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# Energy Management System

for Institutions, Colleges, Hostels etc.

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S U M M A R Y · R E P O R T . P L A N

**Heta Datain**

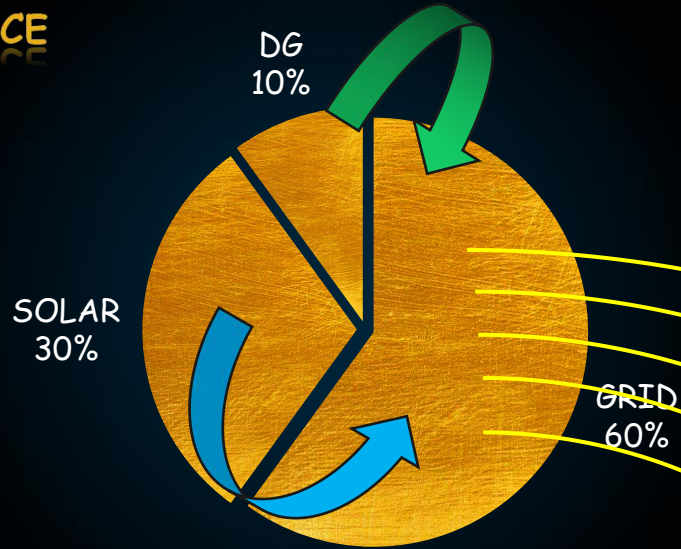
[www.hetadatain.com](http://www.hetadatain.com)

Electrical Energy is sourced from Grid and Roof Top Solar, and consumed by Institutions, Colleges, Hostels etc for Loads like Lighting, Cooling, Pumping, Equipment, and Machinery. **The Cost of Energy and load varies with Time of Day, and an Optimal Mix and usage is necessary for least cost of Energy.**

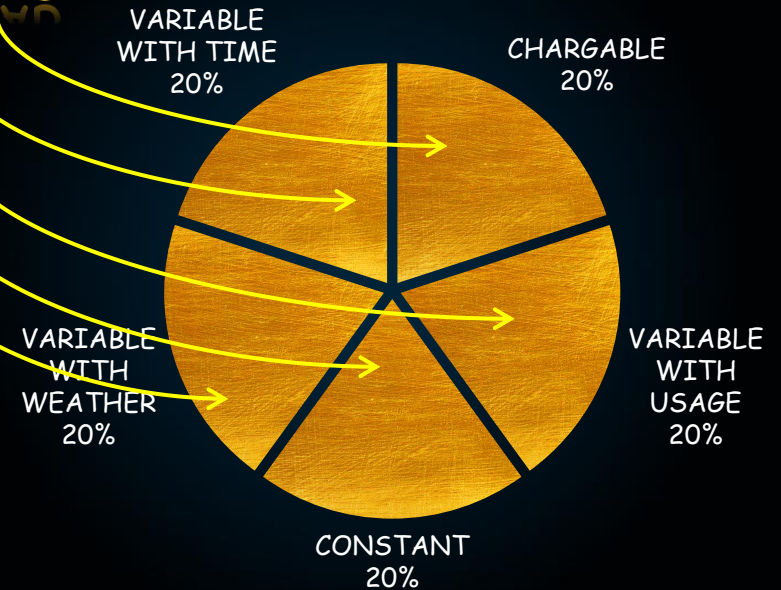
Some Loads are chargeable (Rented out shops / restaurants, ATM), some are constant (corridor and security lights), some vary with usage (use of lifts, pumps, fans) some vary with weather (Cooling, Heating) and some vary with time (Street lights, Geysers)

**Measurement of all these Energy Sources and Users every minute gives a DEEP INSIGHT to the trends and consumption patterns. Analysis of this huge DATA generates suggestions for Process Philosophy changes, which saves a lot of Funds for the Client.**

