WATER PUMPING SYSTEM POWERED BY

PV MODULE

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ABSTRACT

This thesis presents the design the water pumping system powered by photovoltaics (PV) solar. The purpose of this study is to design, sizing the batteries and the PV modules to power up the submersible pump for three hours operating per day for 2 days autonomy. This project required some calculation from SANDIA National Laboratories. Basically, the system based on the standalone system configuration. The project consists of 4 main parts. The parts are the PV module, DC pump set, charge controller, and the battery storage. This project also have the mechanical parts which is the tanks and the host pipe. This project also involved the study about the characteristic of charging battery and solar irradiance. The DC load also already administered without the backup supply and take able the solar irradiance level that can make the pump run.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

A global awareness of the environmental challenges facing society has driven institutions to call for the use of renewable energy on a massive scale. Photovoltaics system is very popular in the renewable energy. The PV power system is a non-polluting alternative source compared to the conventional power system. It can be considered as an environmentally friendly system which produces electricity without having any harmful effect to the environment apart from being very clean and quiet system [1].

Photovoltaic (PV) is an important energy for many reasons. As a solar energy technology, it has numerous environmental benefits. As a domestic source of electricity, all houses can use this energy to generate the power. Much of the world's required energy can be supplied directly by solar power. More still can be provided indirectly. The practicality of doing so will be examined, as well as the benefits and drawbacks.

Some advantages of photovoltaic system are photovoltaic technology makes use of the abundant energy in the sun. It has little impact on our environment. Photovoltaic can be used in a wide range of products, from small consumer items to large commercial solar electric systems and very low maintenance. Photovoltaic system also has disadvantages like PV works during daytime with sunlight and high cost for installment [2].