Asanbaev Y. A.

Power Flow under Periodical Nonsinusoidal Conditions.

This paper presents method of constant vectors for analysis of power flow in periodic nonsinusoidal conditions by means of vectors diagrams. The paper presents new apparent, active, reactive and switch power/energy components definitions. It is shown that apparent power can be exposed as sum of active and passive components. In general case passive components can be exposed as the sum of switch, reactive inductive and reactive capacitive components. It is established that there are interrelations between active and passive current and voltage components in the nods, contours and the whole circuit. It is shown that for apparent, active and passive power/ energy there are proper balances in the nods, contours and the whole net. An example illustrates general conceptions.

Key-words: instantaneous energy and power, nonsinusoidal, current and voltage components, power and energy components definitions, switch, reactive inductive, reactive capacitive components, active and passive power/energy components balances.

Asanbayev Yuri Alexeyevich, Dr. Sc., Docent, Chief Researcher of the Department Automated Control Systems of the Scientific and Technical Center of Unified Power System (STC UPS).

E-mail: assanbaev@rambler.ru