20 June 2025

#EU GREEN WEEK

EU Green Week Partner Event

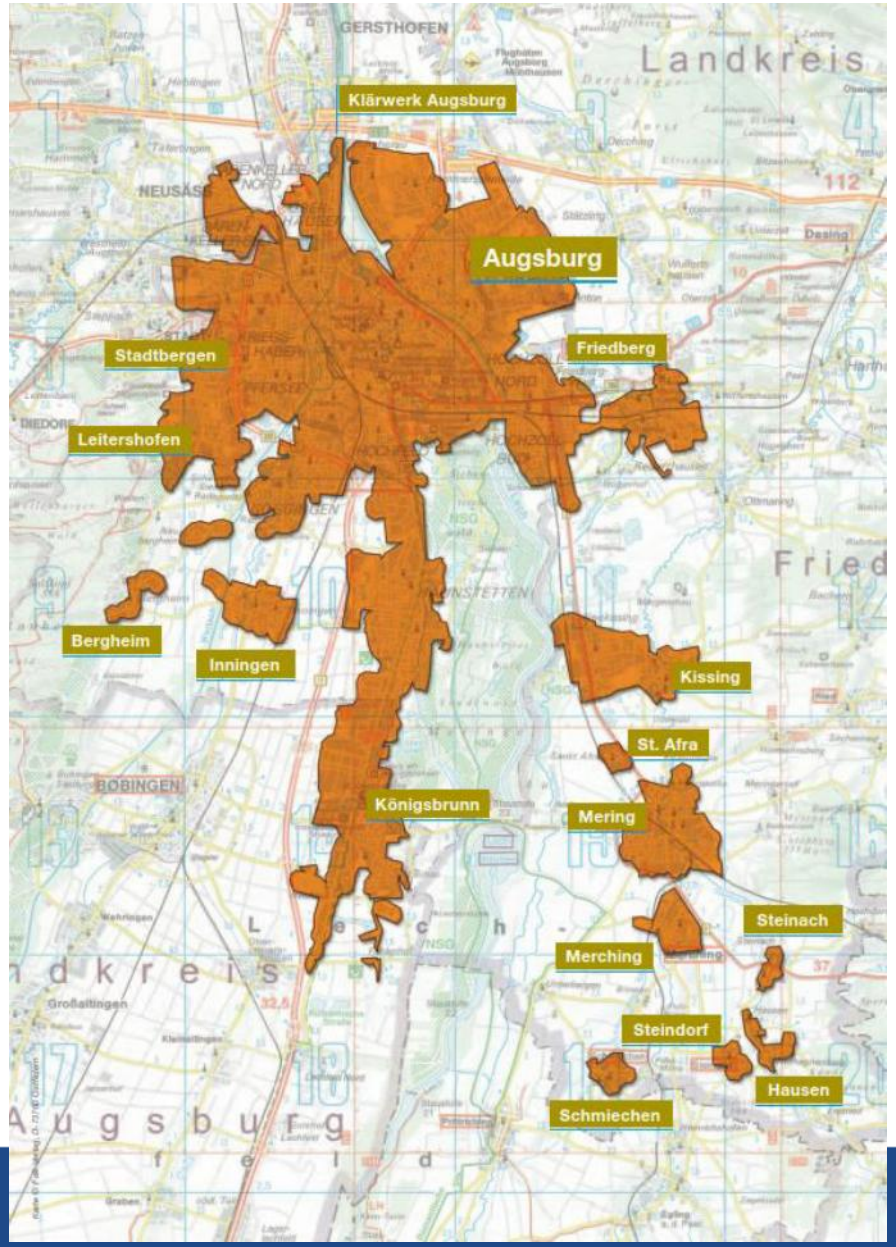
Utility experiences: Germany, Augsburg WWTP,
speaker: Sven Vogt

