Bühler Services
Partnering for better outcomes

Energy assessment Services

Quantify - Understand - Reduce

Purpose

The energy assessment services enable companies to quantify & understand the energy footprint of operations and build an energy optimization plan to reduce operational costs and environmental footprint. As a technology provider in the food & mobility industries, Bühler offers the unique combination of process knowledge to build tailored sustainability solutions.

We **reduce** your energy **costs** & **simplify** your **sustainability journey**!

1

Quantify your energy usage and gain transparency of environmental impacts of your activity.

2

Understand the key levers to reduce your process energy consumption.

3

Reduce your footprint and operational costs by optimizing existing asset's energy use with integration of energy recovery and optimization.

The key advantages & benefits of our service:

Cost reduction.

Reduce your energy use and save costs, by optimizing energy consumption.

Enhance sustainable practices.

Decreasing energy consumption, particularly from fossil fuels, results in significant reductions in CO2 emissions.

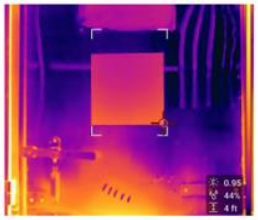
Plan for the future.

Energy system optimization proposals provide an overview of the most effective & impactful solutions tailored to your process.

On-site Assessment - Performance Assessment Workshop (PAW):

Our **process experts** will visit your plant and **perform an audit on your process**, providing you with data on your **current energy usage** and **recommendations for improvements**.

In addition, a **process evaluation** can be performed to be sure that the **most optimal process parameters** are being used and point out **opportunities for upgrades** or **improvements**.



Energy usage can be reduced significantly, and performance improved with retrofitted high-performance insulation.

High efficiency, direct drive motors paired with VFDs can lower energy consumption.

Running the process with optimal parameters can lower energy consumption and ensure higher product quality.

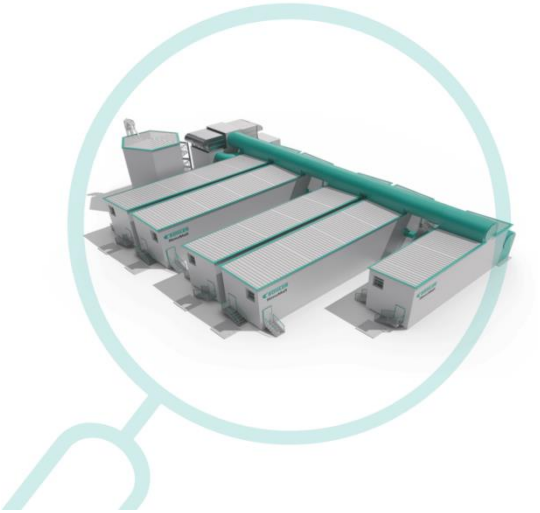
Innovations for a **better world.**

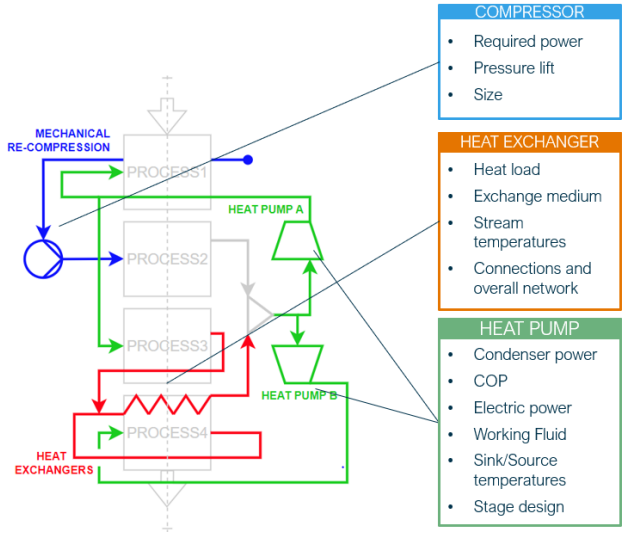
BÜHLER

Prospective Analysis: Energy recovery

Based on existing on-site data or a comprehensive on-site evaluation (PAW), crucial **process parameters are gathered** to enable the analysis. This strategic assessment allows for the precise **identification of uncertainties within the energy and mass balance** of your system. By doing so, we derive the **maximum energy recovery potential accurately**.

Subsequently, this potential is analyzed in terms of its **economic viability**. A **high-level cost range for implementing heat recovery systems**, along with a projected **payback period** is provided. This projection is calculated considering current gas and electricity expenses, ensuring you receive a **cost-effective** solution tailored to your operational needs.





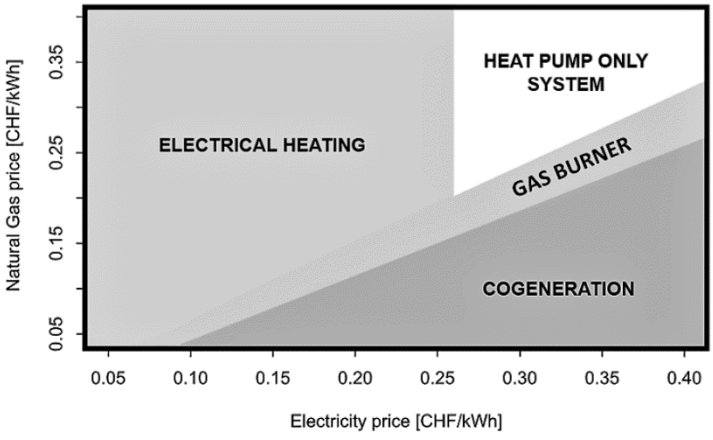
PINCH Analysis: Sytem optimization

The PINCH analysis consists in evaluating thermodynamically all the process streams and provides energy system solutions, optimized for the given target of energy use, CO2e emission or operational costs. The analysis allows to assess installed assets energy use against optimized solution **without changing the process**, investigate use of **energy recovery units** such has heat pump, heat exchangers, mechanical vapor recompression & thermal storage. **A detailed specification of the implementable technologies is provided**, and the derived solutions are tailored to your specific targets of **operational cost reduction, capital investment and CO2e reduction.**

Advanced scenario analysis

The scenario analysis enables to take into account additional **variability surrounding the process** to ensure that the provided energy solutions are most appropriate for **current and future applications**. Scenarios can be derived to consider recipe or product variation, seasonal variability, energy price volatility, changing electricity to gas cost ratio as well as the system's response in contingencies, including energy scarcities or utility disruptions.

This approach ensures the development of an all-encompassing plan that **is designed to secure your operation's resiliency and adaptability for the future.**



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