Lucerne University of
Applied Sciences and Arts

HOCHSCHULE
LUZERN

Engineering and Architecture
CC Thermal Energy Systems and
Process Engineering

//pinch
saves energy and costs

StorageGroup 1
20.1 m³

130 °C

~ #1.2 ~

100 °C

~ #1.1 ~

40 °C

207 kWh 589 kW
50 m²
34 kWh 68 kW
3 m²
63 kWh 210 kW
16 m²

PINCH
SOFTWARE

10 steps to energy efficiency
and profitability in industry

YOUR CHALLENGE

Saving Energy and Costs

Do you want to reduce your thermal energy costs, but the saving potential is unclear?

Do you wonder what opportunities are available to achieve the energy and cost saving potential?

Do you need software to optimize your whole industrial process?

Do you need capabilities to analyze time dependent processes?

Do you need support for integrating energy conversion units (ECUs) properly into your process?

OUR SOLUTION

PinCH Software for Pinch Analysis

PinCH determines the absolute energy and cost saving potential.

PinCH provides a quick and flexible evaluation of various designs and scenarios.

PinCH supports you in optimizing systematically a broad spectrum of industrial processes.

PinCH is unique in handling both direct heat recovery and heat storage analysis.

PinCH enables the correct integration of ECUs, thermal energy storages, etc.

CHARACTERIZE YOUR PROCESS

Understand and quantify your thermal energy needs (steps 1-5)

– Obtain a **thermal energy fingerprint** of your plant design
– **Visualize your heating and cooling requirements** with time dependent behaviour
– Establish your **process schedule** and **economic data framework**

OPTIMIZE YOUR PROCESS

Set targets and find optimization opportunities (steps 6-10)

– Determine the **best economic use of thermal energy** within your process
– Transform the savings potential into **flexible yet practical designs**
– Prioritize the solutions according to their **energetic and economic benefit**

Define Process Requirements
– Gather process data
– Set the system boundary
– Determine the heating and cooling requirements

Configure Equipment
– Configure shared equipment to reduce storage design complexity
– Use equipment to define multiple operating cases
– Share equipment to optimize heat exchanger area reuse

Apply Schedule
– Configure your process time dependence
– Model continuous and time dependent processes
– Visualize your process requirements schedule

Prepare Targeting Calculations
– Configure analysis scenarios
– Set up different configurations based on:
  · Processes
  · Utilitites
  · Schedules
  · Economic data

Calculate Energy & Cost Targets
– Analyze your energy demand and cost targets
– Apply supertargeting to optimize direct heat recovery in time dependent processes
– Systematically integrate thermal energy storages

Design Heat Exchanger and Storage Networks (HEN/HESN)
– Let PinCH be your network advisor
– Optimize HENs for time dependant processes
– Visualize your thermal energy storage network

0 ···· 1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10
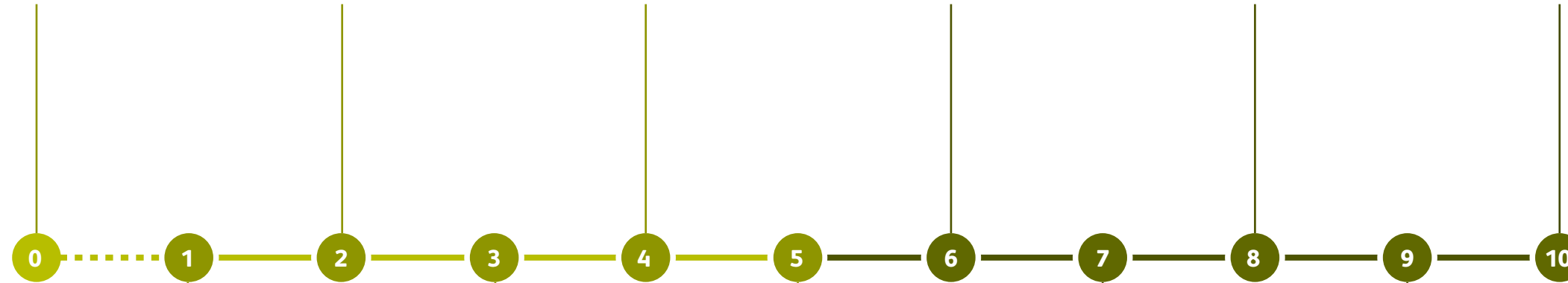
Enter Stream Data
– Define your utilities
– Assign special fluids to calculate automatically key properties
– Import stream data

Define Processes
– Create processes based on distinct groupings of streams
– Prepare individual and total site analysis scenarios

Set Economic Data
– Assign cost parameters (heat exchanger, storage tank, storage media)
– Apply flexible economic functions

Analyze Energy Targets
– Preanalyze the energy targets of the total site
– Reduce process complexity
– Determine targets for thermal energy storages

Integrate Energy Conversion Units (ECU)
– Optimize your utility system
– Properly integrate ECUs into your process
  · Heat pump
  · Combined heat and power
  · Mechanical vapor recompression
  · Thermal vapor recompression
  · Organic Rankine cycle

CONTACT US

For further information, please visit **www.pinch-analysis.ch** and get started with a trial version. Contact: **pinch@hslu.ch**

Contact English and German

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«PinCH is a tool that enables engineering professionals to easily and quickly complete a pinch analysis in a systematic and clearly presented manner.»

Prof Dr Beat Wellig, Head of the PinCH team at
Lucerne University of Applied Sciences and Arts