



Datashield



iBuilding Energy

The most comprehensive energy management suite

iBuilding Energy is the most comprehensive and intuitive energy monitoring and targeting suite, providing an impressive range of techniques for managing all aspects of energy related data.

iBuilding Energy's aM&T / EMS (Monitoring and Targeting/ Energy Management System) suite is the most sophisticated and comprehensive 100% fully web based energy suite available. The application is 100% web based and accessible via a standard web browser from any PC with a network connection. iBuilding Energy is installed onto a PC or Server running Windows and Microsoft IIS, it is then served like a standard website and requires no client side application to be installed by end users.



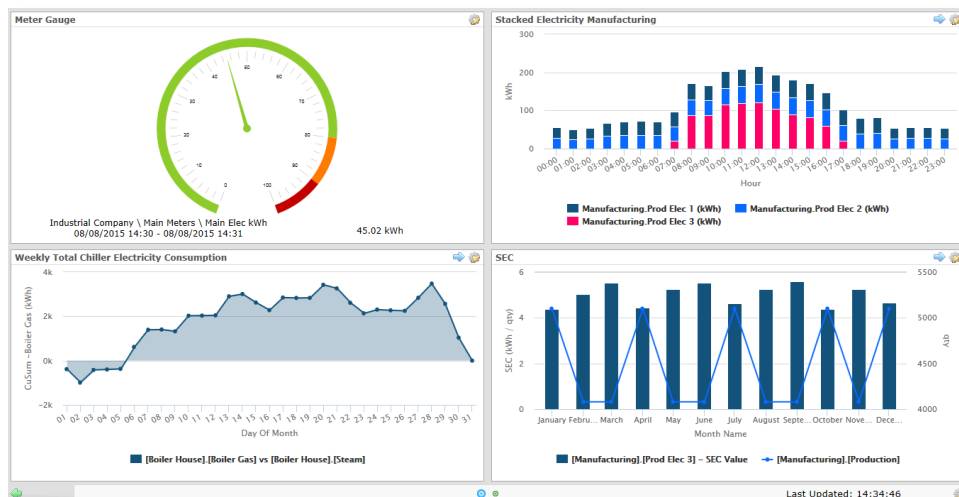
Data can be automatically imported to the suite from data loggers, BMS and SCADA systems, production systems, electronic billing data and spreadsheets. iBuilding Energy is extremely user friendly, providing a range of powerful analysis techniques, accessible through an intuitive interface suitable for users of any experience.

It has the ability to accept data feeds from multiple sources including the oBIX (Open Building Information Exchange) protocol, meaning it can seamlessly interface with Tridium's Niagara 4 Framework.

Data at your fingertips!

iBuilding Energy contains an expansive selection of analysis modules which may be combined according to the specific requirements of your individual company. Additionally, the functionality is presented within 2 main user levels; Advanced and Express.

The Advanced level provides complete access to the full iBuilding suite whereas Express presents an extremely simplified view, where users of any ability can access their data. This is both important in allocating internal access, but also extremely powerful if you are working in a facilities management, consultancy, large organisation or management style environment.



iBuilding Energy Modules

Calculated Meters

Enables virtual or calculated meters to be created to generate meter readings based on a formula.

Data Exchange

Automatic import of data to eSight from a range of different hardware in a variety of different formats.

Energy Analysis

Allows data to be presented in a wide range of graphs, tables, reports and exports. Templates can also be saved and emailed with ease.

Exception Reporting

Enables alarms to be configured to automatically report on anomalies in energy data over given periods of time.

Financial Analysis

Analyse energy consumption in terms of cost. Supplier contracts may be stored against sites or meters to provide accurate analysis of both current and historical consumption data.

Reporting

Provides a number of standard report templates that may be run on an ad hoc basis. Also the ability to schedule reports for automatic production and distribution via email.

Tenant Billing

Automatically manage the complete process of calculating energy consumption and billing sub-tenants across one or more sites.



