## Department of Electrical and Computer Engineering

# North South University

# Senior Project Design

# EEE 499

**"A Study on Renewable Energy with Parabolic Trough Solar Energy Basis in Bangladesh Perspective- a Review and Discussion."**


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# Declaration

This is to declare that no part of this report or the project has been previously submitted elsewhere for the fulfillment of any other degree or program. Proper acknowledgement has been provided for any material that has been taken from previously published sources in the bibliography section of this report.

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# Approval

The Senior Design Project entitle "A Study on Renewable Energy with Parabolic Trough Solar Energy Basis in Bangladesh Perspective- a Review and Discussion" by Md Fazle Rabby has been accepted as satisfactory and approved for partial fulfillment of the requirement of BS in EEE degree program.

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## Abstract:

Generally, solar irradiation concentrates on the downcast part of the receiver tube in the Parabolic Trough Collectors. But nowadays we can see that the above method causes high temperature, thermal stress, tube deformation and energy wastage and so on. To fix the method properly and to apply it in our country in various purposes, the absorber or receiver tube should be rotated with the appointed frequency to ensure the energy taking process from the sun and then it will reduce the surface temperature and it will increase the solar energy absorption. I've studied a lot of research papers and I wanted to make a review paper which will be a self-contained paper in the perspective of Bangladesh and a necessary and informative paper to all. One of the main and new thing that has come out for the benefit of research is that nanofluids play an important role to increase the efficiency and the speed to collect the energy from the solar irradiation. It can carry the heat of the absorber and improve the skills of the system. On the other hand, it is confirmed that here must be needed a reflector shield which is using as the experimented increment skill. Reflector shield is used for the receiver tube as secondary reflector and it has been reflecting inner surface. Main purpose of the reflectors are to achieve the higher expansion of the energy in the collector. The final result of the experiment shows that these two techniques improve the heat transfer coefficient and the thermal efficiency of the thermal collector. More exactly, the practice of nanofluids and reflector shields cum absorber tube increase the collector efficiency by more than 10% while the geometry progress increases the efficiency by 13%. Moreover, my study has shown how efficient Bangladesh is geographically and finally I gave an example of a PV plant. I emphasize the description here, so that it is self-contained in a very neat form and in different categories, so that we can selectively apply them conveniently and hope that this research will be useful as a source of information.