scanenergi solutions

FORMERLY DANFOSS SOLUTIONS

An easy to use software toolkit providing

Overview, Transparency and Performance Management of your utility data

Montage™ is the most advanced software for optimising energy use, reducing waste and cutting costs

www.scanenergi.dk/solutions

The roadmap...

In order to assist in the navigation through this brochure, we have constructed a roadmap divided into various segments of interest.

Please turn-over this fold to view a list of the needs of our stake-holders.

The subsequent pages of the brochure define the reason and how Montage™ provides the solution.

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Needs of the
Executive team:

- Data transparency
- Corporate KPI management
- Enhance corporate image
- Predictability and control
- Legislative compliance

Needs of
Site management:

- Optimise resources
- Measure and verify performance
- Dynamic KPI measurement
- Identify opportunities for savings
- Properly embedded
- Empowerment of staff
- Reduced effort and time

Needs of
Site operations:

- Integrated solution
- Exception reporting
- Scalability
- Advanced data analysis
- Establish realistic baselines and targets
- Dynamic and flexible reporting
- Utility billing
- Capture and report actions

The benefits...

Data transparency

- Full data transparency from top-floor to shop-floor
- Manage by energy cost centres
- Know where your energy costs come from

True performance management

- Dynamic data that reflects real life
- Manage by baseload and variable load
- Foundation for 'continuous improvement' and lean energy thinking

Works with existing business systems

- Easy exchange of data from multiple sources
- Industry standard database and architecture (SQL, .Net)
- Complements existing ERP with simple interface

Proven solution

- Built by industry people for industry people
- Governs all Scanenergi Solutions Energy Performance Contracts
- A proven solution used extensively throughout the group

Reasons to use Montage™

What it is and how it is used

Montage™ is an extremely powerful, flexible and robust software tool designed for manufacturing and commercial facilities. By combining the features and functions of spreadsheets and databases in easy-to-use browser based front end Montage™ delivers accurate and reliable data on which you can analyse and assess utility based processes, such as:

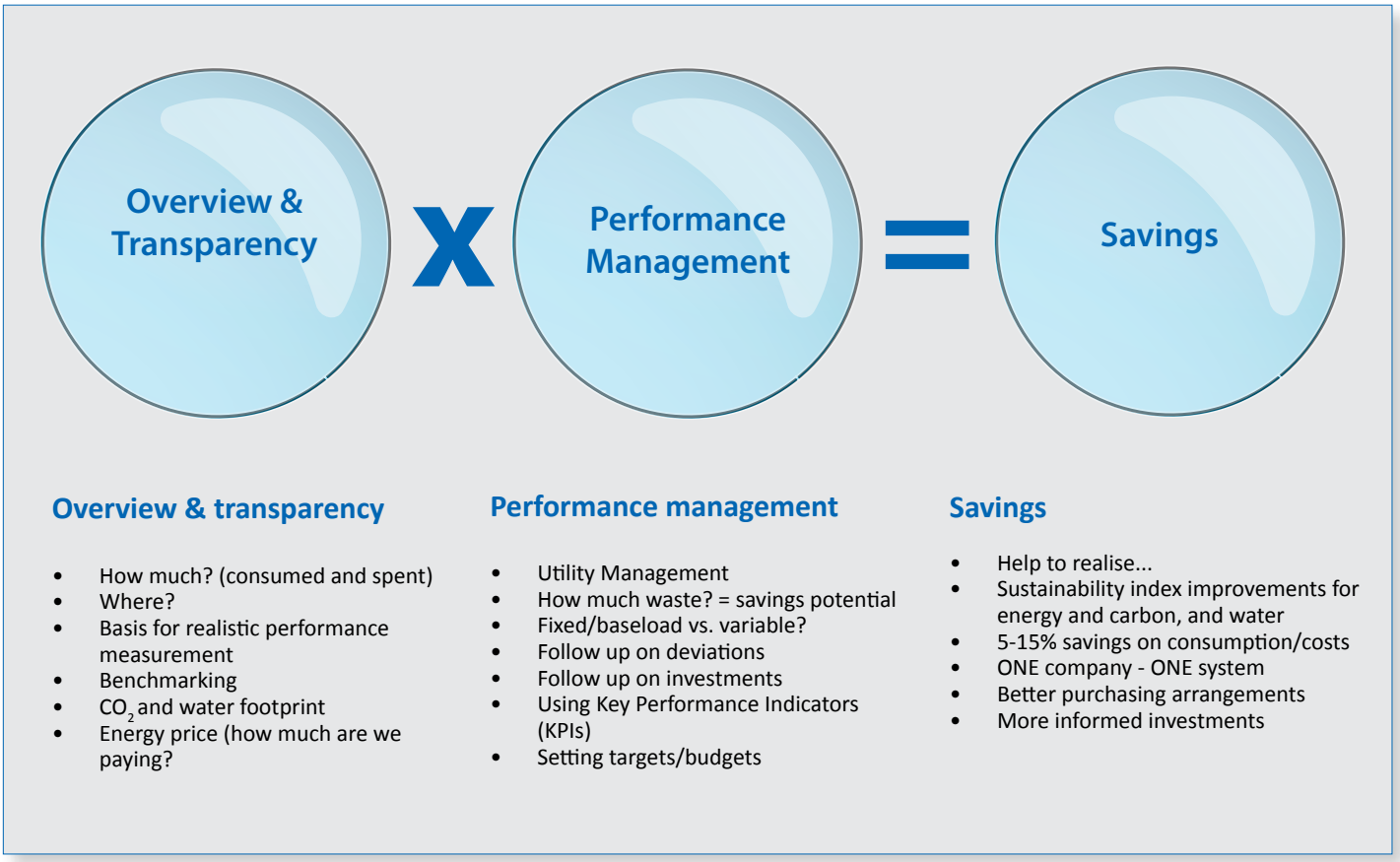
- Cost and waste reduction programs
- Energy Monitoring and Targeting
- Billing and cost allocation
- Management and tracking of emissions

Your 'eyes & ears'

Montage™ should not be confused with a SCADA system or data historian tool; it is a true 'Management over-layer' to these systems providing qualified results and benefits.

Montage™ can be considered the 'eyes & ears' on the ground to management and provides the data and knowledge on where to find the optimum energy savings and cost reduction. It is a tool to 'democratise' an organization's energy consumption by offering full access to real, live information and enables managers and supervisors to support investments for improvement plans – as they now have access to qualified evidence in savings and efficiencies!

Enabling effective utility management



Overview & transparency

- How much? (consumed and spent)
- Where?
- Basis for realistic performance measurement
- Benchmarking
- CO_2 and water footprint
- Energy price (how much are we paying?