WASTEWATER AS A RESOURCE: REGIONAL WORKSHOP ON **SEWAGE SLUDGE MANAGEMENT** AND ENERGY EFFICIENCY

DANUBE REGION strategy Water Quality

ICPDR IKSD
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

Initial situation



Initial situation

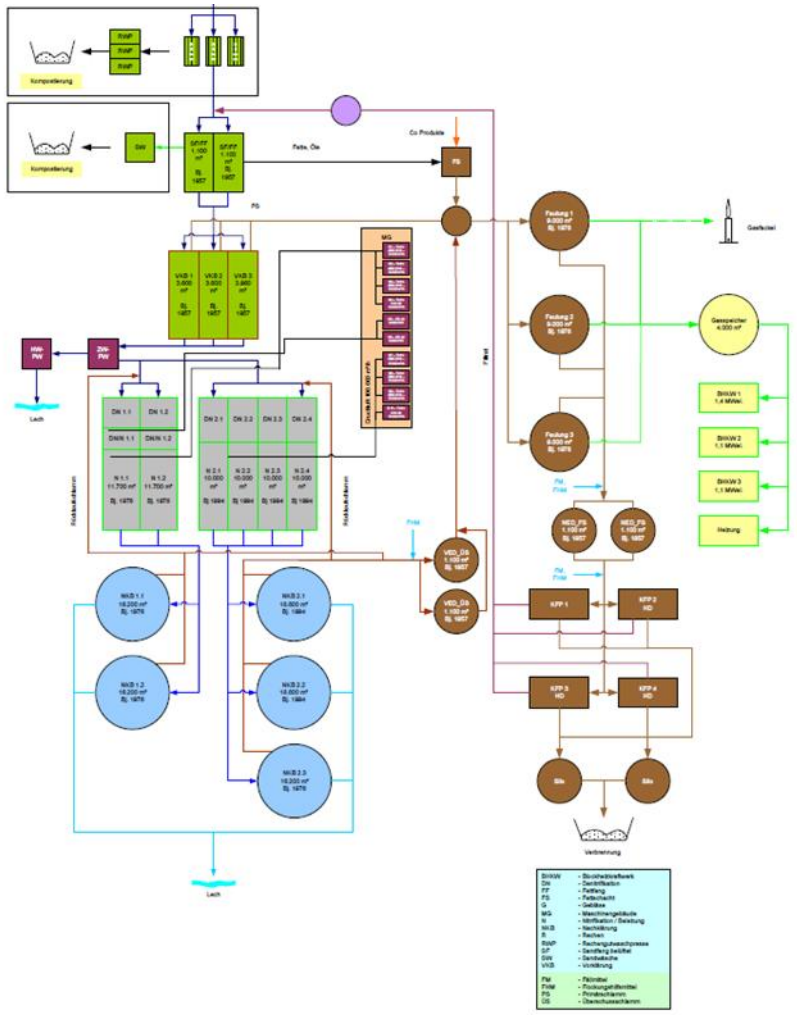


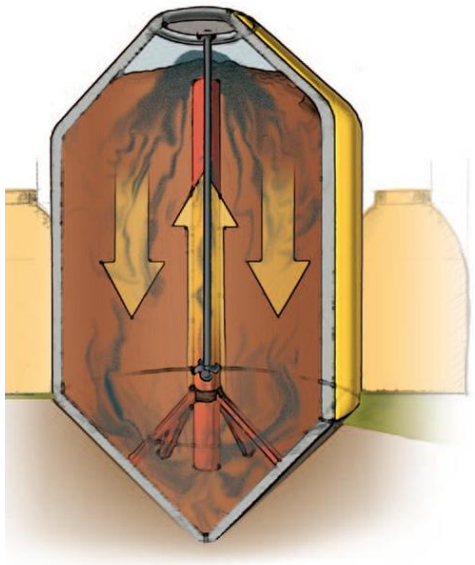
Abbildung 3: Vereinfachtes Verfahrensschema Kläranlage Augsburg (800.000 EW)

In terms of process technology, the plant can be divided into the following areas:

