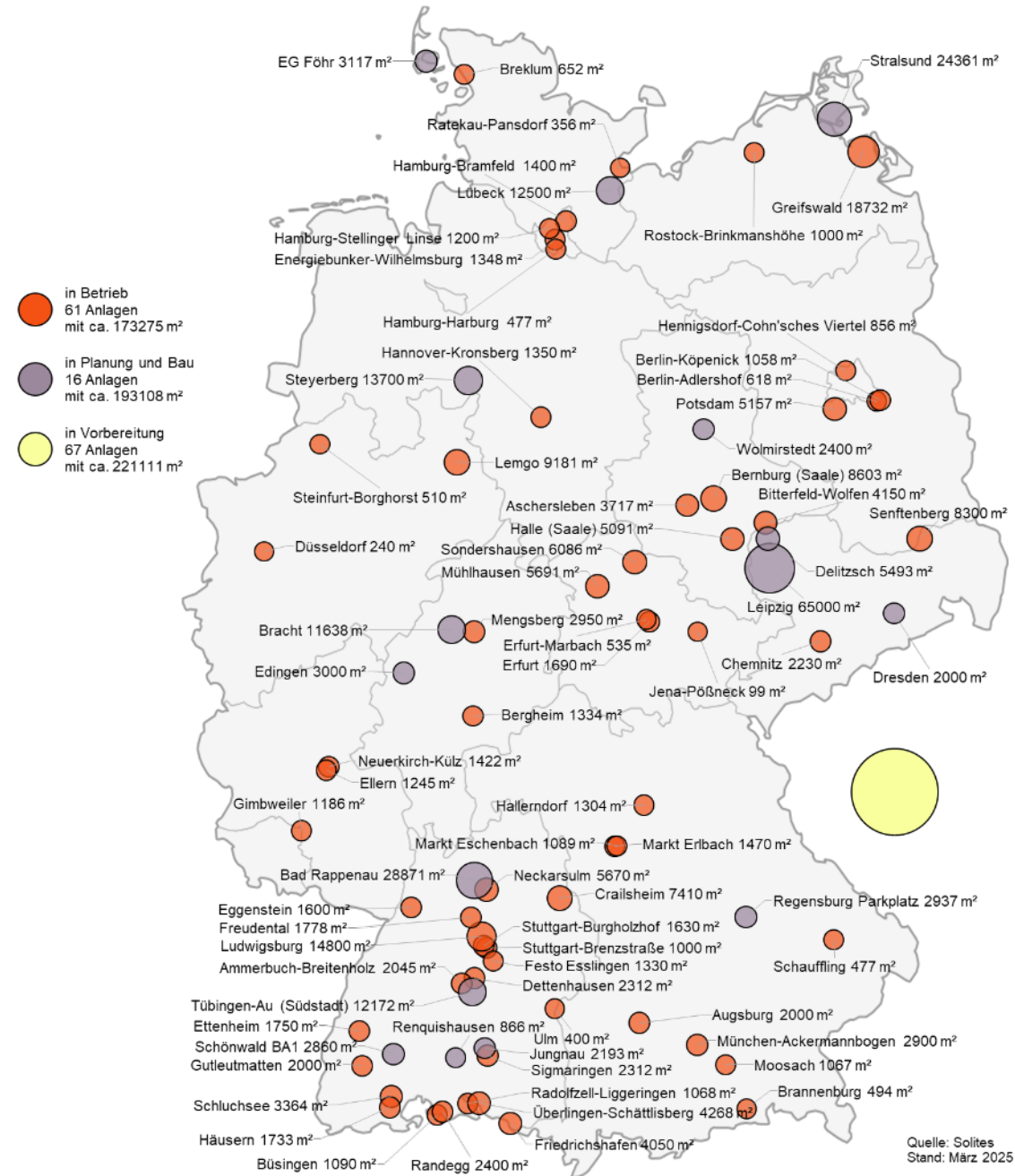
Solar District Heating in Germany

Systems in operation*:
71 systems
241,045 m² / 159 MW

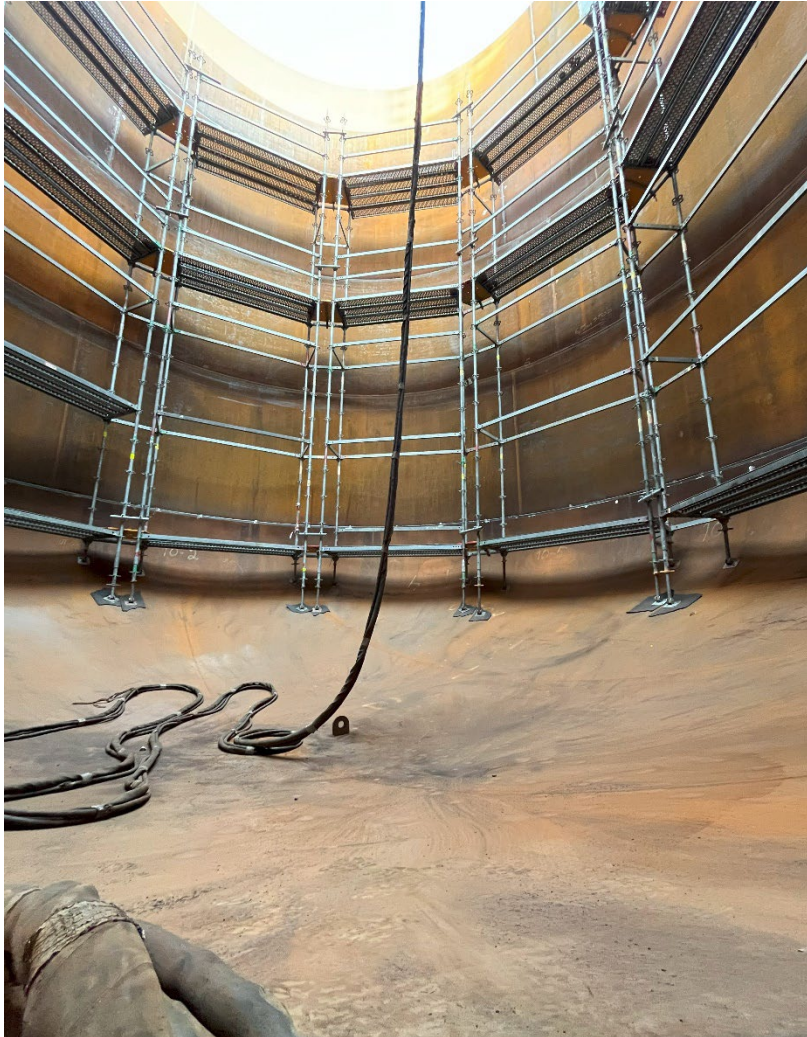
New systems 2025*:
10 systems
67,770 m² / 41 MW

realization ongoing*:
10 systems
132,435 m² / 89 MW

*numbers from November 2025



