Energy Applications - Enerlytics™ Overview

Enerlytics™ is the Automated Meter Reading (AMR) solution provided by Energy Applications Ltd a UK based company with offices in Manchester, Invergordon in the UK and Adelaide in Australia. Adaptive Wireless Solutions has a collaboration agreement with Energy Applications Ltd to provide the system to our clients.

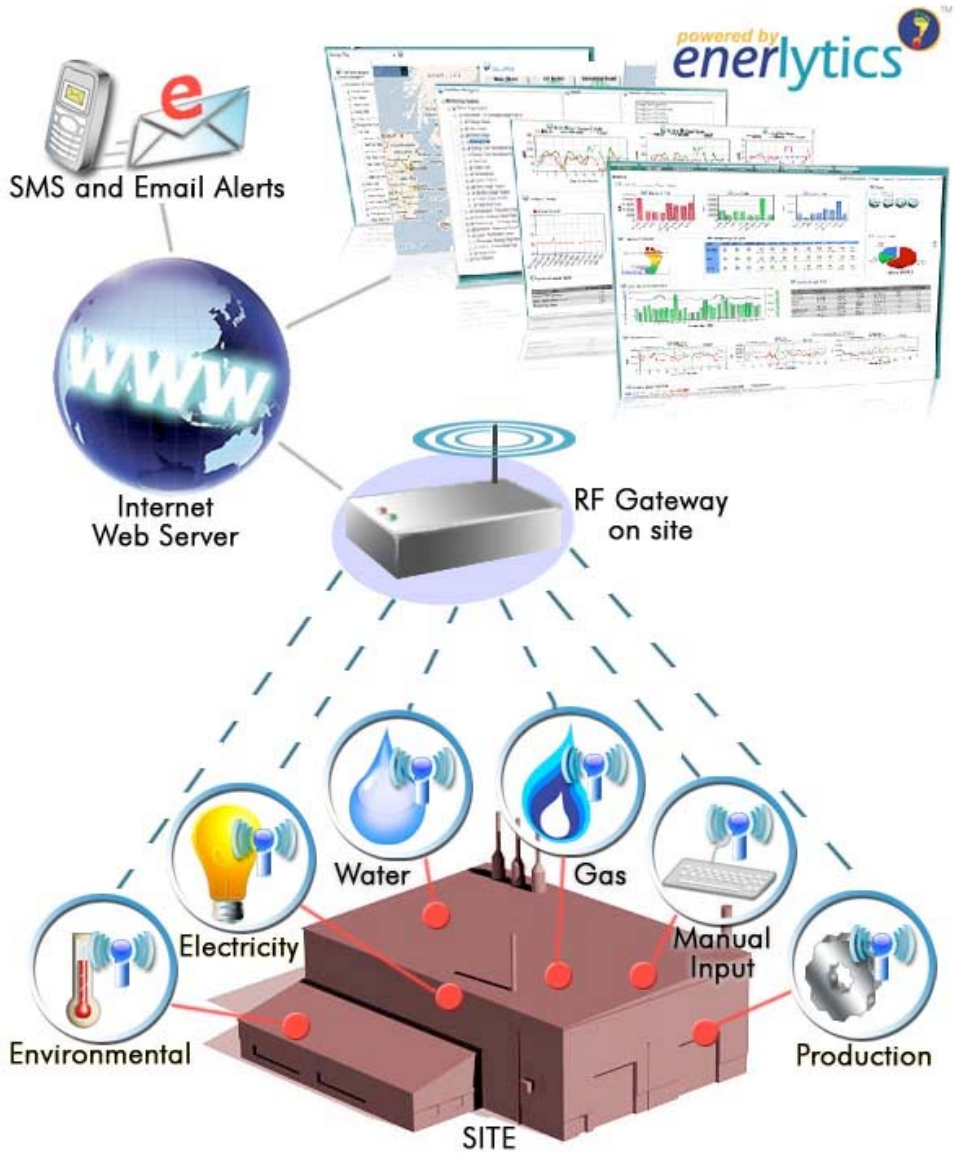
Enerlytics™ is the most powerful energy management system on the market today. At its heart is a powerful analysis engine with a proven track record in solving complex problems in industries such as Oil & Gas, Water, Power Transmission, Food Manufacture, Cold Stores and Retail Outlets around the globe. Thousands of users every day are making a real difference to the profitability of their businesses using the Enerlytics™ analysis engine.

Enerlytics™ is a web-browser based solution and therefore requires no software installation at the client's desktop PC. It can either be hosted off-site on our secure servers and accessed from your site(s) via secure web access, or it can be installed on your own server and operated exclusively behind your corporate firewall. To access the full capabilities of Enerlytics™ users only require a standard web browser. Access to the system is password controlled and users see what they are entitled to according to their job function. For instance at a local level a store manager can only see the data for his store whilst at a national level the corporate energy manager can see the data for all the stores under his control. Sites can be grouped into regions and territories and all values for sites added to the group or territory totals.

Enerlytics™ is compatible with all the meters provided by major meter manufacturers or energy suppliers. Enerlytics™ is capable of handling data from Electricity, Gas, Water and Fuel Oil meters as well as any other data stream whether collected through hardware or from manual data input. As Enerlytics has come through the engineering data collection route it is not constrained by half hourly periods and can read and display data at sub-minute resolution. The calculations engine has been benchmarked as 'best of breed' by our

clients in the utilities industries. This allows any calculation to be defined, be it energy and cost for a set time period, or more specific calculations on production efficiency or cost per headcount or footfall, etc. Any calculation defined in the calculations module can be displayed using any of the dashboard widgets.

Enerlytics™ differs in many significant ways from standard competitor systems and BMS solutions. Enerlytics™ has a strong problem and decision support systems pedigree. Whilst it is important to measure what is going on in any energy management application it is more important to work out why consumption patterns occur the way they do and to work out the contributing factors to energy consumption. Sub-metering of key parts of the process or facility allow Enerlytics™ to do this analysis and make substantial savings for our clients. One major newspaper publisher saved £650,000 in one year by using Enerlytics™ and sub-metering.



