IBM Systems Director Active Energy Manager for Linux on System z, V4.3 helps you monitor and manage the power and thermal usage of your IT environment

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At a glance

IBM Systems Director Active Energy Manager™ (AEM) for Linux® on System z®, V4.3, an IBM® Systems Director plug-in, is available for the Linux operating systems to help you monitor and manage the power and thermal usage of your IT environment. AEM is an energy management software tool that can provide a single view of actual power usage across systems in your infrastructure as opposed to the benchmarked power consumption.

New features in this release are:

- Energy monitoring and management of new IBM POWER7™ servers and System x® models
- Monitoring of energy data provided by PDUs from Geist and Server Technologies
- Monitoring of equipment using IPv6 connections

Overview

IBM Systems Director Active Energy Manager (AEM) V4.3 is an energy management solution designed to effectively manage the energy usage in data centers. Monitoring a wide range of equipment, AEM retrieves thermal and power information via external sensors and collects alerts, events, and data from facility providers related to power and cooling equipment. AEM is also designed to measure, monitor, and manage the energy management components built into IBM servers at the system, chassis, or rack level. By exploiting the energy-saving capabilities on IBM equipment, AEM can help in the analysis of data center efficiency and be used as a tool for implementing data center efficiency changes, which may result in monetary savings.

AEM V4.3 integrates with the latest releases of American Power Conversion Corporation's (APC) InfraStruXure Central V5.1 and V6.0 and Eaton Corporation's Power Xpert Meters V2.0 for monitoring power and cooling infrastructure. With an increased knowledge of what is occurring with their power and cooling devices, users can take corrective actions if problems with those devices arise. AEM users can be notified and create automation plans to protect their servers.

AEM V4.3 builds upon AEM V4.2 and offers the following new features and enhancements:
• IBM POWER7 technology-based servers can be monitored for energy consumption and can be energy-managed from AEM, including the ability to set power capping and set static power savings mode.
• PDUs from Geist and Server Technologies can now be monitored, increasing AEM’s scope.
• V4.3 integrates with the latest releases of APC’s InfraStruXure Central V5.1 and V6.0 and Eaton’s Power Xpert V2.0 for the monitoring of power and cooling infrastructures.

AEM V4.3 continues to provide energy monitoring and management for Power Systems™ and System x servers, as well as energy monitoring of IBM System z10® servers. AEM also provides a source of energy management data that can be exploited by Tivoli® enterprise solutions such as IBM Tivoli Monitoring for Energy Management.

AEM V4.3 is positioned as a key component of energy-efficient IBM technologies and services as part of the Dynamic Infrastructure® strategy in support of Smarter Planet™. AEM is part of the New Enterprise Data Center strategy and is delivered as a plug-in to IBM Systems Director.

**Key prerequisites**

Refer to the Hardware requirements and Software requirements sections.

**Planned availability date**

• Web download: On or before June 25, 2010
• ESW: June 25, 2010

**Description**

AEM V4.3 is designed to simplify the management of energy consumption across multiple IBM and non-IBM systems. AEM tracks energy use over time and can assist you in determining how to reallocate energy to additional servers without adding additional energy or cooling equipment. When energy is constrained, AEM is designed to allow energy to be allocated on a server-to-server basis.

AEM is also designed to track and allocate energy consumption in a manner intended not to affect performance. Sensors and alerts can warn you if limiting energy to a server could affect performance.

AEM is designed to increase your capability to control energy consumption and improve energy use efficiency, which can potentially result in savings and cost reductions.

AEM is intended to help you:

• Increase energy use efficiency by controlling energy use across the data center
• Negotiate competitive utility rates based on accurate energy use trend assessments
• Limit server energy consumption by capping maximum energy consumption
• Perform server-to-server energy consumption comparisons

By enabling you to meter energy use and historical trend data, AEM is designed to help reduce energy costs in the data center. AEM is also designed to complement and integrate with higher-level management software such as Tivoli. AEM interfaces with IBM Tivoli Monitoring for Energy Management.
AEM V4.3 can help protect your IT investment through its open design and support for industry standards that enable heterogeneous physical and virtual management with support for multiple platforms and operating systems.

