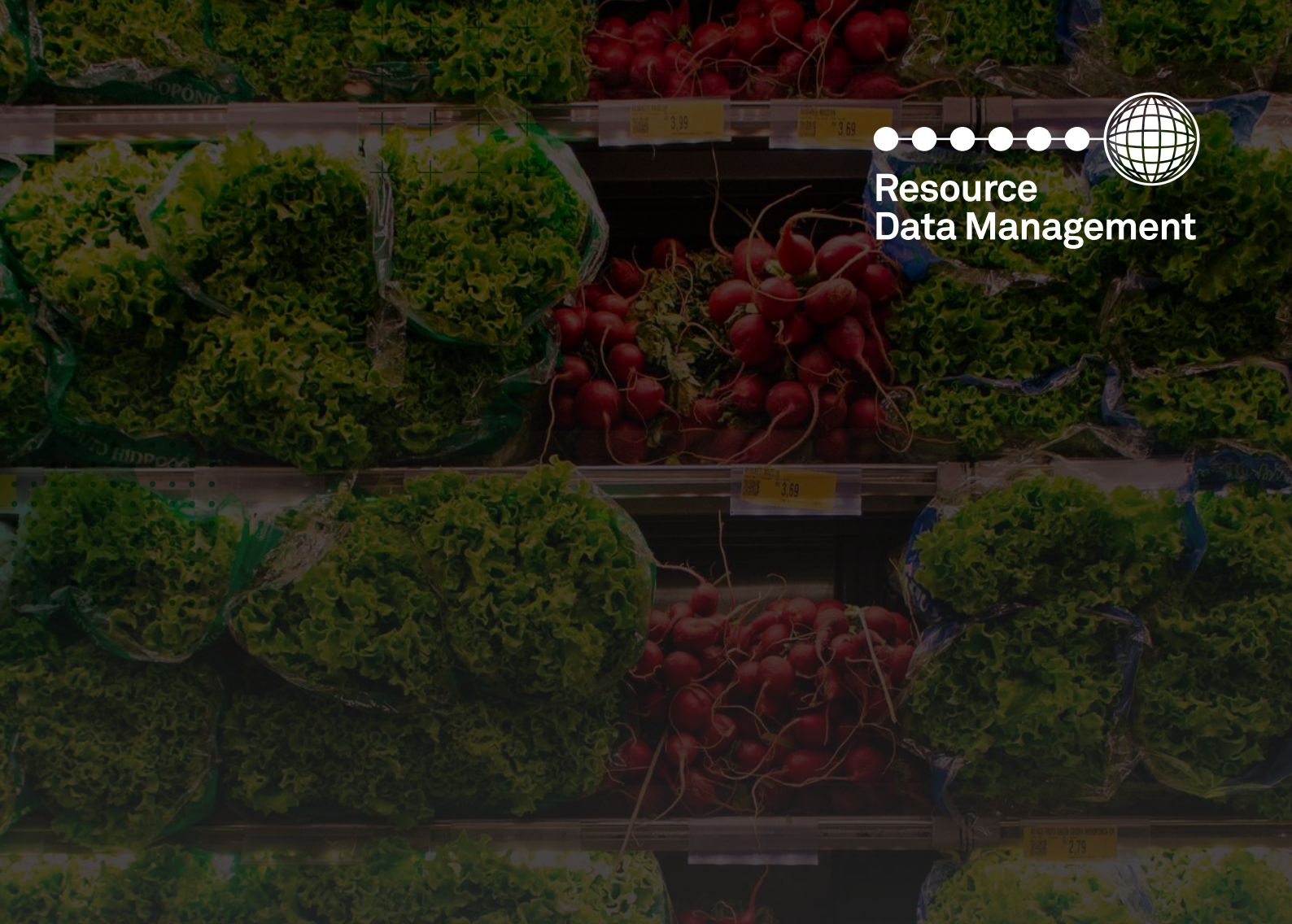


Resource
Data Management

37% Energy Savings for Malaysian Food Retailer

FOREWORD

In order to provide a convenient and cost-effective shopping experience while maintaining a sustainable shopping environment for its customers, Econsave set a goal to utilize an deploy an effective energy management solution in its various outlets in Malaysia.

THE PROJECT

In order to provide a convenient and cost-effective shopping experience for its customers while maintaining a sustainable business, Econsave set a goal to utilize and deploy an effective energy management solution in its various outlets in Malaysia.

THE SOLUTION

To help Econsave minimise energy consumption and the associated costs, RDM Asia proposed a variety of solutions, which already have successfully reduced energy consumption for a number of companies worldwide. These solutions were then deployed across a number of Econsave sites in form of a phased roll-out:

- Ampang Baru
- Slim River
- Jelapang
- Permas Jaya
- Jenjarom
- Bercham

1. Energy Management System (EMS)
Intuitive TDB controllers were installed to provide full networking, monitor and control of all equipment from a central location on and off-site. This unprohibited access enabled real-time monitoring of assets which offered the opportunity to optimise their performance.

