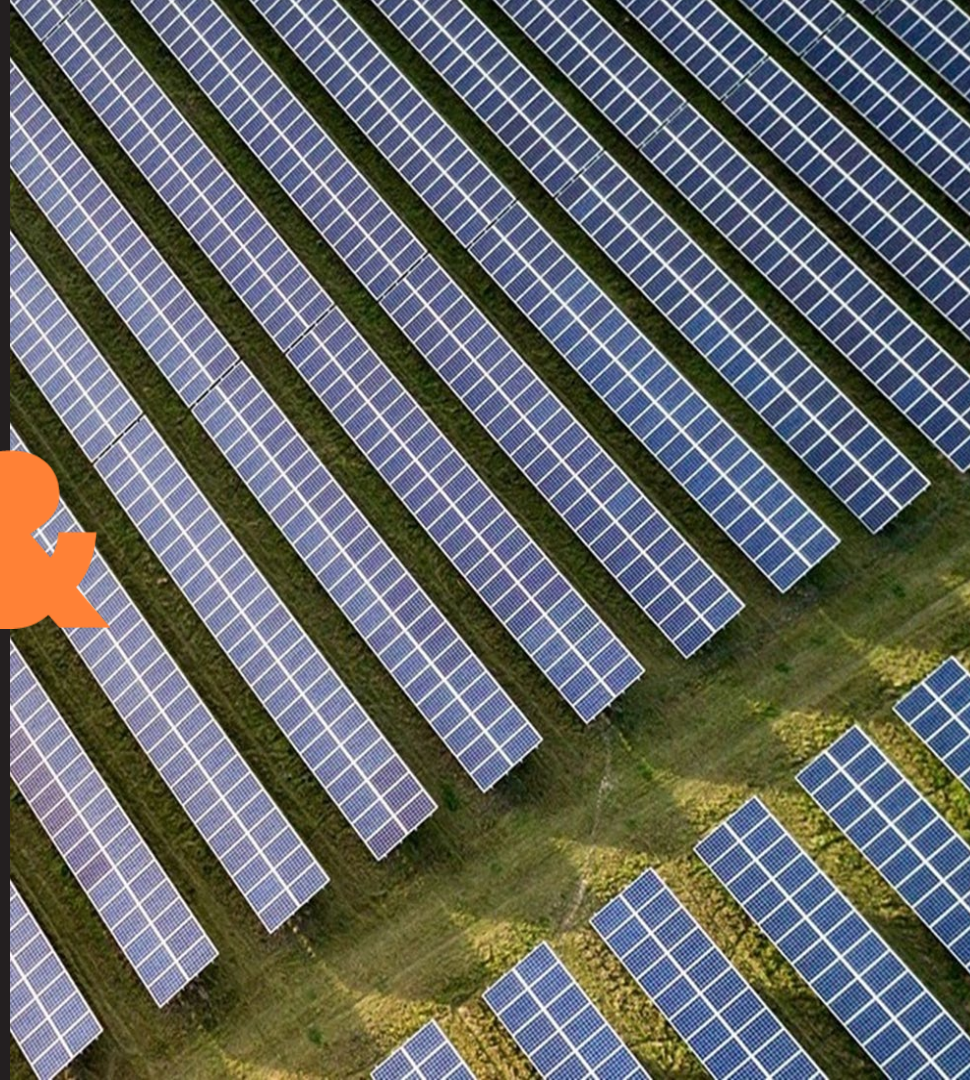


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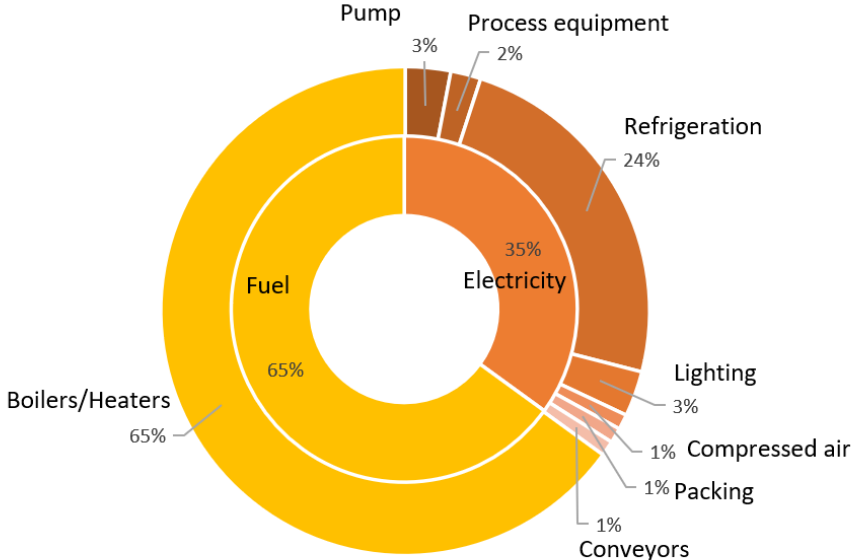
Heat mapping and heat pump sizing for abattoirs



Agenda:

- Typical energy break down of abattoirs
- Reducing fossil fuel reliance
- Thermal load analysis

Energy consumption in small to medium meat processing facilities



Key point to be sustainable and move towards less energy intensive production:


