[Keynote Talk]: Analysis of Intelligent Based Fault Tolerant Capability System for Solar Photovoltaic Energy Conversion

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Abstract : Due to the fossil fuel exhaustion and environmental pollution, renewable energy sources especially solar photovoltaic system plays a predominant role in providing energy to the consumers. It has been estimated that by 2050 the renewable energy sources will satisfy 50% of the total energy requirement of the world. In this context, the faults in the conversion process require a special attention which is considered as a major problem. A fault which remains even for a few seconds will cause undesirable effects to the system. The presentation comprises of the analysis, causes, effects and mitigation methods of various faults occurring in the entire solar photovoltaic energy conversion process. In order to overcome the faults in the system, an intelligent based artificial neural networks and fuzzy logic are proposed which can significantly mitigate the faults. Hence the presentation intends to find the problem in renewable energy and provides the possible solution to overcome it with simulation and experimental results. The work performed in a 3kWp solar photovoltaic plant whose results cites the improvement in reliability, availability, power quality and fault tolerant ability.

Keywords : solar photovoltaic, power electronics, power quality, PWM
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