Enerlytics™ is data source and data destination neutral. We can accept data from any meter, sub-meter, wireless monitoring system. electronic instrumentation, database, control system, manual data entry form, or BMS installation. We can use this data to analyse energy use in terms of process throughput and product quality. We can then use these results as an

output to any control system, BMS, database or electronic device. Enerlytics™ can provide full feedback for control systems or devices such as Adams units and their like.

Enerlytics™ can connect to sites by direct communication via RF gateway (as seen above) or by secure simple data transfer of data from the client's network to our secure external servers. Whatever the clients internal set-up Enerlytics™ has a solution to data collection and presentation.

Enerlytics™ can handle anything from one site for a small client through to many thousands of sites spread around the globe. Automated alarms, alerts and reporting functions within the system ensure that one person can mange many hundreds of installations on their own. The database and calculations engine which lies at the heart of the Enerlytics™ solution is capable of handling huge quantities of data and has been designed to operate just as effectively for a single site user as it does for a multi-national corporation. The largest installation currently has around 139 Billion data records under management. This amount of data is managed by a Bureau employing 12 people on 3 shifts. This bureau handles the maintenance and energy management of retail refrigeration systems for more than 5,000 supermarkets in the USA and Australia. It is this pedigree and experience which ensures that Enerlytics™ can be scaled to meet the growing needs of any client.

Typical payback periods for Enerlytics™ installations has always been less than 14 months. It is difficult to give exact pricing since every system varies in terms of complexity of the solution that needs to be provided. It is nonetheless true that Enerlytics™ can match or beat the price of any supplier on the market. Our clients always come back for more a sure sign that we provide real value for money and our prices are competitive.

Pricing methods include:

- ✓ Outright purchase of site installed server based systems
- ✓ Monthly fee based systems
- ✓ Annual fee based systems
- ✓ Installation fees

These prices vary with the complexity of the solution with simple utility-only systems being the cheapest through to multi-site, multi-country systems with complex sub-metering being the most expensive.

Enerlytics™ Features

Databases supported

- ✓ Microsoft SQLServer
- ✓ Oracle
- ✓ PostgresSQL

Connectivity

- ✓ Connection to any Utility meter
- ✓ Connection to most popular sub-metering systems
- ✓ Connection to external data collection systems by GSM/GPRS/TCPIP/IP etc
  - o Adaptive Wireless(Spinwave/E-Senza)
  - o Invisible systems
  - o RadioTech
  - o Adams
  - o TMac
  - o Torex
  - o Synetica
  - o LEM
  - o HiTechnologies
- ✓ Connections to :
  - o Control systems
  - o Control instrumentation
  - o External databases
  - o Data historians
  - o BMS
- ✓ Full OPC compatibility for two way communications with all modern control systems
- ✓ Export of data to any other system
- ✓ Export of data to MS Word, PowerPoint and Excel
- ✓ Manual keyboard entry on web forms
- ✓ Import of data from excel
- ✓ Import of data from CSV etc.
- ✓ Import of data from FTP transfer

System

- ✓ Web based
- ✓ Password controlled access
- ✓ Single or multiple sites – fully scalable
- ✓ Easy to use
- ✓ Complex calculations engine with full Boolean logic support
- ✓ Templates to define site requirements
  - o Minimal set up time, define a site type and the system will build all sites of that type
  - o Define access levels for what a user will see on log on

User Interface

- ✓ Standard web browser is all that is needed
- ✓ Geospatial map based view for multiple sites
- ✓ Widget based
- ✓ User can design own web pages using simple drag and drop techniques
- ✓ Full graphing and trending display package
- ✓ Refrigeration HACCP management and reporting
- ✓ Automatic alarm and alert generation
- ✓ Full alarm management capability
- ✓ Full systems monitoring capability – the system monitors and alarms on itself!
- ✓ Alarms on the web, via email, SMS, smart phone and I-Phone app
- ✓ Simple traffic light notification
- ✓ Automatic reporting, user defined excel reports can be incorporated on the web site for viewing
- ✓ Bench marking across sites
- ✓ Enterprise wide KPIs and league tables
- ✓ Full bill validation and 'mock' bill creation to estimate expenditure
- ✓ Carbon footprint calculation and reporting
- ✓ Alarm against measured data and KPIs
- ✓ Compare any data value against any other
- ✓ Set up and alarm on any calculation
- ✓ Measure everything in cost terms
- ✓ Set targets and have ranked tabular displays of worse variance against target for energy, cost against efficiency measures
- ✓ Predict energy spend and manage energy costs