- How to minimise fossil fuel consumption
- How to remove fossil fuel as energy source

Ref: AMPC, Energy Consumption Guide for small to medium red meat processing facility,2013

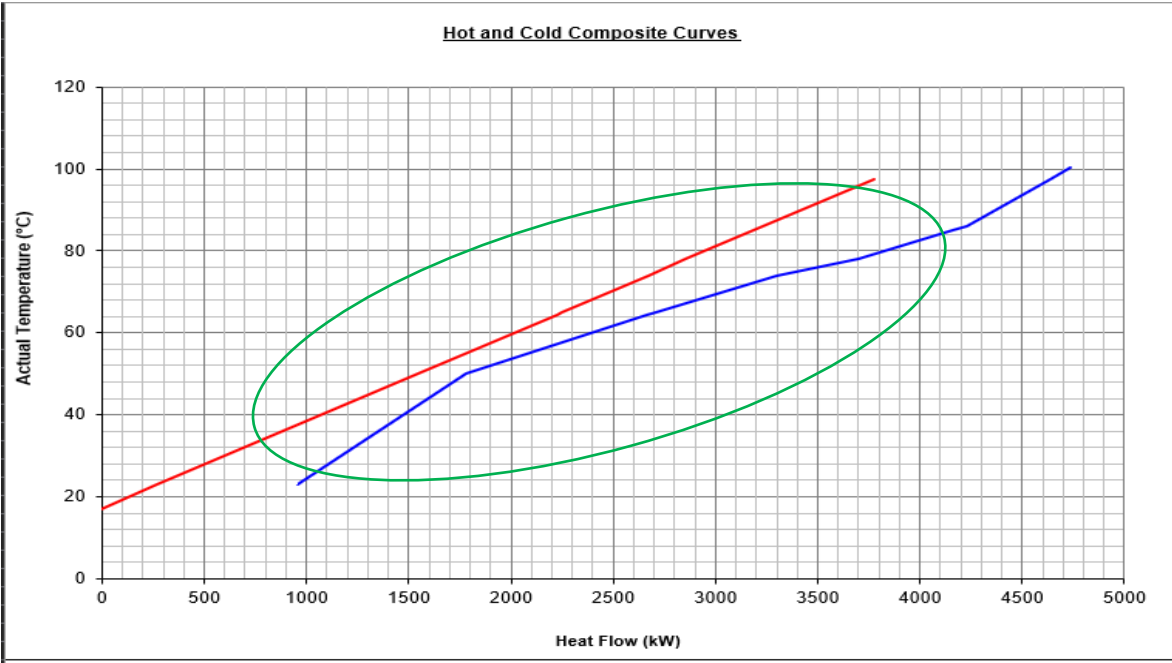
Required data for analysis

- Water flow and temperature in each section
- Discharge water flow and temperature
- Energy and Fuel consumption (e.g. NG, LPG, Coal, etc)
- Other thermal load demands (e.g. refrigeration, air conditioning, etc)

