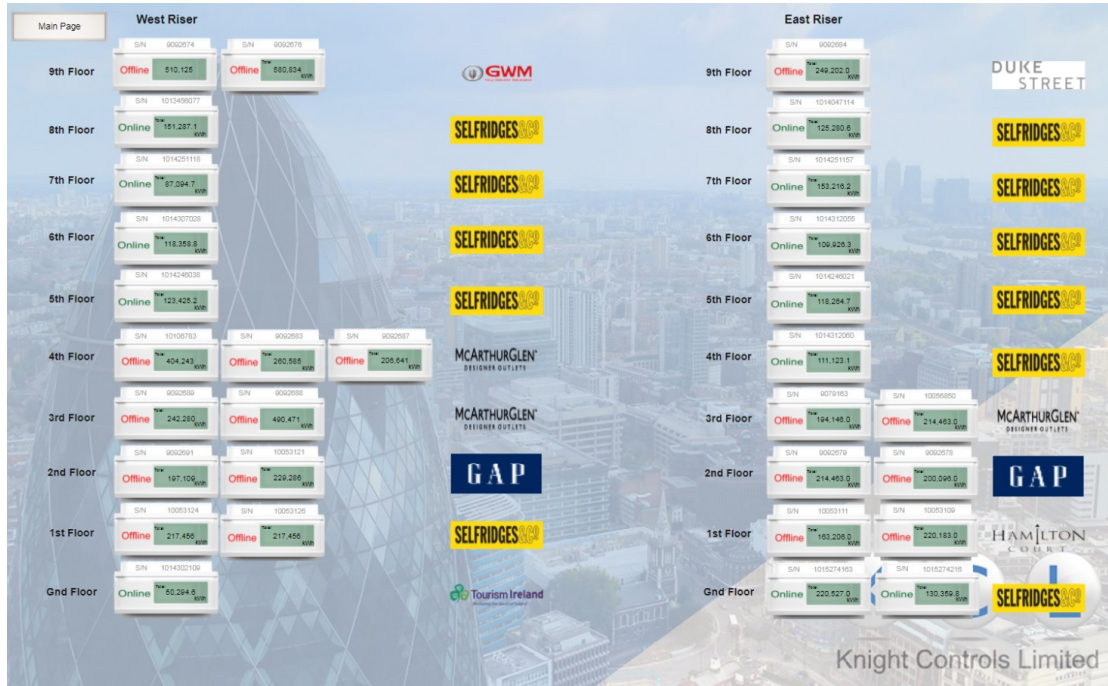




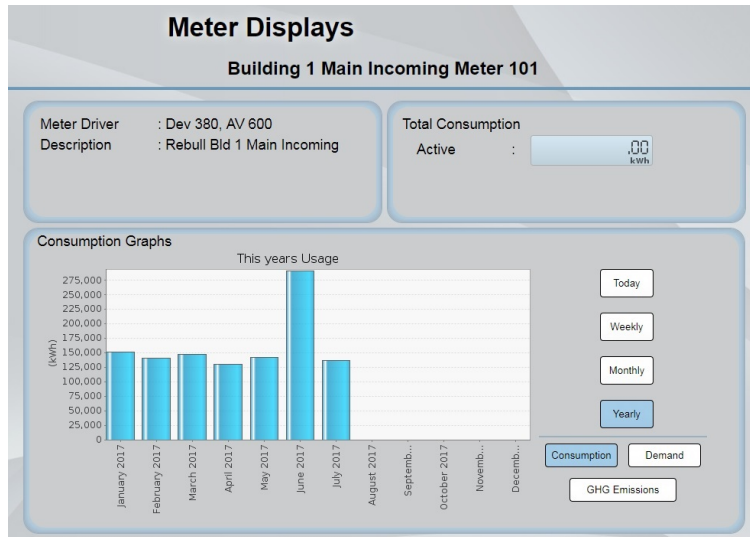
Sample Graphics



Additional programming will be engineered to allow visual and emailed alarms of energy over usage and out of hours use allow maintenance to be proactive on energy saving.

As the Optergy Proton controller is a BACnet device it can seamlessly integrate with any BACnet / Modbus systems picking up critical data such as temperature sensors that can be overlaid on the meter graphics to show actual plant operation. The device also connects direct to the Met-Office and records climate conditions that can also be used to show the degree days.

Degree days are a specialist type of weather data, calculated from readings of outside air temperature. Heating degree days and cooling degree days are used extensively in calculations relating to building energy consumption. With the degree day automatically calculated the Optergy Proton can make understanding the building energy consumption and future energy budgets. Therefore this data can be a powerful tool in understanding weather-related energy consumption.



