

The power of a national benchmark

Energy efficiency – know your status!

By G Radloff, Energy Cybernetics

A brand new energy efficiency assessment tool - the Energy Barometer - has been developed. The Energy Barometer makes it very easy to assess the energy performance of a facility or building. It is especially valuable for owners of property portfolios who want to evaluate and improve energy consumption within their portfolio. The second annual assessment process recently opened for public participation. This article provides a birds-eye view of the assessment methodology used, how businesses can participate, and what they will gain in the process.

The economically crippling blackouts of 2008 prioritised energy efficiency on the national agenda. Severe power outages made it clear that government could no longer be the sole custodian of our country's energy future. The business sector – being one of the largest national consumers of electricity – was pressurised to streamline internal processes and develop and implement smarter energy practices to save energy.

It quickly became evident that although most businesses had a desire to reduce their electricity consumption and improve their energy efficiency, they needed a practical, credible tool to track and report how well they were faring along this journey. What was needed was a tool to effortlessly track where they were coming from, where they were heading and what has been achieved. Furthermore, it was important to be able to (anonymously) benchmark themselves against other players in the industry.

Against this backdrop, Energy Cybernetics developed and launched the Energy Barometer - it provides a comprehensive, reliable and accurate normalised energy database of participating South African buildings. This enables building-owners to assess their energy intensities and compare these with their historic consumption levels, as well as to the industry average of other buildings in the same sector.

The Energy Barometer provides an easily understood, graphic picture of the energy performance of a building. The average of all participating buildings is assigned a rating of 100. Each participating building or facility is then assigned a relative rating. A building with a rating of 120, uses 20% more energy than the industry average. Conversely, a building with a rating of 70 implies that the building uses 30% less than the average of similar types of buildings.

This provides property managers with multiple buildings in their portfolios, a quick, effective solution to visually plot the energy efficiency of each building in their portfolio, portray how these buildings relate to each other and select the best candidates for energy efficiency improvement projects.

The broader objective of this tool was to create an awareness of industry's energy consumption and its emissions' footprint with the view to equip business to become more energy efficient and play a much-needed part in securing South Africa's future energy supply.

Scientific benchmark developed

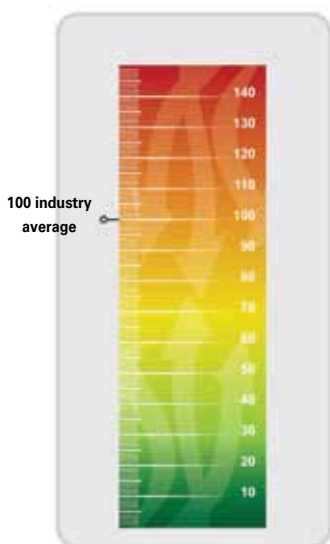
It is immediately obvious that comparing the raw energy consumption figures of various buildings to each other will not yield meaningful results – buildings vary greatly. Size, occupancy, conditioned floor space, location, climatic conditions, type of use, all need to be considered before one can meaningfully compare one building to another.

The Energy Barometer assessment is based upon technical normalisation and comparison techniques on a par with international standards. The implication is that all the above factors are taken into account and normalised to provide an 'apples-to-apples' comparison.

Energy efficiency hinges firstly on an awareness and secondly on a resultant behaviour change.

History and experience has taught us that visually tracking energy consumption brings about immediate awareness of consumption levels, resulting in significant savings of up to 15% per year in some cases.

Despite a significant level of complexity behind the scenes, the assessment methodology from a participant's point of view is very simple. This year marks the second year that businesses can enter a variety of categories.



Barometer Device

The Energy Barometer allows you to:

- Save energy and money.
- Assess your energy consumption.
- Know your energy consumption status.
- Showcase your results.
- Optimise your energy consumption.
- See your bottom-line grow.

CEM – Certified Energy Manager
 FEDHASA – Federated Hospitality Association of Southern Africa
 HVAC – Heating, Ventilation and Air-conditioning
 TOU – Time of Use

Abbreviations

How to enter the Energy Barometer Survey 2010

The entries for the 2010 Energy Barometer Survey opened in mid-January 2011. Participants need only complete a simple, two-page questionnaire which can be obtained by sending an email to barometer@energycybernetics.com or by visiting the website www.energybarometer.com and to submit copies of their annual (2010) energy bills.

