Best Practice #6: Heat Transition Plan in the Lörrach District

Name:	Heat Transition Plan in the Lörrach District
Geography:	Germany, Baden-Württemberg, Lörrach district
Organization interviewed:	Landratsamt Lörrach Klimaschutz
Organization interviewing:	Trinomics
Website:	Wärmewende | Landkreis Lörrach - Gemeinsam Zukunft gestalten (loerrach-landkreis.de)
Category:	Planning / governance
Description:	In a pilot project, the district of Lörrach has drawn up an inter-municipal heating plan for all 35 towns and communities in the district, which aims to achieve a climate-neutral municipal heating supply by 2040. This makes it the first district to implement § 27 (formerly § 7c) of the Baden-Württemberg Climate Protection Act. The project's inter-municipal approach is being pursued to identify and develop the potential for climate-neutral supply that exists in the district, such as commercial and industrial waste heat, geothermal energy, solar thermal energy or biomass, and to link it with existing heat requirements elsewhere. The goal at the end of the project is an overall heat plan for the entire county as well as for each individual municipality. The municipalities will thus have a plan for a climate-neutral heat supply.

Questions:

1. Can you explain in a few words the **process** you went through to develop the heat plan for the district? (with a focus on the stakeholders' engagement)

The methodology used to create the heat plan follows the suggested approach of the municipal heat planning action guide [UM-BW 2020].

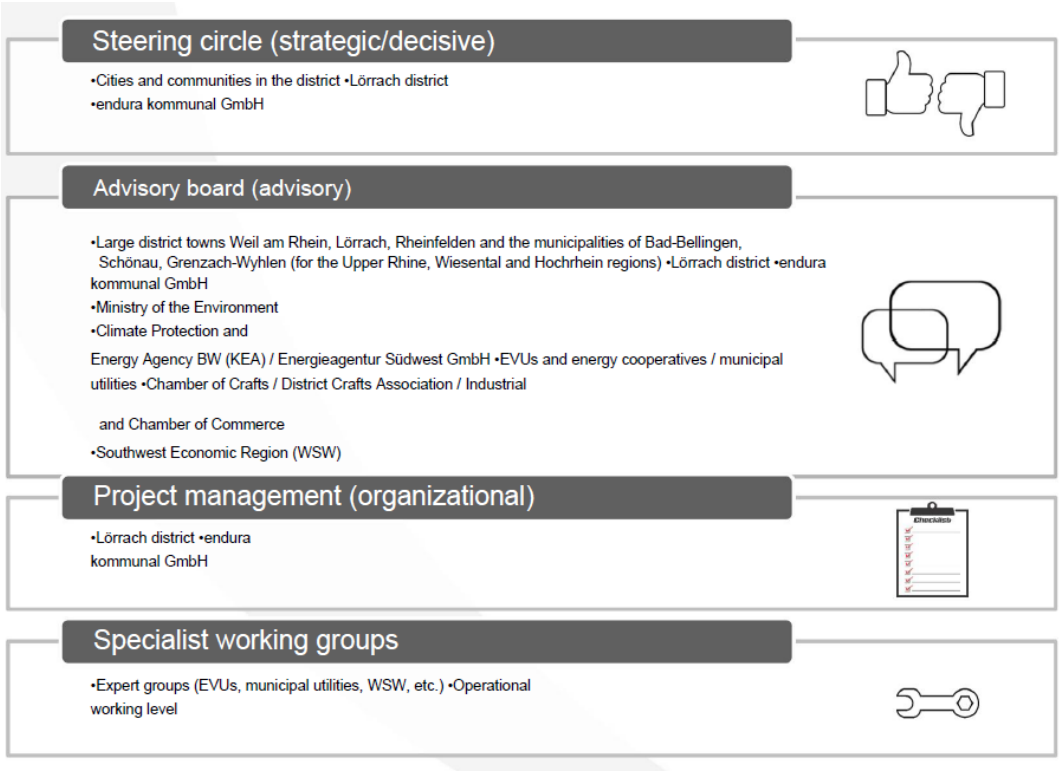
A joint "model project, company-independent, inter-municipal heat planning in the Lörrach district" was launched on January 21st, 2021. The project was initiated and managed by the Lörrach District and was proactively supported by the state of Baden-Württemberg.

It was conducted by an independent service provider, with the aim of showing a roadmap towards a climate-neutral district in the heat sector by the year 2050.

All 35 municipalities in the district are project partners, and also the Freiburg chimney sweeps guild was represented in the project advisory board.