AEM V4.3 supports the following server endpoints:

- IBM System z10
- IBM Power Systems, including POWER7 servers
- IBM BladeCenter®
- IBM System x servers

Certain non-IBM servers, legacy IBM servers, and IBM Storage Systems can be monitored through PDU support. In addition, AEM can collect information from select facility providers including Liebert’s SiteScan from Emerson Network Power, InfraStruXure Central from APC, and Power Xpert and Foreseeer from Eaton. Sensors from SynapSense, iButton, Sensatronics, SmartWorks, and Arch Rock are also supported, in order to provide a view of data center environmental data, and for equipment that does not have its own built-in sensors. AEM V4.3 can perform monitoring and management functions for all supported systems from a single console.

AEM V4.3 provides no-charge monitoring functions and a set of optional chargeable (fee-based) management functions.

**AEM monitoring functions (no charge)**

AEM V4.3 is designed to provide monitoring functions for devices that can connect to select Power Distribution Units (PDUs). This enables monitoring functions for systems that do not have support for AEM; for example, older servers and low- and mid-range storage devices. By plugging these systems into an intelligent PDU (a smart power strip), AEM is designed to be able to collect energy information from I/O drawers plugged into the PDU, providing a more complete view of energy used in the data center. Additionally, AEM provides users power management functions for intelligent PDUs. Through AEM, users can turn off individual outlets on the PDUs. This allows administrators to prevent the plugging in of unauthorized equipment in a rack. It also provides a way to quickly cut power usage in case of emergencies. New in this release is support for PDUs from Server Technologies and Geist.

*Power trending* is a monitoring function that displays energy use for individual systems or groups of systems over time (in a graph or table format) to help enable you to understand energy use trends within and across your systems.

*Thermal trending* is a monitoring function that displays information on the inlet and exhaust temperatures for individual systems one at a time to help you understand thermal characteristics of your systems. Incorporating this data into one centralized software-based energy use offering allows finite and localized temperature adjustments within the IT shop to help reduce energy costs for cooling.

Support for facility providers is a function that retrieves information from Emerson Network Power’s SiteScan application, APC’s InfraStruXure Central, and Eaton’s Power Xpert and Foreseeer. Numerous attributes associated with the energy usage of power and cooling equipment can be collected, and made available through AEM. This provides a broader scope of energy information within the data center while including a view of facilities equipment. New in this release is the ability to integrate with the newest releases these products.

Support for sensors is a function that retrieves temperature and power information via sensors. Supported vendors include Arch Rock, iButton, Sensatronics, and SynapSense. In AEM V4.3, this sensor data can now be associated with IBM Systems Director-managed resources. This provides a broader scope of energy information across systems within the data center, while including a view of facilities equipment.
In addition, power and cooling relationships can be configured to servers for all of the above PDUs, sensors, and equipment discovered from the infrastructure management providers. This allows energy data and events to be associated with the servers that use them.

**AEM management functions (priced)**

*Power capping* is included in the set of optional chargeable (fee-based) management functions. It is designed to allow you to set a maximum energy level per system. If the system starts to consume more than the maximum level set, AEM is designed to throttle the processor to use less energy, which slows down the server. This feature is designed to come into play if it gets too warm in the data center. Setting the cap will ensure that the system will not use more than the cap value, thus allowing the user to allocate less power for that system.

New in AEM V4.3 is the ability to set a power cap using AC power on POWER7 servers. Previous versions of AEM supported capping only DC power.

*Power saver mode* is included in the set of optional chargeable (fee-based) management functions. It is designed to allow you to manage your energy use as work activity shifts across various demands. Static power saving mode is enabled via an on/off switch, which you can schedule during times of low utilization, or a script can be written so that it can be switched automatically, based on processor utilization.