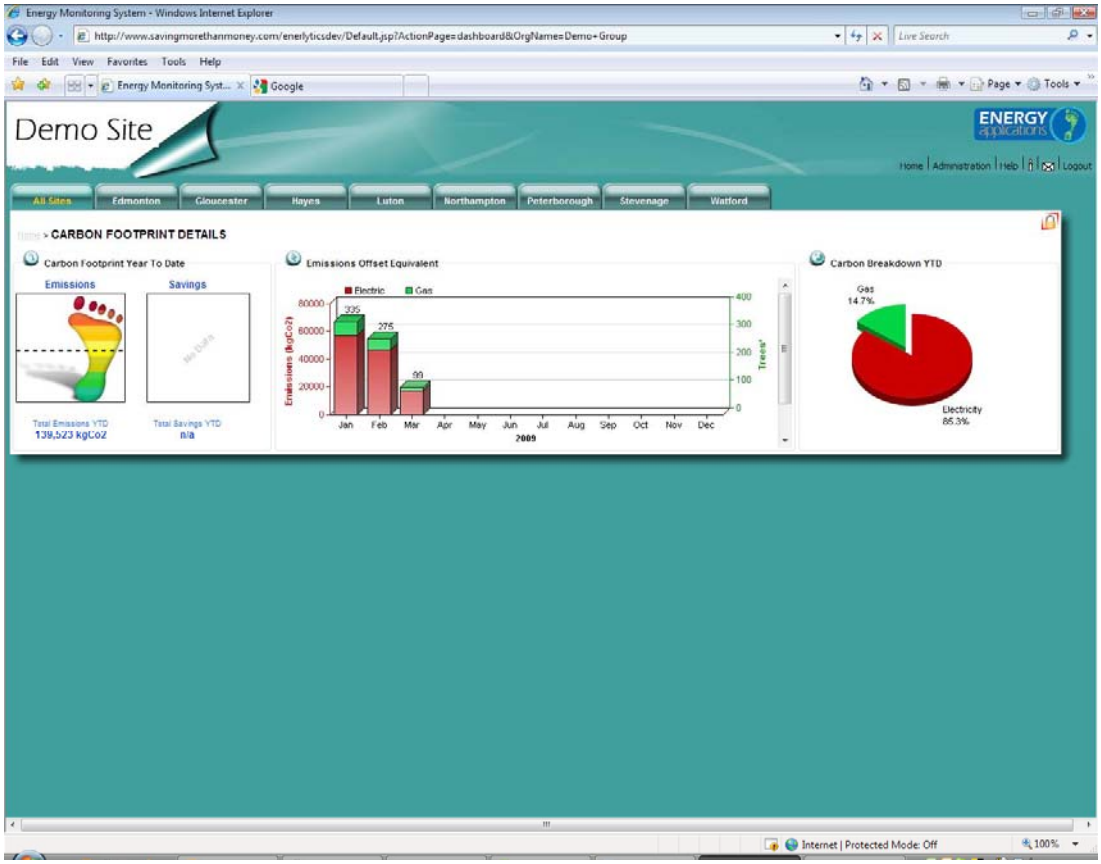
Types of user defined widgets available

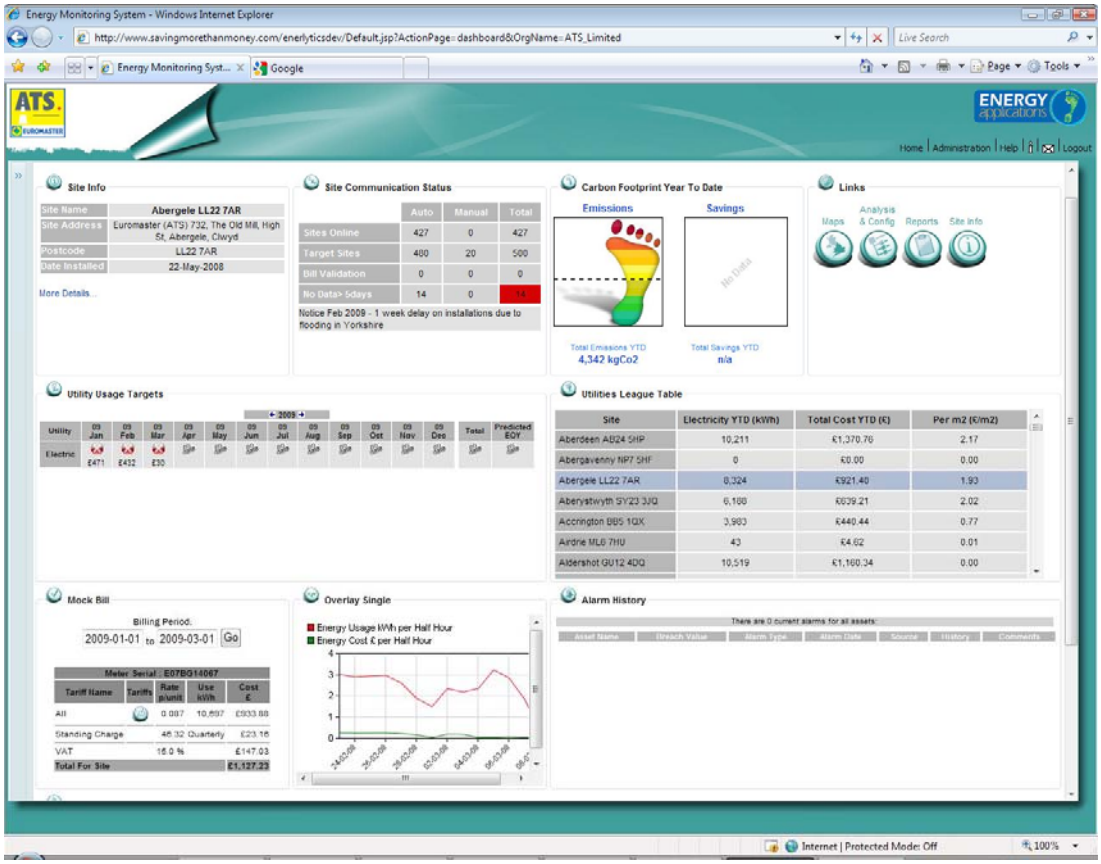
Most of the widgets support drill down to sub data sets, month to day to half hour etc.