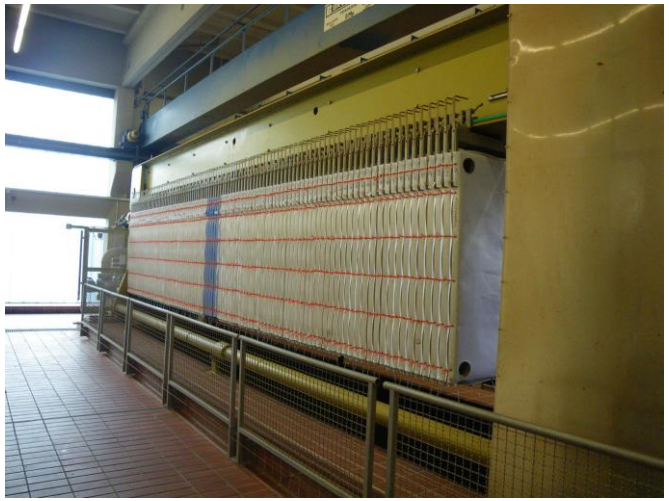
- Mechanical treatment (screens, grit chamber, primary clarification)
- Biological treatment (upstream denitrification, nitrification, secondary clarification)
- Coagulant dosing for phosphorus removal
- Sludge treatment (static pre-thickening of excess sludge, digestion, sludge dewatering using chamber filter presses, sludge utilization via sludge silo)
- Gas utilization/energy generation (gas purification, boiler, CHP).

Expension size	600.000 PE
Design size	800.000 PE
Greatest introduction	150.000 PE
Year of construction	1952
1st expansion stage	1976
2nd expansion stage	1994

