



Sustainable Development Report 2021-2022 **Climate Action**

Climate Action

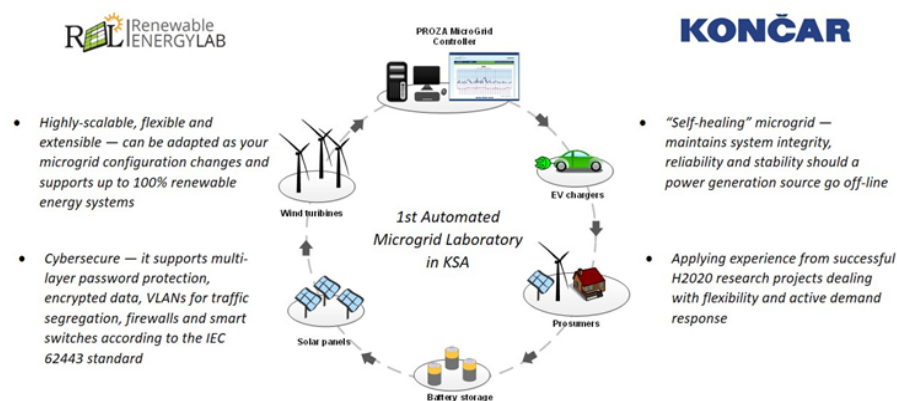
Summary of accomplishments

Prince Sultan University giving much attention on bringing the environment pollution free and contribute towards climate change. As an important stakeholder, PSU contributes towards the achievement of sustainable environment and campus through various events, practices, and research. It regularly organizes events and exhibitions for students and employees to promote the climate change.

The strong commitment can be witnessed from the type of support provided in events related to clean energy, EV and the sustainable practices followed for sustainable PSU campus to promote measures for climate change and research contribution etc. Moreover, the solutions and impacts of climate change is an important topic is endorsed in our curriculum and outreach.

The Prince Sultan University is involved in several industrial collaborations that are leading the way in the search for alternative energy sources. One such example comes from our Renewable Energy Lab, who are in cooperation with Power and Telecom Technologies Co., KFB Holding Group, Riyadh for a collaborative consultancy project on investigations on minimizing electricity cost and feasibility study of self-sustainable campus towards climate change mitigation.

The **Prince Sultan University** is involved in several industrial collaborations that are leading the way in the search for alternative energy sources. One such example comes from our **Renewable Energy Lab**, who are in cooperation with **Koncar Power Plant Electric Traction, Croatia** for a collaborative project on microgrids test bench for EV charging and renewable energy to combat climate change.



- 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.



Research on Climate Action

122 IOP Publishing
Series: Earth and Environmental Science 1026 (2022) 012029 doi:10.1088/1755-1315/1026/1/012029

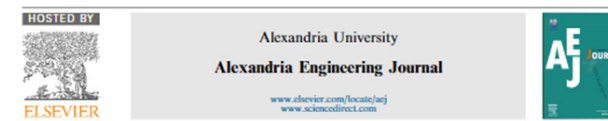
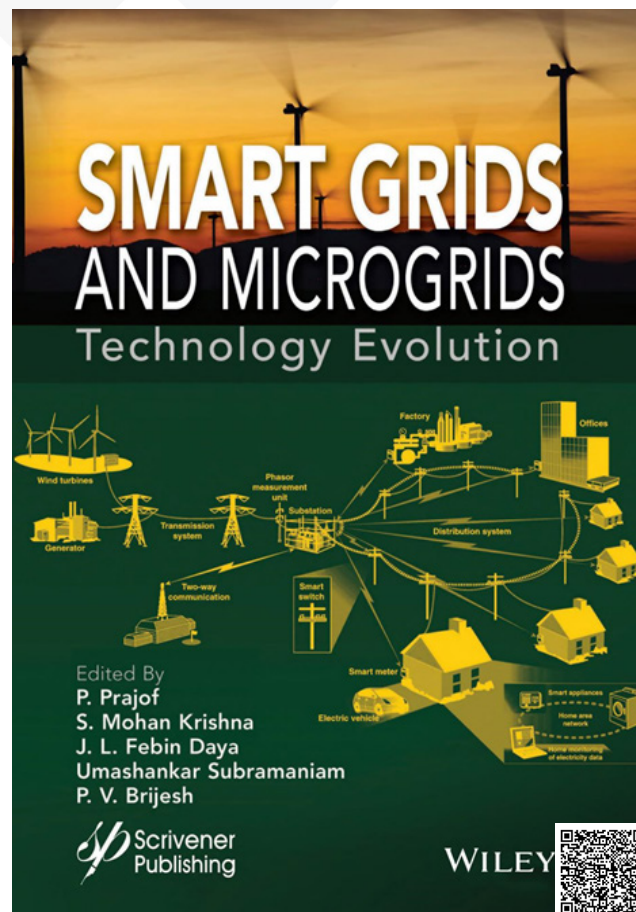
Energy Efficient Outdoor Lighting System Design: Case Study of IT Campus

