A PSU - POWER & TELECOM TECHNOLOGIES CO. COLLABORATIVE CONSULTANCY PROJECT

on

INVESTIGATIONS ON MINIMIZING ELECTRICITY COST AND FEASIBILITY STUDY OF SELF-SUSTAINABLE CAMPUS

1. Aim:

The main objective of the project is to study PSU Lighting electricity network to provide Strategic solutions as per the sustainable development goals (**SDG 7, 9, 11, 12, 13, 17**)

* Benchmarking the energy usage with Solar based LED Lighting

* Clear plan for executing energy saving measures by identifying the energy Intensive electrical utilities inside the campus

* Financial benefit (reduction in the billing cost), investment and payback period

2. Team Members:

Members from PSU:

Dr Umashankar Subramaniam, Renewable Energy Lab, College of Engineering

Dr Dhafer Almakhles, Renewable Energy Lab, College of Engineering

Members from Industry:

Mr. Waleed Alboayz, Vice President, Power & Telecom Technologies Co., KFB Holding Group, Riyadh, Kingdom of Saudi Arabia

Mr. Nidal Barghouti, General Manager, Power & Telecom Technologies Co., KFB Holding Group, Riyadh, Kingdom of Saudi Arabia

Mr. Jafar Ali Tlaip, Product Manager, Power & Telecom Technologies Co., KFB Holding Group, Riyadh, Kingdom of Saudi Arabia

Mr. Dileep V Raj, Pre Sales Engineer – Solar, Power & Telecom Technologies Co., KFB Holding Group, Riyadh, Kingdom of Saudi Arabia

3. Brief Summary:

This project requires extensive investigations of energy consumption survey and data collection of existing lighting and one LED Lighting in PSU campus. By analysing the collected data the team will make strategic suggestions to reduce the net energy consumption and return of investments. Additionally, this project would be an add on to the Vision 2030 concept and would be more like a stepping stone towards making self- sustainable PSU campus as per UN **SDG 17** Goals. The state of the art maintenance free solar based street lights with inbuilt Lithium Polymer batteries will be installed and scrutinized for performance monitoring. Energy savings per system will be calculated based on the individual light's performance and upon satisfactory performance, all the existing street lights will be replaced with All in One Solar Street Light Applications.

4. Deliverables:

A detailed investigation report consisting of PSU street lighting electrical network **data, analysis** and **specific recommendation for reduction of electricity cost using Solar Lighting. Meeting the localization targets** and **customization techniques** according to the local environment conditions.

5. Schedule:

Duration: **1 year** @ PSU (Sustainable) Campus

6. Support from Industry:

State of the Art **All in One Solar Street Lights** will be provided for evaluation purpose to PSU. Overall electricity savings will be calculated over a period of one month and an efficient energy-economic analysis will be carried out. Total energy & carbon savings will be understood and a major project will be initiated upon finding the energy saving statistics satisfactory.

Expert level of training will be given to the professionals for complete setting up of the system including assembling, remote monitoring and controlling. Further assistance will be provided in meeting the customization techniques and localization targets. This is also to aim in manufacturing top quality Solar based Street Light applications here in Saudi Arabia with the help of strong research expertise from Renewable Energy Lab at PSU.

The different solar based lighting solutions include, but not limited to:

1. All in One Solar Street Light
2. All in One Solar Street Light with Self Cleaning robotic technology
3. Pole Mounted Solar Panels for aesthetic purpose
4. Solar based Garden Lighting

7. Future Extension Work:

* Identifying the electrical inefficient processes in the campus

* Economic analysis for power quality improvement and energy savings (**SDG 12**)

* Providing Solar Related Display sample Items to the Lab based on availability/stock

* In-depth hands on sessions conducted by Industrial experts on latest lighting technologies.

* Implementing stepping stones for the Localization Target within renewable energy based lighting sector in context of the Vision 2030 (**SDG7, 11**).

* Intense research & performance monitoring activities on the implemented lighting applications.

* Introducing custom made techniques for local environment conditions, like robotic panel cleaning etc. as per the **SDG 9, 13**.

* Setting up a remote monitoring and control station at Renewable Energy Lab for the performance analysis of installed lights

In agreement with the above terms of participation, the authorized representatives of the **Telecom Technologies Company, Riyadh** and the **Renewable Energy Lab, college of Engineering, Prince Sultan University**, hereby affix signatures.

8. Signatory Authorities:

Prince Sultan University:

Dr Umashankar Subramaniam
Associate Professor, Department of Communications & Networks, Renewable Energy Lab, College of Engineering
Prince Sultan University
usubramaniam@psu.edu.in
+966 5095 451 02

Power & Telecom Technologies Company:

Mr. Jafar Ali Tlaip
Product Manager,
Power & Telecom Technologies Co.
jafar.tlaip@kfbgroup.com.sa
+966 543 100 127

Dr Dhafer Almakhles

Chairman of Communications & Netwroks Engineering Department,
Leader of Renewable Energy Lab,
College of Engineering, Prince Sultan University.
Email: dalmakhles@psu.edu.sa

Mr. Nidal Barghouti

Appendix I: Sustainable Development Goals 1- 17

شركة تقنيات الطاقة الكهربائية والإتصالات
المبيعات والتسويق
PTT
Power Telecom & Technologies
SALES & MARKETING
POWER TELECOM & TECHNOLOGIES CO.