Calculated Meters Module

The Calculated Meters Module enables virtual or calculated meters to be created to generate meter readings based on a formula. The resulting calculated meter can then be used in energy analysis reports in the same way as a standard physical meter.

Calculated Meter Formulas

Calculated Meters provide the ability to setup a calculation which may then be used within standard analysis techniques in iBuilding Energy.

Each calculated meter can include a range of calculations which are applicable for different date ranges.

Therefore, if a calculation needs to change, it is possible to add a new formula and make it applicable from a date range. This will preserve calculated readings from previous versions of the formula.

Formulas can include lookup values which are obtained from lookup tables within the Calculated Meters module. iBuilding Energy contains full enthalpy lookup tables which may be automatically referenced when setting up a calculated meter.

Calculated Meter Use

Calculated Meters can be used across a diverse range of applications. For example, in an area lacking metering, a calculation could be setup to report on the main meter minus sub meters; the resulting figure would be the remaining un-metered area.

Similarly, calculated meters could also be used to simply aggregate data or compare a main meter with sub meters.

In sites which fall under EU ETS (Emissions Trading) legislation or that have CCL (Climate Change Levy) obligations, calculations can also be setup to report on Carbon outputs.

Calculated meters are also frequently required for automatically calculating production efficiency, boiler efficiency and flow rates etc.

Once created, the calculated meter can be used within iBuilding Energy for reporting in exactly the same way as a standard physical utility meter.



Data Exchange Module

The Data Exchange Module enables the automatic import of data to eSight from a range of different hardware in a variety of different formats. iBuilding Data Exchange also provides the facility for analysing the quality of data once imported to iBuilding Energy as well as allowing data to be exported by supplier.

Import Data

The Import Data page provides a view of data import jobs.

Items listed within this module screen are data import jobs which have either been run in the past or are still to be completed.

Imports may be filtered by status (running or complete etc) as well as by company, site and date.

Date	Site	Name	Description	Remarks	No. Reads	No. Errors	Status
2/24/2007 3:51 PM			Full Column	Yes	1026	0	Complete (with duplicates)
2/27/2007 3:40 PM			Single Column	Yes	87648	0	0.09 Failed
2/28/2007 7:42 PM		(1 Industrial Company)(Manufacturing)	Single Column	Yes	87648	0	0.09 Failed
2/28/2007 8:08 PM		(1 Industrial Company)(Manufacturing)	Single Column	Yes	87648	0	0.09 Failed
2/28/2007 8:52 PM		(1 Industrial Company)(Manufacturing)	Single Column	Yes	87648	0	0.09 Failed
2/28/2007 9:44 PM		(1 Industrial Company)(Manufacturing)	Single Column	Yes	87648	0	0.09 Failed
2/28/2007 9:23 PM		(1 Industrial Company)(Main Motors)	Single Column	Yes	87648	0	0.09 Failed
2/28/2007 9:11 PM		(1 Industrial Company)(Main Motors)	Single Column	Yes	87648	0	0.09 Failed
2/28/2007 4:05 PM		(1 Industrial Company)(Main Motors)	Single Column	Yes	87647	0	0.09 Failed
2/28/2007 4:08 PM		(1 Industrial Company)(Main Motors)	Single Column	Yes	87648	0	0.09 Failed

Data may be imported to iBuilding Energy from a number of sources including BMS systems, SCADA systems, Electronic Billing Data and Data Loggers.

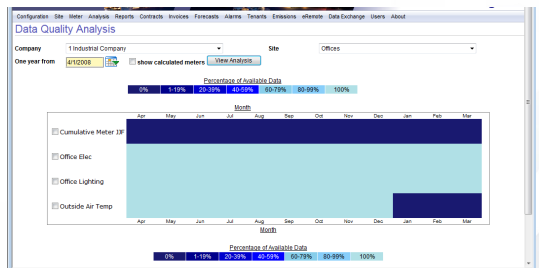
iBuilding Energy interfaces with most of the major systems manufacturers so importing data from existing systems is usually a straightforward process.