O.V.Gnana Swathika^{1,*}, K. Karthikeyan², Umashankar Subramaniam¹ K.T.M. Udayanga Hemapala³ and Sagar Mahajan Bhaskar³

¹School of Electrical Engineering, VIT Chennai, India
²Larsen & Toubro Pvt. Ltd. India

³Department of Communications and Networks, Renewable Energy Laboratory, College of Engineering, Prince Sultan University, Riyadh 11586, Saudi Arabia
⁴University of Moratuwa, Sri Lanka
*gnanaswathika.ov@vit.ac.in

Abstract. Outdoor lighting solutions are a key to safe urbanization. It is important that assessment of lighting is done at the design stage keeping in mind the crucial parameters like environment friendly design, light pollution, and energy efficiency. These crucial parameters are met by meticulously using lighting standards at each and every stage of lighting design. This process further naturally inclines in realizing sustainable lighting solutions for the future generations. In this paper, a case study of an Information Technology (IT) campus which requires suitable outdoor lighting system is considered. Outdoor lighting is very essential from the security perspective and also for the people and vehicle movement during night time. Hence it is necessary to design and implement an effective lighting scheme. It is necessary to perform extensive lighting calculations and simulation platform.



Solar PV network installation standards and cost estimation guidelines for smart cities

Sushmita Sarkar^a, M.S. Bhaskar^{b,*}, K. Uma Rao^a, Prema V^c, Dhafer Almakhlles^b, Umashankar Subramaniam^b

^aDepartment of Electrical and Electronics Engineering, RV College of Engineering[®], Bengaluru 560059, India
^bRenewable Energy Lab, Department of Communications and Networks Engineering, College of Engineering, Prince Sultan University, Riyadh 11586, Saudi Arabia
^cDepartment of Electrical and Electronics Engineering, B.M.S. College of Engineering, Bengaluru 560019, India

Received 5 March 2021; revised 30 April 2021; accepted 27 June 2021
Available online 7 July 2021

KEYWORDS

PV standards;
International Electrotechnical Commission (IEC);
Quality certification;
Safety;
Cost

Abstract For smart cities, the successful large-scale implementation of solar PV technology, Quality Certification and Standards are mandatory. The International Electrotechnical Commission (IEC) is a global organization for standardization consisting of all IEC national committees. The IEC PV standards comprise IEC technical committee 82 solar PV Energy System (IEC TC82) which develops and adopts all Photovoltaic related standards. There are nearly 80 standards applicable to photovoltaic and five working groups in IEC TC82. For necessary safety requirements 'Quality and Standards' technologically need to be revised and up to date. This paper presents PV standards developed by various technical committees worldwide, mainly focusing on various IEC PV standards, gaps identified by them and the recommendations provided by the committee. The break-up costs of the various sub-systems of a PV installation with an example from India is also discussed. It is intended to provide a guideline for consumers at the design stage.

