

EINSTEIN V2.2

Current state (V2.2.beta1) and outlook

Hans Schweiger
(energyXperts.NET)



New features

Consistency and completeness checking



Better tracking of global conflicts

NEW

⇒ Conflicts between data of two or more objects

Sources are highlighted as block parameters, e.g. #USHj[1]

In work   : Colour highlighting in block scheme

Other work in progress (not clear if ready for V2.2):  

⇒ Redirect to appropriate data entry panel by mouse-click

⇒ Distinction between PS and PS (original) in background;

user sees and manipulates only „present state“

no need any more for switching between both views

⇒ Semi-automatic calibration of simulations (present state simulated)

More flexibility in alternative proposals

Process and building optimisation:

⇒ possibility for changing processes with detailed time schedules


⇒ Possibility for changing full set of building parameters
(e.g. heating / cooling period, air flow rates, etc.)

EINSTEIN
thermal energy
industry audit



Heat recovery mode „ActualHXNet_v2“

Possibility of serial connection of HX 

Possibility of waste heat use in pipes and boiler combustion
air 

Compatibility with heat exchanger auto-design 

⇒ Necessary input parameters for mode v2 (UA and Vol.) are
generated

⇒ Average temperatures are shown in HX design panel

Pinch analysis

Now available for present state 

(shifted into menu “energy statistics”)

Graphs shown in energy instead of power 

(possibility for user to select foreseen; not yet working)

List of streams as additional (numeric) output 

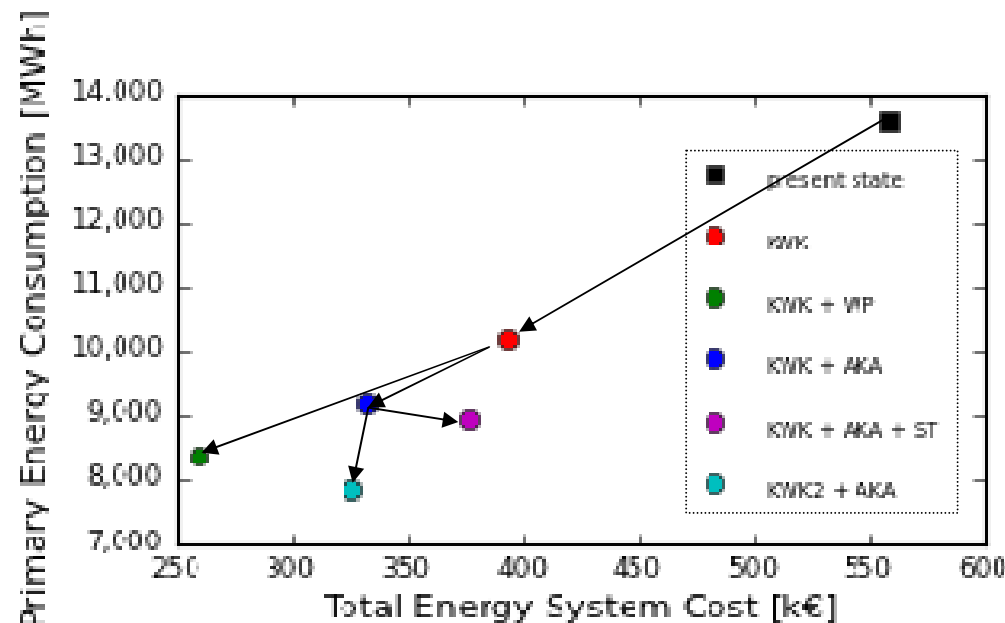
EINSTEIN
thermal energy
industry audit



Alternatives – quick comparison

Quick graphical techno-economical comparison of alternatives in panel “Alternative Proposals” **NEW**