Data Quality Analysis

The Data Quality Analysis page allows missing data to be located and where required, auto-filled.

The auto-fill facility enables data to be filled with a linear data fill where data gaps will be filled with the same increments of data.

The existing data fill facility will take the profile of data from a previous week and apply the profile to the gap.



Data is flagged as being autofilled and if required, the Delete Autofilled Data button can be used to remove auto fill data for the selected period.



Energy Analysis Module

The Energy Analysis Module allows data to be presented in a wide range of graphs, tables, reports and exports. In addition, data analysis templates may be saved for later use by others or may be distributed automatically by email. Energy Analysis provides the user with the ability to configure their own energy reports with ease from an intuitive user interface. A number of powerful analysis techniques are provided to ensure that data is presented in the most informative format possible.

Analysis Techniques

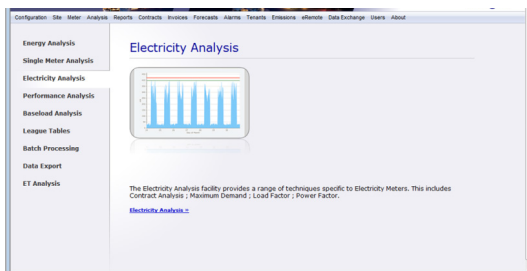
The iBuilding Energy Analysis menu provides different analysis techniques presented in a user friendly, colour coded set of buttons.

The Energy Analysis option provides the ability to compare meters, date ranges and analyse the cost of consumption as well as compare consumption against a target or budget line.

Electricity Analysis offers a range of techniques specific to electricity meters. These include analysis of maximum demand, contracts, load factor and daily profile comparison.

The Performance Analysis option enables the calculation of performance efficiency by analysing consumption data against production or Degree Day data using techniques such as Regression Analysis, CUSUM and Deviation analysis.

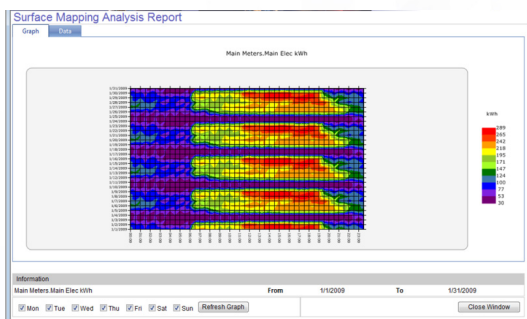
Within Baseload Analysis, it is possible to monitor energy consumption for active or inactive periods on a site as defined within meter or site configuration.



Intuitive, Flexible Reporting

Select the preferred analysis technique, the meter(s) required for either consumption or cost analysis, date range(s) and output format.

Graphs within iBuilding Energy are interactive, so users are able to "click and zoom" into a higher frequency of data where available, scroll along to view the next period or interval and view the data behind a graph.



Reports can be run on an ad hoc basis, saved down and made available for other users at a later point or scheduled for automatic distribution via email. Alternatively report data may be exported to a .csv format to provide additional flexibility where required.

Exception Reporting Module

The Exception Reporting Module enables alarms to be configured to automatically report on anomalies in energy data over given periods of time. iBuilding Energy provides a number of different alarm types which can be set on a per meter basis. Alarms may be raised within iBuilding Energy or forwarded automatically by email or within iBuilding Energy reports.

Alarm Configuration

The alarm configuration facility is used to configure different types of alarms associated to a particular meter. Any meter can have an unlimited number of alarms created.

Alarms can be configured to report on missing or average data ranges, deviation in data or if data steps outside of an expected range for a given period.

Profile Alarms enable a range of data to be selected. A percentage tolerance can then be applied to the data profile. For example, a typical day of consumption may be selected and an alarm may be set to raise if the consumption profile deviates more than 5% from the day's profile shape.