2. Air Conditioning Controls
RDM Asia utilised proven in-house air conditioning control strategies using relative humidity, indoor and outdoor temperature and CO_2 sensors installed at critical areas. These strategies minimised energy consumption while maintaining end-user comfort levels.

3. Inverter Installation & Control
Inverters were installed on the Air Handling Units (AHU) which linked with the installed temperature sensors, and allowed the AHU to be controlled based on the heat load. This improved control further streamlined Econsave's energy consumption, and thus enabled greater energy savings.

4. Maximum Demand (MD) Control
MD is measured in Kilowatt (kW). MD is the peak load imposed by TNB (the national utility provider in Malaysia) to the customer at any point of time. As electricity cannot be stored, there must be sufficient generation, transmission and distribution capacity to meet the highest demand. For these reasons most tariffs for larger users are designed to encourage customers to control their electricity demand at daytime peaks. The MD charge is being practiced by almost all utilities in the world and the amount charged to customers is based on the recorded MD in kW multiplied by the respective MD rate. For example, the amount payable by a Tariff C2 customer registering 100kW of MD for a particular month is RM4,510 (100kW x RM45.10/kW).

5. RDM AHU Controls Design with relevance to Maximum Demand
The AHU's were set to operate within the limits of the total system power, and the improved Maximum Demand control prevented the expensive penalties, which arise from exceeding the maximum peaks of the KW range. These savings ranged between 0-10% subject to operations and equipment performance.

BENEFITS

By improving the performance and lifespan of the air conditioning units, RDM solutions reduced energy demand and subsequently released less CO_2 into the atmosphere.

Improved performance also resulted in less servicing of equipment, giving the following indirect benefits:

- Fewer call-outs, reducing the carbon footprint
- Reduced chemical usage
- Minimised cleaning of filters
- Reduced dust flow

ENERGY & COST SAVINGS

The implementation of RDM Asia's strategies and subsequent solutions streamlined energy consumption for the six sites has shown significant energy savings from September 2021 to March 2022.

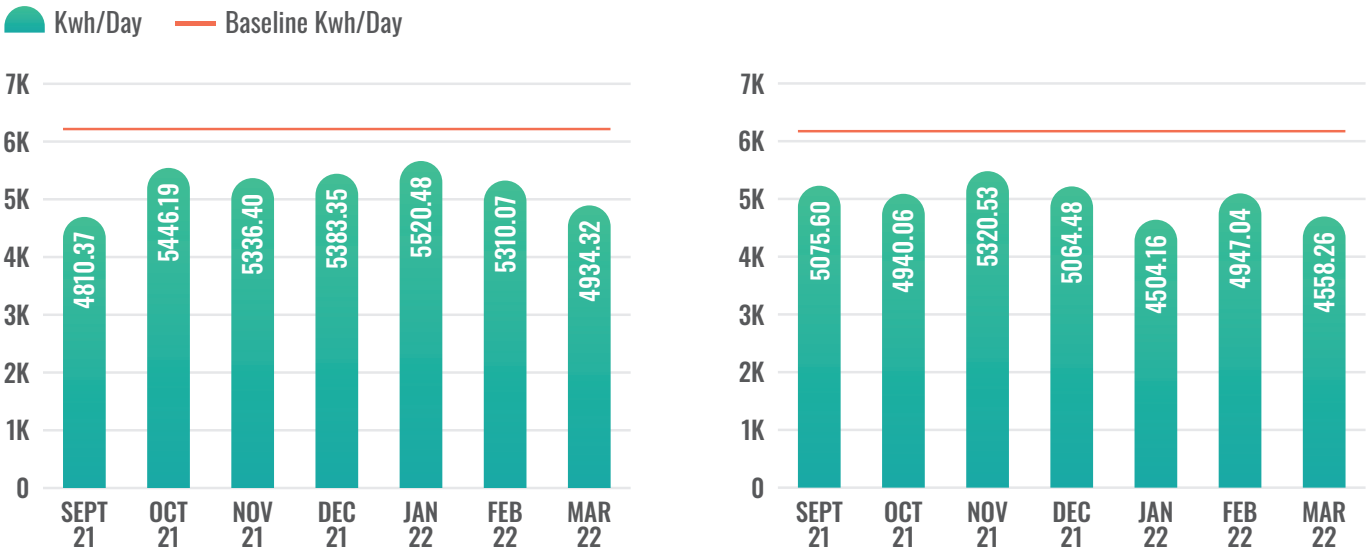
SITE NAME	AVERAGE DAILY KWH (KW)	DAILY KWH BASELINE (KW)	SAVINGS (%)
Ampang Baru	5248.74	6126.32	15.56%
Slim River	4915.73	6172.24	20.36%
Jelapang	4339.73	4581.39	5.27%
Permas Jaya	4394.87	6971.07	36.96%
Jenjarom	4675.64	6208.80	25.01%
Bercham	4852.59	5546.63	12.51%

RDM's DMTouch provides a central control and monitoring point on-site and with remote access.

