Best Practice 1: Smart Campus Cloud Network

1. Title of the Practice: Smart Campus Cloud Network

2. Objectives of the Practice

- To monitor the real-time energy consumption at SIIB.
- To forecast the energy demand and other functionality of the appliances in SIIB
- To try and reduce the energy consumption in SIIB.
- To analyze the DG set running hours and minimizing consumption.

3. The Context

3.1 Background:

Smart Cloud Campus Network (SCCN) is a global network of the education campuses of colleges, institutes, and universities committed to making a tangible contribution to the United Nations Sustainable Development Goals (SDGs), agreed by the countries in September 2015 at UN Sustainable Development Summit in New York to be achieved by 2030.

3.2 Key Point:

- The first campus in India to be a part of Smart Cloud Campus Network (SCCN) by installing Smart Sense meter in collaboration with Terre Policy Center, Pune, and Ecolibrium Energy.
- [As per UGC circular dated 31st August 2016, UGC has instructed universities and their affiliated colleges to implement Smart Campus Cloud Network for effective energy conservation and utilization]

4. The Practice:

- Students and faculties get a complete overview of SCCN vision.
- SIIB understands the importance of the Smart Sense platform in contributing to a sustainable paradigm and promote climate change mitigation.
- There is an SCCN Core Group consisting of selected students from the MBA- Energy & Environment batch and a faculty to represent and co-ordinate all SCCN activities.
- Five subgroups are consisting of remaining students of the batch, comprising of at least one electrical engineer and one mechanical/chemical/power or instrumentation engineer for better understanding and analyzing the technicalities of the process.
- Every subgroup does the analysis and prepare reports of the different parameters assigned to them by the faculty in charge weekly/monthly basis.
- Once every month/fortnight, the SCCN core group conducts a meeting to discuss and share the monitoring process/ indicators/ feedbacks/ suggestions. The group will have to refer the reports generated by Smart Sense data and devise methods to make use of electricity more efficiently.
- Every morning by 0900 hours an email is sent to the entire batch of students, faculty and staff regarding the total energy consumption of the previous day.

- An alert system has been set to take precautionary measures during consumption exceeding the normal range at any given point of time. The faculty in charge, electrician, and the core SCCN team receive the alert via messages and emails.

5. Evidence of Success:

- The Energy meter is located on the SIIB campus. Quarterly, monthly, and daily energy consumption reports are available for reference.
- The energy team circulates the energy consumption of the previous day to all stockholders within the SIIB campus.
- Knowledge and awareness of energy consumption have grown amongst stakeholders of SIIB.
- High energy consumption data analysed through SCCN has enabled us to go for retrofitting of appliances. Example:
  - 42.19% of total lighting system is powered by LED
  - The old AC units in the auditorium and office have been replaced with new 5-star rating AC units.

6. Problems Encountered and Resources Required:

- The authenticity of the data generated from the SCCN meter or the MSEDCL meter needs constant monitoring and analyzing by an experienced team that we could do successfully.
- There is no provision to calibrate the meters other than analyzing the output.
- Multiple sensors need to be installed to understand the distribution of the total consumption more accurately, and then we can act accordingly towards minimizing consumption.

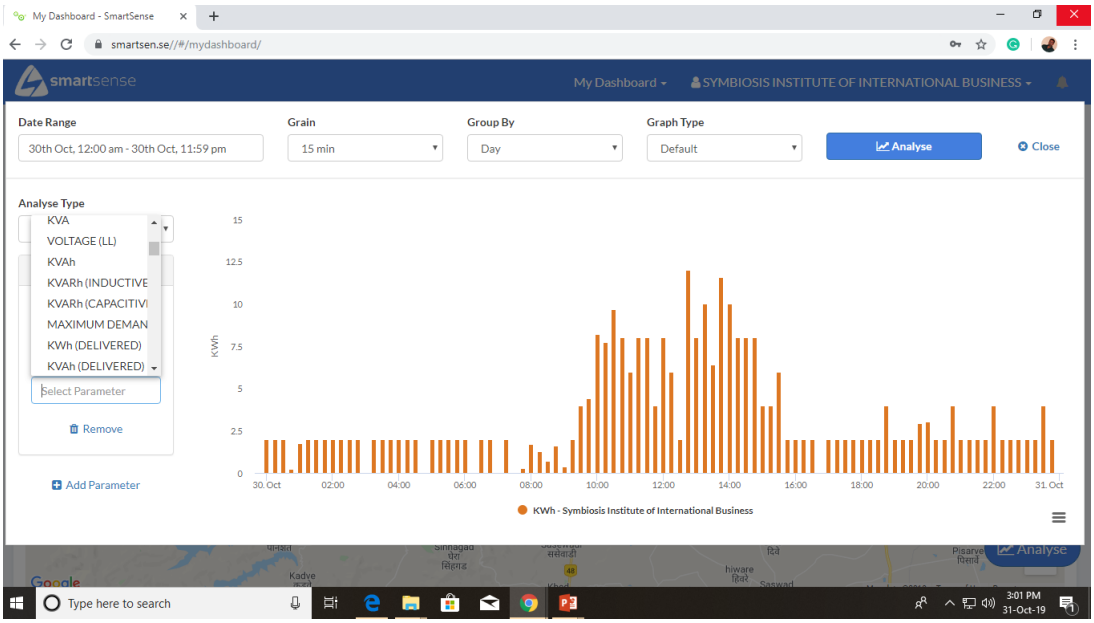
7. Note:

7.1 Future Plans:

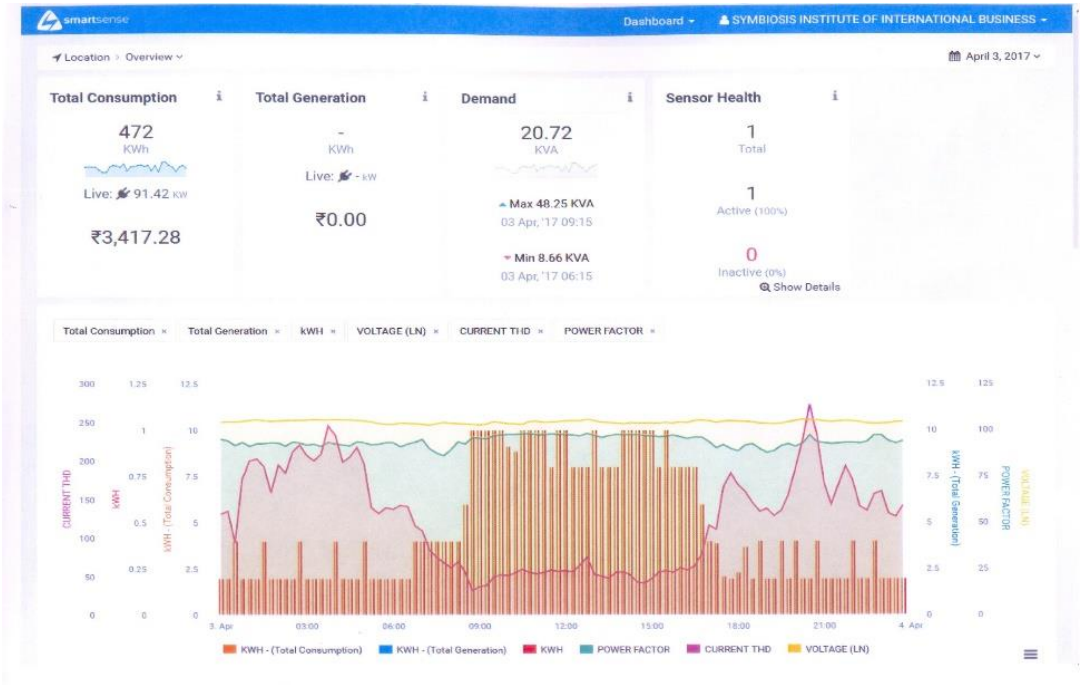
- To provide for more in-depth analysis of individual appliances related energy consumption.
- To install more SMART SENSE meters/sensors on SIIB campus.
- To benchmark the data available to cross verify SIIB's energy consumption pattern.
- To forecast the health status and performance of the appliances available in the campus.
- To integrate the 87 kW solar rooftop consumption data at SIIB with SCCN.
- To install SCCN as a sustainability initiative across all campuses of SIU and to bring them in one common forum, creating a holistic mindset for energy-saving, consumption and conservation, which in turn will lead to a better and sustainable campus.

Smartsense energy meter installed at SIIB

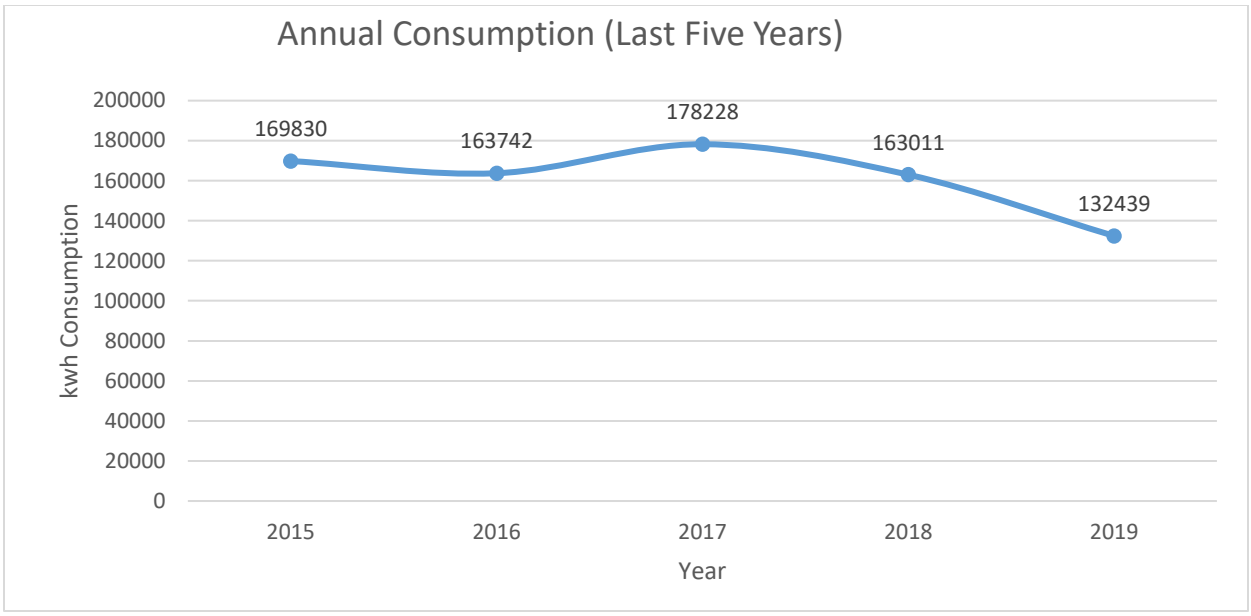
Smartsense energy meter integrated with main Incomer for meauirng energy consumption