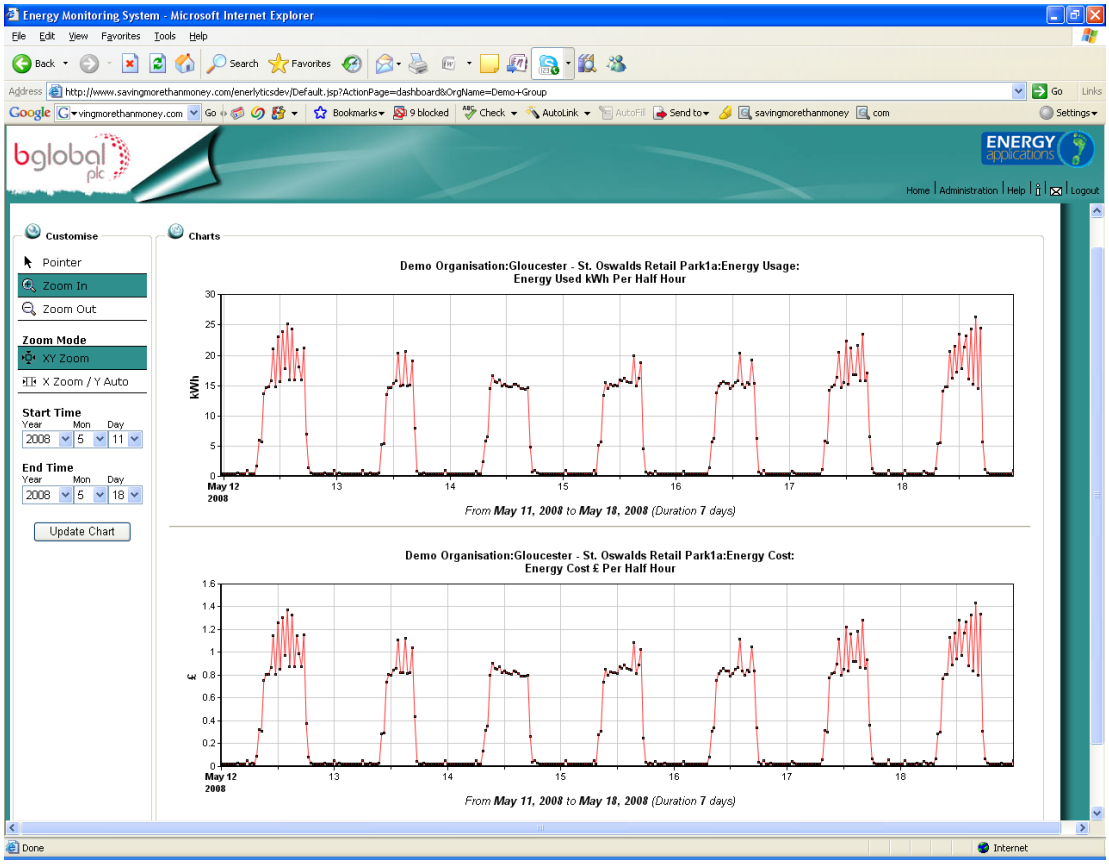
- ✓ Site Information
- ✓ Geospatial map front end, Virtual Earth™ navigation
- ✓ 2Y axis plots
- ✓ Degree day analysis, electric/gas
- ✓ Emissions offset equivalent
- ✓ Excel custom reports
- ✓ Gauge display with alarms levels displayed
- ✓ Overlays of data asets
- ✓ Site communications status
- ✓ Meter alarm profile
- ✓ Alarm configuration
- ✓ Alarm History
- ✓ Tariff analysis
- ✓ Bill Validation
- ✓ Mock Bill
- ✓ Site contract allocation
- ✓ Site contract analysis
- ✓ Carbon breakdown
- ✓ Carbon footprint
- ✓ Consumption report

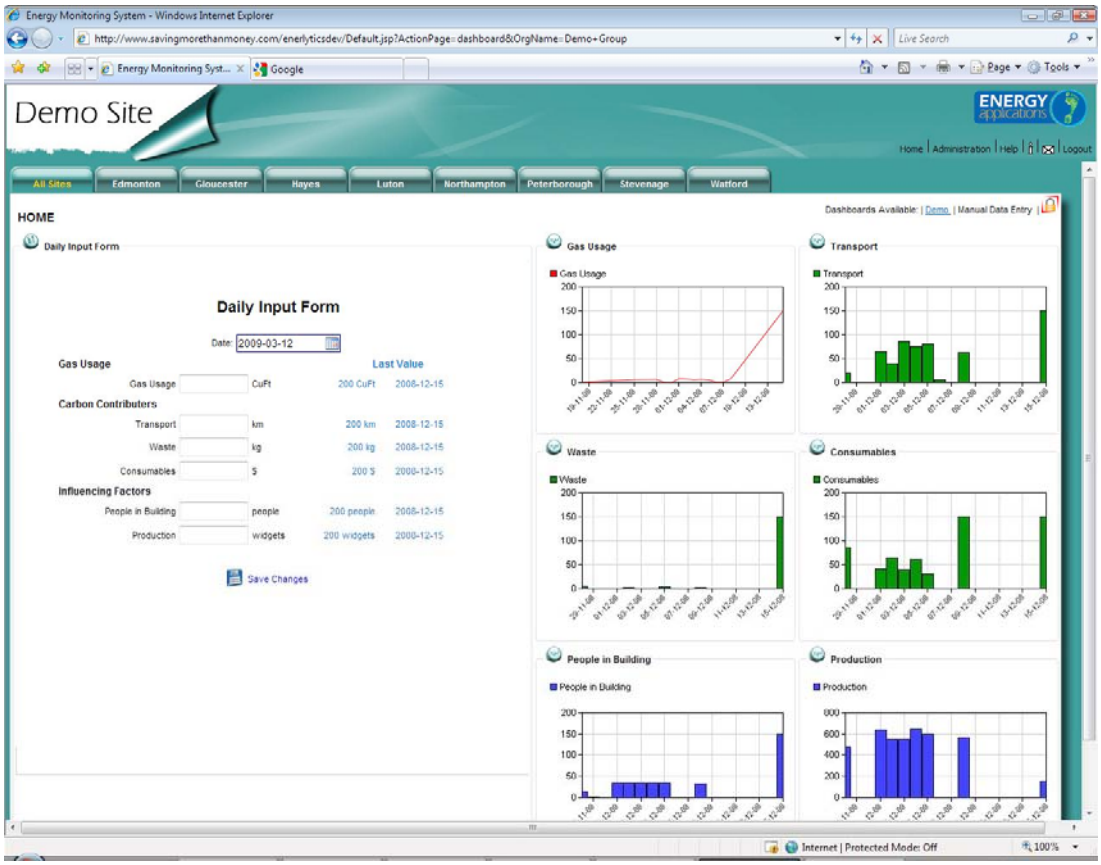
- ✓ Tenant Billing
- ✓ Temperature heat maps and HAACP report
- ✓ Total cost breakdown pie chart (site or totals)
- ✓ Utility league tables for all sites
- ✓ Utility consumption year to date
- ✓ Utility usage targets
- ✓ Usage versus target
- ✓ Data Entry
- ✓ Links