RDM's Intuitive TDB - HVAC and refrigeration controllers with PLC software built-in - manage and monitor all equipment.

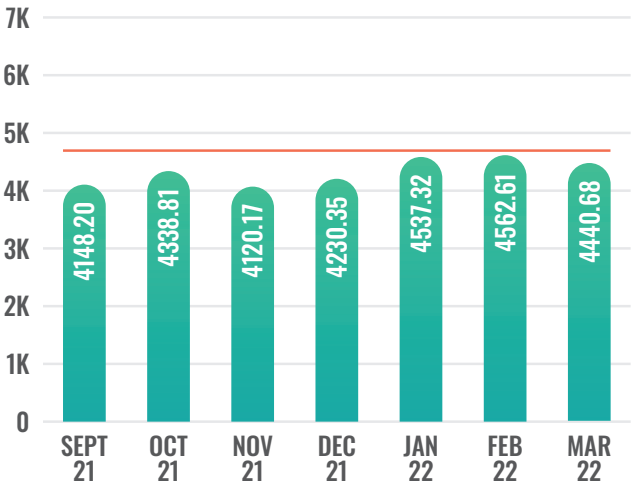
Six Econsave sites in Malaysia achieve on average 20% energy savings September 2021 - March 2022.

MONTHLY ENERGY SAVINGS

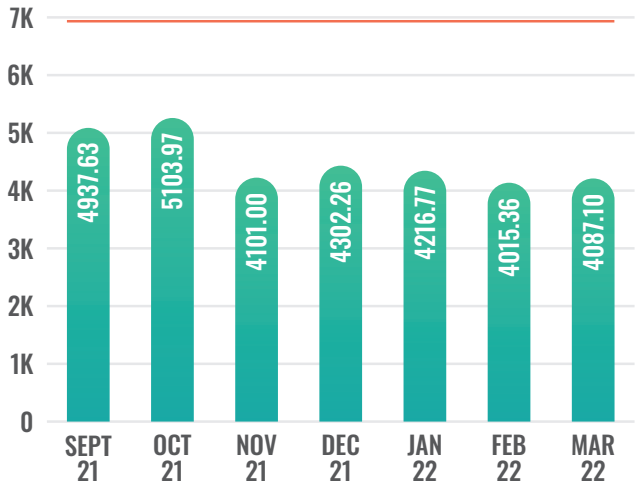


Ampang Baru

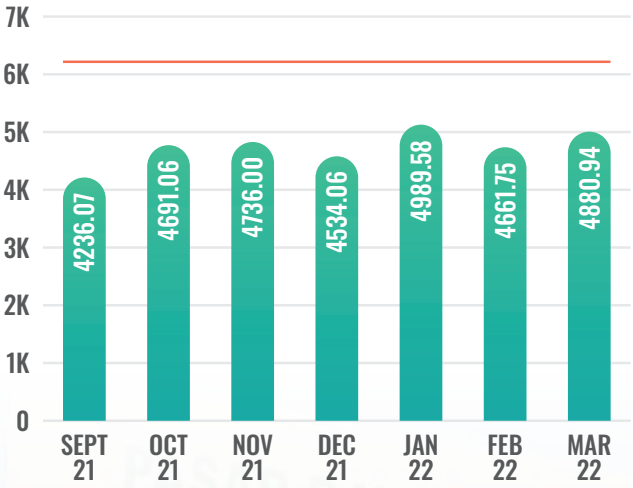
Slim River



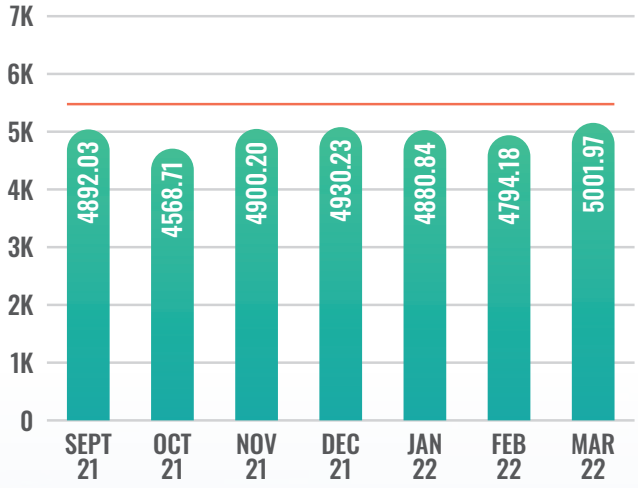
Jelapang



Permas Jaya



Jenjarom



Bercham