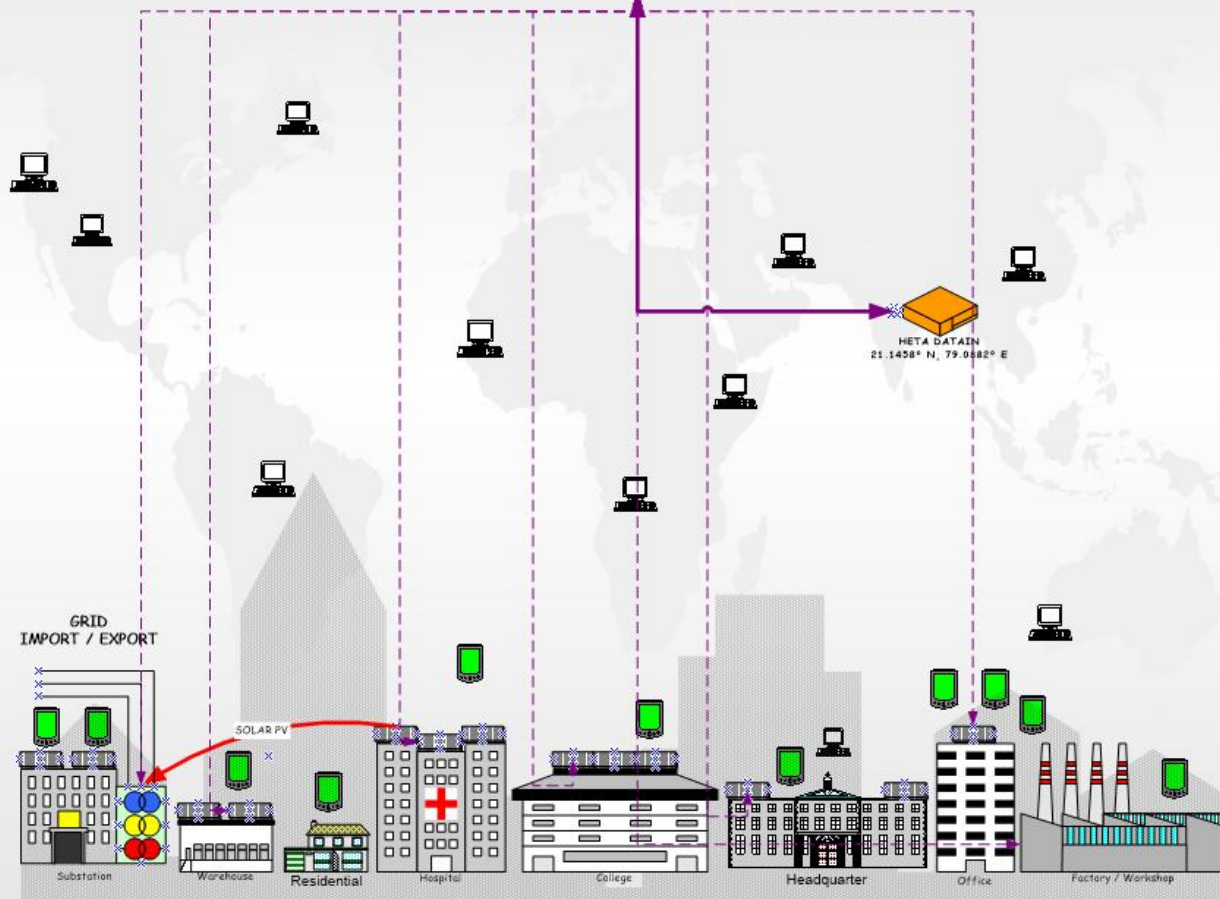
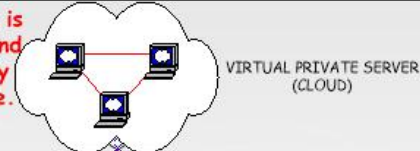
## SOURCE



## LOAD



Electrical Energy and Production Data from the USER is uploaded to the Cloud, processed by HETA DATAIN, and published on the web as a Dashboard, which is seen by all Authorised Users anywhere in the world at any time.  
Dashboard updated every 1 / 2 minutes.

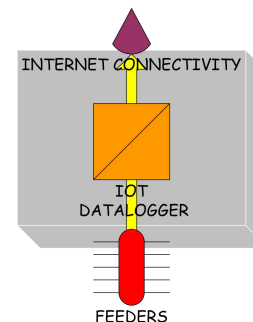


Hardware connected at each data point at the user location

1. Non-invasive Transducers for Feeder Electrical parameters

2. Embedded Dataloggers to log / store / and transmit Feeder Electrical parameters

3. Internet connectivity with security



# Summary Of Work

We have expertise in **INVISIBLE SUPERVISION** of your Energy Sourcing and Consumption, without taking any outage of the system

We use Embedded Loggers and IOT sensors to upload the **NEAR REAL TIME Electrical data to VIRTUAL PRIVATE SERVER in CLOUD.**

This data is analysed by our team of Energy Auditors from an off-site location, and presented to you on your computer / mobile using a Dashboard updated every minute

**Alerts and Reports** are given to your Technical team **daily** by Email showing the Energy and Financial trends. This keeps them well informed to take meaningful action.

