

A CONSIDERATION ON PHOTOVOLTAIC POWER GENERATION SYSTEMS

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Abstract

In our laboratory, the control aspects are investigated in the photovoltaic power generation systems (PV systems).

The PV system is very good for earth environment, but if it connects to power network system, many problems are raised (protection, voltage, harmonics etc.).

In this paper, we present the result of the basic studies for the building of the PV system that amplifies the electric energy obtained from the solar cell.

We consider electronic circuits in order to protect the PV system from power surge induced by lightning and also design an electronic circuit in order to detect defaults in the power network system.

We would like to integrate these circuits into the PV system by considering its control equipment build by 8-bit microcomputer using various control theory (fuzzy, neural network etc.).

1. Introduction

In the 20th century, our industry and living standard were developed remarkably based on fossil fuel such as petroleum and coal. However, there is not much fossil oil.

When dusts burn they have caused various pollution problems. The avoidance from fossil fuel is future theme because electric power is more consumed in recent years[1].

PV system is thought as one of the way of power generation that is clean and gentle for global environment, but it is actual states that PV system ought not to spread, in spite of some countries' government carry out policy for spreading the PV systems.

Therefore, in Japan, it is in the present situation that the spread percentage in the home of the PV system is stagnating[2].

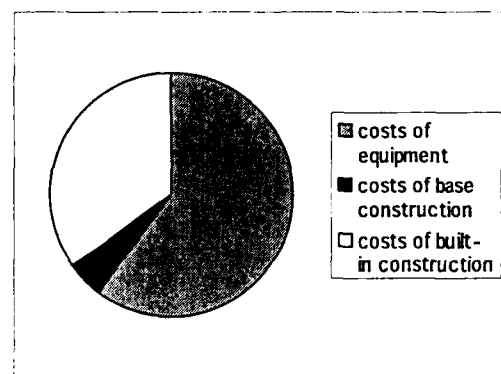


Fig.1 Costs of Installing PV System in Japan[3]