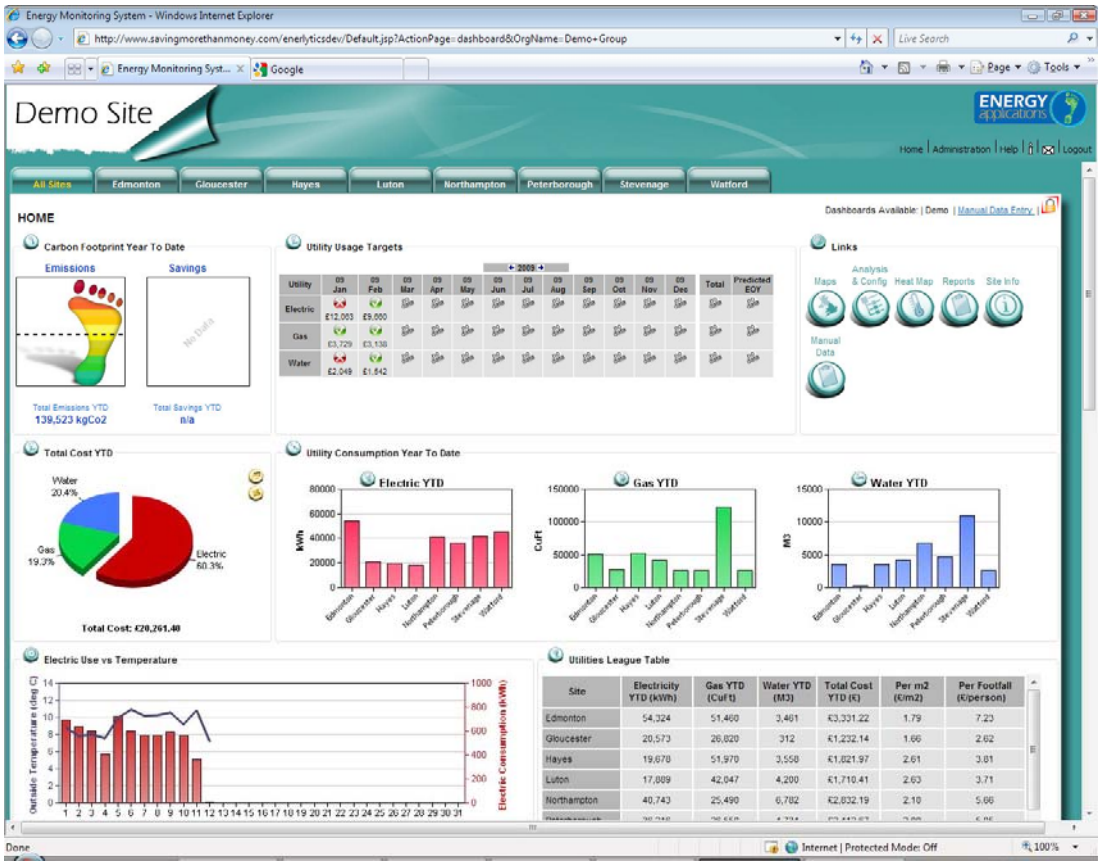
Typical Screens

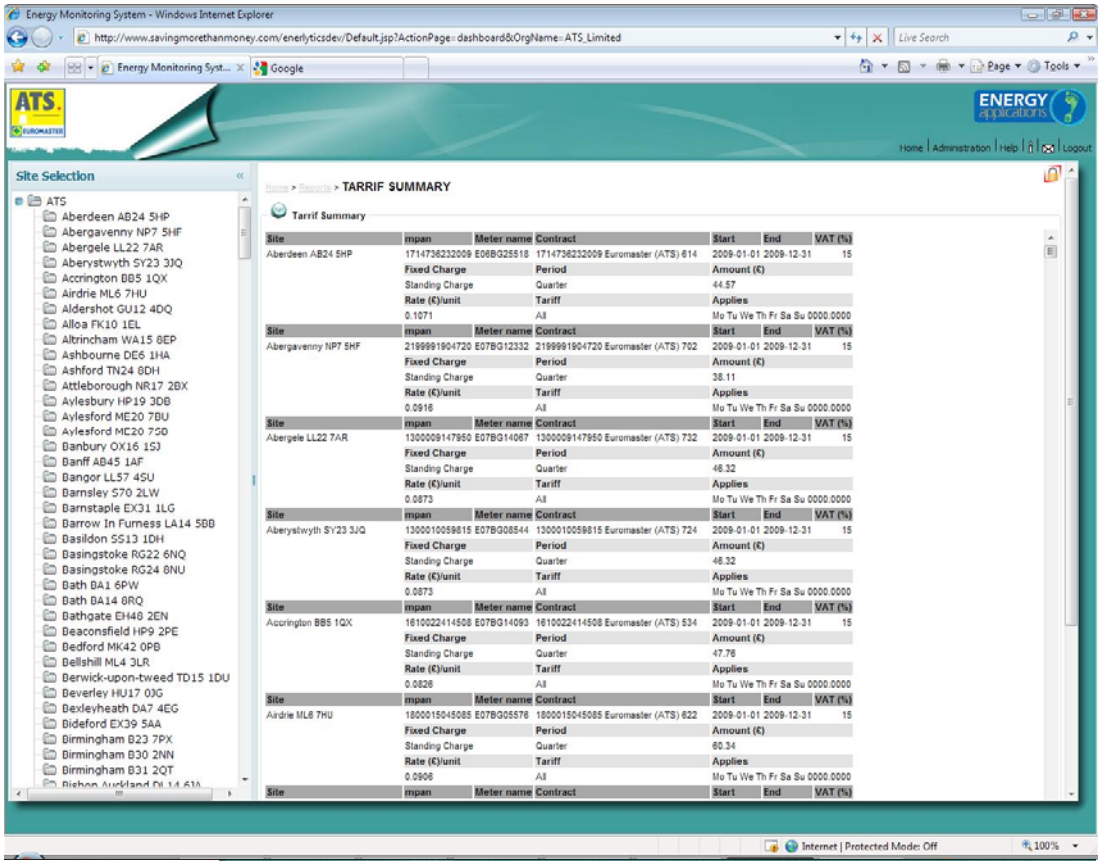


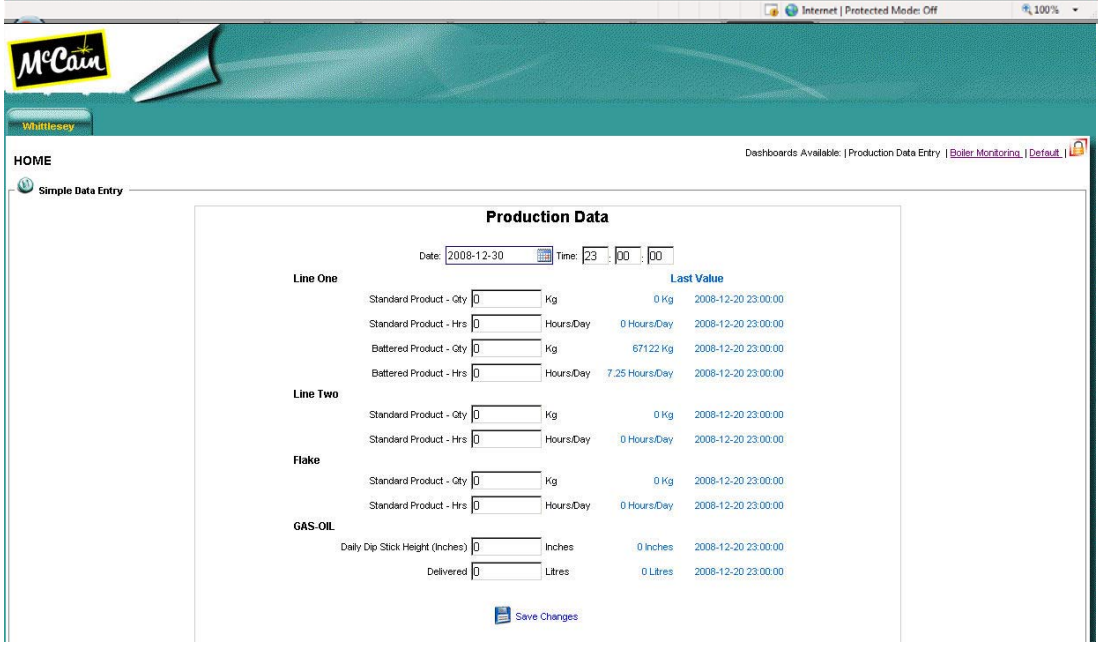

Energy Monitoring System - Windows Internet Explorer
ENERGY applications
Site Info
Site Communication Status
Carbon Footprint Year To Date
Links
Utility Usage Targets
Utilities League Table
Mock Bill
Overlay Single
Alarm History