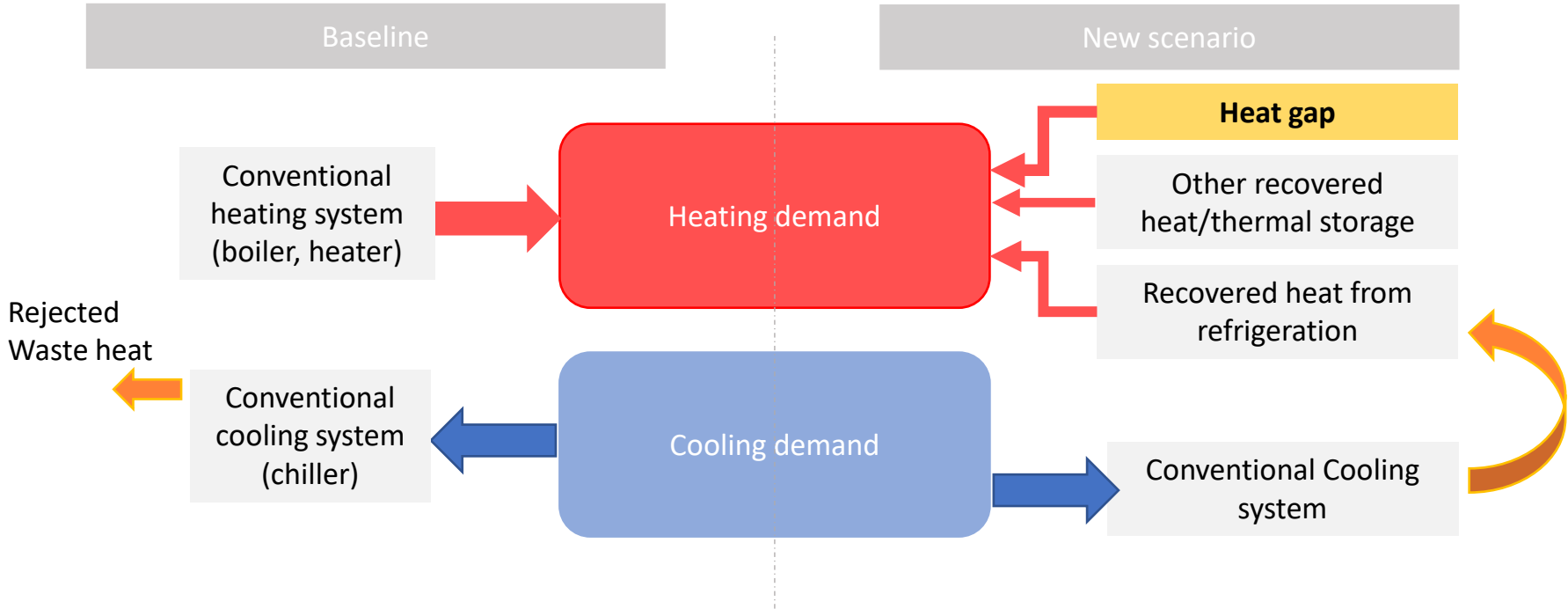
Heat load analysis

- SCADA
 - PFD
 - P&ID
 - Site design documents
- 
- Identify heating and cooling load
 - Identify losses
 - Connect heating and cooling demand to maximise heat recovery
 - New solution for extra required load like HP or renewable energy