Raised alarms can be filtered and viewed to display further information about the alarm. Each alarm can be acknowledged to indicate that it has been seen and action has been taken by the user.

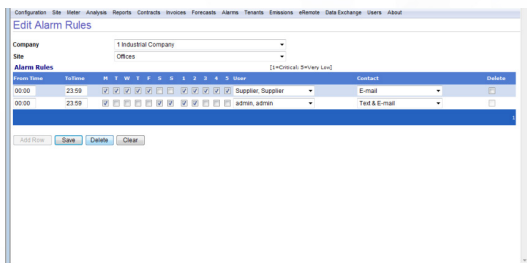
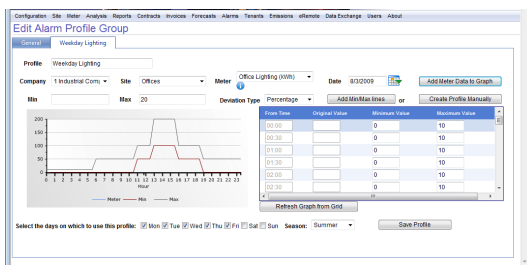
Alarm Forwarding

Within the alarm configuration screen, there is an option which allows the alarm to be assigned an importance level. This may then be referenced when determining how the alarm is forwarded.

All exception reports may be setup to raise as a record within iBuilding Energy. They may also be setup to be automatically forwarded by email or within iBuilding Energy reports.

Alarms are forwarded on a site by site basis according to the priority or importance of the alarm and dependent upon the day of the week and time of the day.

The Exception Reporting module ensures that users receive crucial information as it happens, not after the event when it is often too late.





Financial Analysis Module

The iBuilding Energy Financial Analysis module provides the ability to analyse energy consumption in terms of cost. Supplier contracts may be stored against sites or meters to provide accurate analysis of both current and historical consumption data. The Financial Analysis module also enables creation, maintenance and analysis of consumption and cost budgets. Performance may be monitored against budget as the year progresses.

Contract Maintenance

Within Financial Analysis, the Contract Maintenance functionality enables contracts to be created and maintained. Once the contract has been created, it may be assigned to a meter to enable accurate cost analysis.

Within the Energy Analysis, once the option to view energy data against the relevant cost contract has been selected, the consumption rate will convert to the correct cost based on the tariff structure stored within Contract Maintenance.

Name	From Date	To Date	Type	Supplier Name	Notes
2 Rate Contract	6/1/2003	6/1/2004	Two Rate	First Energy Corp.	
2007 Contract	1/1/2007	12/31/2008	STOD	Ches Power LLC	

It is possible to store different contract types such as single rate, two rate, banded or seasonal time of day (STOD) contracts. Different contracts can be created through a user friendly set of screens structured according to the type of contract being entered. iBuilding Energy is also able to store historical data for retrospective cost analysis and to ensure reporting on cost graphs appears at the correct rates for subsequent years.

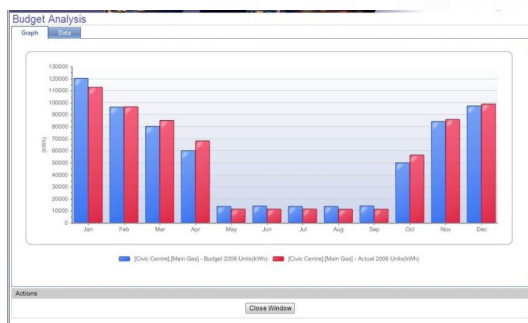
Budgeting

The budget analysis page provides a graphical or tabular display of meter readings together with a display of a budget.

Actual data may be compared with a budget as well as comparing data from different meters and different budgets. Additionally the actual meter readings and the budget can be converted to monetary values by applying a contract.

Different budgets may be configured over the period of a year for any meter, such as consumption or sold budgets.

