Final Year Project Proposal Presentation

Bsc .Electical Engineering

John Paul Ssendagire and Calvin Kakeeto

Makerere University

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Project Title

INVESTIGATION OF THE VARIOUS TECHNICAL OPTIONS TO MEET SUPPLY-DEMAND BALANCE ON A POWER SYSTEM

(Case Study: Kisiizi Hospital Power Limited)

Project Background

- Kisiizi Hospital is a Church of Uganda private not-for-profit health care provider rurally situated in the mountains of North Kigezi in Rukungiri district in the South West of Uganda.

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- During the early 1900s, a rural Ugandan flax mill harnessed a nearby waterfall on the Rushoma river to power its generator. In the 1950's the mill was converted into the Kisiizi hospital.

Project Background Cont'd

- By 2009, with financial support from the world bank funded Energy for Rural Transformation (ERT) Phase 1 program, the Rural Electrification Agency (REA) had supported the establishment of a 300kW hydro power generation plant to supply a 7km 11kV mini-grid to serve Kisiizi Hospital and the neighboring villages.

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- The mini-grid is supplied by two hydroelectric turbines (Ossberger 300kVA and Gilkes 60kVA) and one standby diesel generator set (80kVA).

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- The mini-grid is supplied by two hydroelectric turbines (Ossberger 300kVA and Gilkes 60kVA) and one standby diesel generator set (80kVA).
- However, the two hydroelectric turbines cannot operate simultaneously.

Problem Statement

Presently, the maximum demand is estimated at 280kW up from 220kW in 2013. Due to drastic increase in demand, it is envisaged that KHPL may resort to load curtailing (i.e. shedding/rationing) to mitigate the supply-demand balance issues.

Justification

Kisiizi just like any other rural community has a genuine and justifiable need for electricity. It requires electricity for;

- pumping water
- engagement in income generating activities
- practice of modernized health care
- Increment in leisure and work hours.

There is therefore a need to find the most feasible solution to address the supply-demand imbalance.

Project Objectives

General Objective

- The purpose of this project is to undertake a detailed study of the present load profile and determine the most feasible solution to provide a long-term solution to improve on the supply-demand balance in Kisiizi.

Specific Objectives

- To study the current power system setup of the mini-grid in Kisiizi.
- To study and understand the current/ present load profile.
- To determine the most suitable of the options put forth by REA in a bid to achieve supply - demand balance in Kisiizi

Specific Objectives Cont'd

These options include;

- Inter-connection to the national grid via a 33/11kVsubstation.
- Development of a new potential site in the vicinity.
- Demand- side management such as inclusion of a time-of-use tariff and use of LEDs.
- Investigation of use of solar PV generation.

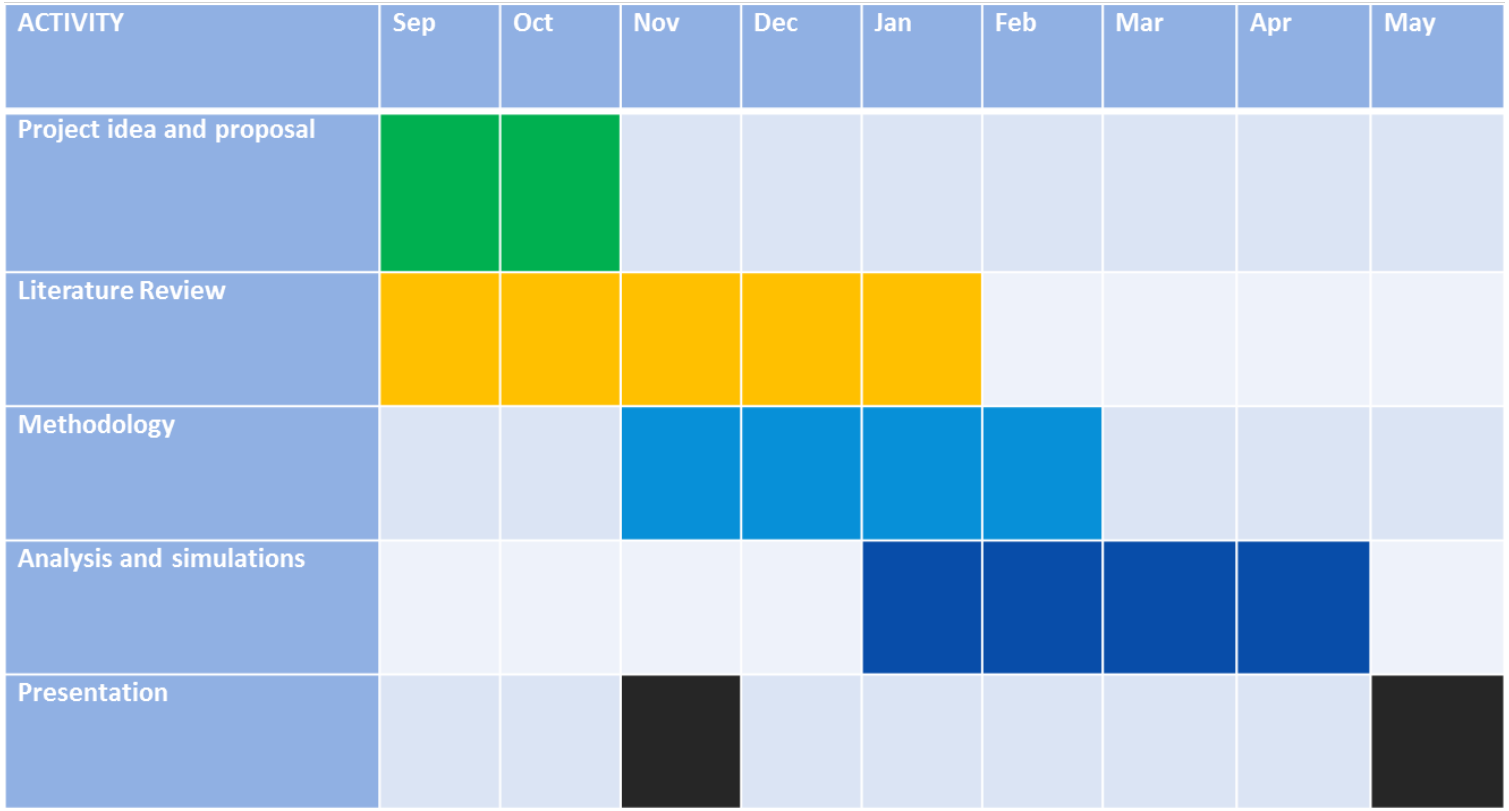
Methodology

- Interviews- Throughout the research, interviews of both formal and informal key informants shall be conducted to acquire the necessary information.
- Site visits and Appraisal- These shall be done so as to acquire first hand information about Kisiizi mini grid.
- General Observation- Even though observation alone is not a very reliable method of acquiring information, it shall be used in conjunction with other methods to make sense of the acquired information.
- Documentation and project report- Information and analysis obtained from the research shall be compiled into a report.

Expected Results

At the end of the project, we expect to suggest with evidence ,the most feasible option to provide a long term solution to address the issue of supply – demand balance in Kisiizi.

Timeline


ACTIVITY
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Project idea and proposal
Literature Review
Methodology
Analysis and simulations
Presentation

END

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Thank You