



Bureau Veritas
Energy Audit Summary Report
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Energy Audit Summary

IBM has engaged Bureau Veritas Certification to conduct audits of the energy management process, energy conservation projects and energy reporting at IBM locations. The purpose of this IBM Energy Audit programme is to provide limited assurance of the accuracy and reliability of energy data collected and reported by IBM. Locations chosen for energy audits were the sites to be audited during ISO 14001:2004 surveillance audits and chosen by IBM and Bureau Veritas. IBM defined the sample size and process for reviewing the energy management process, energy conservation projects and energy usage/billings.

During 2012, Bureau Veritas Certification performed Energy Audits at sixteen (16) IBM entities worldwide as given in the table below:

Americas	Europe/ Middle East/ Asia	Canada/ Australia
<ul style="list-style-type: none"> • Austin TX, USA • Boulder CO, USA • Poughkeepsie NY, USA • Rochester MN, USA • Tucson AZ, USA 	<ul style="list-style-type: none"> • Montpellier, France • Damastown, Ireland • IBM Slovakia • IBM International Systems Technology Co, Shenzhen, China • IBM Japan/ Osaka & Osaka Nanko • IBM Ireland Product Distribution Limited- Singapore Branch • IBM Spain • IBM Corporation Data Storage Systems KFT., Vác, Hungary • IBM China Company Limited • IBM Česká republika, spol. s r.o. • IBM Sales and Services Hungary 	<ul style="list-style-type: none"> • No locations sampled during 2012

Energy Audit Methodology

The audit methodology was based on the Statement of Work (SOW) #4909011894, dated 1 May 2009 which outlines requirements for conducting special energy conservation audits and preparation of reports. Details of the Energy Audits were given in “Auditor Briefing Notes” updated Feb 2012. The Bureau Veritas Energy Audits consisted of the following activities:

1. Review of the Energy Management Process

A description of the site energy management process and reference to relevant documents including energy checklists the site uses to manage the process. An overall review of the effectiveness of the process used for tracking energy usage, and compliance with the IBM Corporate Instruction ENV 108: Energy Management.

2. Energy Checklist Verification

A review and verification that the correct energy checklists are completed annually, bi-annually or tri-annually depending on the amount of energy used each year. A verification that energy checklist findings were converted into energy conservation project plans.

3. Energy Conservation Project Audit

Verification that a list of Energy Conservation Projects completed 12-18 months prior to the audit is available. At least 4 of the top ten projects by savings are reviewed and at least 2 additional projects (one mid-range of saving and one from the bottom five) if the site has more than 20 projects identified. Project reviews covers IBM processes for calculation, verification and validation of data. Calculations are verified for the savings and a determination of the soundness of the calculations and measurements, as well as, observations of the installation and physical controls of the projects sampled.

4. Audit Utility Bill Tracking and Reporting

A sample of energy bills are reviewed and compared to the data in the Utility Accountant database for facilities using more than 2,000MWH/yr. For entities audited during the first half of the year, January through June, all energy bills for the second half of the previous year and year-to-date (YTD) for the current year are reviewed by the auditor against Utility Accountant (UA) database inputs. For locations audited in the second half of the year, July through December, all energy bills YTD for the current year are reviewed by the auditor against UA database inputs. The UA totals for the location, as well as the bills, which support the data are reviewed. If the usage and cost of the utility bills reviewed do not match the total in the UA then these discrepancies are documented and the errors are to be corrected by the facility.

Results of the Energy Audit

No comments or discrepancies were noted at the following locations: Montpellier France, Austin TX USA, Boulder CO USA, Damastown Ireland, IBM Slovakia, International Systems Technology Company Shenzhen China, IBM Japan/ Osaka & Osaka Nanko, Poughkeepsie NY USA, Rochester MN USA, Tucson AZ USA, IBM China Company Limited, IBM Česká republika, spol. s r.o.

The auditor for IBM Corporation Data Storage Systems KFT., Vác, Hungary did not classify the audit findings as discrepancies; however, these findings indicate the energy conservation project savings and reported energy billing and usage must be used with caution. Excerpts of the audit findings are given below:

- ✓ The projects are under good control, and some new other plans are also promising. However, at this stage a large portion of the calculated saving are not suitable for exact verification, the comments in italics (see report) should be considered.

- ✓ As a conclusion we could not trace back to the original data source (bills from provider), but the available evidences were sufficient to see that the electricity consumption reporting process is reliable and robust – *provided that the meters of Zollner are duly calibrated*. Zollner operates electricity meters at each building, but *IBM has no information about the calibration status of these electricity meters*.