Based on the high interest in the previous year's survey of corporate head offices and shopping centres, Energy Cybernetics extended the 2010 entries to include three new categories: general office buildings, hotels and hospitals.

Entries close in May 2011 and the winners of the 2010 categories will be awarded by mid-2011.

Best practice awarded

The uptake of the 2009 annual assessment of businesses' electricity consumption got off to a positive start, not only with reference to the calibre of participants that it drew, but also by obtaining support from the Central Energy Fund through the National Energy Efficiency Agency, as well as endorsement from government's national energy efficiency campaign - Save It!

Energy Cybernetics recognised the companies which committed themselves to a pro-active energy management approach at a national awards ceremony that was hosted in Fourways, Johannesburg in June 2010. The awards were divided into two categories: corporate head offices and shopping centres.

Amongst the best performers in the head office category were Exxaro (Pretoria, Gauteng), AngloGold Ashanti (Johannesburg, Gauteng) and Barloworld (Boksburg, Gauteng). In the shopping centre category, Oriental Plaza (Johannesburg, Gauteng), Centurion Mall (Centurion, Gauteng) and Canal Walk (Cape Town, Western Cape) walked off with the laurels.

These pioneering participants in the 2009 Energy Barometer Survey lead the way with regard to energy efficiency and energy management in their facilities. Many of them were not as efficient as they themselves would have liked, but they took bold steps towards

improved energy consumption, shouldering some of the responsibility along South Africa's journey to become more energy efficient and ensure our future supply of energy.

Energy efficiency upsurge

The participants in the 2009 survey demonstrated that they take energy management seriously and that they strive to be leaders in this emerging field.

Many revealed that their journey towards energy efficiency has only just begun and that further investment was paramount to become more resource efficient in the commercial sector. The commercial and industrial sectors as well as individual employees become increasingly energy conscious, and there is the hope that this will have a ripple-effect throughout society.

A case in point is last year's head office category winner, Exxaro, which proved that targets of up to 30% energy savings could be achieved in an old office building, with basic building management and control systems, simply by increasing awareness and implementing well-chosen energy saving interventions.

Exxaro's facilities management team was the custodian of its energy efficiency projects and implemented procedures at its head office in Pretoria, such as:

- Putting building lighting on timer control.
- Disconnecting all unnecessary hot water systems.
- Turning off water to those hot water taps.
- Upgrading and centralising heating, ventilation and air conditioning (HVAC) systems.
- Switching to a time of use (TOU) tariff in 2009 (the HVAC system is started earlier in the morning to avoid a portion of peak hours, which also saves costs).

The savings that were achieved by Exxaro's corporate head office prove that energy efficiency cannot only be attained in state-of-the-art, 'green' facilities, but also in ageing property assets.

A recent strategic partnership formed with the hospitality industry's governing body, FEDHASA, places the Energy Barometer in a favourable position to increase energy efficiency awareness and

- It is not the state alone that must take ownership of our energy future.
- Energy savings targets of up to 30% can be achieved.
- The Energy Barometer is a new, easy to use, energy efficiency assessment tool – and you are invited to participate in the annual assessment process.