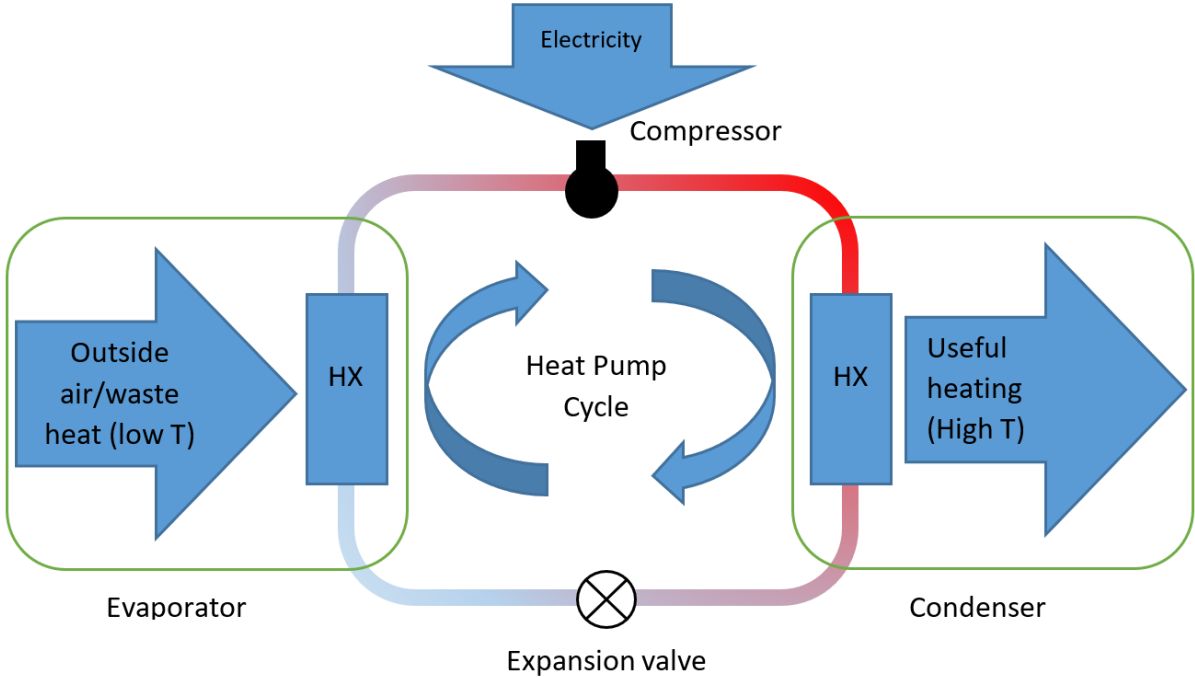
Pinch analysis



Thermal load analysis



Heat pump



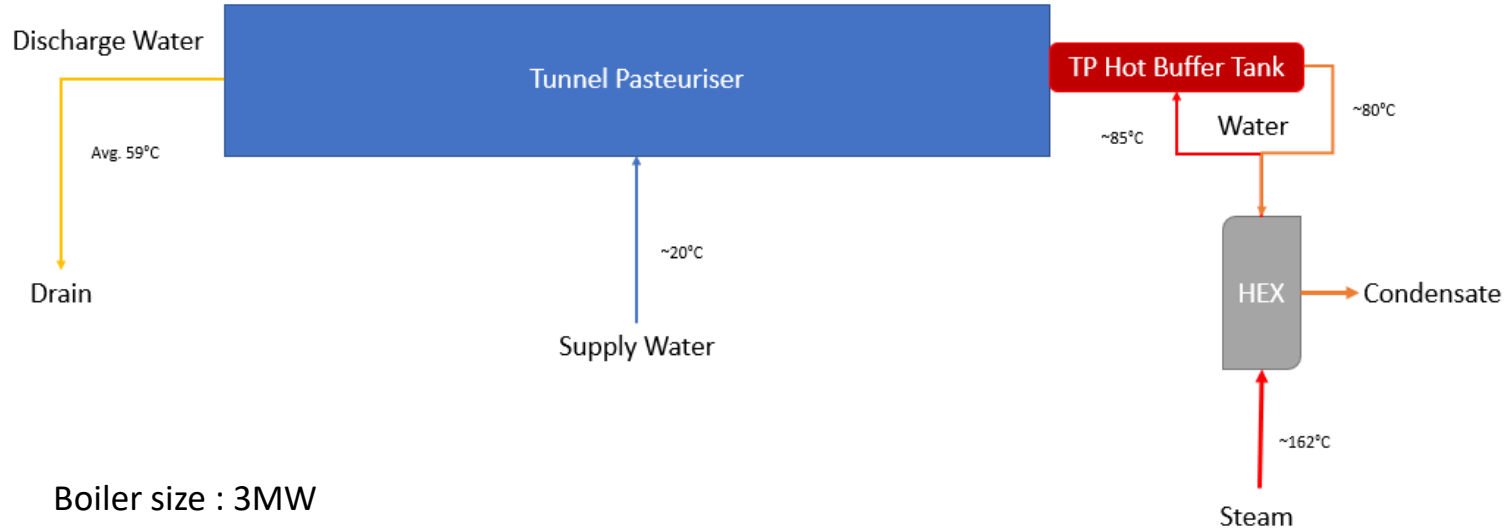
Heat pump advantages

- High COP ~ 4 – 5 heat energy conversion
- Productive heat source – when and where you need it
