**MHEP**

**Team Electrical Engineering**

BRIEF SUMMARY

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ACHIEVEMENTS

Identified the loads to which we will supply our 100kw hydroelectric power to, in this case, streetlights for the university.

Identified the type of lighting fittings that we will use which is LED as they are more durable, depreciate at much slower rates as compared to other alternatives.

Do not produce harmful chemicals like mercury that could pollute the air for students and the environment alike.

They do not produce a lot of heat.

Consume little energy.

Have improved color rendering as compared to sodium lamps.

Easy maintenance.

We have also identified other types of equipment such as step down transformers, control panels/switch boards that could be used though we haven’t discussed much as a group as of yet.

CHALLENGES

1. Mapping out distances.

This has proven to be a great issue especially when it comes to finding out what the size and price of cables should be.

It’s also difficult to give a visualization of how our electric system plan should be like, where we should place our step down transformers and therefore, our transmission lines. Which brings us to the possibility of using the streetlights and cabling system that already exists, bringing me to my second challenge.

1. An electrical works plan of the whole university.

This will inform us whether we can use the transformers and cabling system that is there currently. It was a suggestion made in order to give us more choices on cost as it will be a way to reduce the cost of having to buy new equipment to some extent.

We therefore need the university to produce this plan or blueprint containing information on how the current electrical plan of the university looks like.

NOTE; In principal, we could take over the institution’s step down transformers if their distribution doesn’t touch on areas in which we haven’t planned on supplying to. That is, if a transformer distributes to both hostels, faculty offices and streetlights, then we cannot hijack that transformer. However, if the power distribution of that transformer mainly concentrates on the existing streetlights, then we can take it from the owners. Bringing me to my next issue.

1. Permission from the university and other involved parties, say the KPLC. For us to get access to the plan, transformers, streetlights, we will need permission from the university to be able to access them. In the event where we find out that the KPLC owns streetlights, as they do in many parts of the country and in many institutions, we have to get their permission as well.
2. Survey. In the event where we get this electrical works plan, and even when we can’t access it, we will still have to send a number of people to the university to get information and data, mainly concerning distance. Say, the distance from the step up transformer at the transmission point, all the way to the first step down transformer at the distribution point. We should be able to account for the size of the transmission cables and for any losses.
3. The Budget.

To be able to make a final bill of quantities for materials, we feel the need to have full knowledge about the budget.