Performance management

- Utility Management
- How much waste? = savings potential
- Fixed/baseload vs. variable?
- Follow up on deviations
- Follow up on investments
- Using Key Performance Indicators (KPIs)
- Setting targets/budgets

Savings

- Help to realise...
- Sustainability index improvements for energy and carbon, and water
- 5-15% savings on consumption/costs
- ONE company - ONE system
- Better purchasing arrangements
- More informed investments

Montage™ has all the functionality necessary to address the needs of the two components of an effective utility management system, namely 'Overview & Transparency' and 'Performance Management'. It is the software's ability to support these two areas in an easy to use interface that maximises the potential for energy and water savings.

Reason why:

> Data transparency

Provide a full audit trail of all consumed and emitted resources for all sites, divisions, companies across the entire corporation.

> Corporate KPI management

Have the ability to make performance data visible across the entire corporation to enable investment and cost reduction decisions to be made based on timely and accurate data.

> Enhance corporate image

Demonstrate and promote the impact of emission performance against corporate carbon reduction targets.

> Predictability and control

Minimise the exposure to rising utility costs through improved visibility, control and reaction time to variances to expected consumption.

> Legislative compliance

Embrace the reputational and financial opportunities through compliance with carbon legislation.

How Montage™ will meet the n

"We were looking for an IT system which was user-friendly and intuitive to work with. It was also important that we could get an overview of the energy consumed in the whole group in one system. Montage™ has been able to provide that and more".

Dieter Peoppel, Director, Danfoss Household Compressors, Germany (today Secop)

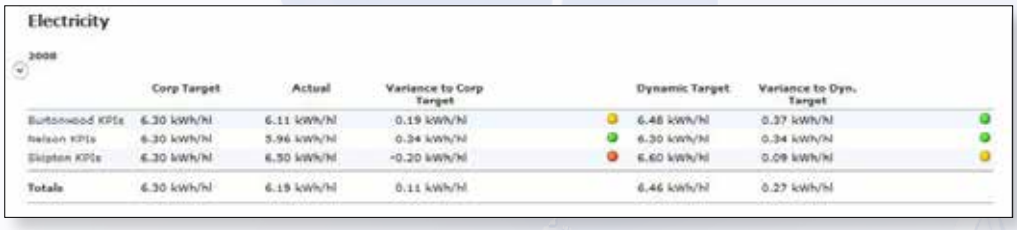
Data transparency

Gain an insight into the entire organisation's energy and environmental performance quickly while having confidence in the accuracy and reliability of the data.

Report the total consumption and cost data from the top-floor to the shop-floor.

Corporate KPI management

Key performance indicators (KPIs) are widely used across organisations to provide a snapshot of business performance. For organisations with multiple facilities, KPIs offer an effective method for comparing site performances against each other, organisation targets or industry benchmarks. Typically, static (fixed) ratios (total consumption divided by total production) are commonly used measurement at a corporate level.



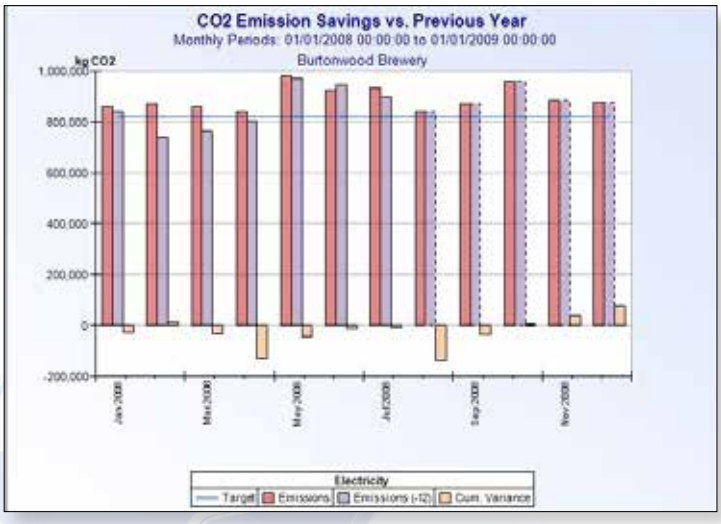
Report shows the quarterly energy performance ratio (consumption/production) of three sites compared to the group target for the period.

eeds of the executive team

Legislative compliance

The introduction of Emissions Trading Schemes as a mechanism for reducing greenhouse gas emissions places greater importance on an organisations ability to measure emissions performance against targets

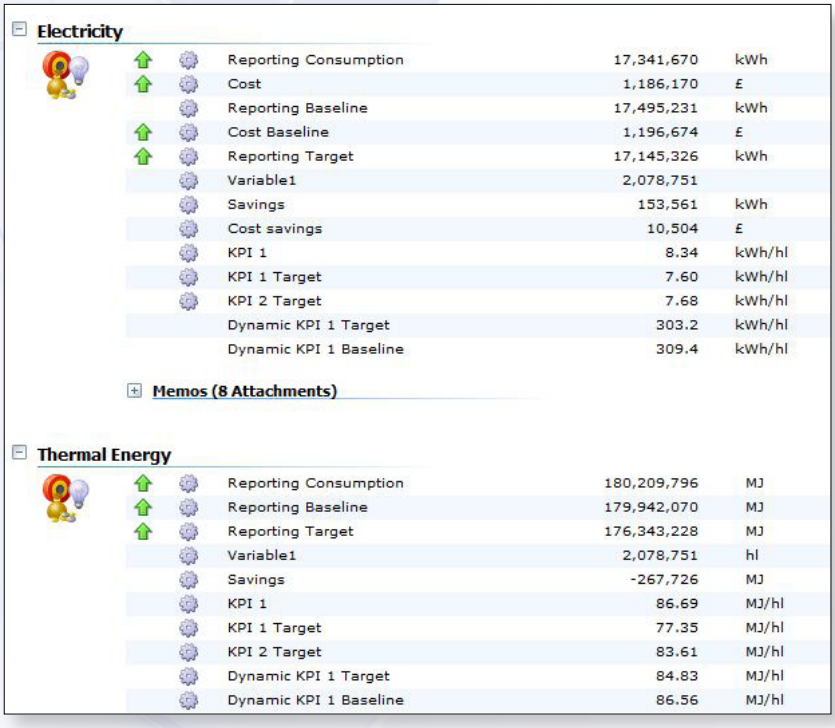
The time-series report displays the total CO_2 emission levels for the group compared to a predetermined target, whilst calculating the total cumulative savings (or level of excessive emissions) for the period, as shown in this example.