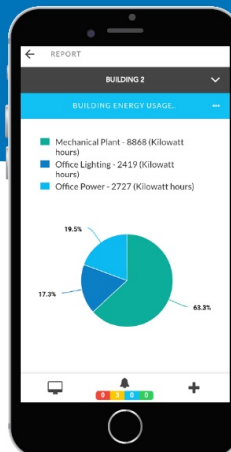
AUTOMATED ENERGY MANAGEMENT

- Automated live meter display screen creation
- Meter summary status
- Automated meter hierarchy screens
- All meter points automatically logged
- Real time data and reporting
- Full billing / tariff engine for all energy types
- Carbon & financial reporting
- Fully automated alerts and diagnostics
- Detailed energy breakdowns
- Automated energy forecast tool

Stay connected with the Optergy Mobile App

DATA DIAGNOSTICS & ANALYTICS

- Fully automated reporting to:
 - Web
 - PDF
 - CSV
 - Email
- Benchmarking
- Progress against budget
- Return On Investment (ROI) reporting
- Cloud, enterprise and site based data
- Turning data into actionable items



Licensing

There is a flexible scalable licencing options to cater from very small projects to very large enterprise projects.

There are NO on-going fees: Licences are purchased on a project by project basis and the one off fees is built into the initial installation costs.

Additional Optyery Proton Features:

Maximum demand register (kW or kVA).

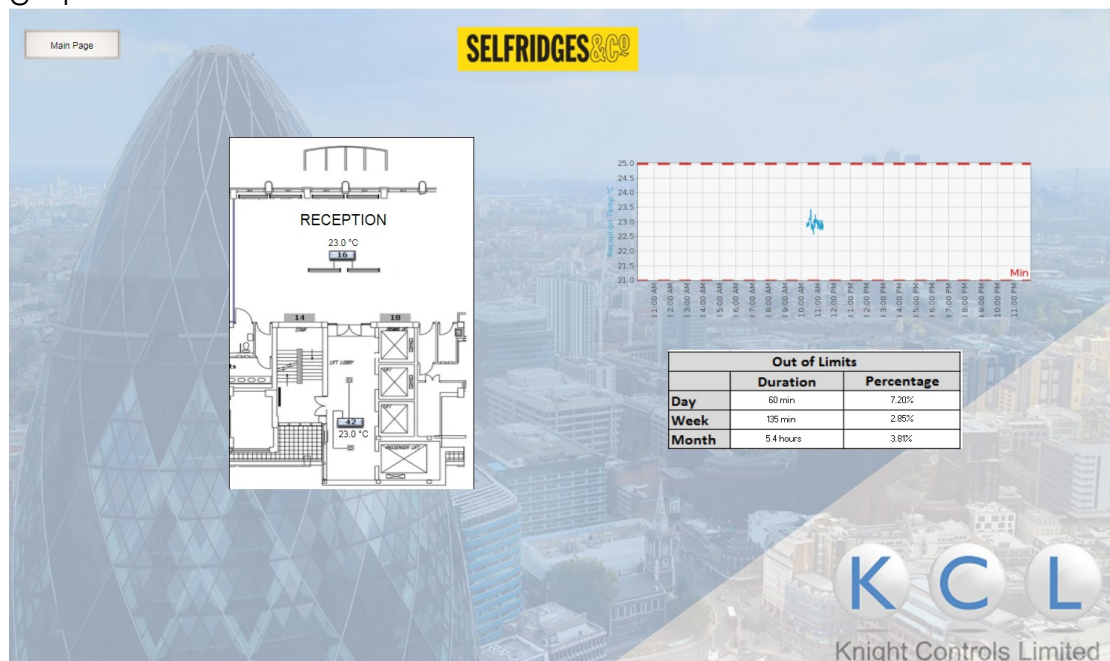
This is the maximum power value, usually the average of 15 minutes, reached during the billing period (this average time may vary depending on the country). Once the value is higher than the contracted power, the customer will pay a penalty on the electricity bill.

The Optyery Proton controller can be used to ensure the maximum demand does not exceed the limit of the contracted power. To archive this goal, the communication between the Optyery monitoring system and the Trend BMS can be engineered to disconnect non critical loads and also avoid connecting loads simultaneously to reduce the instantaneous power.

If the maximum power value can be reduced then electricity standing charges can be reduced.

BMS Controlled Plant Monitoring

As the Optyery Proton controller is able to communicate directly to the Trend, Siemens and any other BACnet systems, without the need to modify any BMS software or effect the actual plant operation, points such as space temperature sensors can be monitored and used to generate alarms or give control data information as shown on the graphic below:



Billing

If required the Optergy Proton controller can be set to automatically or manually generate invoices.

