SMART METERING AND INDIVIDUAL HEAT COST ALLOCATION FOR BETTER ENERGY EFFICIENCY

Roberto Colombo, Director of Brunata d.o.o. and Regional manager, Brunata Denmark
1917: The first prototype of heat cost allocator is installed in a building in Copenhagen, Denmark

1930: The Danish engineer Constantin Brun improves the heat cost allocators (evaporation)

1950: Brun merges with the Swiss company Ata: Brunata

1980s: The first electronic allocators are launched

1990s: Brunata launches WebMon: remote reading of meters and continuous monitoring via internet
THE LEGISLATIVE FRAMEWORK

DIRECTIVES

DIRECTIVE 2012/27/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 25 October 2012
on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives
2004/8/EC and 2006/32/EC

THE MAIN GOAL IS: REDUCING GAS IMPORT

(16) Bearing in mind that the Council conclusions of 10 June 2011 on the Energy Efficiency Plan 2011 stressed that buildings represent 40% of the Union’s final energy consumption, and in order to capture the growth and
CASE STUDY 1, ZAGREB

- Building made in the 1960s, with 45 apartments
- Connected to District heating
- Apartments heating made by 220 cast iron radiators

Total cost for heating before the works: HRK 121,494 (avg 2,700/flat)
Works made in the building:

- Flushing pipes with chemicals
- New electronic pumps
- Heat cost allocators
- Thermostatic valves with pre-setting
- Balancing valves on each vertical
RESULTS:

Energy consumption -40% (MWh)

Cost -30,2% (HRK)
CASE STUDY 2, ZAGREB

- 5 buildings
- Each building has 3 entrances, 5 floors and 4 apartments per floor - Total of 300 flats
- Buildings have been built in 1967

The central thermal station is in the middle building
Each building has a thermal substation
Part of the energy is used to warm up the cold water
Each entrance has a separate water meter
Only three buildings decided to go for the individual Heat Cost Allocation. Works made in these 3 buildings:

- Flushing pipes with chemicals
- New electronic pumps
- Heat cost allocators
- Thermostatic valves
**RESULTS:**

First winter -26.2%

Average Energy consumed, compared to the buildings without razdjelnici

Second winter -27%

Average Energy consumed, compared to the buildings without razdjelnici
THE ALLOCATOR MEASURES...

...BUT IT HAS NOTHING TO DO WITH THE HYDRAULICS WORKING BADLY
CLEANING BEFORE INSTALLING

If pipes have not been washed with chemicals, the mud and the debris will flow into the valves, blocking them soon.
BEFORE INSTALLATION

Set of rules / technical recommendations / best practice:
Project and calculation before installation.

Mandatory operations:
• Washing pipes with chemicals
• Balancing the hydraulic system
WITHOUT BALANCING VALVES
BALANCING DONE?

NO

YES

warm

cold
THE INSTALLATION

66±75% h
THE SAVINGS WITH CONSUMPTION-BASED ALLOCATION OF COSTS

• IN ORDER TO SHOW THE ENERGY SAVINGS THAT ARE POSSIBLE THANKS TO THE INDIVIDUAL COST ALLOCATION, 24 INTERNATIONAL STUDIES HAVE BEEN PERFORMED IN OVER 14 COUNTRIES:
  • GERMANY, DENMARK, FINLAND, SWEDEN, NORWAY, AUSTRIA, UK, FRANCE, ITALY, POLAND, JAPAN, SWITZERLAND, RUSSIA, THE NETHERLANDS.
  • THE RESULT WAS UNANIMOUS: ON AVERAGE, THERE ARE SAVINGS OF 20% OF THE ENERGY THANKS TO THE AWARENESS OF THE INDIVIDUAL CONSUMPTION (with peak of 40% in some of the studies).

http://www.evve.com/98-1-news.html
Thank you - Hvala