

MIDDLE EAST TECHNICAL UNIVERSITY

ELECTRICAL & ELECTRONICS ENGINEERING

EE463 – STATIC POWER CONVERSION 1

TERM PROJECT – COMPLETE SIMULATION REPORT

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25.12.2020

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# INTRODUCTION

Renewable energy is defined as useful energy collected from renewable resources. Wind is one of the renewable resources. It is used to provide a mechanical power to the wind turbines to generate electricity. The wind power is widely used sustainable energy. However, there are some problems on using the electricity produced in the wind turbines. These turbines, generally, behaves as an electric generator with a continuously varying output voltage and output current. In this project, Kardesler Elektronik A.Ş. introduces AC to DC Converter project which regulate the output current. In the first part of this report, the topology of the converter will be discussed. The advantages and disadvantages of different topologies will be compared. Moreover, the reason for the topology selection will be given. In the second part, the circuit schematic and its simulation results with ideal cases will be provided. Moreover, the component selection and cost analysis will be provided in the second part. To conclude, our engineering skills on circuit design, simulations and our project management skills will improve. Additionally, this project will give us an opportunity to implement the theoretical knowledge of us on EE463 lecture.

# TOPOLOGY

# CIRCUIT ANALYSYS

# COMPONENT SELECTION

# CONCLUSION