

ANALYSIS OF DIFFERENTIAL RELAY SETTING (8702GT) IN GENERATOR TRANSFORMER UNIT 7 PT. INDONESIA POWER UP SURALAYA

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ABSTRACT

Steam Power Plant in PT Indonesia Power Unit Pembangkitan Sularaya with a total power of 3400 MW. Sularaya Steam Power Plant plays important role in electricity distribution for Java – Bali. Therefore, the power plant ought to work maximally and reliably in the distribution of electrical supply for the consumers. Furthermore, to improve the reliability of power plant, a safety tool or protection system to prevent interferences in the systems is required. In power plant the main equipment is Generator Transformer that raises the voltage of a low potential difference to a high potential difference before it is sent to a network. Generator Transformer in Sularaya Steam Power Plant has 7 units, one of them is the unit 7 Generator Transformer from mitsubishi 767 MVA, 23 kV / 500 kV. One of Generator Transformer relay, which uses differential relay as the main safety tool, that works without coordination of other relays, Differential relay needs to fulfill few requirements as a safety tool, such as: Firstly, the CTs have to have equal comparison ratio so that $I_p = I_s$ along with its connection and polarity being identical between CT1 and CT2. Secondly, the installation of Auxiliary CT has to be connected to Y for the reason of its function that has to compare currents from both sides without any phase difference. Lastly, the characteristic of saturation of CT1 and CT2 have to be identical. In that sense, it is necessary to conduct a differential relay setting by calculating CT ratio selection. ACT calculation, differential relay setting and error mismatch. Error mismatch in current transformer is still under the maximum line which is 5% compared to the calculation result which is 0, 49%. And 23, 3% in differential relay setting and it is to be assumed to be 30% under the provision of PLN.

Keywords: Protection, CT, setting, differential relay, short circuit.