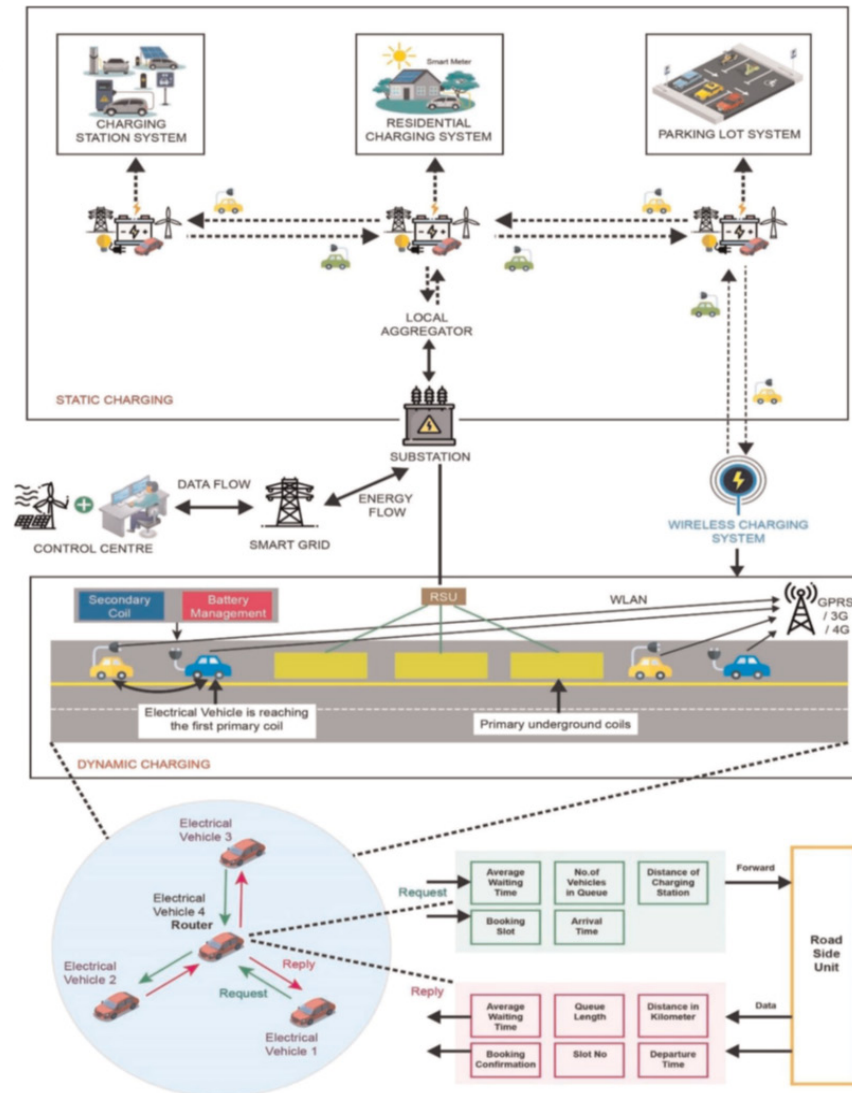


Low-carbon energy use (27%)

The **Prince Sultan University** is involved in several industrial collaborations that are leading the way in the search for alternative energy sources. One such example comes from our **Renewable Energy Lab**, who are in cooperation with **Power and Telecom Technologies Co., KFB Holding Group, Riyadh** for a collaborative consultancy project on investigations on minimizing electricity cost and feasibility study of self-sustainable campus.

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

- 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.



Intelligent optimization for charging scheduling of electric vehicle

Environmental education measures (23%)

Virtual Conference on Energy, Smart Grid and EV:

Renewable Energy Lab (REL), College of Engineering, Prince Sultan University is organized International Virtual Conference on Recent trends on Renewable Energy, Smart Grid, and Electric Vehicle Charging (RESGEVT-20) on 9th July 2020 as a partner Institution in association with Top ranking universities in the world.

VIT University Vellore India is hosting this conference. The Virtual Conference is a platform for researchers, academicians as well as professionals from all over the world to present, discuss and promote the knowledge, research and practice in the field of Smart Grid Control, Renewable Energy Sources, Energy Efficiency, Power Quality and Electric Vehicle Charging to combat climate change.

RESGEVT-20 is offering a fantastic opportunity to attend a global scientific forum from the convenience of your desktop. The conference is online, from paper submission, including reviewing, conference discussion, and post-conference processing.

All papers referred to the double tier approval process, single-blind peer-review and regular check. The online conference is a smart and affordable manner of presenting research results. Selected papers based on the domain and quality published in Scopus Indexed conference proceedings (IOP Conference Series).

Community Event on Wind Energy to the Students, Researchers of Kingdom by REL



IEEE Saudi Arabia Section

Dr. Umashankar Subramaniam
Associate professor

Renewable Energy Integration to Electric Vehicle Charging in Smart Grid: A Smart City Perspective

- Saudi Arabia Renewable Potential
- EV Charging Infrastructure
- Smart Grid Equation
- Renewable Energy and Smart Grid
- Sustainable Development Goals and Saudi Vision 2030

Tuesday 9/2 7:45 PM zoom

PSU's commitment to SDG 2030

PSU is committed to United Nations Sustainable Development Goals (SDGs) through effective institutional resource management, innovative teaching and learning, research, national and international partnerships, continuous studies, and outreach. PSU shall undertake the following activities: form higher and steering committees, evaluate each SDG, formulate and develop related SDG policies, conduct awareness campaigns to the PSU community, establish a sustainability office, identify the SDGs related to each college, program, and course, and lab centers at PSU, and implement sustainability-related initiatives.

Vision

Prince Sultan University strives to support Saudi Arabia's Vision 2030 and the United Nations Sustainable Development Goals (SDGs) by paving the way for higher education in KSA and Middle East.

Mission

Supporting the Saudi Arabia's Vision 2030 and the PSU's strategic directions, PSU aligns its mission with SDGs by providing quality education, sustainability initiatives, life long learning, scientific research, and community service.