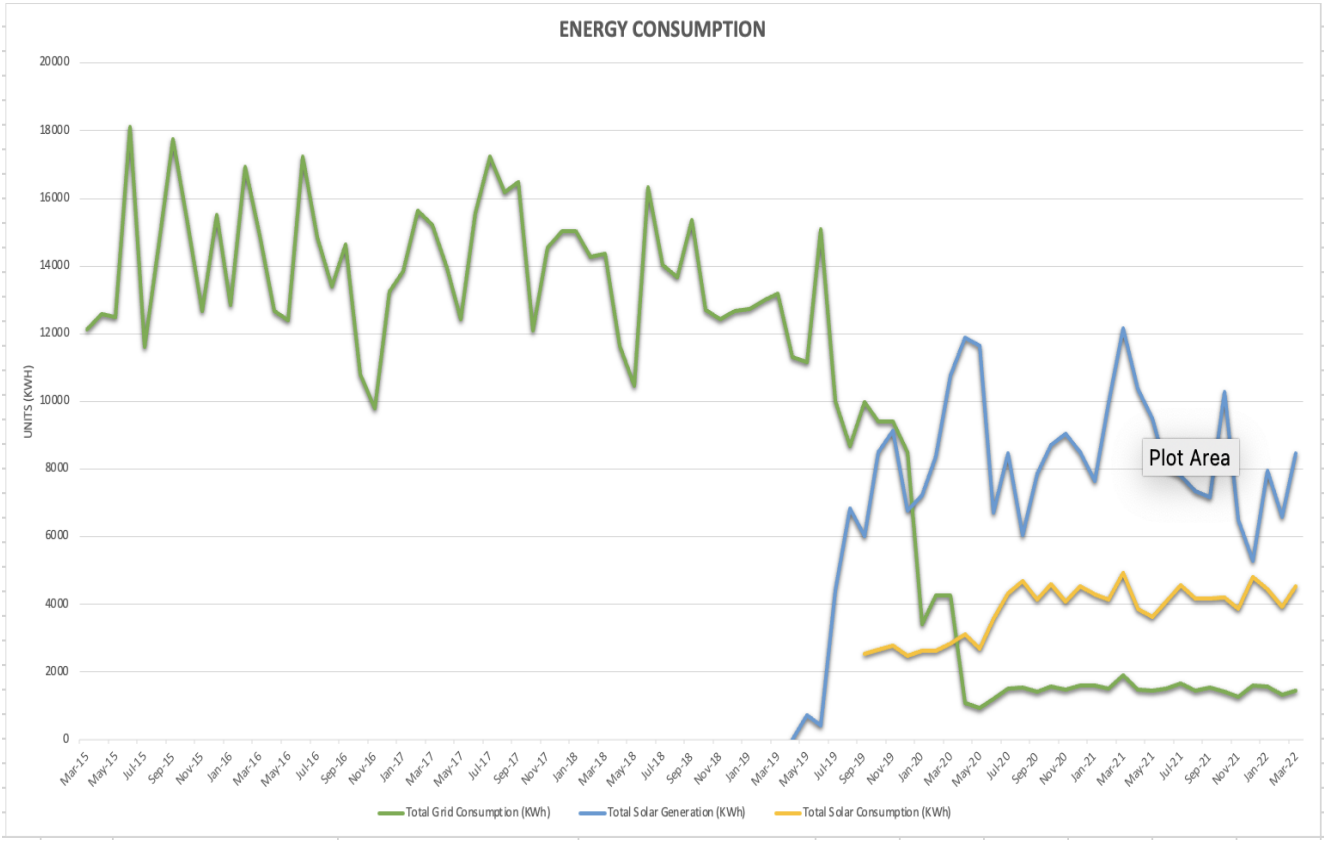
Dashboard for reviewing energy consumption data through cloud based internet system



Snapshot of Energy consumption data on the SCCN dashboard



Annual Energy consumption trends at SIIB



Annual Energy consumption in KWh at SIIB