Phase 0 – setting the project organisation

Figure 4 Setting up the management and control for project organisation



Phase 1 – data collection and analysis of the existing situation

The Environment Office of Lörrach District contacted all cities and municipalities of the district, asking them

- To support collecting data (from chimney sweeps, energy suppliers - natural gas and heating networks, and industrial companies - waste heat).
- According to §7e of the Climate Protection Act of Baden-Württemberg, which was amended on October 15, 2020, the above-mentioned actors are obliged to provide the municipalities with relevant data upon request.
- To avoid additional work for the municipalities (saving time and efforts), the data were collected directly by the project service provider (which was a consortium[1]). But this required municipalities' consent.

The provider collected important data on heat consumption and existing heat supply infrastructure in the approximately 50,000 residential and approximately 8,500 commercial buildings in the district. This was done via chimney sweeps, among others, as they play a central and important role by holding data in their sweep books. Data were provided in electronic format (.csv, .xlsx, .txt) on type, nominal heat output and age of the respective systems in the building for heat generation; fuel used; mode of operation; location and assignment to the exhaust system.

Data was anonymized and used exclusively for the purpose of creating the heat planning.

Data collection was supposed to last for 2-3 months, but finally lasted for more than 6 months. This phase ended with the compilation and analysis of the inventory, per end-user category, per fuel type, and per heating system age (oldness).

Phase 2 – Potential assessment

In the meantime, an evaluation of the potential of renewable energy sources was conducted, for both electricity and heat production.

The heat planning process involved first looking at the heating network and exploring heat sources, which were then used to determine the waste heat potential.

Phase 3 – Thermal plan and scenario

The aim was to identify major spots of consumption and of waste heat, to think about DHC infra deployment options. This was done by defining objective criteria for suitable options for DHC (e.g. heat density per Ha, heat line density, heat requirement of buildings, obstacles, possible heat sources).

Running one main scenario with clear trend: phase out fossil (by 2040), phase in HP and DHC (with WHR). These scenarios were available for each of the 35 municipalities. Connecting local networks via a large heat pipe leads to the creation of a heat network that benefits from many heat sources.

Phase 4 – Joint Heat Transition Strategy

The strategy comprised the following components

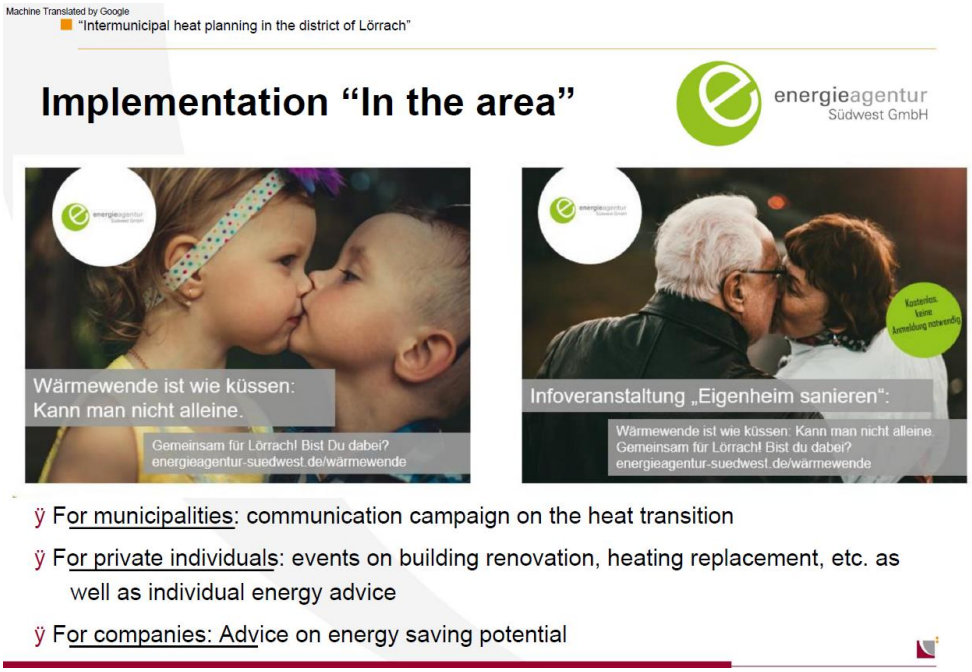
- Expanding renewable energy usage, incl. more geothermal energy, using waste heat recovery as backbone for the supply of new DHC
- Expanding DHC
- Setting up an intercommunal heating network and collaboration framework
- The energy agency Southwest providing support, conducting awareness activities (communication campaign on the heat transition at municipal level); events on building renovation and heating system replacement for private individuals (+individual advice); advice on energy saving potential to companies.

2. Decarbonisation is about **renewable energy sources** and **energy efficiency**. Would you say the approach is well balanced between the 2 dimensions?

To achieve climate neutrality by 2040, a renovation rate of 2.5 to 3.0% is necessary, but this is not yet achieved, so more action on that field is needed.

