ENERGY SAVING BY EFFICIENT TRANSFORMERS IN DISTRIBUTION NETWORKS

BY

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Abstract. This paper addresses the problem of optimization of the decisions for the renewals/reinforcements on distribution systems. The transformers installed in electricity supply systems are extremely efficient when compared with other machines, but the distribution transformers are less efficient. Losses are relatively higher when transformers are lightly or heavily loaded. The replacement of the old distribution transformers by efficient transformers represents an important focus for energy efficiency initiatives within EU. This means that there is considerable potential for energy saving with efficient transformers.

Key Words: Energy Saving; Efficient Transformers; Power Losses; Load Modeling; Fuzzy Techniques.

ABOUT THE ACTIVE POWERS FLOW IN NETWORKS WORKING IN NON-SINUSOIDAL AND NON-SYMMETRICAL STATES

BY

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Abstract. A three-phase distribution network has a relative complex structure, supplying a variable number of consumers, single-phase or three-phase. The consumers are diverse, from the same network being supplied hotels, restaurants, comercial areas, blocks of flats, lighting, a.s.o. Beside other causes, this fact makes the working state to be non-symmetrical because the impedances on the three phases can't be equal all the time.

Because some consumers have non-linear elements of circuit, in the spectrum of the voltages and currents, aside from the fundamental, there are harmonics. Because of this, the operating state, from a strict point of view, is non-sinusoidal. In many cases, if proper actions were taken to decrease the amount of harmonics, the working state can be considered as being close to the sinusoidal one.

In this paper is studied the active powers flow and the power factors at different types of receivers for a distribution network that operates in a non-sinusoidal and non-symmetrical state.

Key Words: Active Powers; Non-Sinusoidal State; Non-Symmetrical State.