Background

Energy Management and Information Systems (EMIS) comprise a broad family of tools and services to manage commercial building energy use. These technologies include, for example, energy information systems (EIS), equipment-specific fault detection and diagnostic systems, benchmarking and utility tracking tools, and building automation systems.

There are a wide a wide variety of EMIS products available on the commercial market, and they are increasingly heavily marketed to the energy management community.

The lack of standard terminology for this family of technologies is currently a major barrier to meaningful dialogue and common understanding when stakeholders collaborate. In addition, those new to the domain are often confounded in determining key differences between commercial offerings.

Purpose of this Terminology Framework

The purpose of the framework presented in this document is to provide a common reference that can be used to understand key distinguishing factors and core attributes of different solutions within the family of EMIS technologies.

This framework can be used as a first step to orienting oneself; it intentionally stops short of a detailed accounting of specific technology features, instead providing a high level overview of primary applications within each category. Once oriented, users can take the next steps to explore details such as specific features sets, data integration issues, matching tool capabilities to specific organizational energy management activities, and ultimately, specification and selection.

The purpose of this framework is not to dictate terminology - people can and should use terms that they are comfortable with, once they are familiar with EMIS offerings.

Expected Audiences for this Terminology Framework

This framework is targeted for use by: a) those newly gaining familiarity with EMIS technologies, who are trying to understand the diversity of commercial options; b) those working collaboratively, who want a common "language" in which to ground their communications.

Key Considerations

The dividing lines between some instances of these technologies can quickly become blurry - for example, some energy information systems (EIS) may offer fault detection and diagnostic (FDD) analytical capability; however the historic *principal design intent* of advanced EIS is whole building or portfolio energy tracking, and automated interval data analysis to identify efficiency opportunities. Furthermore some offerings may fit into multiple categories.

This framework does not attempt to fit 100% of the EMIS offering on the market, particularly those that are most newly emerging, and therefore still evolving in core applications and capabilities. Rather, the intent is to provide a framing that is well suited to over 80% of commercial technologies.

Finally, it is important to acknowledge that this is a rapidly evolving technology area, and what is true of today's market and today's technologies may be less applicable in the future.

Definitions of the technology attributes used in the Terminology Framework

May also be referred to as: other names that might be encountered; these are not necessarily recommended names, but are included to capture terms that may be used in less formal cases, or in marketing materials.

Typical data scope: the level and type of building data that the technology most commonly uses.

Typical data interval: the time resolution of the data that the technology most commonly uses.

Frequency of use: how often the technology is typically accessed by the user to gain performance insights.

Primary applications, principal design intent: core uses of the technology and user benefits.

Vendor examples: technology examples from the 2013 commercial market; these are representative examples, not intended to be a comprehensive inventory of market offerings.

Terminology Framework

The framework is adapted from:

a) *The Building Performance Tracking Handbook,* California Commissioning Collaborative, 2011; available from http://www.cacx.org/PIER/documents/bpt-handbook.pdf

b) *Building Management Programs and Field Assessments 2013,* Consortium for Energy Efficiency, 2013; available from https://library.cee1.org/content/cee-2013-building-energy-management-programs-and-field-assessments.

The framework itself comprises a table that spans two 8.5 x 11 landscape oriented pages:

Technology attributes	Tools with a Whole-building Energy Focus			Tools with a System-level Focus		
	Benchmarking and Monthly Utility Bill Analysis	**Energy Information Systems**	**Advanced Energy Information Systems**	**Building Automation Systems**	**Fault Detection and Diagnostic Systems**	**Automated System Optimization**
Typical Data Scope	Whole-building	Whole building May include: submetering	Whole building May include: submetering and system-level monitoring	Systems, components, May include: system submetering	Systems, components, BAS trends May include: whole-building or system-level metering	
Typical Data Interval	Monthly	Hourly to 15-minute		15-minute and less		
Frequency of use	Monthly, annually	Daily, weekly, monthly			Weekly, monthly	
Primary Applications, Principal design intent	Utility bill reconciliation, energy use and cost tracking; peer-to-peer building comparisons of energy use.	Whole-building or portfolio energy tracking, and *data visualization* to identify opportunities to improve building operational efficiency.	Whole-building or portfolio energy tracking, and *automated interval data analysis* to identify opportunities to improve building operational efficiency.	Control of indoor temperature, light, and humidity setpoints based on building schedule; alarming of out-of-range operations.	Automated identification of faults, sometimes with associated causes, usually HVAC focused.	Automated modification of control parameters to optimize efficiency, energy use, and/or energy costs.

Technology attributes	Tools with a Whole-building Energy Focus			Tools with a System-level Focus		
	Benchmarking and Monthly Utility Bill Analysis	**Energy Information Systems**	**Advanced Energy Information Systems**	**Building Automation Systems**	**Fault Detection and Diagnostic Systems**	**Automated System Optimization**
***Vendor Examples**	EPA Portfolio manager, Metrix, EnergyCAP, Noesis, Energy Print, FirstView	Obvius building manager online, Lucid Building Dashboard, Noveda Energy Flow Monitor	NorthWrite Energy WorkSite, Pulse Energy, EnerNOC EfficiencySmart, Energy ICT EIServer, JCI Panoptix, EFT Energy Manager, Mach Energy Asset Manager, eSight Enterprise	Siemens Apogee, Johnson Metasys, Novar Opus EMS, Tridium Niagara, Automated Logic WebControl	Cimetrics InfoMetrics, EnerNOC EfficiencySmart, EZENICS, Sky Foundry Sky Spark	Optimum Loop, Optimum VAV, BuildingIQ, Enerliance LOBOS, QCoefficient
****May also be referred to as**	Utility tracking tools, monthly energy monitoring system, billing reconciliation	Whole-building monitoring system, energy performance tracking system, continuous energy monitoring system, meter visualization tool	Enterprise energy management system, energy analytics tool, continuous energy monitoring and analysis system	Energy management and control system, building management system, energy management system, building control system	System monitoring and analytics, Ongoing or Monitoring-based commissioning systems	Control optimization software, continuous optimization, automated energy optimization systems, energy management system

* Representative examples, not intended to be a comprehensive inventory of market offerings

** Other names that might be encountered; these are not necessarily recommended names, but are included to capture terms that may be used in less formal cases, or in marketing materials