Predictability and control

The ability to have full visibility and control of what is consumed, emitted and incured is of great value to an organisation. Applying the experience of historical performance to establish future budgets and targets ensures improved accuracy in the planning process.

Presenting all the critical data on one (1) screen provides clear information to assist in monitoring key performance indicators and supports the decision-making process.



Electricity

Reporting Consumption	17,341,670	kWh
Cost	1,186,170	£
Reporting Baseline	17,495,231	kWh
Cost Baseline	1,196,674	£
Reporting Target	17,145,326	kWh
Variable1	2,078,751	
Savings	153,561	kWh
Cost savings	10,504	£
KPI 1	8.34	kWh/hl
KPI 1 Target	7.60	kWh/hl
KPI 2 Target	7.68	kWh/hl
Dynamic KPI 1 Target	303.2	kWh/hl
Dynamic KPI 1 Baseline	309.4	kWh/hl

Memos (8 Attachments)

Thermal Energy

Reporting Consumption	180,209,796	MJ
Reporting Baseline	179,942,070	MJ
Reporting Target	176,343,228	MJ
Variable1	2,078,751	hl
Savings	-267,726	MJ
KPI 1	86.69	MJ/hl
KPI 1 Target	77.35	MJ/hl
KPI 2 Target	83.61	MJ/hl
Dynamic KPI 1 Target	84.83	MJ/hl
Dynamic KPI 1 Baseline	86.56	MJ/hl

Reason why:

> Optimise Resources

Deploy human and capital resources to areas with the largest potential for savings.

> Measure and verify performance

Clear visibility of the impact of investments and actions on levels of consumption, cost and savings.

> Dynamic KPI measurement

Establish baselines and targets relevant to plant capacity, process and historical performance.

> Identify opportunities for savings

Identify the variables of utility consumption throughout the processes in order to identify areas for savings and waste reduction.

> Properly Embedded

The system should be integrated into the working practices of the organisation with site-wide training to ensure long-term sustainable success.

> Empowerment of staff

Promote accountability for energy conservation and emission reduction into the hands of those employees with the greatest ability to act.

> Reduced effort and time

Consolidate all utility and emission data into one central system available to all employees.

How Montage™ will meet the n

"Besides cost savings, we have obtained a structured way of following energy consumption. Deviations are visible with the Montage™ software, so we can correct them".

João Fonseca, Head of Santarém Brewery, Unicer Bebidas, Portugal

Optimise resources

Limited resources whether financial or human need to be utilised to maximum effect. Features described in this section have been used effectively by Energy Managers to help identify the opportunities for quick wins while providing data necessary to support ongoing improvements and investments.

Properly embedded

The ability to 'embed' Montage™ into the daily working practices of your organisation is key to establishing long-term, sustainable savings. The Montage™ Implementation Services Team provides the best possible start as they ensure the tool is properly configured, users are trained to highest level of proficiency and configure reports available to support your company's reporting needs and schedules.

Empowerment of staff

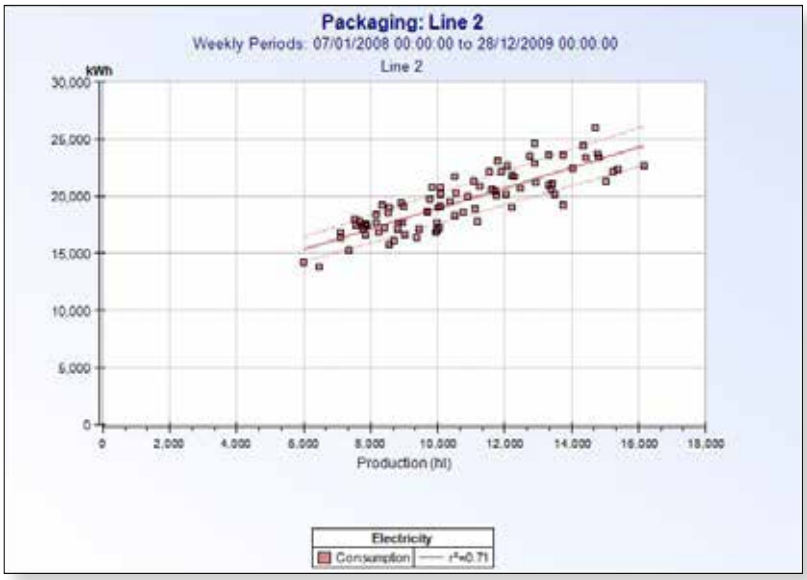
Staff involvement is perhaps the most critical factor for successfully implementing new utility saving routines and processes. Montage™ can be easily configured to show each individual employee relevant information from their area, with a simple user interface customised to the employee's role.

eeds of the site management

Identify opportunities for savings

Model your historical data to identify a band of acceptable performance. Points falling outside the range upon investigation may prove to be opportunities for savings.

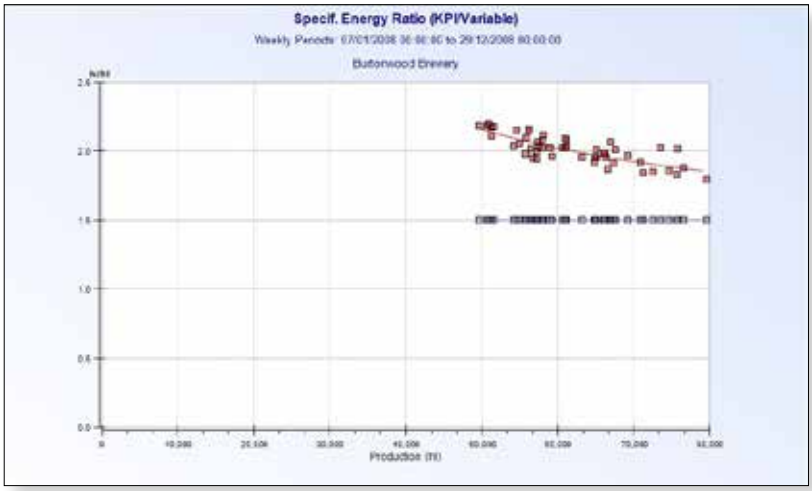
A well controlled and repeatable process will display all the points within the lines of acceptable tolerance. The r2 correlation factor is one example of the indicators for the level of control.



Dynamic KPI measurement

Although the Corporate KPI approach to reporting has value, it assumes that each site has comparable characteristics. This is often not the case as sites differ in age, equipment, processes, product mix as well as other influencing factors (e.g. ambient temperature). A more appropriate approach to establishing KPIs can be to use linear regression to model historical performance and then establish the target based on what is realistic and achievable based on each sites unique characteristics.

