

A look at the energy revolution
in Baden-Württemberg and Stuttgart
in the year 2018

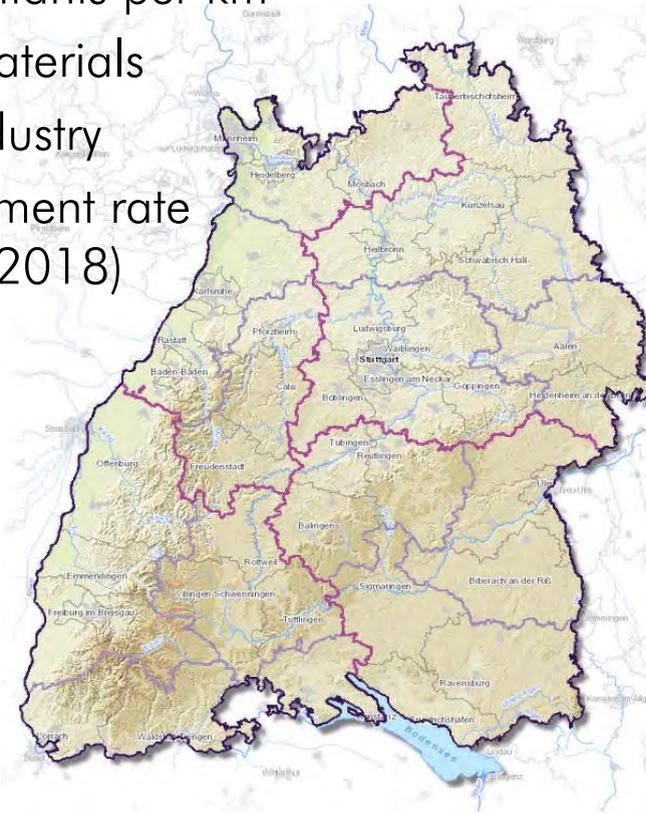
Copenhagen, November 9th, 2018



Baden-Württemberg

- approx. 11 million inhabitants (12/2017)
- approx. 35000 km²
- 308 inhabitants per km²
- few raw materials
- a lot of industry
- Unemployment rate 3.0% (10/2018)

- State government since 2011 in 2nd term under Green leadership. A climate protection law was passed in 2013.



- 1.101 Cities and municipalities with several thousand suburbs

„Citizen energy“

Unclear terms:

- Mainly power generation by PV on EFH/MFH, (semi)public buildings (schools, sports halls) and by farmers
- Power generation cooperatives for wind turbines (WTGs)
- Electricity sales cooperatives (e.g. EWS Schönau)
- Solarkomplex AG as a civil capital company
- Biogas plants with heat networks by farmers and in some cooperatives (eG) in villages

„The Baden-Württemberg AG“:

- is grouped around the **Energie Baden-Württemberg AG**
- with the State of B.-W. as major shareholder, represented at the Annual General Meeting and with respective representatives of the government parties on the Supervisory Board
- with OEW Zweckverband Oberschwäbische Elektrizitätswerke and 9 Landräten as major shareholder and the NEV - Neckar-Elektrizitätsverband as municipal shareholder representative and many mayors in the Stuttgart region
- with strong energy trade unions and private-sector collective bargaining agreements

business segments

- Power generation by nuclear power plants (until 2019 and 2022), coal-, oil-, gas- and waste-fired power plants, etc.
- Renewable power generation nationally and internationally (from Turkey to Taiwan)
- Electricity and gas networks (transmission, distribution), sales.
- Shareholdings in many municipal utilities in B.-W. to Düsseldorf