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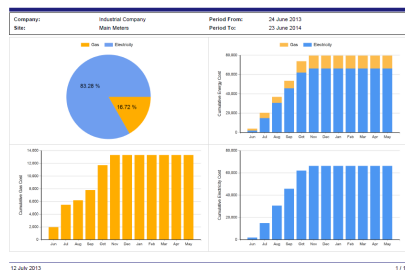


Reporting Module

The iBuilding Energy Reporting Module provides a number of standard report templates that may be run on an ad hoc basis. The iBuilding Energy report scheduler within the Reporting Module provides the ability to schedule reports for automatic production and distribution via email.

Report Templates and Scheduler

iBuilding Energy Reporting provides a standard set of report templates which may be viewed on an ad hoc basis. Depending on the report selected, certain parameters need to be entered in order to select the relevant company, site and date range to report on, for example. iBuilding Energy also provide a number of different products, services and options for transferring data to iBuilding Energy. Full details are available upon request.



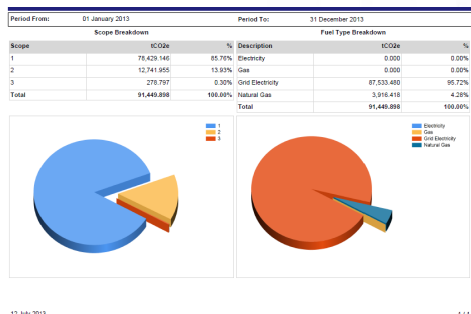
The iBuilding Energy report scheduler enables the automatic production and distribution of reports via email. Reports can be setup to output in a number of formats including graphs, tables or exports of data in a .csv format. The report scheduler enables users to select how often the report runs and how the data is distributed.

The report may be automatically distributed via email and a copy can also be stored to a server location for reference.

Branded and Custom Reports

Included in Branding Level 3, eSight Energy offers the ability to brand iBuilding Energy's reports to include a custom product or company logo on the top right of the report. New report templates may be configured using integrated Microsoft SSRS reporting.

SSRS (SQL Server Reporting Service) enables users to configure new reports and integrate these into iBuilding Energy for viewing or automatic distribution at a later point.



Alternatively, custom designed reports may be purchased from iBuilding Energy. The reports are built on your requirements and can contain single or multiple pages, have a table of contents, include operational comments, and/or contain sub-reports.



Tenant Billing Module

The iBuilding Energy Tenant Billing module has been designed to provide users with the ability to automatically manage the complete process of calculating energy consumption and billing sub-tenants across one or more sites. iBuilding Energy Tenant Billing enables commercial property owners, facilities management companies or other clients responsible for sub-tenanted properties to store different supplier contracts against sub-tenant meters. This information can then be used to automatically generate a formal sub-tenant bill based on energy usage over an annual, monthly or four weekly basis.

Managing Tenants

Managing multiple tenants across different billing periods can prove to be a complex process. The iBuilding Energy Tenant Billing module makes this extremely simple.

Supplier contract and sub-tenant metering details may be quickly recorded within iBuilding Energy. The property owner is then able to apply this information to the relevant tenants across one or more sites.

Multiple meters may be assigned to a tenant and billing information may be sorted and searched for by both tenant and date for ease.

iBuilding Energy provides the ability to manage tenant information in groups thus enabling users to store the tenant billing information in a logical manner.

Generating a Bill

Once a tenant has been allocated a tenancy period and meter, iBuilding Energy enables the property owner to raise a bill. This may be generated by selecting the tenant and appropriate billing date, which iBuilding Energy automatically generates based on bills previously raised for the tenant. BUIL G ·

iBuilding Energy bills may be raised in PDF format, which gives the property owner the choice of either printing the bill or emailing the information to the tenant or to the relevant accounts department.

Historical tenant billing information is stored in full within iBuilding Energy. This ensures that if the supplier contracts and tenant information change over time, full records of historical data may be viewed.



Topology