SEWAGE SLUDGE MANAGMENT



4 chamber filter presses
Dry residue 34%
Mass: 25,000 t dry residue

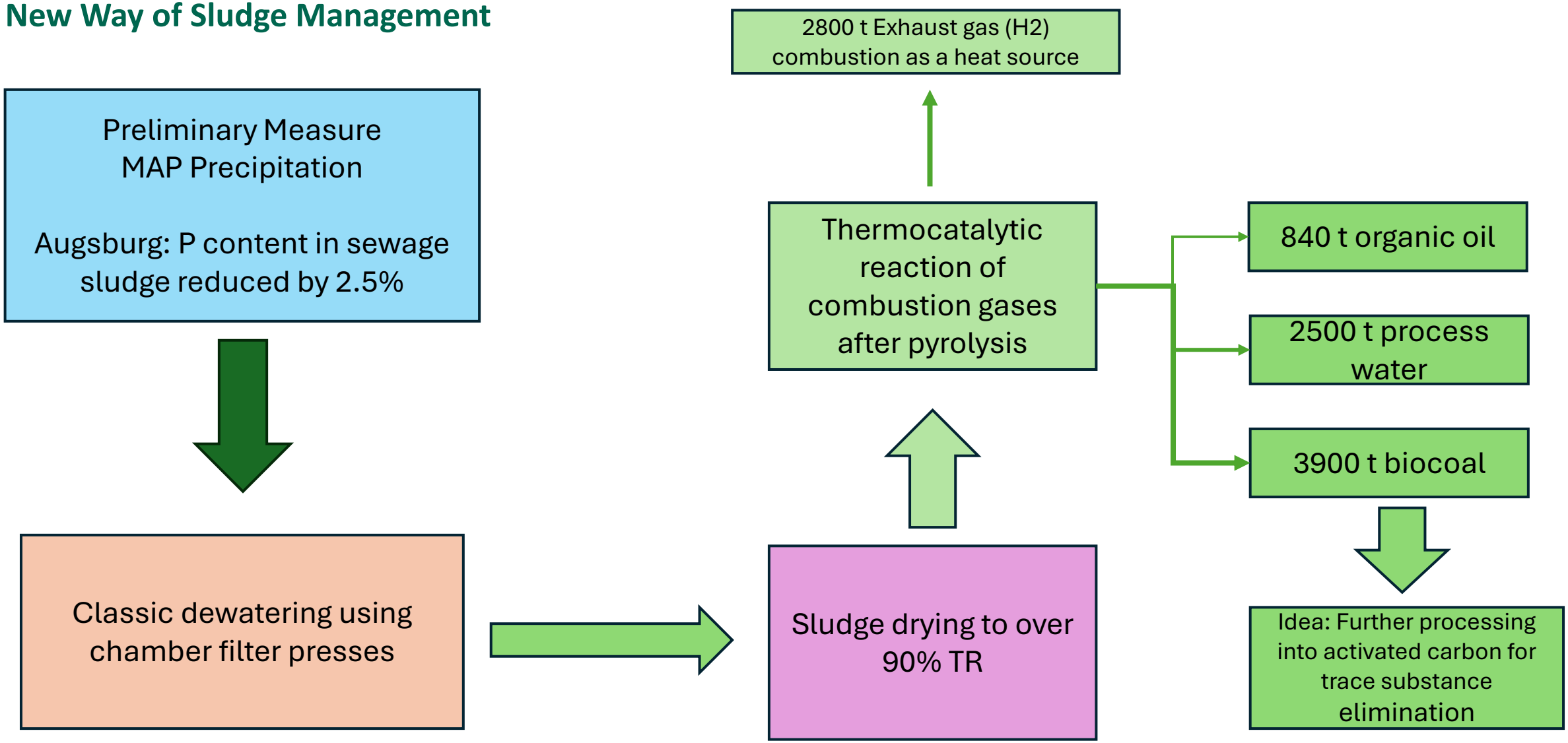


The sewage sludge is thermally recycled in power plants or in the cement industry.

Questions:

- How do we address phosphorus recovery in Germany?
- What do we do with sewage sludge recycling?
- Are there other options? That might also be more sustainable?
- What can we achieve by the 2029 legal deadline?