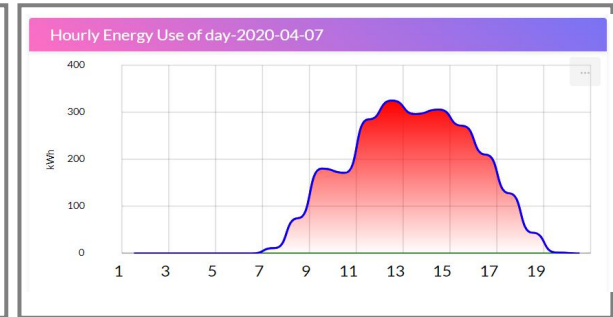
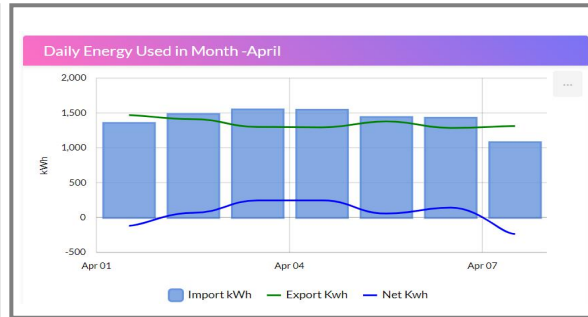
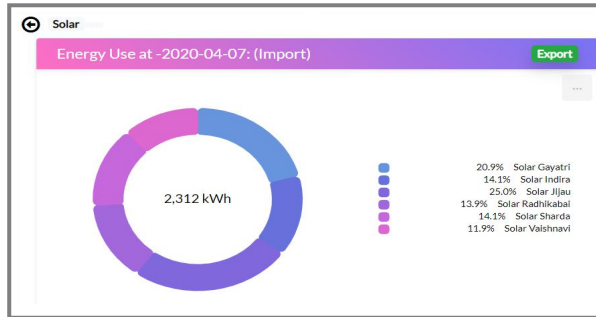
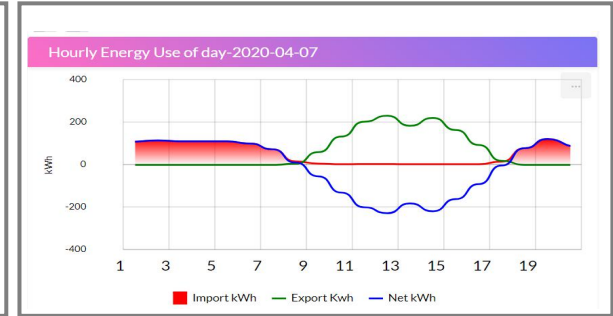
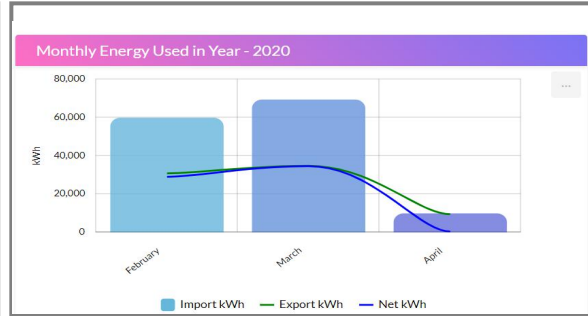
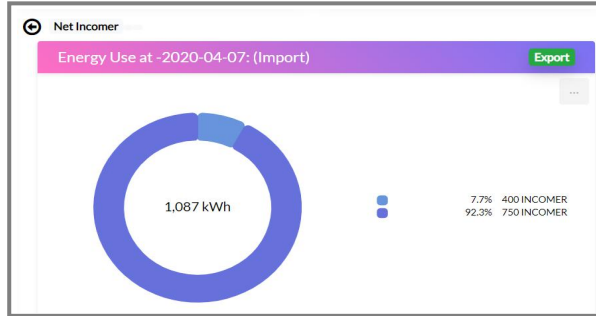
**The Management is presented monthly report showing the Area of Concern, Suggestions for better efficiency, and Financial return on investment details.**

The **ADVANTAGES** of doing this are:

- ✓ **Un-Adulterated data** available for analysis
- ✓ **No MANPOWER required** for running the system. **Timely Alerts** on area of concern to take faster remedial action, and thus reduce losses.
- ✓ Management is well informed of Energy Installation Capacity and its Loading, which is useful for future **EXPANSION** of infrastructure.
- ✓ **Energy pilferage** location is traceable, which can be prevented for big financial savings.
- ✓ A team of **Energy Auditors** monitor this data for **ONE YEAR**, and give monthly presentations to the Management for improvement

# Summary Of Work

A set of GRAPHS shown on the dashboard in Near REAL TIME, updated every minute



# Case Study: College Campus

Energy for 8 Hostels which housed 1200 students was sourced from MSEB (GRID) and ROOF TOP SOLAR on the buildings. Each room had one Energy Meter for Light, and one Energy Meter for Air conditioner (Optional). Every month, each room was billed based on the consumption recorded by the Light and Aircon Energy meters of the room. For the Common area, a fixed cost per month (Rs 300/-) per student was levied, which included corridor lights, Water Coolers, Street Lights, Pumps, Reading room Air conditioners etc.

**Problem:** In December, the Hostels used 1,00,000 KWh, out of which MSEB supplied 35,000 KWhr valued Rs 4,50,000/- and balance 65,000 KWhr was generated by Solar panels. Total Fixed Common Area collection was Rs. 3,50,000/- and Rs. 3,90,000/- from Light and Aircon usage of rooms. This generated a surplus of only Rs. 2,90,000/- and the **Common area consumption was 70% of the total Energy**. The surplus ideally should have been Rs. 10,50,000/-. **A notional loss of Rs. 7,15,000/- was made in December.**

**Solution:** Energy Monitoring System valued Rs. 10,50,000/- was installed in January for monitoring of 21 Feeders, and Common Area consumption was targeted. The System was operational from February.

**Result:** In February, the Common area reduced from 70% in December to 7.5% in February and 6.1 % in March, giving a surplus of Rs. 9,90,000/- in February and Rs. 10,75,000 in March against only Rs. 2,90,000/- in December. Return on Investment is less than 2 months.



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