

eRMS System

CASE STUDIES

"Energy Remote Monitoring System| at LLR823 (Lahore), MSWR37 (Sahiwal) & LKA001 (Kasur) Sites.

Overview

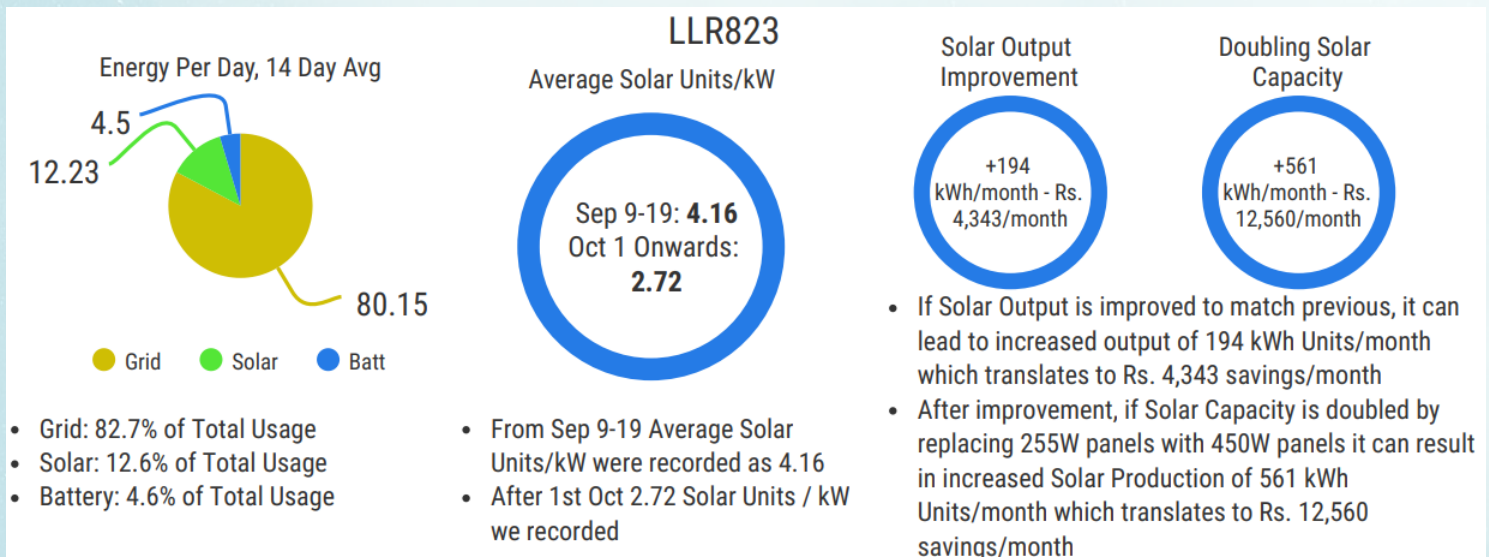
SB Electronics Engineering and Control (Pvt.) Ltd. (SBEEC) is an Energy Services Company (ESCO) Providing a broad range of Energy Solutions including design and implementation of Energy Savings Projects, Energy Conservation, Energy Management, Energy Efficiency, Energy Infrastructure Outsourcing, Energy Supply and Risk Management for Telco's (MNO's) BTS Sites and Commercial and Industrial (CNI) Customers. Telco's (MNO's) face multiple issues regarding high billing.

Case Studies for Telecom BTS Sites

The SB eRMS solution is specially designed to provide the complete Remote Metering System for the BTS telecom sites in view to provide near real-time Interval Data of total energy Consumption and Costs of the BTS Site. In this case study, sites were selected for Solar DC, High Diesel Pouring, Grid, Genset & Battery Energy Storage Monitoring. SB eRMS System was implemented to ensure savings from Telecom/Towerco (20 - 30%) by eliminating overbilling, wrong detection billing, estimated billing, high MDI charges, etc. from the DISCO. With live monitoring of all AC and DC circuits, Diesel Pouring decisions were recommended intelligently keeping in view the Load Shedding at Sites, Battery Energy Storage usage, and Diesel Genset usage resulting in savings of thousands of Rupees per Site per month.



Case Study # 1 (LLR823-Lahore)



This site (LLR823-Lahore) was selected for Solar DC monitoring, we additionally monitored the Grid and Battery output.