- Approx. 100 municipal utilities as democratically controlled companies in accordance with municipal regulations:
as Eigenbetrieb, AG, GmbH or GmbH & Co KG with third-party participation by EnBW, Thüga etc.
- Due to legal hurdles, new municipal utilities were only founded in isolated cases as a result of concessions to take over electricity and gas grids.
Even today, group of companies are actively blocking the establishment of municipal utilities. Politics and administration ignore this dispute.
- Large municipal utilities with traditional district heating: Mannheim, Karlsruhe, Ulm
- Medium-sized municipal utilities are successful on the heat-reversal path:
Schwäbisch-Hall, Sindelfingen, Heidelberg, Reutlingen, Tübingen, Böblingen, Bietigheim-Bissingen, Crailsheim, Göppingen, Ludwigsburg-Kornwestheim, Mühlacker etc.
Thüga network: Badenova (Freiburg), Pforzheim, Radolfzell, Tauberfranken (Bad Mergentheim), Villingen-Schwenningen etc.
- Small public utilities: Altensteig, Metzingen, Waiblingen, Weinstadt etc.

- Municipalities do not have public utilities, but only a water supply often as an independent operation (and waste water - sovereign).
- A heat supply is usually only established for municipal buildings: Town hall, school, indoor swimming pools, etc.
A heat supply for residential and commercial properties is rarely built up because the economic risk must be borne by the municipality.
Only in individual cases with favourable financial and energy economic opportunities is it possible to build up a heat supply.