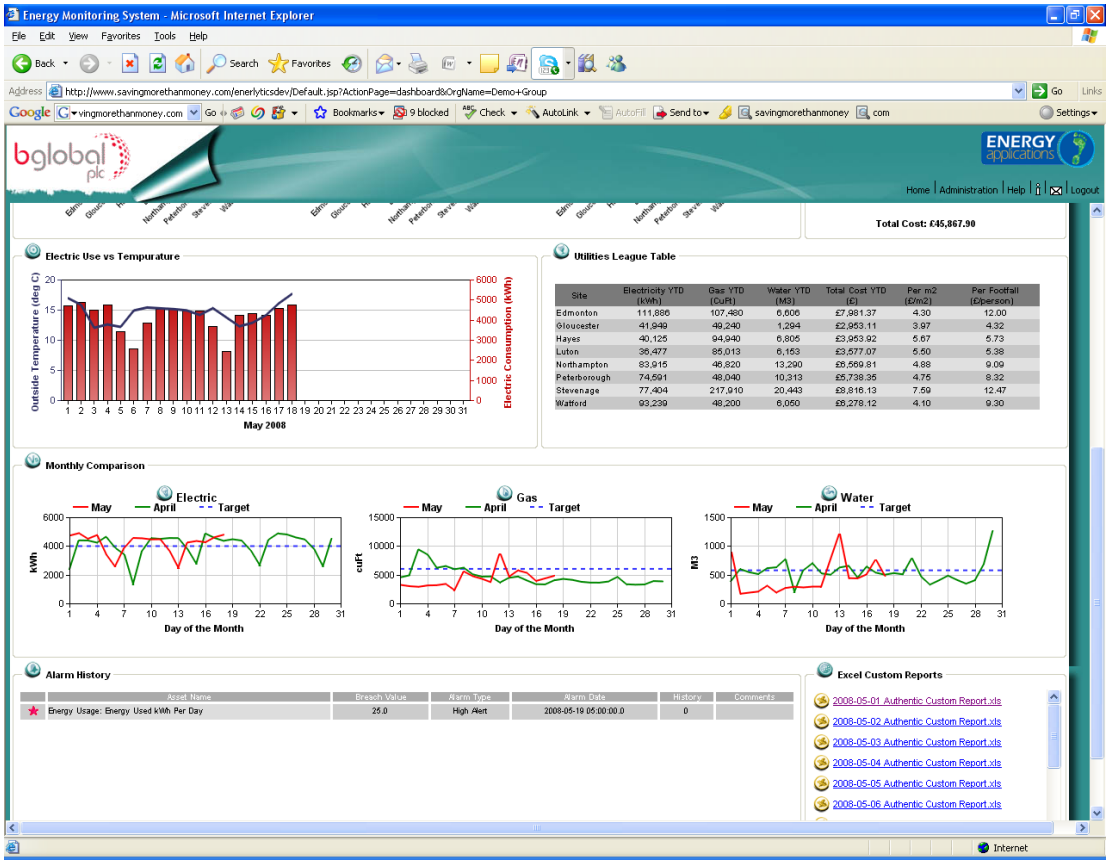

Energy Monitoring System - Microsoft Internet Explorer
bglobal plc
ENERGY applications
Customise
Pointer
Zoom In
Zoom Out
Zoom Mode
XY Zoom
X Zoom / Y Auto
Start Time
End Time
Update Chart
Charts
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Energy Usage:
Energy Used kWh Per Half Hour
kWh
From May 11, 2008 to May 18, 2008 (Duration 7 days)
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Energy Cost:
Energy Cost £ Per Half Hour
£
From May 11, 2008 to May 18, 2008 (Duration 7 days)

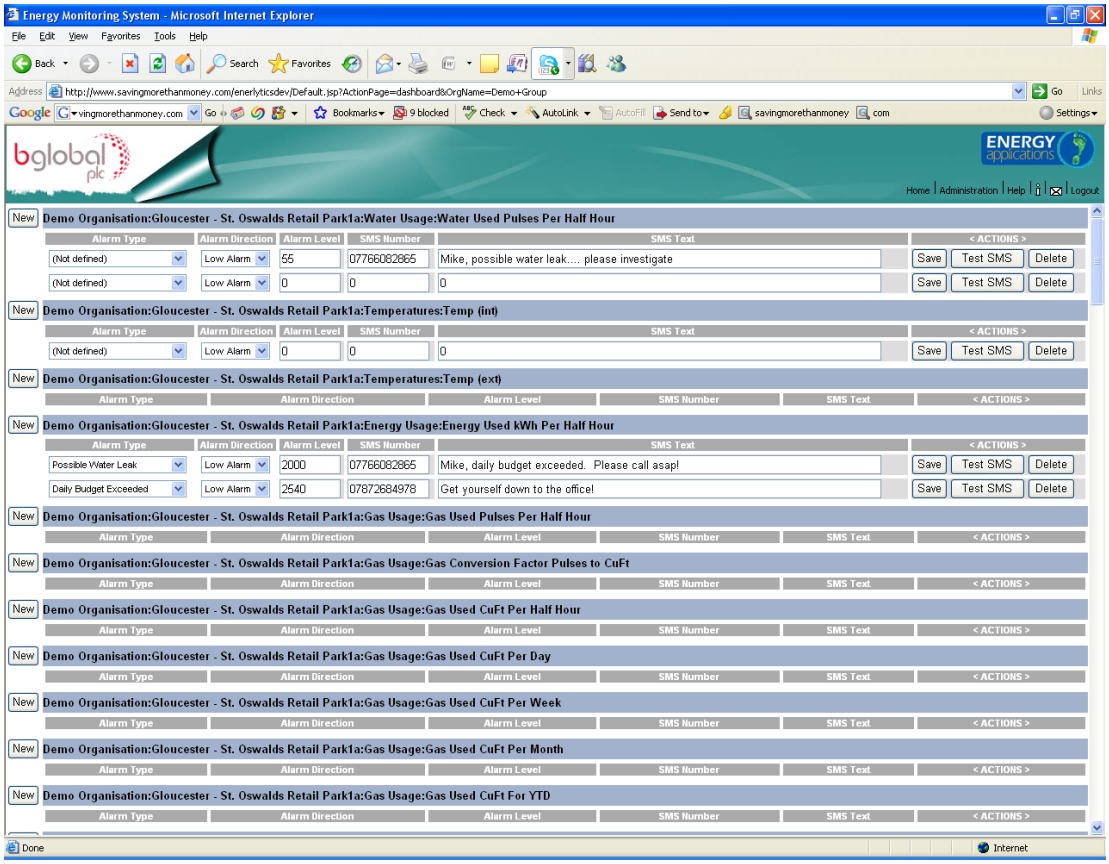

Energy Monitoring System - Windows Internet Explorer
Demo Site
ENERGY applications
Home | Administration | Help | Logout
All Sites | Edmonton | Gloucester | Hayes | Luton | Northampton | Peterborough | Stevenage | Watford
HOME
Daily Input Form
Gas Usage
Transport
Waste
Consumables
People in Building
Production


Energy Monitoring System - Windows Internet Explorer
Demo Site
ENERGY applications
Home | Administration | Help | Logout
All Sites | Edmonton | Gloucester | Hayes | Luton | Northampton | Peterborough | Stevenage | Watford
HOME
Carbon Footprint Year To Date
Utility Usage Targets
Links
Total Cost YTD
Utility Consumption Year To Date
Electric YTD
Gas YTD
Water YTD
Electric Use vs Temperature
Utilities League Table


Energy Monitoring System - Windows Internet Explorer
ATS
ENERGY applications
Site Selection
TARRIF SUMMARY
Tarrif Summary


McCain
Whittlesey
HOME
Simple Data Entry
Production Data
Line One
Line Two
Flake
GAS-OIL
Save Changes


