Module I

Load Assessment for C&I

Using A Data Logger

Data logger (Source: https://www.pce-instruments.com/)

There are multiple ways through which the load profile of a customer can be gotten; we can do it manually (taking measurements with a power meter periodically) or with the aid of a data logger.

For bigger systems such as those provided for commercial and industrial purposes, it is harder to generate a load profile without the use of a data logger.

To use the data logger, you connect it to the main load point where Utility and other alternative sources of energy pass through. This ensure that the data logger is able to capture every minute, hour and day of current flow throughout the duration of the data logger being connected. Most loggers are left on the site for atleast a week to ensure that the weekend and week day data are captured.

The generated data typically comes in a CSV file but has a lot of data such as the voltage, the current, real power, frequency. You take out what you need from it and you can import it to solar design softwares such as Helios (which will be discussed later) or enter it into a table as can be seen below.;

LOAD PROFILE TABLE

	LOAD (VA)						
TIME OF DAY	**Internal Lights**	**TV**	**Fridge**	**Ceiling Fan**	**Security Lights**	**Equipment Standby**	**Total VA**
6:00 AM	668			200	625	25	1518
7:00 AM	668	400		200	625	25	1918
8:00 AM	668	400				25	1093
9:00 AM						25	25
10:00 AM						25	25
11:00 AM						25	25
12:00 PM						25	25
1:00 PM						25	25

2:00 PM			400	100		25	525
3:00 PM			400	100		25	525
4:00 PM		400	400	100		25	925
5:00 PM	668	400	400	100		25	1593
6:00 PM	668	400	400	100		25	1593
7:00 PM	668	400	400	100	625	25	2218
8:00 PM	1666.7	400	400	100	625	25	3216.7
9:00 PM	1666.7	400		300	625	25	3016.7
10:00 PM	1666.7	400		300	625	25	3016.7
11:00 PM	1666.7	400		200	625	25	2916.7
12:00 AM				200	625	25	850
1:00 AM				200	625	25	850
2:00 AM				200	625	25	850
3:00 AM				200	625	25	850
4:00 AM				200	625	25	850
5:00 AM	400			200	625	25	1250
						25	1250
6:00 AM	400			200	625	25	1518

The resulting table can be represented as a graph called the Load profile Graph (fig 2.0). It is possible to produce the table from the graph or vice versa, and it is a skill that will serve you well in your career.

You must understand how to read and extract relevant information from either of them for example peak and minimum load demands. Furthermore, you may be requested to produce any one of them for record purposes by either your client or your employer.

Let's walk through how to create the graph using an excel sheet.

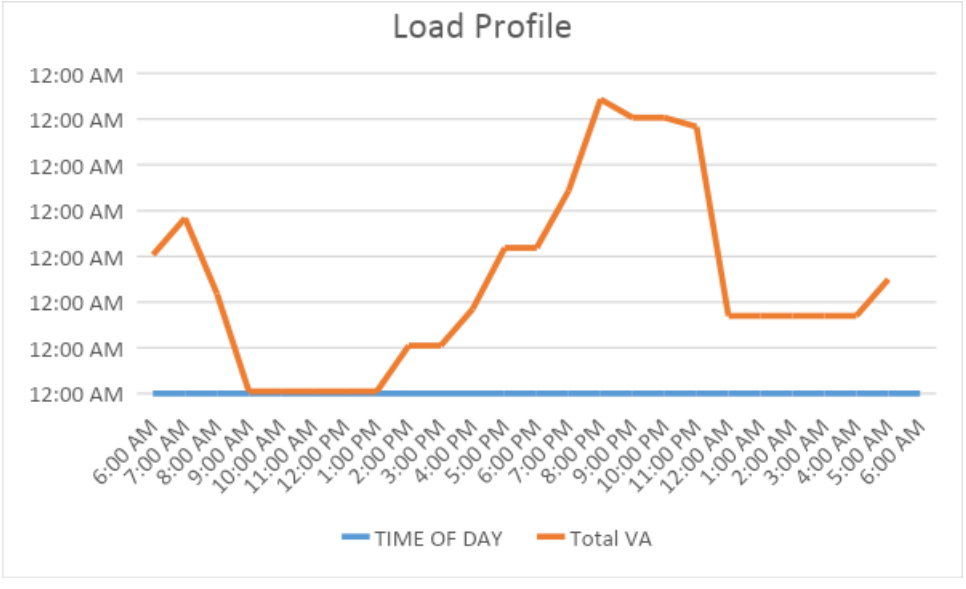

Fig 2.0