A central obstacle is the definition of economic efficiency in accordance with the municipal regulations (GemO) and the risk of not approving the municipal budget.
- Neighbouring municipal utilities are usually reluctant in the takeover of non-lucrative operations.
- The group of companies limit themselves to the operation of the electricity and gas networks.

Stuttgart - Sale and attempt of a new foundation of a public utility company

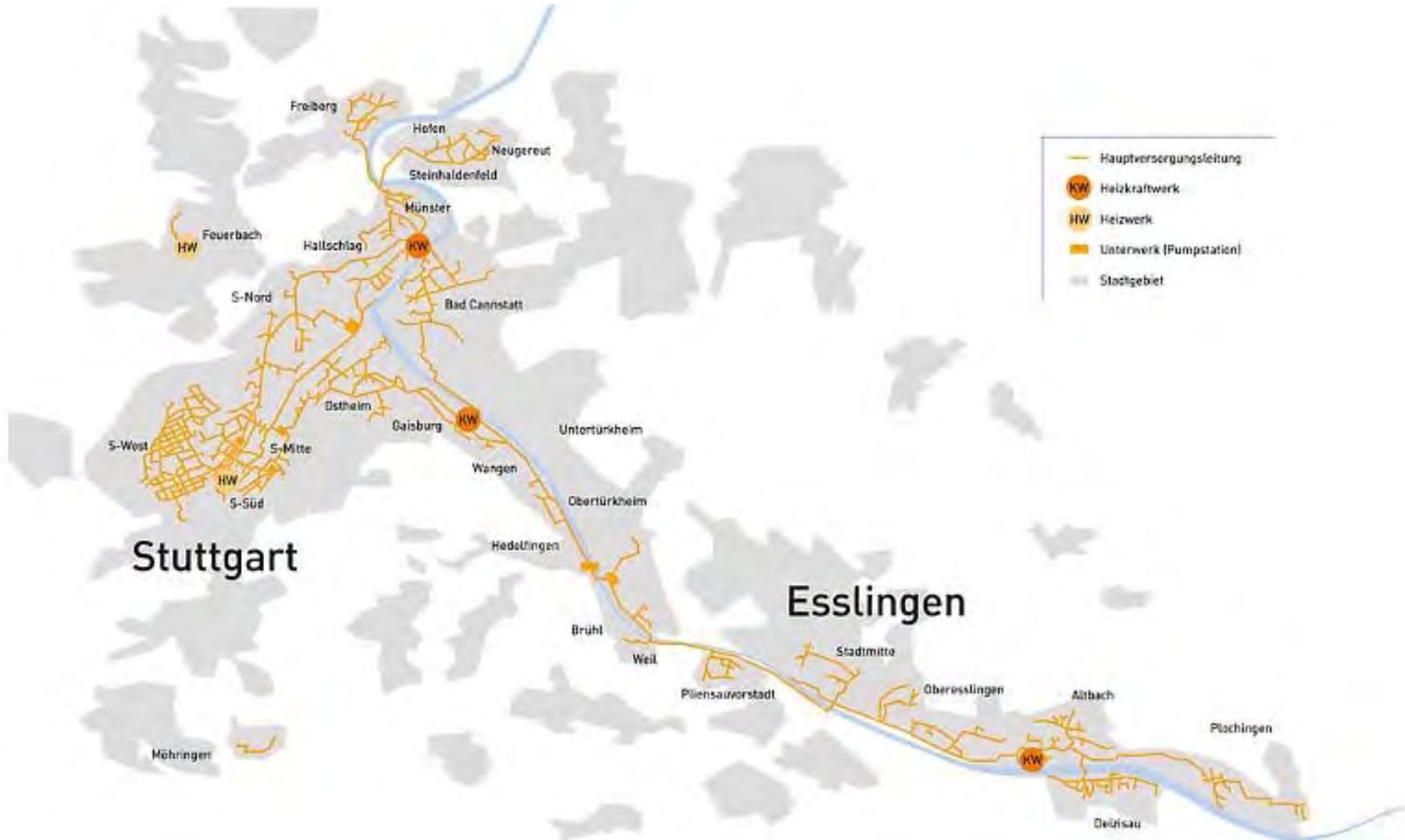
- In the course of the neoliberal policy, the city of Stuttgart (by all-party resolution) sold its shares in the former Stadtwerke TWS AG to EnBW after the merger with NWS, thereby losing all influence on the energy supply with electricity, gas and heat (even water).
- In response to citizens' petitions, the city has been trying for years to buy back the water supply and district heating.
- Under pressure from citizens' initiatives, the city has founded a public utility company (Stadtwerke GmbH).
Within the framework of the concession procedures, the municipal utilities received the electricity and gas grids in a cooperation company with EnBW (25.1 %).
Legal proceedings are currently pending before the Federal Supreme Court for several years.
- In the case of district heating, the judicial dispute over fundamental issues is in the first instance. Due to the lack of a legal basis, the takeover of district heating by the municipal utilities is rather doubtful.