Although no discrepancy was noted in the IBM Ireland Product Distribution Limited- Singapore Branch report, the auditor provided one observation and one opportunity for improvement which are given below:

- ✓ Calculation spread sheet might be more clearly defined to capture special days information ie air con on / off day for weekend instead of just referencing back to different e-mails to confirm the special days on /off time accuracy. (Opportunities for improvement)
- ✓ The company might consider reviewing the integrity of the data provided in the excel sheet for the monthly report for Energy Saving plan in LTO to keep track each day how many stations off with or without ionisers to ensure data is calculated accurately as per the formulation provided in the excel sheet. An error was observed in data input from the energy saving plan in department LTO in June 2012 data, the company needs to review and avoid the error in calculation in the spread sheet provided from the department. (Observation)

Although no discrepancy was noted in the IBM Spain report, the auditor verified appropriate action was taken on the six (6) opportunities-for-improvement identified in the 2011 energy audit. The auditor also noted two (2) additional opportunities-for-improvement given below:

- ✓ OFI-1 IBM Spain might consider to improve traceability between individual skills and associated training requirements (Energy training and/or experience). Checked: Energy Responsible skills identification ES_SKL 0059 rev 0 28/06/2011 Training requirements defined ES_SKL_0059 rev 0 20/01/2012.
- ✓ OFI-2 IBM Spain might consider to include Calibrations/verifications measurements of displays at EMS calibration Plan.

Although no discrepancy was noted, the audit report for IBM Sales and Services Hungary contains the following comments:

- ✓ The sites recently decided to go for ISO 14001 certification and the energy management processes started also in the past few months. They are aware of the processes (including e.g. CIENV 108), and started to draw up energy projects, but none has been finished where verifiable energy savings could have been shown.
- ✓ The electricity use is monitored on both sites (based on electricity bills), but as mentioned above, both are below 2000 MWh/yr consumption. There is a robust process of electricity bill approval, and the bills themselves are directly sent to the FM sub-contractor HSG Zander, who is doing the summary. As the sites are below 2000 MWh/yr, reportedly they have no obligation to complete the Energy Checklist.
- ✓ None of the two locations exceed the 2000 MWh/year energy use, this is why their reporting/monitoring obligations are limited: no need to use Utility Accountant (UA) database, and as a result there was nothing to compare to the local bills.

One auditor comment was given in the Boulder CO USA Report:

- ✓ Utility accountant does not allow for fully accurate entry of electrical usage since April 2011. The last three digits of electrical usage can not be entered. Rather the last three digits must be rounded up or down.

One opportunity-for-improvement was given in the International Systems Technology Company China:

- ✓ One red opportunities were raised about energy saving plan: Just energy saving plan in 2012 is

established, but energy saving plan in 2013 is not established.

Overall Assessment

The energy management process was verified as in place and operational in accordance with IBM energy policies and procedures in all sixteen entities of the audit sample. IBM management and personnel appeared knowledgeable of IBM expectations and dedicated to continually pursuing energy conservation and accuracy of data collection and reporting. The IBM Energy Checklists were verified to be used appropriately and leading to improvement projects. With the exception of the energy projects at IBM Corporation Data Storage Systems KFT., Vác, Hungary where a “large portion of the calculated saving are not suitable for exact verification”, all energy projects that were reviewed were found to be based upon good engineering principles and with properly quantified savings. Likewise, data reporting was found to be accurate for all locations with the proviso that calibration be verified for the Zollner meters used by IBM Corporation Data Storage Systems KFT., Vác, Hungary.

In summary, the audit verified proper implementation of the IBM energy management practices with no significant deviations. Of course, this conclusion is based upon the limited audit sample. Bureau Veritas provides this limited assurance over this data based on a site sample chosen by IBM.

Statement of independence, impartiality and competence

Bureau Veritas Certification is an independent professional services company that specializes in Quality, Health, Safety, Social and Environmental management with over 180 years history in providing independent assurance services.

BVC has confirmed that no member of the assurance team has a business relationship with IBM, its Directors or Managers beyond that required for auditing and verification purposes. We conducted this verification independently and to our knowledge there has been no conflict of interest.

Bureau Veritas has implemented a Code of Ethics across our business to maintain high ethical standards among staff in their day-to-day business activities.

The combined BVC global assurance team for 2011 has almost 150 years of combined experience in conducting assurance over environmental, social, ethical and health and safety information, systems and processes.