Solar plant for DH in Tübingen: 12.000 m² on drinking water protection area



Pressurized heat storage during construction



Collector field under construction, as seen from the storage facility

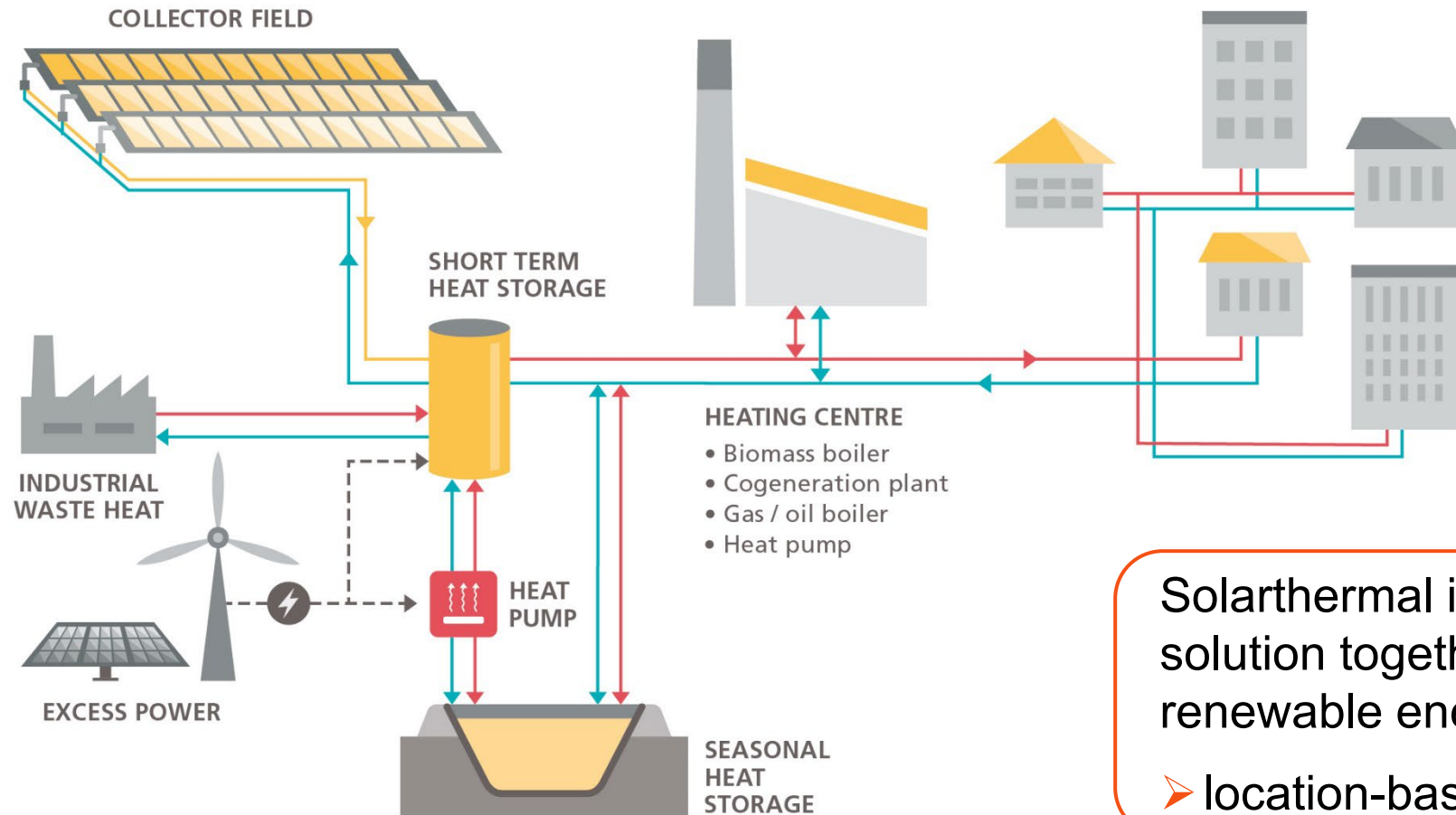
Next step in size of Solar District Heating plants