New Way of Sludge Management



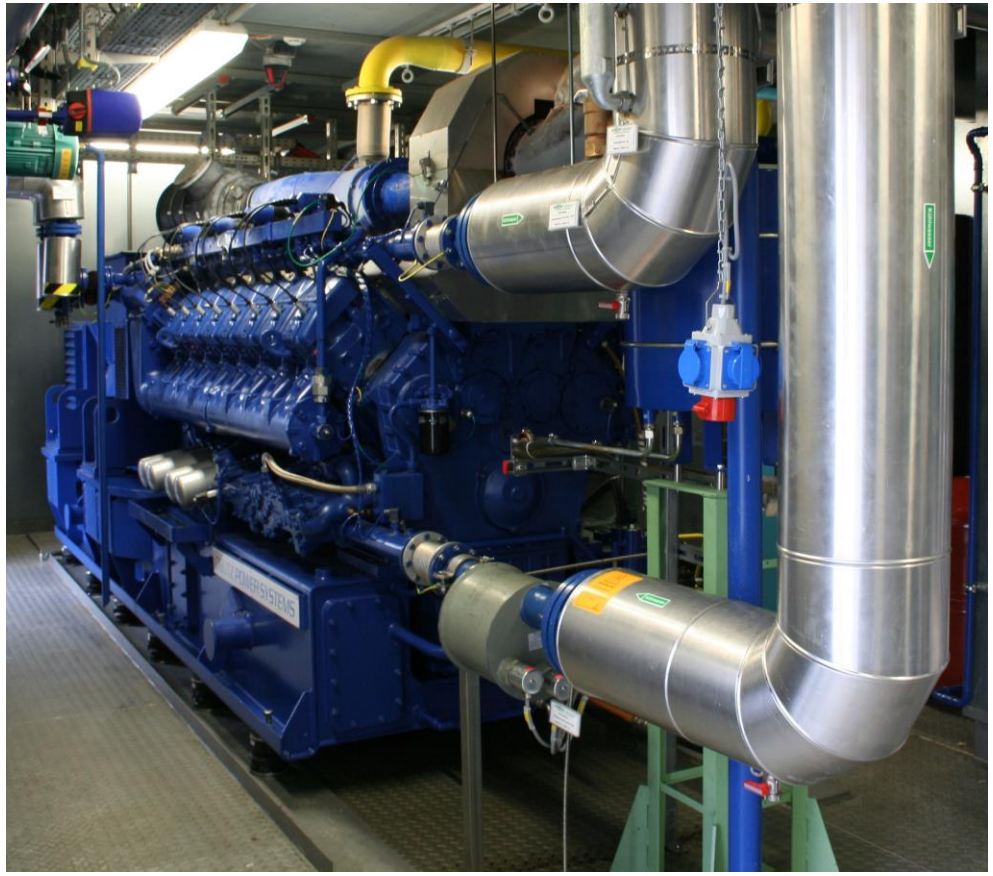
ENERGY EFFICIENCY

Energy supply status:

- CHP electricity-controlled production
  - Load profile control, time-delayed
  - Additional heat demand is covered by oil-fired boilers if necessary
- In addition to the CHP plant:
  - 260 kW photovoltaic system
  - 50 kW discharge turbine

- 14 GWh heat demand per year
- 14 GWh electricity demand per year

- 37.3 kWh/E*a -> energy index
  - 18.7 kWh/E*a -> electricity index



EnergyFish

Solar folding roof

The future will continue to be renewable:

Expansion of the hydroelectric power plant from 50 kW to 61 kW to 300 kW
Expansion of solar energy generation from 260 kW to 2160 kW

In the future, there will be an energy mix consisting of:

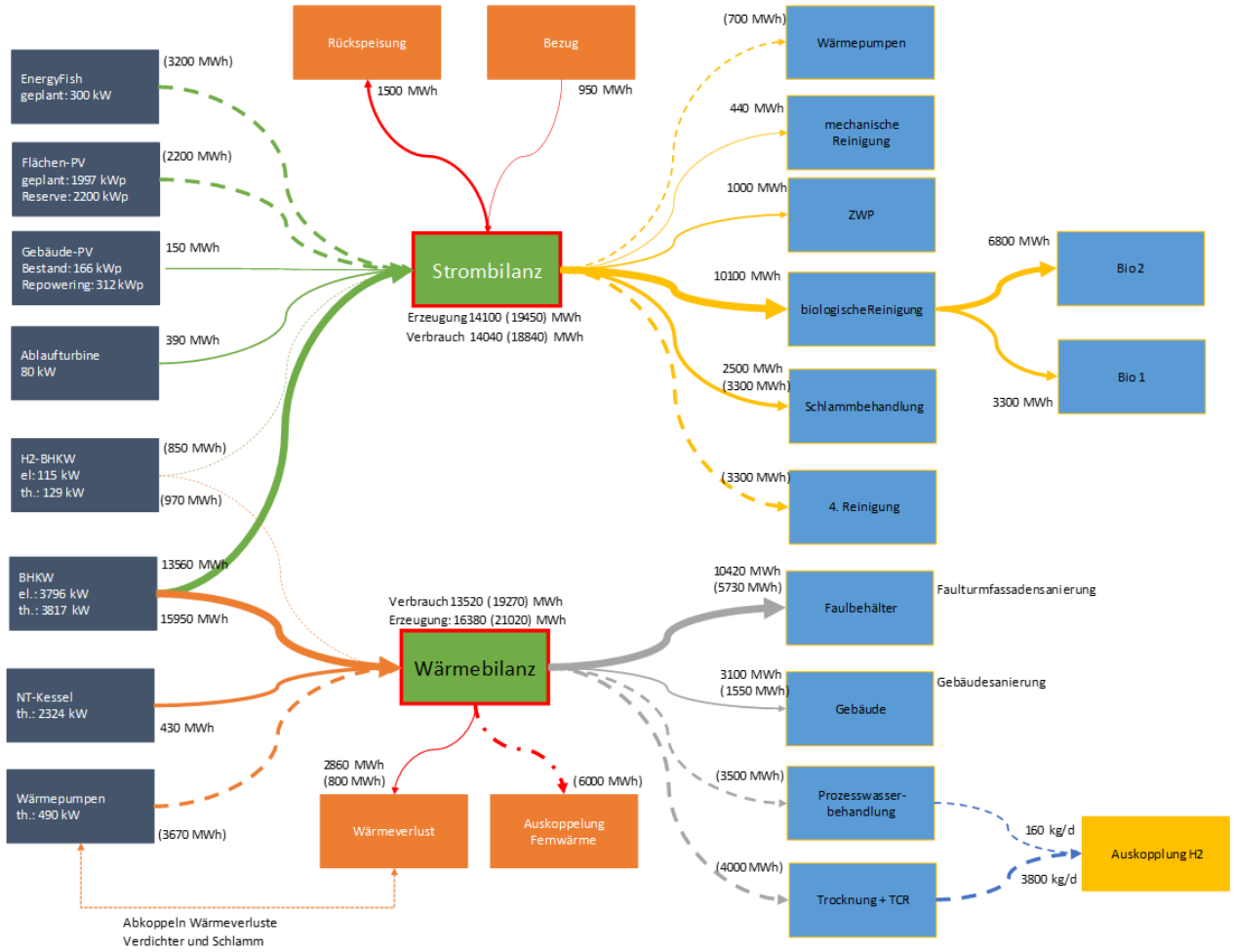
- Heat pumps
- Biomass heating
- CHP, including hydrogen-powered
- Photovoltaics
- Hydroelectric power plants

