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## Efficient Heating Energy

Heating costs of most plants are only around 3 % of their total energy costs.

### PLANTS WITH ANAEROBIC SLUDGE DIGESTION

Power and heat co-generation supplies sufficient heat for the entire plant:

- If digesters and warm sludge pipelines are thermally well insulated,
- If raw sludge is sufficiently thickened.

### PLANTS W/O ANAEROBIC SLUDGE DIGESTION

Heating of buildings and hot water supply requires energy:

- Buildings should be thermally well insulated,
- Electrical heating should be avoided; where used, operation times should be limited with timers,
- Condensing boilers have an efficiency of over 100 % and safe fuel,
- Heat and power co-generation from natural gas can be economical and saves energy,
- Heat pumps extract heat from plant effluent and supply 4 to 5 kWh heat per kWh of power consumed (See our ThermWin Solution).

### PLANTS WITH SLUDGE DRYING

Thermal sludge drying consumes about 900 kWh per t of evaporated water:

- Waste heat, where available, should be used for sludge drying; our medium-temperature belt dryers KULT BT+ use co-generated heat;
- Heat for digester and building heating can be recovered from thermal sludge drying;
- If co-generation from digester gas should not supply sufficient heat for sludge drying, natural gas should be additionally used for cogeneration;
- At plants without anaerobic digestion, natural gas should be used for co-generation; heat is supplied for drying and power for plant operation.
- On-site sludge incineration also generates power and heat for drying.
- Solar dryers, such as HUBER SRT, consume no or little heat, but have a large footprint; they are smaller where heat pumps extract heat from plant effluent and supply it for sludge warming during drying.