The breakup of consumed Energy is as follows;

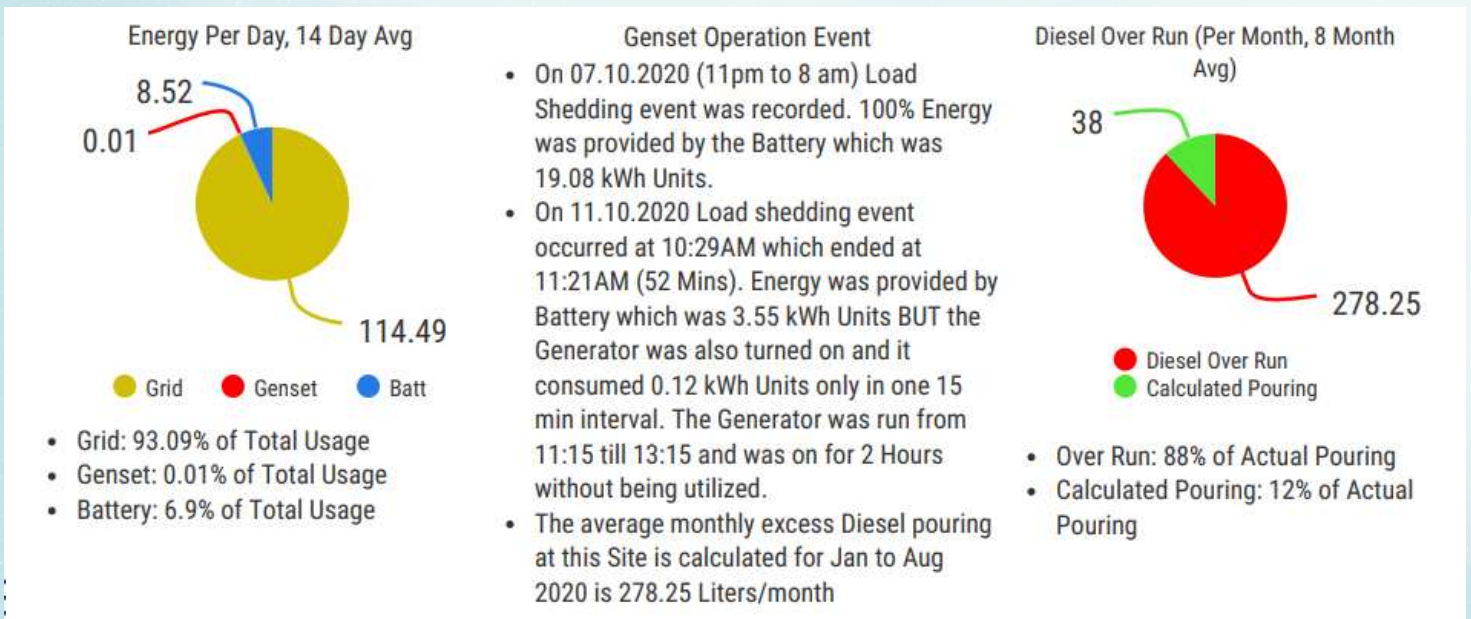
- i. The Site full energy availability was 100%
- ii. Grid: 82.7% of Total
- iii. Solar: 12.6% of Total
- iv. Battery: 4.6% of Total (during outage)
- v. DG: 0%

The total Solar output is 4.5kW and average Solar Units/kWp were calculated as 4.16 from Sep 9 till Sep 13 and then drastically came down to 2.72 from Oct 1 till Oct 14 which indicates there is an issue with the Solar System. It was observed that there was an electrical shortage and the Circuit Breaker was also damaged at the site.

Recommendations

1. Maintenance/repair of the Solar system so that the Solar Units/kWp average increases to the previous levels. If this correction is made, this can lead to Solar generation of 194 kWh Units/month which translates to Rs.4,343 savings/month from the Grid.
2. In addition there are 20 Solar Panels installed (each of 225 Watt Capacity). This capacity can be doubled by installing 440W panels as there is enough room to increase capacity from 4.5kW to 8 - 9.0kW. This can lead to an additional generation of 561 Units/month which translates to Rs.12,560 savings/month from the Grid.

Case Study # 2 (LKA001 - Kasur)



This site was selected due to High Diesel pouring, the monitored points at this site were Grid, Genset & Battery.