- Input energy can easily be renewable – e.g. solar
- Reduction of CO_{2-e} emissions
- Reduction of input energy costs
- Reduced plant maintenance



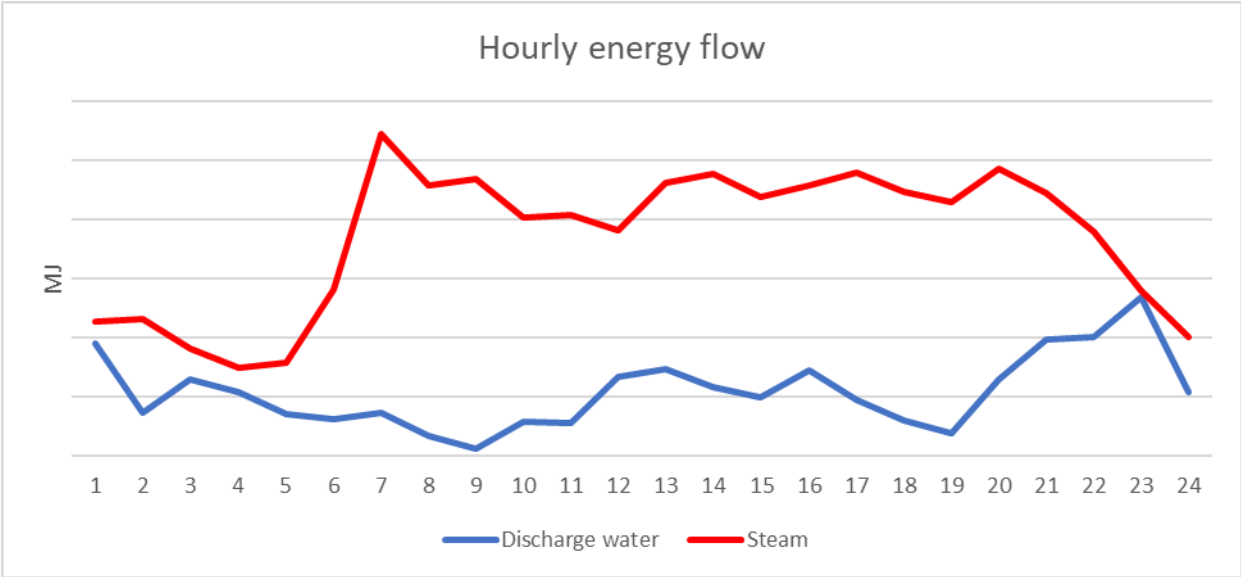
Case study: Brewery pasteuriser steam replacement