Municipal utility in
Leipzig, Germany
65 000 m² collector field
Around 2 % solar share
in DH
Collectors deliver heat
with up to 110 °C
In operation soon (2026)

Photo: Ritter Solar XL

EFFICIENT, COST EFFECTIVE AND FLEXIBLE HEAT DELIVERY

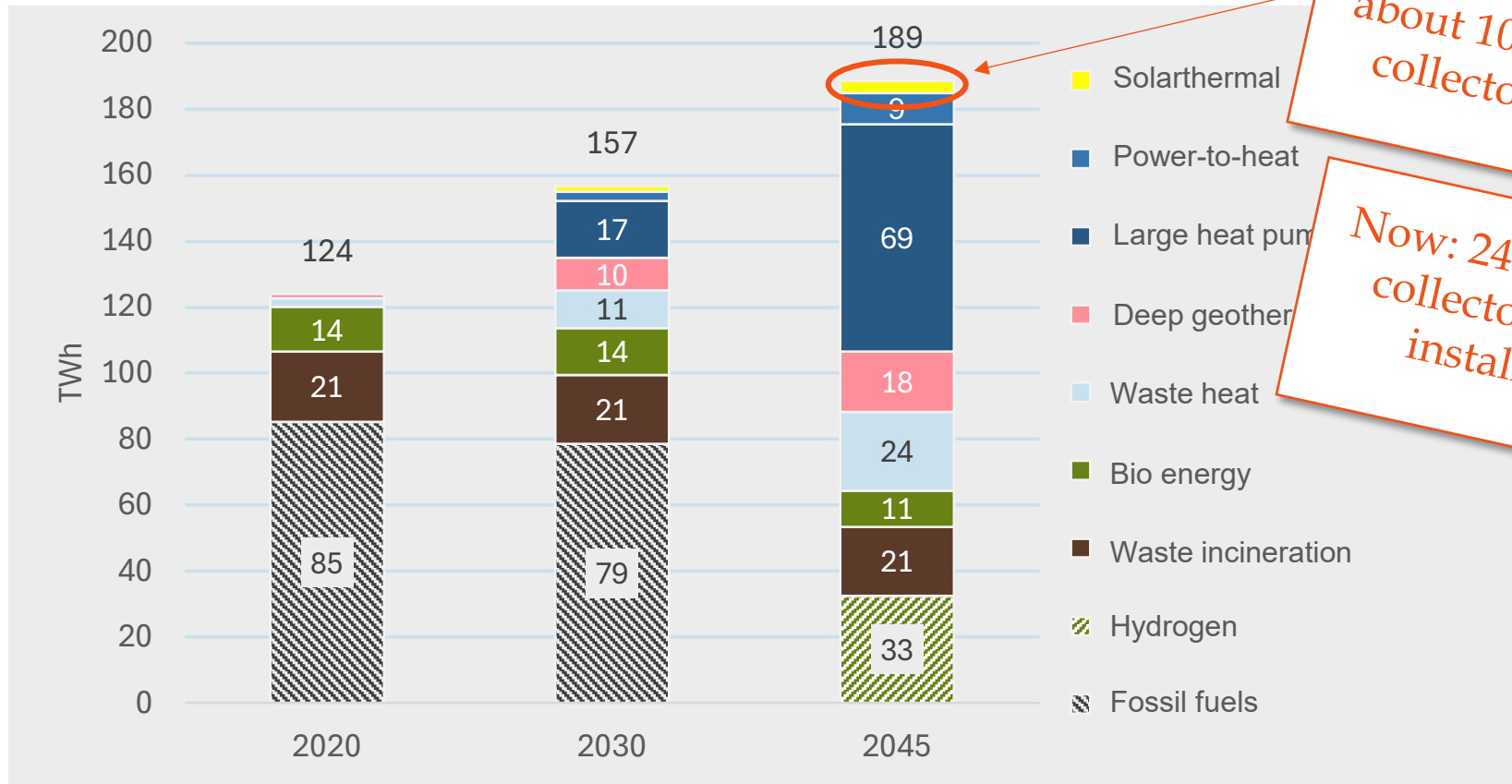