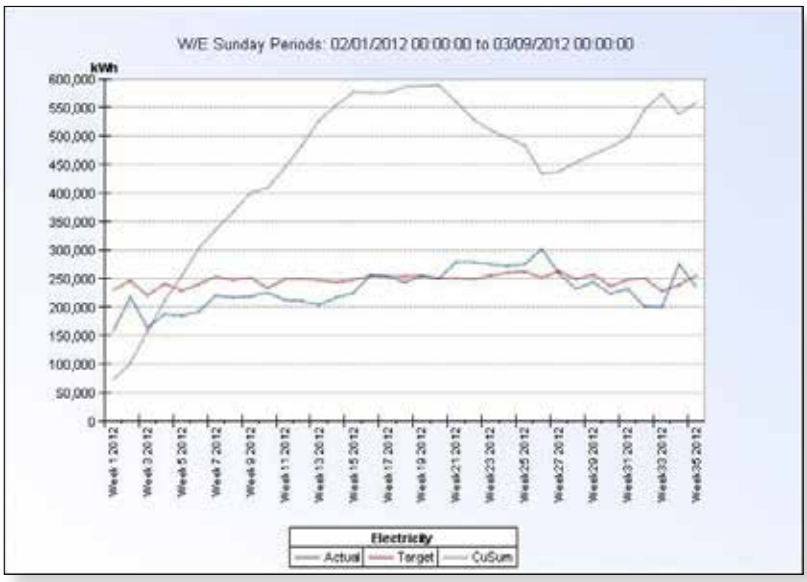
Comparing energy performance ratio for the site (red points) against a group target (blue points) can be misleading. In this case a more realistic and achievable target would be to drive towards alignment with the red line.



Measure and verify performance

The use of CuSum (accumulated savings) graphs provides instant feedback into the savings profile of a project, department or site.

Measuring the cumulative sum of the variances from actual consumption to a predefined baseline or target represents the total level of savings realised (grey line).



Reason why:

> Integrated Solution

To ensure data consistency and elimination of data duplication.

> Scalability

One-time investment in a single system that can grow over time to meet the changing needs of the sites and the processes

> Establish realistic baselines and targets

Baselines and targets are only effective measures of performance and motivation if they are realistic and achievable.

> Advanced data analysis

Changes to processes and level of complexity are not uncommon in industry, therefore a reporting tool needs to be flexible.

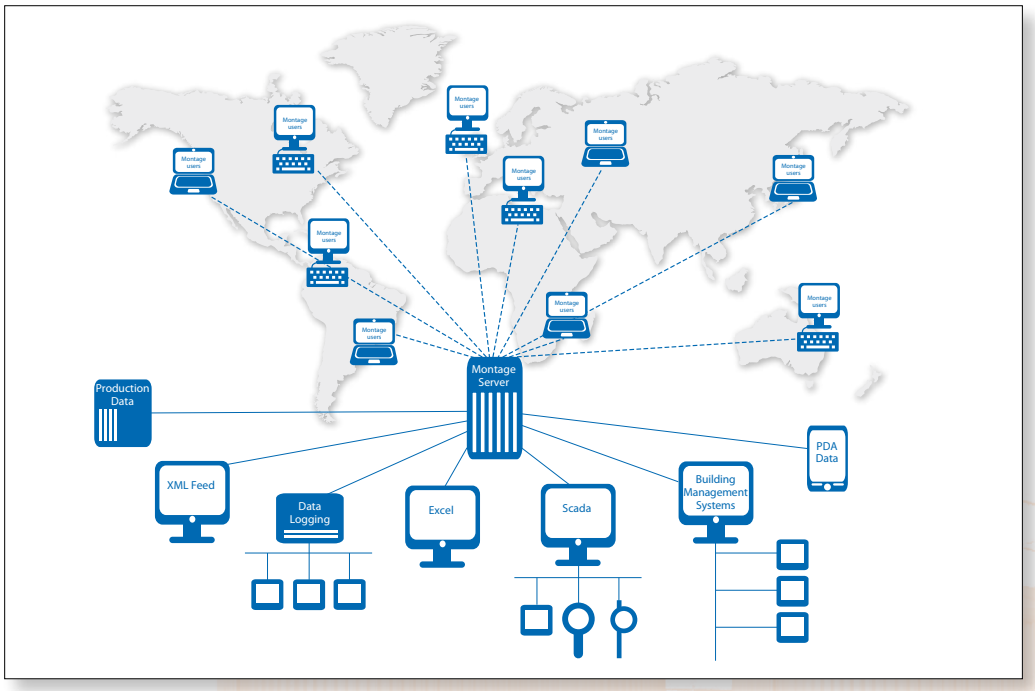
How Montage™ will meet the n

"The utility management information system Montage™ helps prioritise our efforts, maintain savings already achieved and identify new opportunities for energy savings".

Kaj Madsen, Engineering Manager, Tulip Food Company, Denmark

Integrated solution

Data is stored in one central system, integrated into existing SCADA, BMS, ERP or other solutions to ensure consistency of source data, increased reliability and eliminates data duplication.



Scalability

All aspects of the software from the front-end reporting to the back-end database are flexible to allow the System Administrator to make changes such as adding meters to an existing process or configuring a brand new site.

User interface allows for additional system configuration

Advanced data analysis

The Equation Editor tool helps you create flexible caculation expressions to model the most complex conditions.

In-built functions make building your equation simple!

eeds of the site operations

The Regression Tool will provide statistical information to assist in determining whether the chosen sample is a valid basis for establishing a target.

Regression Rating :

Regression Statistics	
Multiple R	0.960
R Square	0.739
Adjusted R Square	0.734
Standard Error	1,151.852
Observations	49