The breakup of Energy consumption for this site was as follows;

- i. The Site full energy availability was 100%
- ii. Grid: 93.09% of Total
- iii. Genset: 0.01% of Total (also run redundantly for 2 hours)
- iv. Battery: 6.9% of Total

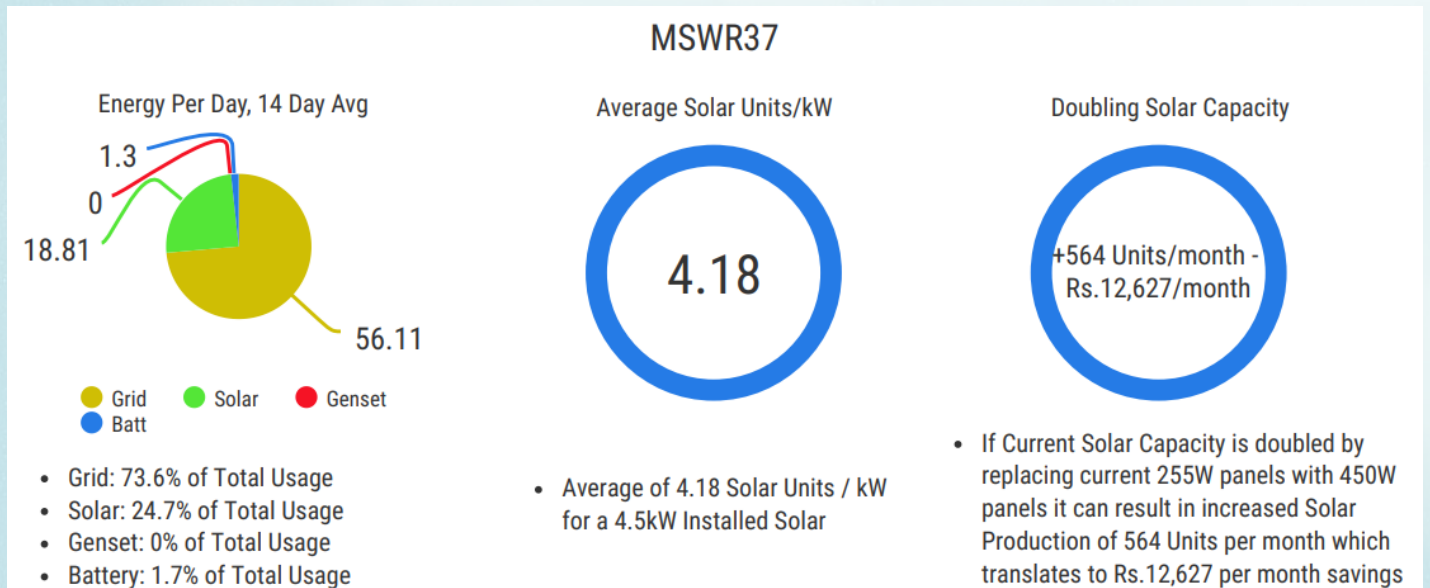
Genset Operation Event was recorded at this site where it was turned ON for Two hours but never used, detail is listed below;

1. On 07.10.2020 (11pm to 8 am) a Load Shedding event was recorded. 100% Energy was provided by the Battery which was 19.08 kWh Units.
2. On 11.10.2020 a Load shedding event occurred at 10:29 AM which ended at 11:21 AM (52 Mins). Energy was provided by Battery (3.55 kWh Units). BUT the Generator was also turned on and it consumed 0.12 kWh Units only in one 15 min interval. The Generator remained turned on from 11:15 to 13:15 (for 2 Hours) without being utilized.
3. The average monthly excess Diesel pouring at this Site is calculated for Jan-Aug 2020 is 278.25 Liters/month which is Rs.28,6560 per month average.

Recommendations

1. Add 5 to 9kW Solar which will result in Savings of Rs.12,000 to 20,000 per month.
2. Using our eRMS (Energy RMS) Solution Diesel pouring should only take place on approval from the eRMS system.
3. Predictive management of each Site according to Load shedding expectation and then combining the Diesel Pouring and eRMS monitoring with one POC.

Case Study # 3 (MSWR37-Sahiwal)



This site was selected for Solar DC monitoring, we additionally monitored the Grid, Battery output and Genset

The breakup of Energy consumption is as follows;

- i. The Site full energy availability was 100%
- ii. Grid: 73.6% of Total
- iii. Solar: 24.7% of Total
- iv. Genset: 0.0% of Total
- v. Battery: 1.7% of Total

The Solar Units/kWp produced average at 4.18 Units over a 14 day average

Recommendations

1. Our recommendation for this Site is to double the Solar Capacity from Current 4.5kW to 9.0kW: There are 20 Solar Panels installed of 225 Watt Capacity each which can be doubled by installing 440W panels as there is enough room to increase capacity from 4.5kW to 8 to 9.0kW, this can lead to additional generation of 564 Units/month which translates to Rs. 12,627 savings/month from the Grid.



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What Gets Measured, Gets Managed

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