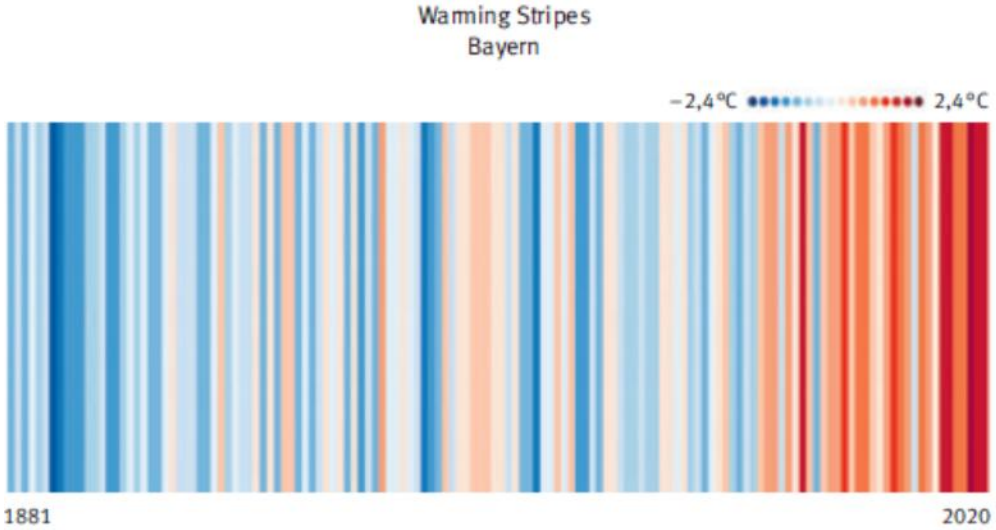
The goal is:

- To reduce external energy purchases, especially electricity, to zero.
- To supply heat to the municipal utility network.
- 10% less energy consumption in 5 years.

Additional measures:

- Real energy management
- Process control system with AI support
- Balancing and evaluation of all energy flows
- Construction of a new gas tank to store additional gas for real load profile operation, at night and during "dark lulls"





Stadt Augsburg

Stadtentwässerung Augsburg

Das gute Gewissen der Umwelt gegenüber.

Blue water for a green city

Thank you for allowing me to present our procedures