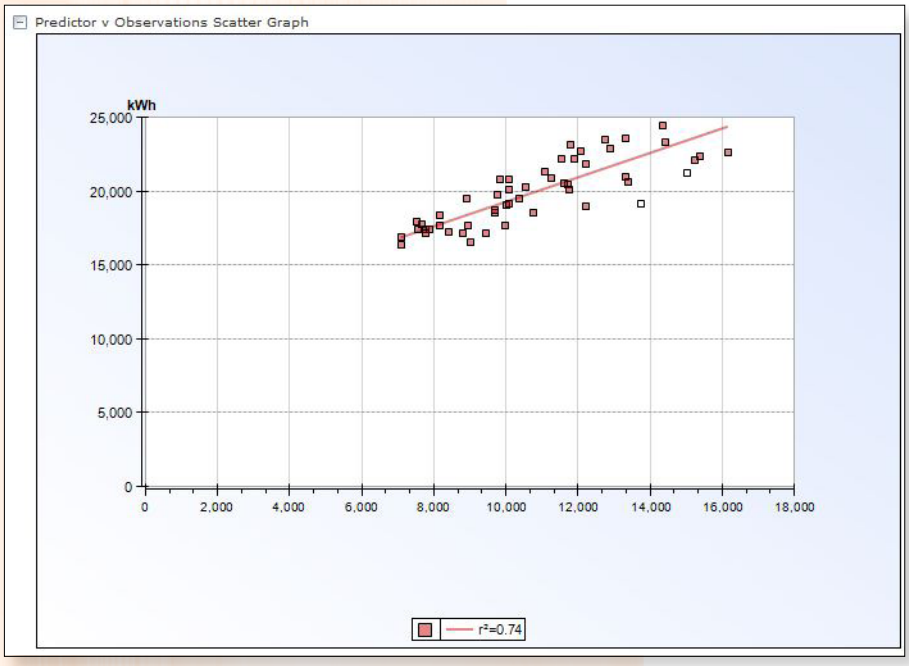
	Degrees of Freedom	Sum of Squares	Mean of Squares	F Statistic	Significance F
Regression	1	176,985,311,610	176,985,311,610	133.396	2.554E-15
Residual	47	62,357,851,772	1,326,762,804		
Total	48	239,343,163,382			

Regression Equation : (1572.1 * DaysInPeriod()) + (Bottled Beer Line 2.Production.Value.Total * 0.82766)

Establish accurate baselines and targets

With its powerful and easy-to-use target setting tool, Montage™ makes establishing baselines and targets simple. Montage™ will identify relationships between both single and multiple influencing factors (such as the temperature outside your building or the production levels inside) and the resource you want to control. These relationships form the basis of effective, real and achievable baselines and targets that are adaptable to changing environments.

The Regression Tool displays the relationship between consumption (kWh) and production volume (X axis) to determine the level of variability.



Reason why:

> Exception reporting

Highlight areas of good and bad performance so appropriate action can be taken.

> Dynamic and flexible reporting

Information is available in formats that are timely, easily understood, customisable and accessible throughout the organisation.

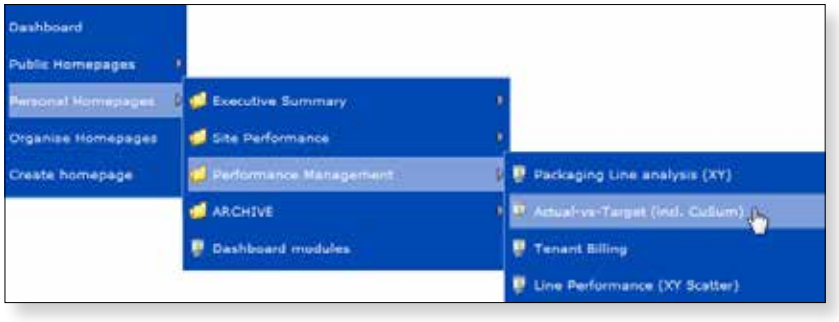
> Utility billing

Produce reports to show the total utility consumption and the associated costs for the given period, location or tenant.

> Capture and report actions

Whether installing new equipment or improving efficiency of existing plant, documenting such activities becomes valuable when analysing the reasoning for historical events and the sharing of best practice.

How Montage™ will meet the n



Report selection tree showing the library of standard reports and custom templates available out-of-the-box

Dynamic and flexible reporting

Complete with a wide range of reports for every level within your organisation, presented in a drill-down menu makes selection of the right report simple. All reports can be easily modified and saved for future use as personal or public homepages.

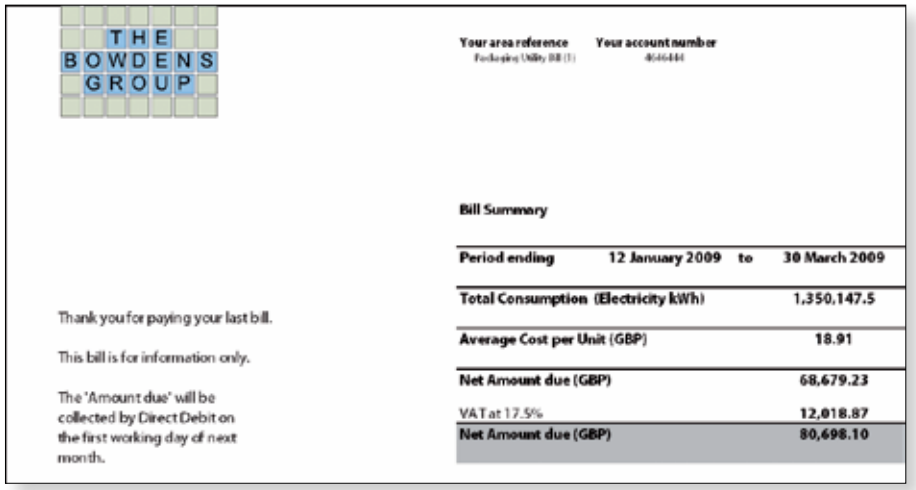
Total utility cost for the period broken down for each of the sites, listed with the highest consuming sites first (descending).

eeds of the site operations

Utility billing

Create custom reports to meet your billing needs. Reports can be scheduled and distributed automatically via e-mail to the appropriate tenant or data exported out of Montage™ into a specific billing automation system.

Report showing the electricity consumption, unit cost and total cost payable for the period.



THE BOWDENS GROUP

Your area reference | Your account number

Bill Summary

Period ending	12 January 2009 to 30 March 2009
Total Consumption (Electricity kWh)	1,350,147.5
Average Cost per Unit (GBP)	18.91
Net Amount due (GBP)	68,679.23
VAT at 17.5%	12,018.87
Net Amount due (GBP)	80,698.10

Thank you for paying your last bill.

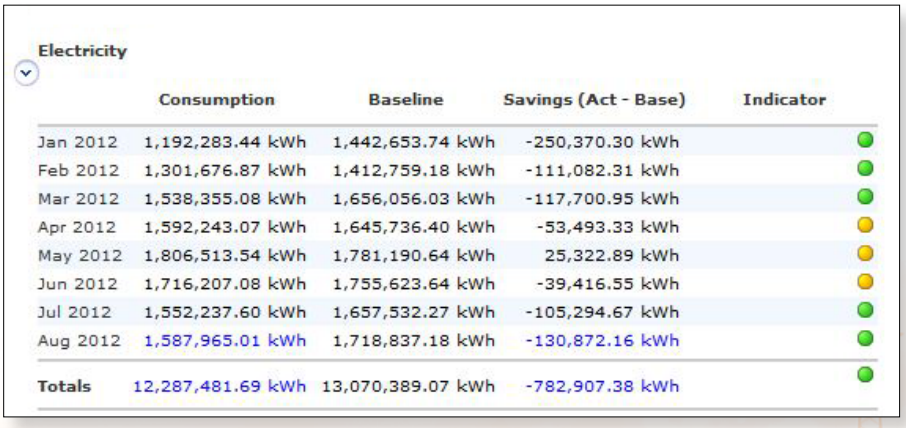
This bill is for information only.