Below is a sample of the energy invoice:



Energy Invoice

Optergy Demo | Electricity account

Miss Anjali Shukla
Optergy
Australia

Tax Invoice	
Invoice Number:	J17-1016
Issue Date:	11/09/2017
Total Amount Payable:	\$1,326.97
Due Date:	11/10/2017
Total Amount Payable After Due Date:	\$1,336.97

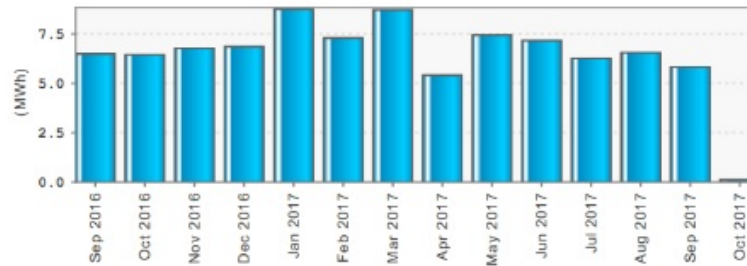
Meter Summary

Meter	Days Covered By Invoice	Previous Reading	Current Reading	Usage
Main Electrical Meter (208268196)	31 days	403,357,943 Wh 01/08/2017 12:00 AM	409,908,300 Wh 01/09/2017 12:00 AM	6,550,357 Wh

Your Overall Picture

Average Usage Per Day
211,301.84 Wh

Same Time Last Year
224,820.94 Wh



Invoice Charges Breakdown

Supply Period - Tuesday, 01 August 2017 to Thursday, 31 August 2017

Time Of Use Charge Details				
Description	Time On/Off	Rate	Usage	Charge
Off Peak Electricity A - Main Electrical Meter (208268196)	5:00 PM - 11:59 PM	0.19 / kWh	1,381.7 kWh	\$262.52
Off Peak Electricity A - Main Electrical Meter (208268196)	5:00 PM - 11:59 PM	0.19 / kWh	1,381.7 kWh	\$262.52
Off Peak Electricity A - Main Electrical Meter (208268196)	5:00 PM - 11:59 PM	0.19 / kWh	1,381.7 kWh	\$262.52

Peak Demand Charge Details				
Description	Time	Rate	Peak demand	Charge
Peak Demand - Main Electrical Meter (208268196)	2:00 PM - 4:00 PM (Peak 03/08/2017 2:30 PM)	0.5 / kW	29.71 kW	\$14.85

Additional Fees And Charges

Processing Charge	\$5.00
Service Fee	\$10.00

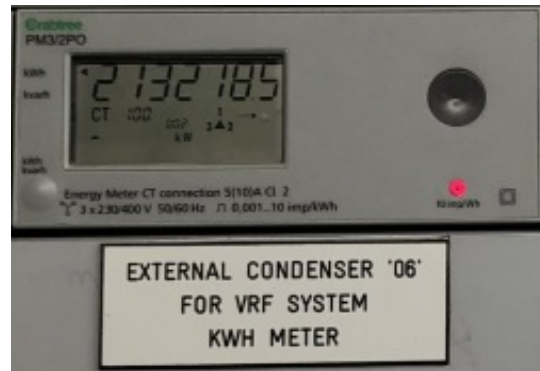
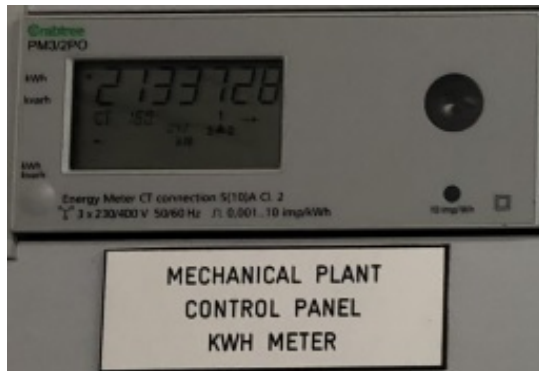
Total Usage and Supply Charges

Total Before GST:	\$1,206.33
GST:	\$120.63
Total Amount Payable:	\$1,326.97

Current Meter Installation

The current installation has pulse type meters that are all reading incorrectly on the Trend 963 graphics. Below is a sample of the meters with a screen shot of the meter readings taken from the 963 and the actual meters highlighting the issue of using pulse meters.

Mechanical Services MCC	1 436245 kWh	642 kWh
External Condensor '01' Electricity Meter	1 19811 kWh	146 kWh
External Condensor '06' Electricity Meter	1 31802 kWh	76 kWh
External Condensor '07' Electricity Meter	1 03115 kWh	89 kWh



The Optergy Proton controller can use the existing pulse meters by installing counter modules. This would considerably reduce the initial costs and still offer all the benefits of the Optergy Proton system. However as mentioned above pulse meters can easily become out of sync from the actual readings and should therefore be regularly checked and calibrated.

Our suggestion is to upgrade the electricity meters to MID Modbus meters suitable for billing purposes. These type of meters synchronise themselves if they lose communications for some reason. Therefore the readings can be totally relied upon to give accurate readings, billing and overall monitoring.