IGA COONABARABRAN – CASE STUDY

Summary

In 2017, Carlos IGA procured the former Coles site in Coonabarbran NSW. The site had a considerable energy footprint and ENSOL Systems was engaged to do a full energy site audit. The site had old fluorescent lighting, outdated evaporative air conditioning and a large energy footprint. The task was to reduce the energy load whilst improving the thermal comfort for shoppers.

Challenge

From the completion of the audit, ENSOL Systems then put together an energy upgrade and renewable energy plan. In coordination with Carlos IGA, the plan would to be rolled out over a two (2) year period.

The plan also included a full redesign of the existing air conditioning requirements. The air conditioning was deemed to be insufficient as they required heating in the winter months which the evaporative coolers could not provide.

The project plan included new air conditioning, new LED Lighting, optimization of the refrigeration systems and a solar power plant of 80kW which allowed all of the onsite generation to be used onsite.

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The store had state of the art LED strip lighting installed with Airius destratification fans along with 50kW of SuperEN solar powered air conditioning.

The site is fully monitored across its energy usage 24/7.

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To condition the store 10 x 5.0kW solar air conditioners where installed in conjunction with 22 destratification fans with this system running independently of the main solar installation.

To combat peak demand issues from their refrigeration compressors, the compressors had variable speed drives installed.

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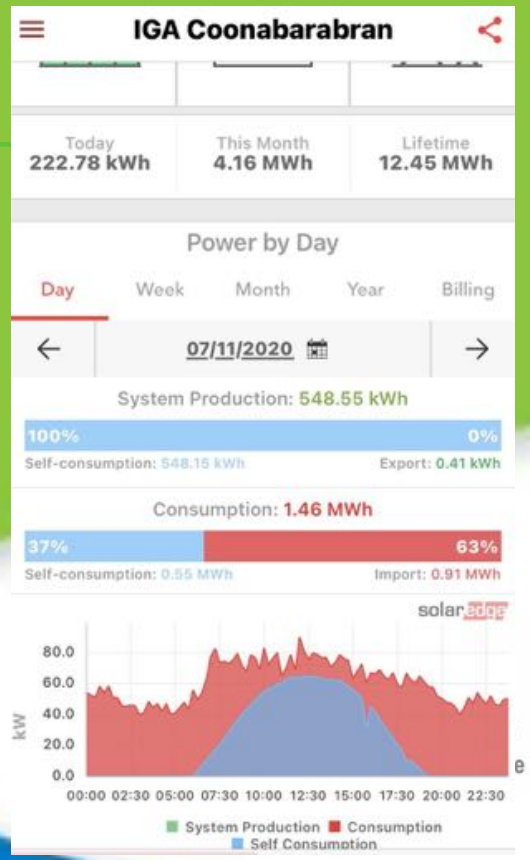
Results

The energy upgrade completed in September 2020 and showed significant results. These results are as follows:

LED Lighting Upgrade – 64% Saving in lighting energy costs

Variable Speed Drives – 8-10% kilowatt hour saving and a 20-30% KVA reduction with the power factor levelling out at 0.95

The 80kW SolarEdge with Trina Tallmax solar generation removed 30%+ of power requirements daily based on generation profiles that are seasonally adjusted.



The largest avoided energy increase was with the solar air conditioners in conjunction with the destratification fans.

Estimates supplied by locally sourced conventional air conditioning companies showed a base requirement of 85 – 94kW of air conditioning would be required over the 660 square meters of supermarket space.

Thermal imaging showed that the there was a significant difference in temperatures in the refrigerated aisles and the dry stock aisles. By installing the 50kW of Solar AC units and running them in conjunction with the destratification fans we achieved a a balanced comfortable environment for customers while avoiding an average of 350 kWh + per day of additional energy required.

In conclusion, Carlos IGA have realized a significant energy saving and improved customer conditions.

ENSOL Systems Efficiency + at work.