Existing Thermal Flows

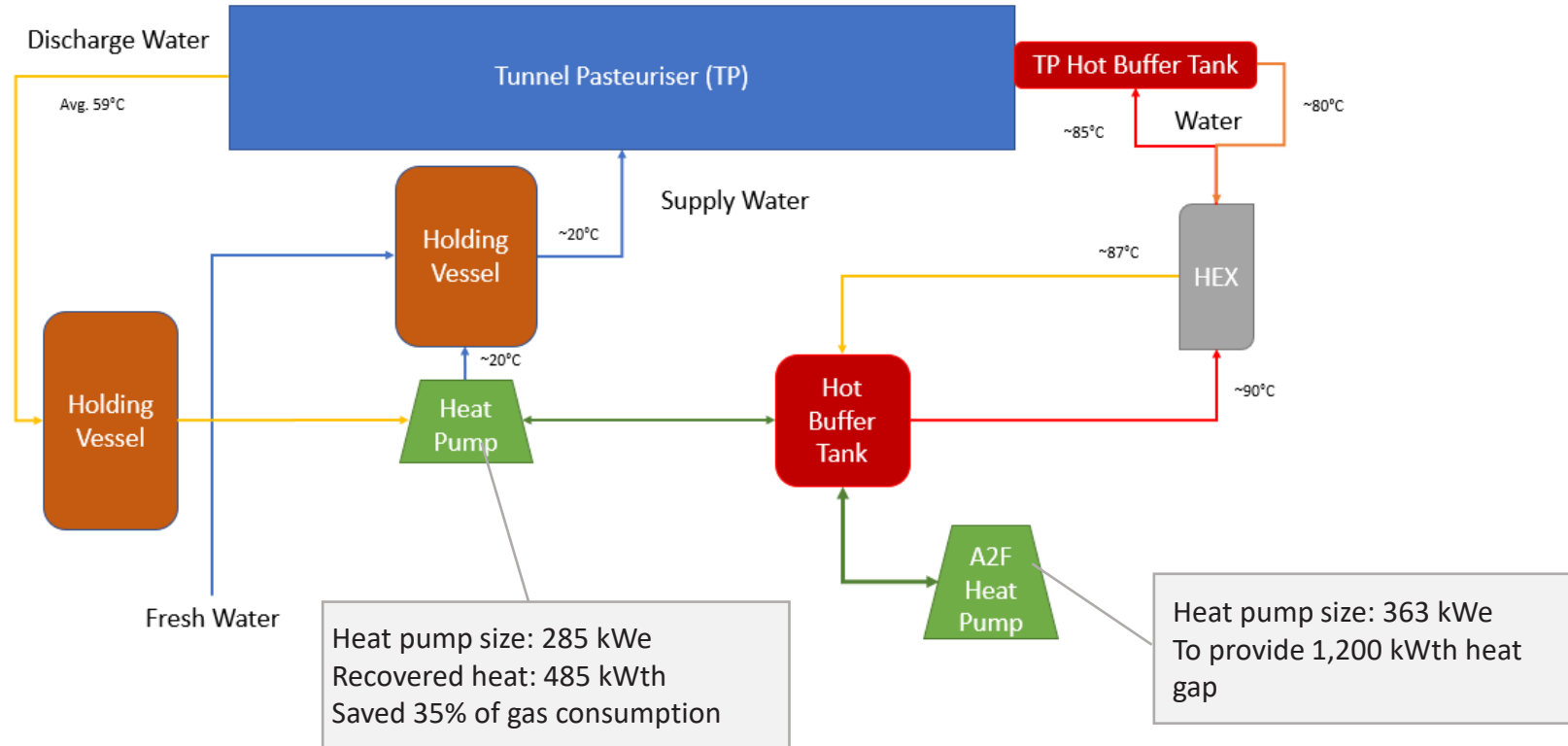


Boiler size : 3MW

Case study: Brewery pasteuriser steam replacement



Case study: Brewery steam replacement



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