- These court proceedings block a future-oriented planning of the networks and the energy and heat turnaround in Stuttgart for further years. It must be expected that the climate targets in Stuttgart will be missed by a wide margin for many years to come because the great potentials, especially in the optimisation of heat, will not be exploited.
- Today's municipal councils have no experience in dealing with municipal utilities. They are not in a position to successfully advance the process of building a municipal utility. They even tacitly accept violations of the law by refusing to disclose the business plans.
- Schönau-Vertriebs-GmbH has a 40% stake in Stuttgarter Vertriebs GmbH. This results in restrictions in the citizens' identification with your municipal utility.

- The "Energy Concept Stuttgart - Urbanisation of the Energy Turnaround" was discussed in the Committee for Environment and Technology on 26.01.2016 and decided by a large majority in the municipal council on 28.01.2016 without a proper discussion.
 - Goal: Climate neutral state capital until 2050
 - Reduction of final energy consumption by 50% (compared to 1990)
 - Non-fossil energy supply
 - Reduction of THG gases by 95% (compared to 1990)
- After a committed discussion in the Committee for Environment and Technology on 26.10.2017, the local council took note "... of the draft master plan concept with approval ...".

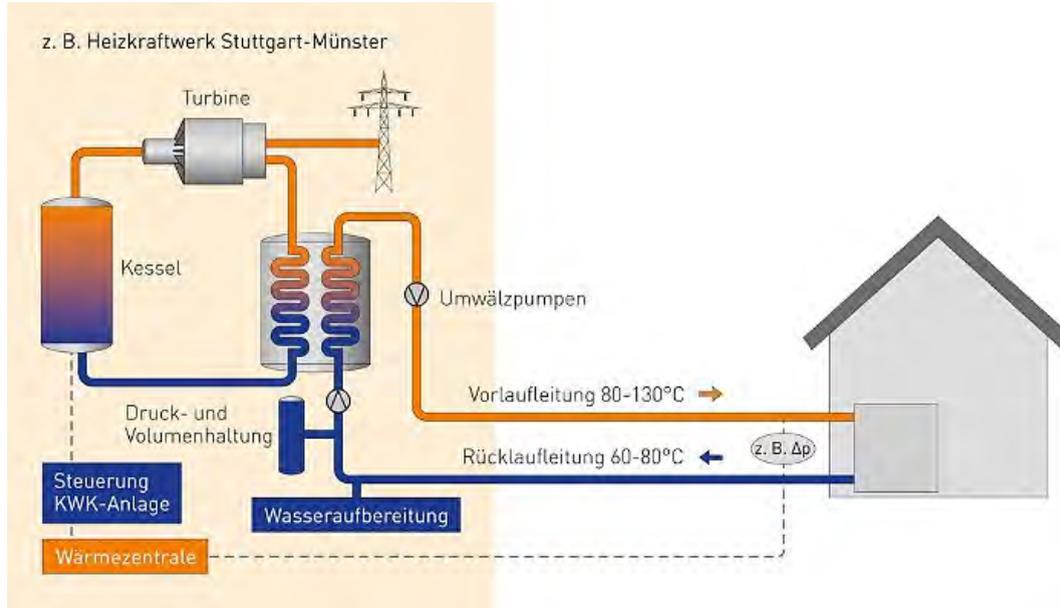
- District heating for the district heating network is generated by combined heat and power (CHP) at the Münster, Gaisburg and Altbach/Deizisau cogeneration plants and at the Marienstraße peak heating plant. The Mittlere Neckarschiene is the main connection line between the three generation sites (EnBW, 2012).
- The district heating is used to heat buildings, hot water and industrial heating processes.
In Stuttgart, 25000 households, 1300 companies, 300 public buildings are supplied by 3000 building connections and a sales volume of around 1100 million kWh (LHS, January 2016).
The routes have a length of approx. 218 km in the Stuttgart district.
- The supply area comprises approx. 18 % of the settlement area of the Stuttgart city area due to altitude. The supply density in the districts Mitte, Wangen, Freiberg and Neugereut is approx. 80 %, in Nord and Bad Cannstatt approx. 60 % and in West, East and Münster approx. 40 %. The average supply density in the supply area is approx. 65 % (EnBW, 2012).

District heating Grid area



District heating in Stuttgart

Simplified representation of an integrated district heating supply system



Functionality of combined heat and power generation



Bei Kraftwerken mit Kraft-Wärme-Kopplung wird der Energiegehalt des Brennstoffs zu mehr als 80 % in nutzbaren Strom und nutzbare Wärme umgewandelt.

(source: www.enbw.com/unternehmen/konzern/energieerzeugung/fernwaerme/)

A look into the future

- A federal climate protection law is to be passed by Easter 2019. A Building Energy Act (GEG) will also be passed. In view of the unclear situation in Berlin, it is doubtful whether the efficiency regulations prescribed in the EU Efficiency Directive will be implemented. Binding heat planning by the municipalities is unlikely to be regulated by law.
- The amendment of the Baden-Württemberg Climate Protection Act, which is also planned for early 2019, could contain regulations on heat planning. The state is responsible for legislation in the area of heat, unless the federal government takes action. Binding heat planning could therefore be introduced for larger cities (large district cities with 20000 inhabitants or more?) by means of a state regulation if the state wants to meet EU requirements.
- For the actual implementation of the heat supply systems in the municipalities and their suburbs, the municipal economic prerequisites must be created. It must be regulated how economic efficiency is to be presented under today's conditions of climate protection. Legal requirements are necessary here.

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