**Accessibility by people with disabilities**

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at


**Product positioning**

IBM Systems Director Active Energy Manager V4.3 is an IBM Systems Director V6.2 plug-in. It is an energy management solution building block that returns control of energy costs to the client. Active Energy Manager is a cornerstone of the IBM energy management framework.

Active Energy Manager advances the IBM initiative to deliver price/performance per square foot. This offering enables monitoring and management of power usage across systems equipment within the IT and facility infrastructures, which can decrease the cost of computing through improved power utilization and reduced labor cost. Active Energy Manager provides a broader scope of energy information across systems within the data center while including a view of facilities equipment.

By enabling you to meter energy use and trend data, AEM is designed to help reduce energy costs in the data center. AEM is also designed to complement and integrate with higher-level management software such as Tivoli. AEM interfaces with the IBM Tivoli Monitoring for Energy Management.

AEM V4.3 focuses on multisystem resource management of energy across IBM servers and provides heterogeneous monitoring support for systems and IT facilities, enabling clients to manage actual energy consumption.

**Reference information**

For information on:

- IBM Systems Director for Linux on System z, V6.2 refer to Software Announcement AP10-0094, dated April 13, 2010
- IBM Systems Director Active Energy Manager for Power Systems, V4.3, refer to Software Announcement AP10-0069, dated April 13, 2010
- IBM Systems Director for Power Systems, V6.2 refer to Software Announcement AP10-0085, dated April 13, 2010
- IBM Systems Director Active Energy Manager for X86, V4.3, refer to Software Announcement AG10-0110, dated April 13, 2010
- IBM Systems Director for X86, V6.2 refer to Software Announcement AG10-0113, dated April 13, 2010

### Availability of national languages

IBM Systems Director Active Energy Manager V4.3 includes support for the following languages:

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<thead>
<tr>
<th>Description</th>
<th>Availability date</th>
<th>Language</th>
</tr>
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<td>IBM Systems Director Active Energy Manager V4.3</td>
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<td>Brazilian Portuguese</td>
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<tr>
<td></td>
<td>June 25, 2010</td>
<td>Chinese (simplified)</td>
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<td></td>
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<td>Chinese (traditional)</td>
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<td>June 25, 2010</td>
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### Program number

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<td>4.3</td>
<td>IBM Systems Director Active Energy Manager for Linux on System z</td>
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<td>5648-PES</td>
<td>1.1</td>
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### Product identification number

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<td>5648-PES</td>
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</table>

### Evaluation software

If you download from the Web, you are offered the product to evaluate the AEM management functions for up to 60 days under the terms of the IBM International License Agreement for Evaluation of Programs (ILAE). During the evaluation period, an option to purchase a permanent license will be offered. The terms of the ILAE apply during this time. If a permanent license is purchased, a keyfile will be shipped on a CD-ROM to enable AEM management functions to remain active. When installing the keyfile, no changes are made to AEM and everything will continue to work as it did. If a permanent license is not purchased and installed, then the AEM management functions will be disabled when the evaluation period ends; however, AEM monitoring functions will continue to work after the evaluation period ends. The AEM keyfile is designed to operate with all release levels of AEM V4 and does not need to be reordered or reinstalled for customers migrating from a prior release of AEM V4 to AEM V4.3. AEM monitor functions do not require the keyfile to remain enabled. AEM monitoring functions and the key-enabled management functions are licensed under the terms of the IBM International Program License Agreement (IPLA).
The IBM Systems Director V6.2 Information Center Web site is planned to be updated with information pertinent to IBM Systems Director V6.2 and its associated plug-ins on or before June 25, 2010. The site is located at

http://publib.boulder.ibm.com/infocenter/director/v6r2x/index.jsp

**Offering Information**

Product information is available via the Offering Information Web site

http://www.ibm.com/common/ssi

**Publications**

No licensed hardcopy publications are shipped with this program.