The heat planning mainly focuses on the supply (renewable and waste heat) and infrastructure side (mainly DHC) and is less concerned by improving energy efficiency. This is due to past experience, and expertise. However, energy efficiency comes progressively as experience is being built, via learning by doing process, e.g. via the awareness and advice provided to end-users.

Figure 5 Example of a communication campaign on the heat transition



3. How are the municipalities/cities supposed to **use the plan**? As a kind of guidance? Setting their own targets? Proposing binding measures? Building a network of practitioners? Etc.

The process of developing further heat network areas is:

- An orientation is provided from the project results to the communities. The detailed assessment and then construction of heat networks is their responsibility.
- The energy agency provides tailor-made support to the communities, e.g. for decentralized solutions. The collaboration with the communities also helps the agency to build its own expertise, in a win-win format.

4. What is the **capacity** of the municipalities/cities to implement the heat plan at their level? (staff working on the topic, expertise and knowledge, financial means, etc.)

Those who have public utilities have been building heating networks since many years. There is a lack of money and staff in small and medium-sized municipalities.
In addition, there is a lack of funds to support investments in efficient heating networks. The funding program for efficient heating networks is not available at the moment (managed by the federal and state funding agencies, therefore out of the scope of intervention of the district agency).

5. Does the district provide **support** for its implementation? (e.g. technical expertise, training, etc.)

Support is provided by the energy agency and district: campaigns for heating replacement, building renovation, etc. (cf. phase 4 above).
Support is also provided by the LKR: "Heat Transition Steering Group" with all stakeholders from the community and business. Information and specialist knowledge are shared.

6. What are the major **progresses** made so far in the heat plan implementation, and lessons learnt?

The joint heat transition strategy for all 35 municipalities has been signed and some municipal council resolutions are also available with concrete 5 years plan.
Municipalities that are not obliged to, have already carried out heat planning on a voluntary basis (no budget is required from the municipalities given the cost are paid by district Lörrach). From now, it will be required by the new law. The previously "non-obligated municipalities" have already carried out heat planning. Since January 1st, 2024, all municipalities are now falling under the obligation according to the federal heat planning law.

7. **Heat data** (building, and industry) seem to be at the core of your plan, but will in many cases be inexistent. How would you recommend adapting your approach to develop a kind of heat strategy, without heat data?

Heat data is needed to build such plan. Their collection takes a lot of time. A company did the work. The duration foreseen was 2-3 months, but at the end it took 6 months. It takes time, as there are a lot of sources, chimneys sweeps data, collecting from every house.
Data was collected via survey within the industry, on a voluntary basis. The participation rate was high, probably thanks to the focus on WHR (which might be interesting for industrial plants to value their waste).

Data was given for free (not paid), as a duty per law. The current legal situation only allows the collection of data from chimney sweeps (e.g. data on building age) in the specific case of heat planning, which are collected only on a 5 years basis (WPG §25), to be renewed next time in 2029 which is too long to have an efficient monitoring. The fact that data are static compromises the annual collection and update of data for the purpose of monitoring and evaluating the progress.

There were also gaps in the data collection, which had to be extrapolated.

8. Can you list at least 3 key success factors (KSF) that have made this project successful?

1. A lot of **persuasion work** is required to launch such important process, involving the 35 municipalities which had no staff nor expertise. The district paid for everything, all studies and work (no need for the communities to pay), which was key to start the work.
2. The **area was too large** to have an efficient and rapid work done. It would have been better to limit the scope 5-6 municipalities. For example, clustering according to heterogeneous criteria such as size or division into "village and town" is a good idea.
   The regional energy agency supported the heat planning process in Lörrach and the support is mainly offered in rural areas. The local industry works cooperatively with the municipalities The KSF is to ensure the appropriate size, to build on synergies and the share of expertise (the network is also important) while not losing too much in coordination efforts.
3. **Information campaigns** on the expansion of heat pumps have been stepped up and carried out together with local craftsmen to ensure that high efficiency is achieved through proper installation. At the same time, there is a certain fear among the population due to the gas issue and there are many questions, which are addressed by the campaign and contribute to education and the dissemination of knowledge. The KSF is to ensure the adequate communication to address the fears properly.

4. **Municipal utilities are good in planning**, they take the implementation of the plan on their own (priority, invest), and are therefore key actors to involve in the process since the beginning. Utilities are public entities, which are collaborating with municipalities, but also with energy suppliers and other private companies (e.g. service providers, engineering, etc.).
5. Work is carried out with the existing support services, although a great deal of support is required. There are regular steering committee meetings as a support. The difficulty is that local authorities only work when they have to, i.e. when they are obliged to, or when there are clear incentives. Municipality don't do if they are not obliged. This is why the **Climate Protection Act** is so important.