

## **ABSTRACT**

Over the years, as the demands have subsequently increased in Kingdom of Saudi Arabia, resulting in a large consumption of energy, also the consequent depletion of resources for the production of this amount of energy with its increasing demand has resulted in a vacuum of worries around the globe. The current usage of the non-renewable energy like oil and gas has also led to a great deal of pollution. The solution currently in the best minds is to utilize an alternative which is abundant and renewable. Sunlight energy fulfills both these criteria. Also, the harmful emissions which are secreted to the environment these days in the production of energy or electricity will not be done. This could be done by utilizing solar energy. Solar rays are free of cost and are easily accessible at any time of the day and for an unlimited period i.e. it will be available even centuries from now.

Saudi Arabia is currently fulfilling its energy sector demands by oil and gas. This reserve of fuel is not an issue presently but will eventually run out in time leaving us unprepared. Therefore we also need to set the basis for a source that will be easily available and advantageous for the future generation and also not to mention meet the demands that would have grown manifolds years from now. Saudi Arabia being a desert has been prone to more sunlight than rest of the world which is definitely a booster for taking an initiative. Solar cells (Photovoltaic cells) have already used in the conversion of electricity by setting up panels. These PV panels in integration can used to set up plants that will help in producing electricity and concurrently meet the heightened demands easily. PV power plants has been built the world over, and successfully proven as one of the important substitutes of alternative energy. Keeping all these prior mentioned facts in mind, nowadays, there has been some series of movements in Saudi Arabia to find out solutions. This research aims to study the feasibility of design and construction of solar power plant using photovoltaic cells in Saudi Arabia from the geographic, economic and technical perspective.