Publications are available in U.S. English versions from the IBM Systems Director Information Center.

The IBM Systems Director Information Center provides you with a single information center where you can access product documentation for IBM systems hardware, operating systems, and server software. Through a consistent framework, you can efficiently find information and personalize your access. The IBM Systems Director Information Center

http://publib.boulder.ibm.com/infocenter/director/v6r2x/index.jsp

To find information, you can search, browse the contents, follow links from one topic to related topics, and print the topics you want to read offline.

Additional information can also be found in the IBM Redbook *Implementing the Poughkeepsie Green Data Center: Showcasing the Dynamic Infrastructure* at


**Technical information**

**Specified operating environment**

**Hardware requirements**

IBM Systems Director Active Energy Manager for Linux on System z is dependent on IBM Systems Director for Linux on System z and has the same hardware requirements as IBM Systems Director V6.2. These hardware requirements are available from the software announcement for IBM Systems Director V6.2 and from the IBM Systems Director V6.2 Information Center at

http://publib.boulder.ibm.com/infocenter/director/v6r2x/topic/com.ibm.director.plan.helps.doc/fqm0_r_hardware_requirements.html

For information on IBM Systems Director for Linux on System z, V6.2, refer to Software Announcement AP10-0094, dated April 13, 2010.

IBM DPI® PDU+s may require firmware updates. The firmware version can be found on the Active Energy Manager Web site


**Software requirements**

AEM V4.3 is dependent on IBM Systems Director for Linux on System z, V6.2 and has the same software requirements as the IBM Systems Director V6.2 management server.
More detailed software requirements are available from documents accompanying the program and from the IBM Systems Director V6.2 Information Center at

http://publib.boulder.ibm.com/infocenter/director/v6r2x/topic/com.ibm.director.plan.helps.doc/fqm0_r_operating_system_and_software_requirements.html

Further information on the program's specifications and specified operating environment may be found in documentation accompanying the program, if available, such as a README file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

**Limitations**

AEM can monitor but not manage power data on servers that do not have native support.

Platform- or operating-system-specific capabilities:

- System z servers are supported for monitoring functions only.
- Power Systems servers are supported for monitoring, power saving, and capping.
- System x servers are supported for monitoring and capping but not power saving.
- Storage devices are enabled for monitoring only when utilizing PDUs.

For additional information, refer to the license information document that is available on the IBM Software License Agreement Web site


**Performance considerations**

Performance considerations are available from the IBM Systems Director Information Center

http://publib.boulder.ibm.com/infocenter/director/v6r2x/index.jsp

**Planning information**

Refer to the planning Web site for additional information


**Packaging**

The IBM Systems Director Active Energy Manager package contains one CD-ROM that includes product installation documentation and files.

Your Proof of Entitlement for this program is a copy of a paid sales receipt, purchase order, invoice, or other sales record from IBM or its authorized reseller from whom you acquired the program, provided that it states the license charge unit (the characteristics of intended use of the program; for example, number of processors, number of users) and quantity acquired.

Information about how you may obtain program services will be provided by the party (either IBM or its authorized reseller) from whom you acquired the program.

AEM will be available on or before June 25, 2010, for electronic download from


This program, when downloaded from a Web site, contains the applicable IBM license agreement and License Information (LI), if appropriate, which will be presented for acceptance at the time of installation of the program. For future reference, the license and LI will be stored in a directory such as LICENSE.TXT.
Security, auditability, and control

AEM V4.3 installed on systems with Linux uses the security and the auditability features of the Linux operating system. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Ordering information

**Charge metric**

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<tr>
<th>Program name</th>
<th>PID number</th>
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<tr>
<td>IBM Systems Director Active Energy Manager V4.3</td>
<td>5648-AEZ</td>
<td>Per server</td>
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<tr>
<td>IBM Systems Director Active Energy Manager V4.3 Subscription and Support</td>
<td>5648-PES</td>
<td>Per server</td>
</tr>
</tbody>
</table>

**Server**

Server is a unit of measure by which the Program can be licensed. A Server is a physical computer that is comprised of processing units, memory, and input/output capabilities and that executes requested procedures, commands, or applications for one or more users or client devices. Where racks, blade enclosures, or other similar equipment is being employed, each separable physical device (for example, a blade or a rack-mounted device) that has the required components is considered itself a separate Server. A Proof of Entitlement (PoE) must be obtained for each Server regardless of the number of processor cores or partitions in the Server on which the Program runs and each Server managed by the Program.

