Energy efficiency increase of a hospital´s electrical installation, installation bus systems versus conventional installations

[Authors: Jörg Pogatscher, Stefan Kolm]

Abstract

The new “Energy Efficiency Law” (“Energieeffizienzgesetz des Bundes”) of the Republic of Austria requires a final energy consumption of less than 1,050 petajoule in the year 2020. To achieve this target, energy efficiency needs to be increased by 20%. Therefore, part of the electrical installation in a hospital was checked for potential energy savings due to differences in energy efficiency of different installation systems. Two different installation system types were compared, installation bus systems and conventional installations. Several different installation bus systems have been measured and evaluated. The example of the switch-off of lights showed that compared to the conventional system the installation bus system offers a saving in energy of about 6.680kWh/a (with LED lamps only about 2591kWh/a). Hence, installation bus systems are a good option for saving energy.

Furthermore, scenarios were formulated based on daily routines in a hospital that show the effects of savings in energy costs on the duration of amortization of the installation of a new installation bus system. The same example as before, the switch-off of lights, showed a duration of amortization of 0,8 years.

The example also shows that the needed increase in energy efficiency of 20% could be fulfilled with the use of installation bus systems.

This study shows that installation bus systems are a reasonable option for hospitals in terms of energy efficiency and economical aspects.