EMS ΕΠΙΧΕΙΡΗΜΑΤΟΛΟΓΙΟ

EnergyManagement – Energy Balance

Example: Comparison of energy consumption

	1. Example		2. Example	
Energy Source	Gas Boiler 20kW	EMS 10kW	Air-Water HP 10kW	EMS 10kW
Energy Demand	20.000kWh/a	14.000 kWh/a	20.000kWh/a	14.000 kWh/a
Operational Time	1.000 hrs/a	1.400 hrs/a	2.000 hrs/a	1400 hrs/a
Number of Starts	20.000 starts/a	1.400 starts/a	3.000 starts/a	1.400 starts/a
Overal Annual Efficiency	JAZ = 0,8	JAZ = 5,5	JAZ = 2,7	JAZ = 5,5
Energy Consumed [kWh]	25.000 kWh/a	2.545 kWh/a	7.400 kWh/a	2.545 kWh/a
Energy Consumed [%]	100%	10,2%	100%	34,4%

In both examples the EMS offers significant reduction of the heating costs. In addition, the reduced starts of the heat pump together with the use of quality components ensure a multiple product life as compare to presented alternatives.

EMS Argumentation

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Notes to the Table:

Energy Source	type of heat generator; the EnergyManagementSystem with IS-SW 10 heat pump (10kW water-water heat pump), combined with 8 x IS-PRO2000 Tinox solar panels (ca. 16qm absorber area) is compared with:	
1.Example	a gas boiler with 20kW power	
2.Example	air-water heat pump, with 10kW power	
Energy (Heat) Demand	space heating:	16.500kWh
	hot water:	3.500kWh
	total:	20.000kWh
	in case of the EMS, 30% of the total energy demand is covered directly* via the solar panels * indirectly, the solar system ensures optimal entry temperature for the heat pump (16-18°C) and so a high COP and JAZ	
Operational Time	it is the theoretical time the heat generator has to run at its nominal power to generate the energy demanded; as the actual heat output, and the efficiency, vary, the actual operational time is difficult to predict	
Number of Starts	it is an important indicator influencing the product life; in case of EMS: optimal interaction of the components significantly reduces the number of starts of the heat pump and so ensure multiple life-span compare to conventional heat pump system	
Overal Annual Efficiency	it is the effective efficiency of a real system over a time period; the ratio of: energy delivered / energy consumed	
Energy Consumed	the energy actually consumed (needed) by the system to cover the heat demand; the ratio of: Energy Demand / Overal Annual Efficiency; the heat losses are not considered	