Solarthermal is one part of the solution together with other renewable energies

➤ location-based decisions

IEA SHC TASK 55

Decarbonisation of German DH until 2045



4 TWh/a =
about 10 Mio m²
collector area

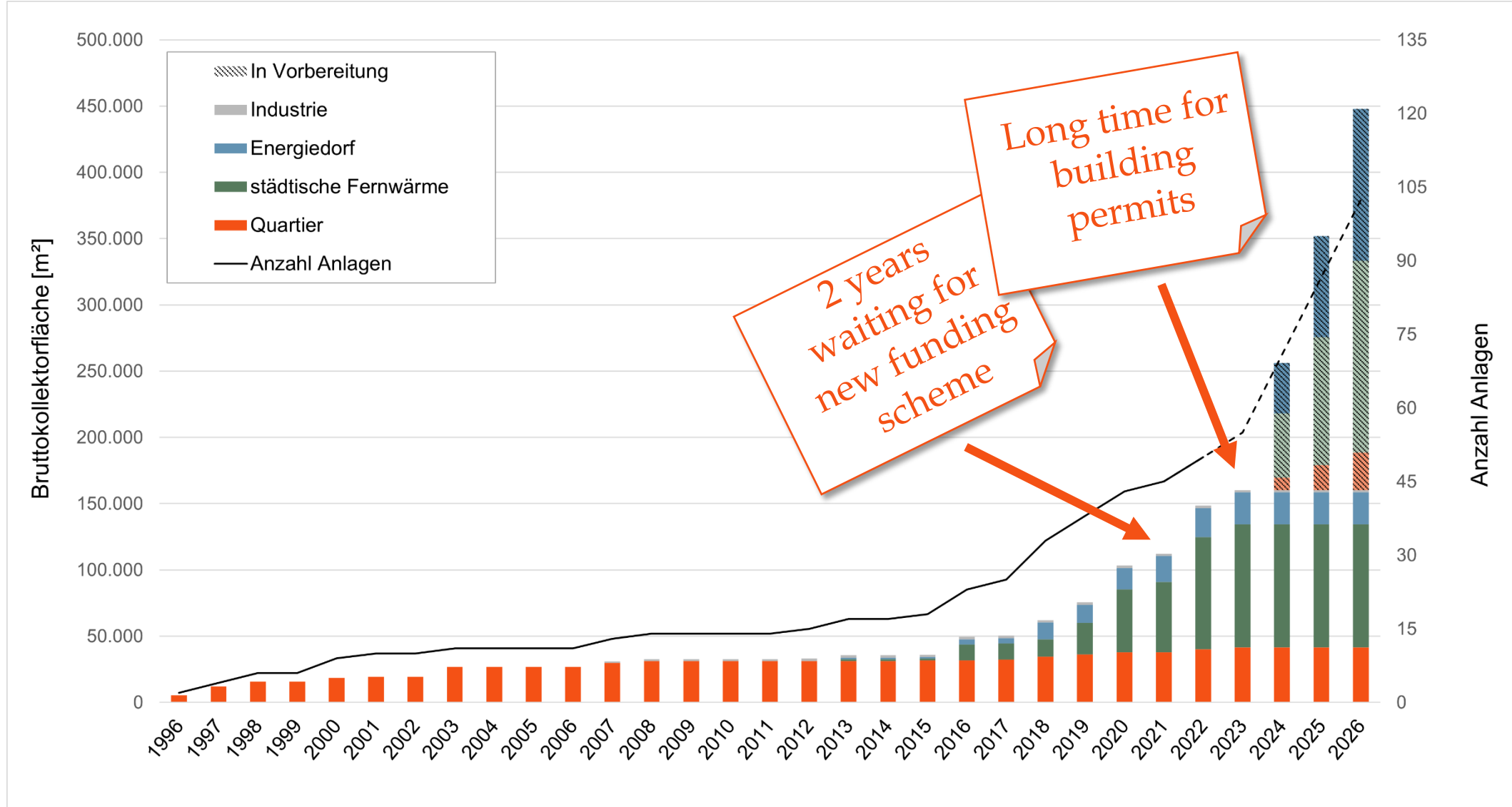
Now: 241,045 m²
collector area
installed