Take note

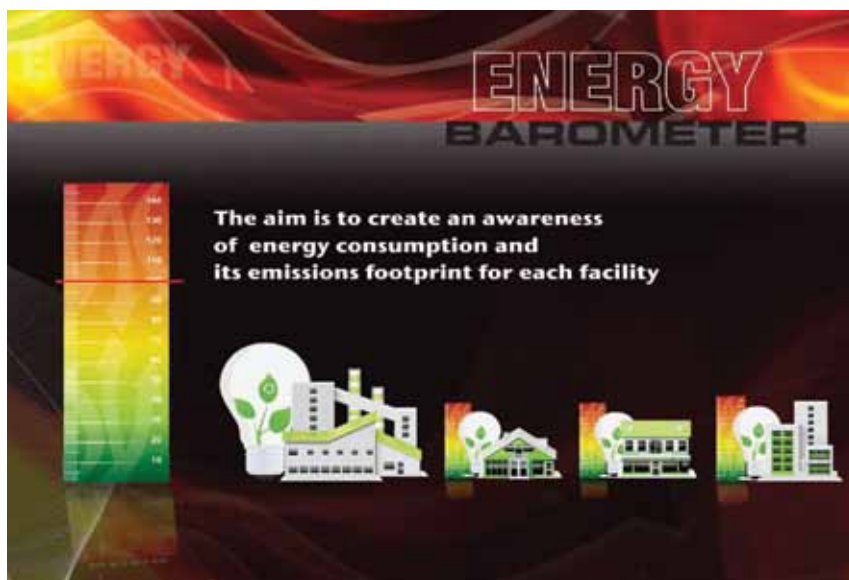
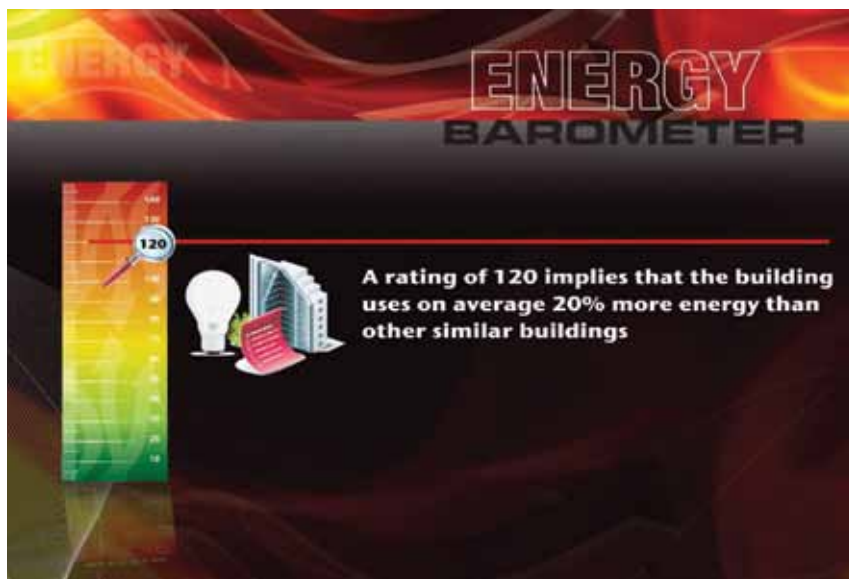
improvement in the hotel and leisure industry. This partnership – finalised in 2010 – enables the Energy Barometer to continually stimulate and grow industry best practice, now within a wider scope of facilities in South Africa. Participation in the Energy Barometer Survey will provide organisations with a certificate that maps their performance rating and ranking against other organisations of similar type and against the industry average.

Conclusion

The Energy Barometer's long-term goal is to launch a web-based energy benchmarking-system accessible to all participants with a view to benefit building owners in an immediate and real-time manner. The environmental benefits and financial savings that businesses will achieve by knowing their energy efficiency position compared to their peers, will gain momentum and become a sufficient motivation for industry to subscribe to energy-saving efforts, ultimately impacting positively on the country's energy supply.

Bibliography

- [1] SABS ISO/TC 242: The local SABS committee that mirrors the international ISO TC 242 committee (a group – locally and internationally – that deals with energy related matters and standards).
- [2] SATS 50 010: Measurement and verification of energy savings. 2010. ISBN 978-0-626-23668-7. (A local standard, South African Technical Specification – and pre-cursor to a SANS (South African National Standard).



Gustav Radloff is the managing director and co-founder of Energy Cybernetics. He holds an Honours Degree in Electrical Engineering from the University of Pretoria and is certified with the Association of Energy Engineers in the USA as a Certified Energy Manager (CEM). He has collaborated on several international publications and serves as a committee member on the SABS ISO/TC 242 (technical committee). Gustav was the chairman of the working group responsible for the development of a South African Measurement and Verification Standard – SATS 50 010 and has more than 15 year's experience in the energy management field. Enquiries: Tel. 083 441 1094 or email gustav@energycybernetics.com.

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