EINSTEIN
thermal energy
industry audit



Technical manual

First “complete” version of technical manual

 NEW

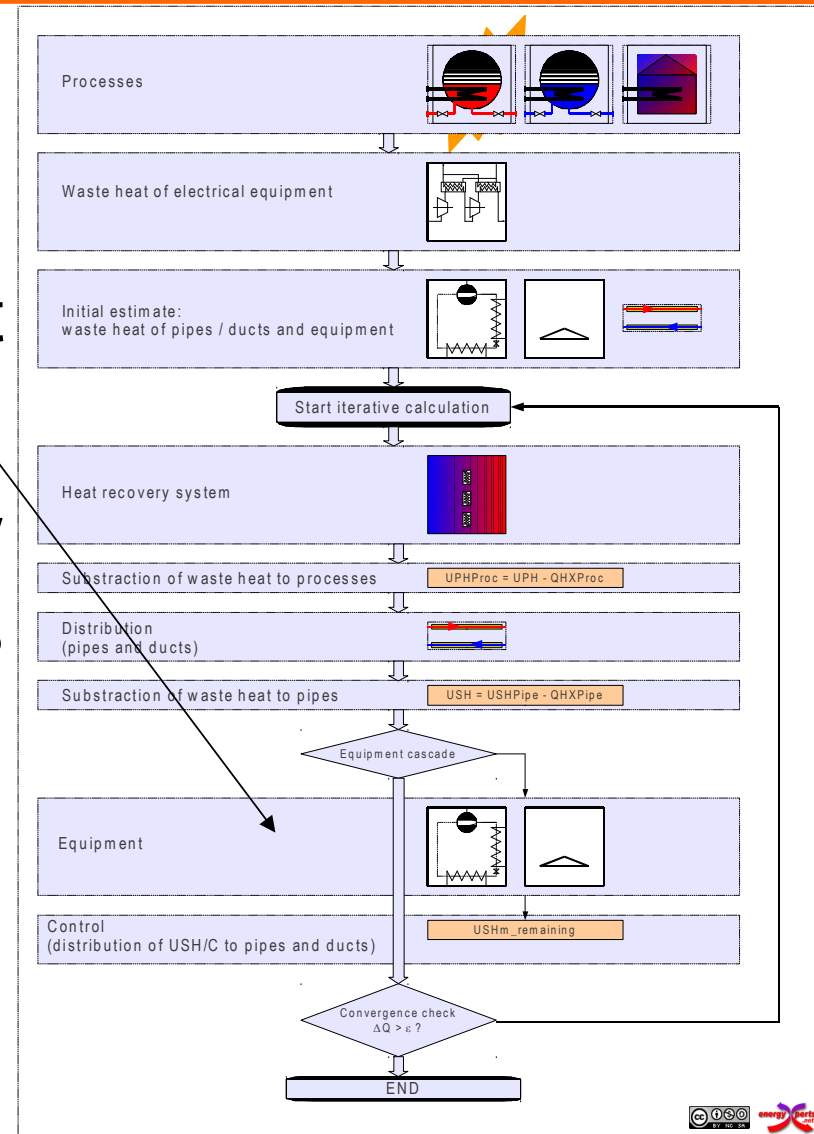
EINSTEIN
thermal energy
industry audit

See einstein.sourceforge.net

Simulation engine

Speed-up of iterative cycles




- Recalculation of equipment only if input has changed
- Improvement of speed by factor 2 – 4 in systems where iterative calculation is necessary



Improvement of existing features

Data entry equipment via questionnaire



CHILLERS & HEAT PUMPS

- Clear separation of nominal and real EER 
- Clear separation of nominal and maximum temperatures 
- Visualization / input of exergetic efficiency 

CHP

- Possibility to enter maximum temperature 

SCHEDULES

- Visualization of both total and full-load operating hours 
- Part-load ratio shifted to schedule tab 

Support for british units

Default unit systems available 

- SI-kWh (EINSTEIN standard)
- SI (full SI, energy in GJ instead of MWh)
- Btu: british units

EINSTEIN
thermal energy
industry audit

Outlook

Outlook

Foreseen for V2.2:

- Further improvement of consistency and completeness checking (user friendliness)
- General improvements in handling
- Test cases (manual calculations vs. EINSTEIN results)
- User access to some currently fix parameters
(e.g. storage volume in CHP, fraction of heat recovery in estimate mode, etc.)
- Improved control for equipment
(Stand-by, schedules of operation)

EINSTEIN
thermal energy
industry audit



Outlook

Priorities for the future (V3)

- Speed-up of calculations
- “Real-pipe-modeling”
- Review and improvement of algorithms and databases for equipment (CHP, solar thermal, heat pumps, boilers, chillers)