- Expansion of district heating expected (not in the diagram)
- Increasing heat demand (by 50 % until 2045)

Prognos AG (June 2024):
Perspektive der Fernwärme
im Auftrag von AGFW und VKU

Lessons Learned: Policy



Finding areas – ecological upgrade



Randegg: flowering meadow as biotope (Foto: Bröer)



Marstal, DK: sheep run (Foto: Erik Christensen)

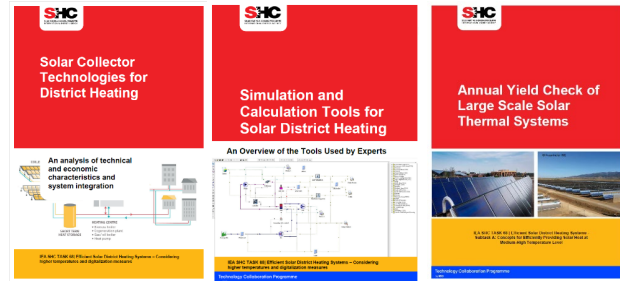
Success factors for SDH in Germany

- Local heat planning is mandatory for all cities since 2023
 - Definition of **areas for DH** and for single house solutions
- National law „Building Energy Act“:
 - new heating systems of houses has to reach a **minimum of 65 % of renewable** share or get connected to DH (currently updated).
 - DH systems have to make a **transformation plan** for total decarbonisation until 2045.
- Subsidy programme BEW „efficient district heating“ since 2022
 - **Funding for invest and operation** in sum 50 % of invest possible (different technologies)
- Ongoing R&D activities by long-term national funding programmes
- Best practice: realised systems are often visited and encourage possible investors
- **Know-how transfer**, trainings, information material and tools for various target groups
 - e.g. www.solar-district-heating.eu, www.solare-wärmenetze.de (German)

Results from IEA SHC Task 68

Subtask A: Concepts

• Requirements | Planning | Configuration | Modelling



Subtask B: Data preparation & utilization

• Gathering/Storing data | Auto. Monitoring/Evaluation | Control



Subtask C: Business models

• Financing & Investment schemes | Risks & Barriers | Cost red.

Subtask D: Use Cases and Dissemination

• Demos | Awareness | Market overview | Best practice



- Technology Position Paper (key results)
- Technical Reports
 - Concepts, Technology
 - Simulation tools
 - Performance
 - Data
 - Business Models
 - Use Cases
- Webinars & videos
- Scientific publications
- Further material on Solar District Heating



task68.iea-shc.org/publications

New within IEA SHC: Collaboration Groups



- Introduced in 2025 to complement formal SHC Tasks in the topics
 - Solar Cooling
 - Solar Neighborhoods
 - Solar Heat for Industrial Processes (SHIP)
 - Solar District Heating
 - Solar Hot Water
- Purpose
 - Strengthen networks & knowledge sharing
 - Develop new Task ideas and activities
 - Enable continuous expert exchange with low bureaucracy
- Flexible platform bridging gaps between projects and fostering innovation

Join the introduction session at EuroSun

Registration for the Collaboration Groups will be available soon

<https://www.iea-shc.org/groups>

German Research Project ProSolNetz



Project duration: May 2024 – April 2027

Demonstration of the economically and technically successful use of concentrated solar thermal in German heating networks and process heat.

Funded by:

Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages

Project partners:



RZVN
Wehr GmbH



Contractors:



More Information?

IEA SHC Task 68: SDH Info Package for Cities and Towns
<https://task68.iea-shc.org/article?NewsID=459>

Contact:

Magdalena Berberich

Tel.: +49 (0)711 673 2000-55

berberich@solites.de

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