Energy Monitoring System - Microsoft Internet Explorer
bglobal plc
ENERGY applications
Home | Administration | Help | Logout
Total Cost: £45,867.90
Electric Use vs Tempurature
Outside Temperature (deg C)
Electric Consumption (kWh)
May 2008
Utilities League Table
Site | Electricity YTD (kWh) | Gas YTD (CuFt) | Water YTD (M3) | Total Cost YTD (£) | Per m2 (£/m2) | Per Footfall (£/person)
Edmonton | 111,886 | 107,480 | 6,606 | £7,981.37 | 4.30 | 12.00
Gloucester | 41,949 | 49,240 | 1,294 | £2,953.11 | 3.97 | 4.32
Hayes | 40,125 | 94,940 | 6,805 | £3,953.92 | 5.67 | 5.73
Luton | 36,477 | 85,013 | 6,153 | £3,577.07 | 5.50 | 5.38
Northampton | 83,915 | 46,820 | 13,290 | £8,589.81 | 4.88 | 9.09
Peterborough | 74,591 | 48,040 | 10,313 | £5,738.35 | 4.75 | 8.32
Stevenage | 77,404 | 217,910 | 20,443 | £8,816.13 | 7.59 | 12.47
Watford | 93,239 | 48,200 | 6,050 | £8,278.12 | 4.10 | 9.30
Monthly Comparison
Electric
Gas
Water
May
April
Target
kWh
cuFt
M3
Day of the Month
Alarm History
Asset Name | Breach Value | Alarm Type | Alarm Date | History | Comments
Energy Usage: Energy Used kWh Per Day | 25.0 | High Alert | 2008-05-19 05:00:00.0 | 0
Excel Custom Reports
2008-05-01 Authentic Custom Report.xls
2008-05-02 Authentic Custom Report.xls
2008-05-03 Authentic Custom Report.xls
2008-05-04 Authentic Custom Report.xls
2008-05-05 Authentic Custom Report.xls
2008-05-06 Authentic Custom Report.xls
Internet


Energy Monitoring System - Microsoft Internet Explorer
bglobal plc
ENERGY applications
Home | Administration | Help | Logout
New
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Water Usage:Water Used Pulses Per Half Hour
Alarm Type | Alarm Direction | Alarm Level | SMS Number | SMS Text | < ACTIONS >
(Not defined) | Low Alarm | 55 | 07766082865 | Mike, possible water leak.... please investigate | Save | Test SMS | Delete
(Not defined) | Low Alarm | 0 | 0 | 0 | Save | Test SMS | Delete
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Temperatures:Temp (int)
(Not defined) | Low Alarm | 0 | 0 | 0 | Save | Test SMS | Delete
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Temperatures:Temp (ext)
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Energy Usage:Energy Used kWh Per Half Hour
Possible Water Leak | Low Alarm | 2000 | 07766082865 | Mike, daily budget exceeded. Please call asap! | Save | Test SMS | Delete
Daily Budget Exceeded | Low Alarm | 2540 | 07872684978 | Get yourself down to the office! | Save | Test SMS | Delete
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Used Pulses Per Half Hour
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Conversion Factor Pulses to CuFt
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Used CuFt Per Half Hour
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Used CuFt Per Day
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Used CuFt Per Week
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Used CuFt Per Month
Demo Organisation:Gloucester - St. Oswalds Retail Park1a:Gas Usage:Gas Used CuFt For YTD
Done
Internet

Sample Manual Pages

A comprehensive user manual (printed or electronic) ensures our users can configure and build their own systems if they prefer to go it alone.

3 Widgets

3.1 Add a widget

In Edit mode on the dashboard, click the Add Widget button. That will take you to the following screen:-

Each widget can be a different size. This is indicated by the Column Span under each widget. You can only add widgets that fit in the remaining space on the bottom line of your dashboard. The 'Available slots left on line' on the top right of the page indicates the maximum size widget you can add.

4.15 Site Comms

This widget lists the communication status of all the sites that are feeding data to the system.

Any Row or column can be hidden using the configuration screen.

Cells are highlighted in red if any sites have not had recent data indicating possible communication problems.

Site Communication Status

	Auto	Manual	Total
Sites Online	427	0	427
Target Sites	480	20	500
Bill Validation	0	0	0
No Data> 5days	14	0	14

Notice Feb 2009 - 1 week delay on installations due to flooding in Yorkshire

A bulletin board is available to communicate relevant information

Site Communication Status

Total Sites: 14

Site	Meter	Last Da...
Darlington DL1 4AE	E07BG12329	30/01/09 22:59
Dunfermline KY12 7SL	E06BG25533	06/03/09 22:59
Durham DH1 5HJ	E07BG12715	04/03/09 22:59
Glasgow G78 1TH	E07BG05654	26/02/09 22:59
Havant PO9 3EY	E07BG33050	26/02/09 22:59
Kings Lynn PE30 4LH	E07BG12879	26/02/09 22:59
Lampeter SA48 7DS	E07BG12696	24/02/09 22:59
Liskeard PL14 4AA	E07BG12252	26/02/09 22:59
Penzance TR18 3AS	E06BG25365	06/03/09 22:59

Clicking on a number drills down to a list of the sites that make up that number.

Conclusion

Enerlytics™ is the most advanced system of its type on the market today. It takes an engineering approach to energy management. Enerlytics™ is concerned with not just the 'how much?' of energy costs but also with the 'why and what' of the influences on any energy bill. From temperature, humidity, footfall, production throughput and any other contributing factors we can find measurable ways to reduce energy consumption. Clients like Trinity Mirror, Authentic Foods, the Government of South Australia and McCain (the frozen chip people) have had astounding success with their Enerlytics™ systems.

Our experience of building the world's most successful retail refrigeration management system for the world's largest refrigeration company ensures that our abilities in this sector are beyond compare. We understand the complexity of handling millions of data feeds from around the globe. We understand the necessity of performing millions of calculations to extract real benefit from the data. We have solved the complex tasks involved in managing systems to maintain a better than 99.99% uptime for these mission critical systems. Our systems perform at a truly global enterprise level. At the same time we can keep it simple enough to deal with a single meter installation. No other company active in our market place can match this breadth of experience.