**Basic license**

IBM Systems Director Active Energy Manager for Linux on System z uses a "per server" charging metric. A license is required for each server being managed by IBM Systems Director Active Energy Manager or Linux on System z, based on the size of the server. As of this announcement, servers are categorized as small, medium, or large, based on the following categories.

- Small server
  - IBM System x models
  - IBM BladeCenter x86 technology-based blades
  - IBM Power Systems, System p® models in Processor Groups C5, D5, and E5, or the Power Systems small server tier
  - IBM Power Systems, System i® models in Processor Groups P05, P10, and P20, or the Power Systems small server tier
- Medium server
  - IBM Power Systems, System p models in Processor Group F5, or the Power Systems medium server tier
  - IBM Power Systems, System i models in Processor Groups P30 and P40, or the Power Systems medium server tier
- Large server
  - IBM System z models
  - IBM Power Systems, System p models in Processor Groups G5 and H5, or the Power Systems large server tier
  - IBM Power Systems, System i models in Processor Groups P50 and P60, or the Power Systems large server tier

AEM requires a keyfile to make the management component of the product operational after the 60-day evaluation period. This keyfile is sent on a CD-ROM.
after placing an order for the 5765-AEZ product. AEM monitor functions do not require the keyfile. Download of AEM V4.3 is required before the keyfile can be applied. The AEM keyfile is designed to operate with all release levels of AEM V4 and does not need to be reordered or reinstalled for customers migrating from a prior release of AEM V4 to AEM V4.3.

Orders may be placed beginning with configurator availability.

Current customers with AEM for Linux on System z, V4.1 or V4.2 can download AEM for Linux on System z, V4.3 from the IBM Systems Director download site on or before June 25, 2010. New customers must place an order for AEM for Linux on System z, V4.3.

AEM for Linux on System z, V4.2 will be available for download until replaced by AEM V4.3 (on or before June 25, 2010). Any order received through ESW will receive the license key for AEM for Linux on System z, V4.3 and the product code can be downloaded from the IBM Systems Director download site. The AEM keyfile is designed to operate with all release levels of AEM V4 and does not need to be reordered or reinstalled for customers migrating from a prior release of AEM V4 to AEM V4.3.

To order, specify the program number and the appropriate quantity of licenses for each of the applicable numbers or entitlement identifiers. Also, specify the desired Distribution medium. To suppress shipment of media, select the license-only option in CFSW.

Licensing for AEM

<table>
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<th>IPLA program number</th>
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<td>5648-AEZ</td>
<td>5648-PES</td>
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Specific authorizations for AEM

Program name: IBM Systems Director Active Energy Manager for Linux on System z, V4.3

Program number: 5648-AEZ

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<td>S0154DP</td>
<td>AEM for Managing Large Servers</td>
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<td>S0154DW</td>
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AEM for Linux on System z, V4.3 (5648-AEZ) - S0154DP

Orderable Supply ID Language Distribution medium
S015C43 US English CD

AEM for Linux on System z, V4.3 (5648-AEZ) - S0154DW

Orderable Supply ID Language Distribution medium
S015C42 US English CD

AEM for Linux on System z, V4.3 (5648-AEZ) - S0154DJ

Orderable Supply ID Language Distribution medium
Subscription and Support

To receive voice technical support via telephone during normal business hours (Support) and to receive future releases and versions (Subscription) at no additional charge, Subscription and Support (Maintenance) must be ordered.

