Improved Design of Solar Thermal Power Generation Unit

Submitted by:

Zunair Asghar-12017019171
Awais Sabir-111619232
Waqar Ali-12017019008
Zain Khalid-12017019027

Supervised by: Prof. Ahmed Malik

Department of Electrical Engineering
School of Engineering
University of Management and Technology Lahore
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_____ _____

Project Advisor Co-Advisor

_____
Director
Undergraduate Studies

Department of Electrical Engineering

School of Engineering

University of Management and Technology Lahore

Declaration

I declare that the work contained in this thesis is my own, except where explicitly stated otherwise. In addition this work has not been submitted to obtain another degree or professional qualification.

Signed: _____
Date: _____

Acknowledgment

Thank Allah for giving us the courage. Special thanks to our Project Advisor Sir Ahmed Malik and Co-Advisor Sir Mustafa Shahid for helping us whenever help was needed.

Dedicated to the teacher of the universe Prophet Muhammad Peace
And Blessings Be Upon Him.
Our Parents
And Our Teachers

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Abbreviations

CSP (Concentrated Solar Power)
PTC (Parabolic Trough Technology)
PV (Photovoltaic)
LFR (Linear Fresnel Reflector)
NSO (Nevada Solar One)
SEGS (Solar Energy Generating System)
HTF (Heat Transfer Fluid)
OT (Once Trough)

ABSTRACT

In the modern era, most improved and cheap technology for renewable electrical energy resource is Concentrating Solar power (CSP).In our project we are producing thermal energy, through solar energy using Parabolic Trough Technology (PTC). We are even using tracking system to get maximum sun intensity during day. The energy that is produced is stored in storage tank for further use. The knowledge applied on this system is based upon the course we studied. Our work will ultimately be demonstrated to validate the project design. Obstacles and possible improvements will also be presented.

CHAPTER 1: INTRODUCTION

1.1 LACK OF FOSSIL FUELS

There is concern of population increase, the human community growth is increasing continuously and the required energy is increasing in the opinion of people's utilization. Oil, coal is very old and humans have been using fossil fuels since ancient time. North Sea oil fields are approximately 150 million years old, while most coal of Britain began to form there more than three hundred million years ago. It is clear that fossil fuel reserves are limited; it is only a question of time when they run out. Worldwide each year we presently use up the identical of over 11bn tons of oil in fossil fuels. Crude oil reserves are disappearing at the rate of 4 billion tons per year - if we continue at this rate, without any increase in our population our known deposits of oil will disappear in 2052. And also the coal that is reserved will only give us energy till 2088.