The 'Amount due' will be collected by Direct Debit on the first working day of next month.

Exception reporting

Applying conditions to report equations allows performance indicators and exception flags to be added to reports, assisting in the effective identification of variances in performance from one period to the next.

Exception report for line 1 showing good (green) and average (yellow) performance of electricity consumption against expectation. The numbers displayed in blue in the report indicate that some data is missing for the given period.



Electricity

	Consumption	Baseline	Savings (Act - Base)	Indicator
Jan 2012	1,192,283.44 kWh	1,442,653.74 kWh	-250,370.30 kWh	
Feb 2012	1,301,676.87 kWh	1,412,759.18 kWh	-111,082.31 kWh	
Mar 2012	1,538,355.08 kWh	1,656,056.03 kWh	-117,700.95 kWh	
Apr 2012	1,592,243.07 kWh	1,645,736.40 kWh	-53,493.33 kWh	
May 2012	1,806,513.54 kWh	1,781,190.64 kWh	25,322.89 kWh	
Jun 2012	1,716,207.08 kWh	1,755,623.64 kWh	-39,416.55 kWh	
Jul 2012	1,552,237.60 kWh	1,657,532.27 kWh	-105,294.67 kWh	
Aug 2012	1,587,965.01 kWh	1,718,837.18 kWh	-130,872.16 kWh	
Totals	12,287,481.69 kWh	13,070,389.07 kWh	-782,907.38 kWh	

Capture and report actions

Add comments, attachments or links to describe actions taken, lessons learned or preventative measures to be displayed on reports and graphs.

Navigator screen highlights there is a comment added to the production for the specified time period.

Production

Value 3,233,948 hl

Memos (1 Comment, 1 Attachment)

01/02/2008 00:00 - 01/05/2008 00:00. Reduced levels of production during this period due to periods of maintenance on the Line

01/02/2008 00:00 - 01/05/2008 00:00. View attachment for Maintenance record 01/02/2008 - 01/05/2008

Add/Edit Memos

Add and edit memos assigned to the selected node

Comments entered below are available for viewing on reports.
Attachments and links are available on the Node Summary Page

Start Date 01/01/2008 00:00

End Date 01/01/2009 00:00

Utility Electricity

Comment: Electricity tariff on fixed contract until 31/12/2008.

Attachment Details

No Attachment

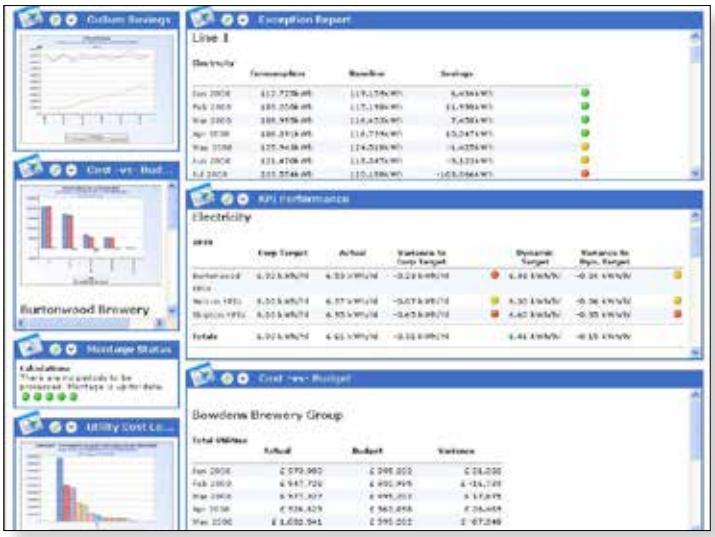
Attach File/Document

Attach Link

A snapshot of the latest features and func

Montage™ 9 – Dashboard

Montage™ Dashboard is a customizable all-in-one information screen for the benefit of the user to collect favourite information. The Dashboard may be setup to include: report modules, external web content, Intranet information, Montage ™ system status.



Montage™ 9 – Messages

Montage™ Messages is a dynamic tool which enables the users to share homepages and reports – either as e-mail, instant messages or scheduled. It can also be used to notify colleagues of exceptions (alarms, issues, notifications etc.) i.e. in case consumption is outside limits, or if meters haven't been read according to plan.

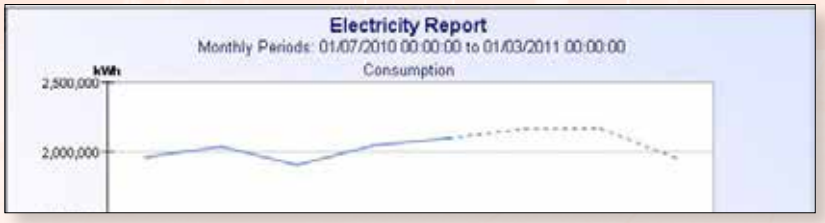
- Share contents of Montage™
- Notify about exceptions
- Schedule messages
- Attach PDF-reports
- Link others to your reports

Montage™ 9 – Forecasting

Montage™ Forecasting is an option for the user to achieve better control over past, present and future energy spendings. Through advanced equations Montage™ Forecasting delivers the precision in answering both future – and past! – values, thereby providing you the best possible numbers to go forward with.