The Subscription and Support (Maintenance) offering is purchased separately under the terms of the IBM International Agreement for Acquisition of Software Maintenance (Z125-601). This offering:

- Includes a reasonable amount of remote assistance via telephone, mail, facsimile (fax), or e-mail to address suspected IBM program defects, where available, during normal IBM business hours from Monday through Friday, except local holidays. Exceptions from normal IBM business hours are Severity 1 (high impact) problems. Support for high impact suspected IBM defects is available 24 hours a day, 7 days a week (Support).
- Entitles customers to future releases and versions during the term at no additional charge (Subscription). Note that the customer is not entitled to new products.

The quantity of Subscription and Support (Maintenance) licenses must be equal to the quantity of product licenses ordered. To order, specify the program number and the appropriate number of licenses for each of the applicable one-time charge feature numbers or entitlement identifiers.

When Subscription and Support (Maintenance) is ordered, the charges will renew automatically annually unless canceled by the customer.

Subscription and Support (Maintenance) annual support charges will be automatically added to your order. If you do not desire the Subscription and Support (Maintenance) license for AEM for Linux on System z V4.3, you must take specific action to decline this support.

Subscription and Support for IBM Systems Director Active Energy Manager for Linux on System z, V1.1

Program number: 5648-PES

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<td>S014NK9</td>
<td>AEM for Managing Medium Servers S&amp;S</td>
<td>Basic ASC, per Server Sw S&amp;S No charge, decline Sw S&amp;S</td>
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<tr>
<td>S014NK8</td>
<td>AEM for Managing Small Servers S&amp;S</td>
<td>Basic ASC, per Server Sw S&amp;S No charge, decline Sw S&amp;S</td>
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</table>

AEM for Linux on System z, V4.3 (5648-PES) - S014NK8
Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage® Agreement, and IBM Agreement for Acquisition of Software Maintenance.

Licensing
IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

This software license includes Software Subscription and Support (also referred to as Software Maintenance).

Agreement for Acquisition of Software Maintenance
The following agreement applies for Software Subscription and Support (Software Maintenance) and does not require customer signatures:

- IBM Agreement for Acquisition of Software Maintenance (Z125-6011)

These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. These programs have a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

IBM System z Operational Support Services - SoftwareXcel is an option if you desire added services.

License Information form number
GC52-1262

The program’s License Information will be available for review on the IBM Software License Agreement Web site


Limited warranty applies
Yes

Limited warranty
IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, consult the IBM Software Support Handbook found at

http://www.ibm.com/support/handbook
IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

**Program support**
Enhanced support, called Subscription and Support, includes telephone assistance, as well as access to updates, releases, and versions of the program as long as support is in effect. You will be notified of discontinuance of support with 12 months' notice.

**Money-back guarantee**
If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

**Authorization for use on home/portable computer**
You may not copy and use this program on another computer without paying additional license fees.

**Volume orders (IVO)**
No

**Passport Advantage applies**
No

**Software Subscription and Support (Software Maintenance) applies**
Yes.

Subscription and Support (also referred to as Software Maintenance) annual support charges will be automatically added to your order. The charges will renew automatically annually unless canceled by the customer. If you do not desire the Subscription and Support license for AEM for Linux on System z V4.3, you must take specific action to decline this support.

IBM will provide software maintenance, which may also be referred to as subscription and support, for the no-charge monitoring functions of Active Energy Manager if you have acquired an entitlement to receive software maintenance for IBM Systems Director V6.2 or for AEM for Linux on System z V4.3.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance via telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, consult your *IBM Software Support Handbook* at

http://www.ibm.com/support/handbook

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No

**Variable charges apply**

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**Educational allowance available**

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AP distribution

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* Brunei Darussalam, Indonesia, Cambodia, Lao People's Democratic Republic, Malaysia, Philippines, Singapore, Thailand, and Vietnam
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