

### **BATANGAS STATE UNIVERSITY The National Engineering University**

### SAMPLE ENERGY AUDIT REPORT ALANGILAN CAMPUS

In Energy audit conducted in Alangilan Campus, there are three (3) cost centers identified – Air conditioning unit system, Lighting and Small appliance. Air Conditioning units are those mechanism that are designed to control the temperature, humidity and air quality in a defined space (Airedale, 2020). Lighting includes all the luminaries used in the campus while Small Appliance are miscellaneous electrical equipment that consumes electrical energy.

| LIGHTING LOADS |         |                   |           |  |
|----------------|---------|-------------------|-----------|--|
| Building       | kW Used | Total Consumption | Total kWh |  |
| CEAFA          | 222.86  | 1248.01           | 37440.20  |  |
| STEERHUB       | 38.11   | 213.41            | 6402.21   |  |
| RGR            | 9.25    | 51.77             | 1553.20   |  |
| CIT            | 26.27   | 147.10            | 4413.02   |  |
| SSC            | 9.44    | 52.86             | 1585.92   |  |
| CICS           | 20.52   | 114.91            | 3447.36   |  |
| FDC            | 13.36   | 74.80             | 2244.14   |  |
| BOILER,        | 4.90    | 27.42             | 822.49    |  |
| PERIPHERALS    | 7.49    | 41.94             | 1258.15   |  |

#### Table 1.1 Energy Consumption – Cost Center A Lighting Load



The 5-story CEAFA building used 63% of the campus' lighting load, based on the data gathered. The structure is the oldest one still standing on the campus. The STEERHUB is next behind it, making up only 11% of the total, far less than the 63% of CEAFA.

Source: Project and Facility Management Office

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| Table 1.2                          |
|------------------------------------|
| Energy Consumption – Cost Center B |
| Small Appliance Load               |

| SMALL APPLIANCE LOADS |         |                      |           |
|-----------------------|---------|----------------------|-----------|
| Building              | kW Used | Total<br>Consumption | Total kWh |
| CEAFA                 | 190.38  | 1066.13              | 31983.96  |
| STEERHUB              | 57.16   | 320.11               | 9603.32   |
| RGR                   | 11.30   | 63.28                | 1898.36   |
| CIT                   | 60.87   | 340.86               | 10225.66  |
| SSC                   | 27.52   | 154.11               | 4623.36   |
| CICS                  | 34.20   | 191.52               | 5745.60   |
| FDC                   | 30.11   | 168.62               | 5058.48   |
| BOILER, etc           | 7.51    | 42.07                | 1262.02   |
| PERIPHERALS           | 0.00    | 0.00                 | 0.00      |



The STEERHUB used a total of 54kWh, or 25%, of cost center C – Air conditioning units. This building is a brand-new construction with cutting-edge amenities. The CIT building next to it has a consumption rate of 21%, or the equivalent of 45 kWh.



In addition to lighting and air conditioning units, small appliance loads also include other electrically consuming appliances. According to the data acquired, the CEAFA building's small appliances account for 45% of the small appliance load, followed by the CIT building and STEERHUB, which account for 14%.

| Table 1.3                          |
|------------------------------------|
| Energy Consumption - Cost Center c |
| Air Conditioning Unit              |

|             | AIR CONDITIONING UNITS |           |               |  |  |
|-------------|------------------------|-----------|---------------|--|--|
| Building    | Total Consumption      | Total kWh | Total kWh/Mo. |  |  |
| CEAFA       | 239.41                 | 1340.67   | 40220.21      |  |  |
| STEERHUB    | 322.62                 | 1806.66   | 54199.66      |  |  |
| RGR         | 70.38                  | 394.13    | 11823.84      |  |  |
| CIT         | 267.18                 | 1496.22   | 44886.74      |  |  |
| SSC         | 78.71                  | 440.75    | 13222.61      |  |  |
| CICS        | 211.29                 | 1183.22   | 35496.55      |  |  |
| FDC         | 93.56                  | 523.95    | 15718.58      |  |  |
| BOILER, etc | 6.35                   | 35.55     | 1066.46       |  |  |
| PERIPHERALS | 0.00                   | 0.00      | 0.00          |  |  |

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| TOTAL CONSUMPTION |               |               |               |           |  |
|-------------------|---------------|---------------|---------------|-----------|--|
| Building          | Cost Center A | Cost Center B | Cost Center C | TOTAL MWh |  |
| CEAFA             | 37.44         | 31.98         | 40.22         | 109.64    |  |
| STEERHUB          | 6.40          | 9.60          | 54.20         | 70.21     |  |
| RGR               | 1.55          | 1.90          | 11.82         | 15.28     |  |
| CIT               | 4.41          | 10.23         | 44.89         | 59.53     |  |
| SSC               | 1.59          | 4.62          | 13.22         | 19.43     |  |
| CICS              | 3.45          | 5.75          | 35.50         | 44.69     |  |
| FDC               | 2.24          | 5.06          | 15.72         | 23.02     |  |
| BOILER, etc       | 0.82          | 1.26          | 1.07          | 3.15      |  |
| PERIPHERALS       | 1.26          | -             | -             | 1.26      |  |

Table 1.4 Energy Consumption – Cost Centers

The table above displays the total consumption of the entire Alangilan Campus after it was determined the buildings accounted for the majority of each cost center's consumption. Although CEAFA, STEERHUB, and CIT buildings use the most energy, CEAFA buildings still need to implement energy-saving measures that will focus on three cost centers.





Source: Project and Facility Management Office

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