- Forecast past and present numbers
- Forecast across utilities, date ranges
- Forecasted numbers clearly marked in green (text reports) and dotted lined (line graphs)

	Electricity	Water	Oil
Jan 2012	801,844kWh	181,941hl	119,104Litres
Feb 2012	855,349kWh	241,301hl	153,569Litres
Mar 2012	947,990kWh	247,126hl	157,861Litres
Apr 2012	1,016,587kWh	230,316hl	154,937Litres
May 2012	1,149,058kWh	270,891hl	169,374Litres
Jun 2012	1,196,133kWh	292,110hl	165,754Litres
Jul 2012	1,087,235kWh	304,063hl	161,435Litres
Aug 2012	997,701kWh	275,445hl	164,792Litres
Sep 2012	1,058,340kWh	454,851hl	155,255Litres
Oct 2012	1,110,488kWh	459,626hl	164,268Litres
Nov 2012	1,090,522kWh	432,035hl	162,576Litres
Dec 2012	1,071,582kWh	205,042hl	155,418Litres
Totals	12,382,830kWh	3,594,746hl	1,884,344Litres

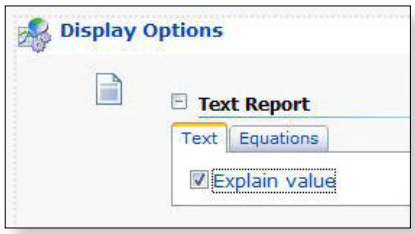


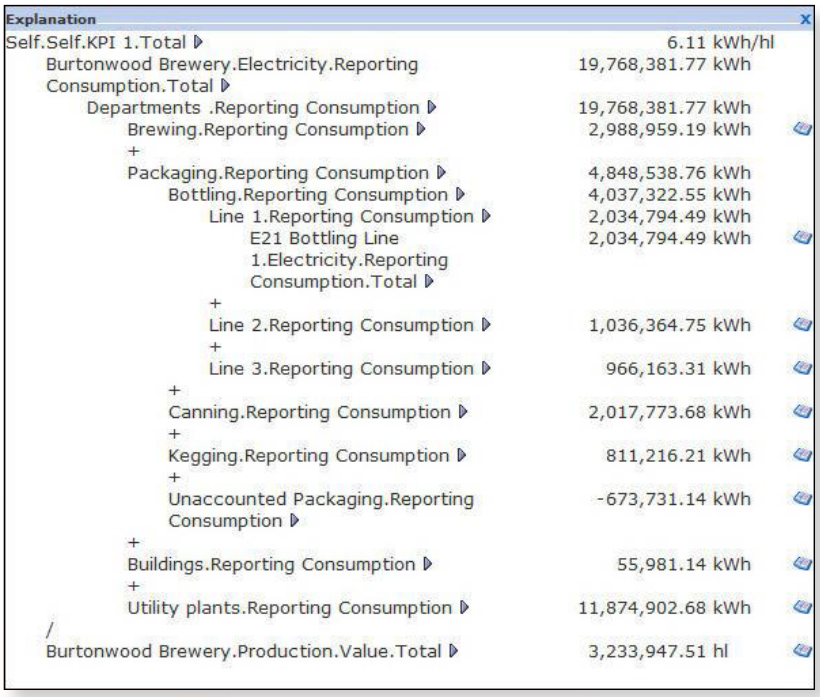
tionalities

Montage™ 9 – Explain Value (link)

Montage™ 9 enables reports in text format presented as linked information. Simply check the "Explain value" in the Text Report Settings to allow the number for each period to become a link. The window will appear identifying full transparency of which sources and calculations have made up a specific number down to a specific meter reading.

- Full transparency which sources and calculations have made up a specific number
- Direct access to a specific number / meter in Montage Navigator for further investigation

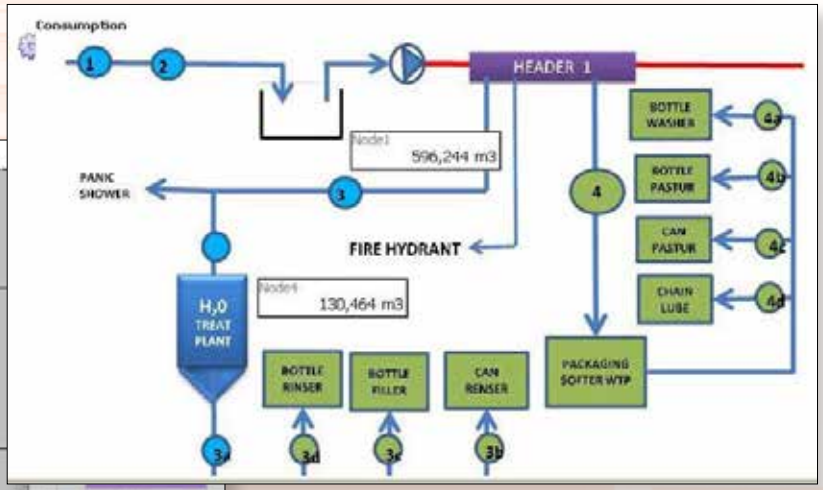


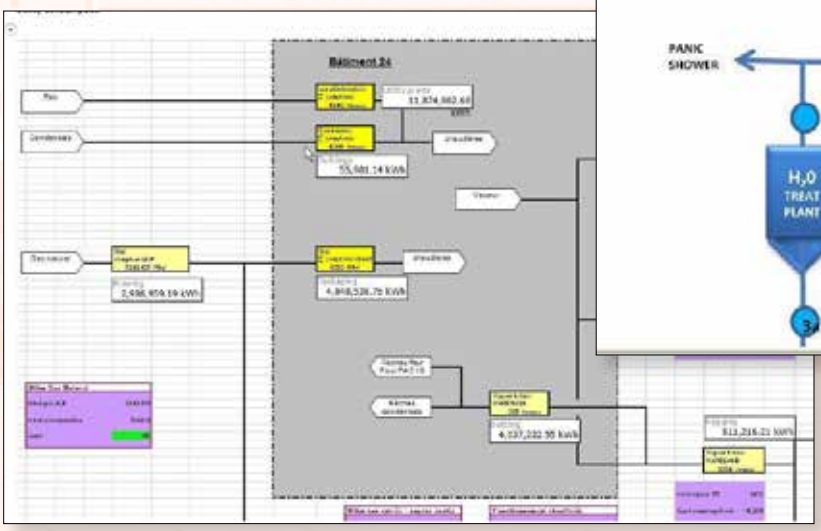


Montage™ 9 – Generic Reporting Template

Montage™ v9 comes with one, generic reporting template which can be used to develop more than 100 different types of reports. Besides the generic graphs, curves and scatter plots, it is now also possible to have information displayed on diagrams and pictures.

- One template - build and design your own reports for maximum flexibility
- Multiple options available, incl. comments
- Sort and group as you like
- Export, share and send reports





Six steps to Success

1. Capture data
2. Set your target
3. Empower your staff

Combining each of these six steps contributes heavily to improving the performance of your site. Montage™ helps you keep track of all parameters easily and with the exact level of detail necessary to motivate, implement and follow up on the site's performance.

Step 1: **Capture data**

Montage™ can be configured to pull meter data automatically, via file upload or manually. For manual meter readings, Montage™ produces attractive data entry forms with meters displayed in the order you want to read them. To improve the efficiency and data integrity of manually read meters, why not consider using Montage™ HDC – handheld tool for scanning, recording, validating and uploading meter readings at the source.

Step 2: **Set your target**

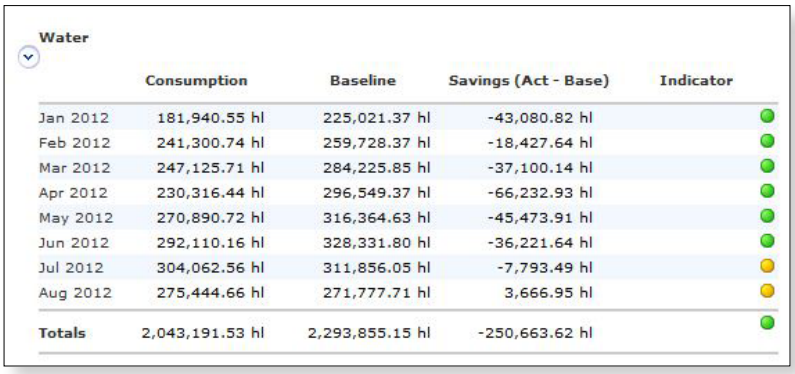
Select the area, utility and factors that influence consumption and let Montage™ analyse the correlation (or control) you have over the process. Once you are satisfied that the parameters selected have the greatest impact, specify your reduction target and activate it for a given date range. Targets can always be amended and activated for a new period allowing for a history of actual performance versus the target over time.

Step 3: **Empowerment of staff**

Due to the fact that Montage™ is highly scalable it can hold information for many sites or locations. Security features enable the system administrator to allow secure access to different parts of the system to those responsible for energy conservation within the area, while maintaining control of sensitive functions.

Step 4: **Manage by exception**

Promote best practise and eliminate poor procedure by tracking which parts of your site are performing better than expected, and which are under-performing. All you need to do is set your targets and Montage™ will provide ongoing feedback on the performance.

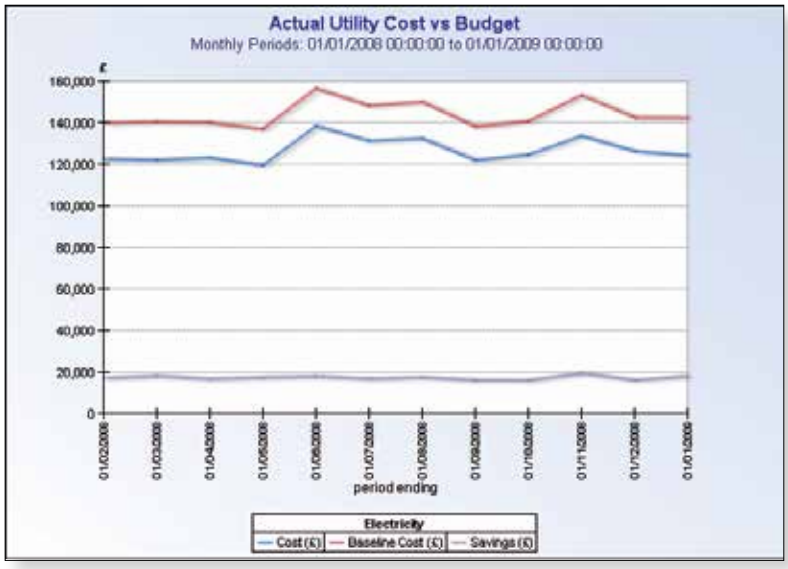


Water

	Consumption	Baseline	Savings (Act - Base)	Indicator
Jan 2012	181,940.55 hl	225,021.37 hl	-43,080.82 hl	
Feb 2012	241,300.74 hl	259,728.37 hl	-18,427.64 hl	
Mar 2012	247,125.71 hl	284,225.85 hl	-37,100.14 hl	
Apr 2012	230,316.44 hl	296,549.37 hl	-66,232.93 hl	
May 2012	270,890.72 hl	316,364.63 hl	-45,473.91 hl	
Jun 2012	292,110.16 hl	328,331.80 hl	-36,221.64 hl	
Jul 2012	304,062.56 hl	311,856.05 hl	-7,793.49 hl	
Aug 2012	275,444.66 hl	271,777.71 hl	3,666.95 hl	
Totals	2,043,191.53 hl	2,293,855.15 hl	-250,663.62 hl	

Step 5: **Maintain excellence**

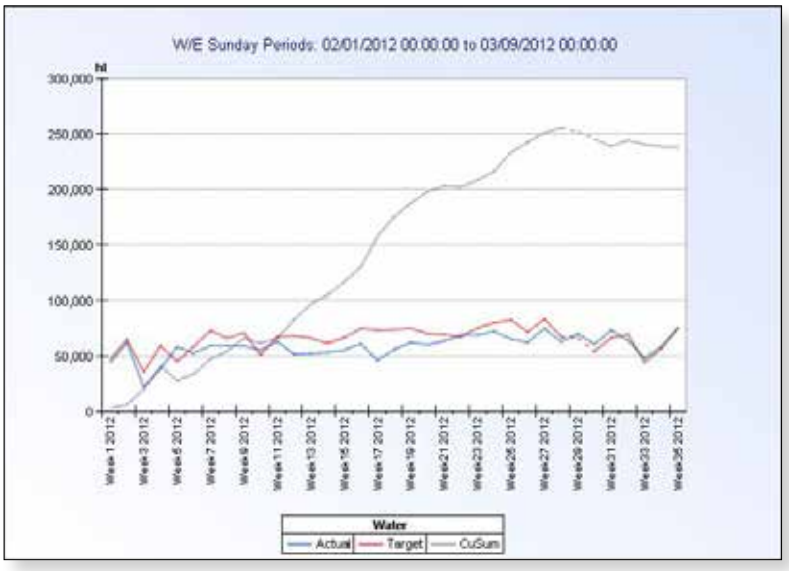
With its powerful reports and graphs, Montage™ enables you to identify and analyse the underlying causes of good and bad performance. In this way you can optimise the system operation for cost savings. Alternatively, you can evaluate the returns achieved from capital investments and make informed decisions.



Step 6: **Measure Savings**

Determining the return on effort is a key part of managing time and investment. Cumulative sum analysis (or CuSum) is a powerful tool which provides a clear graphical assessment of the total net saving achieved at a given date.

Montage™ automatically provides this analysis for every level of for your site, and can even show savings if consumptions have increased due to increases in production/output compared to the orignial performance baseline.



scanenergi solutions

FORMERLY DANFOSS SOLUTIONS

Scanenergi Solutions A/S
Birkemose Allé 33,
DK-6000 Kolding, Denmark

Tel. +45 9992 9200
scanenergi.dk/solutions