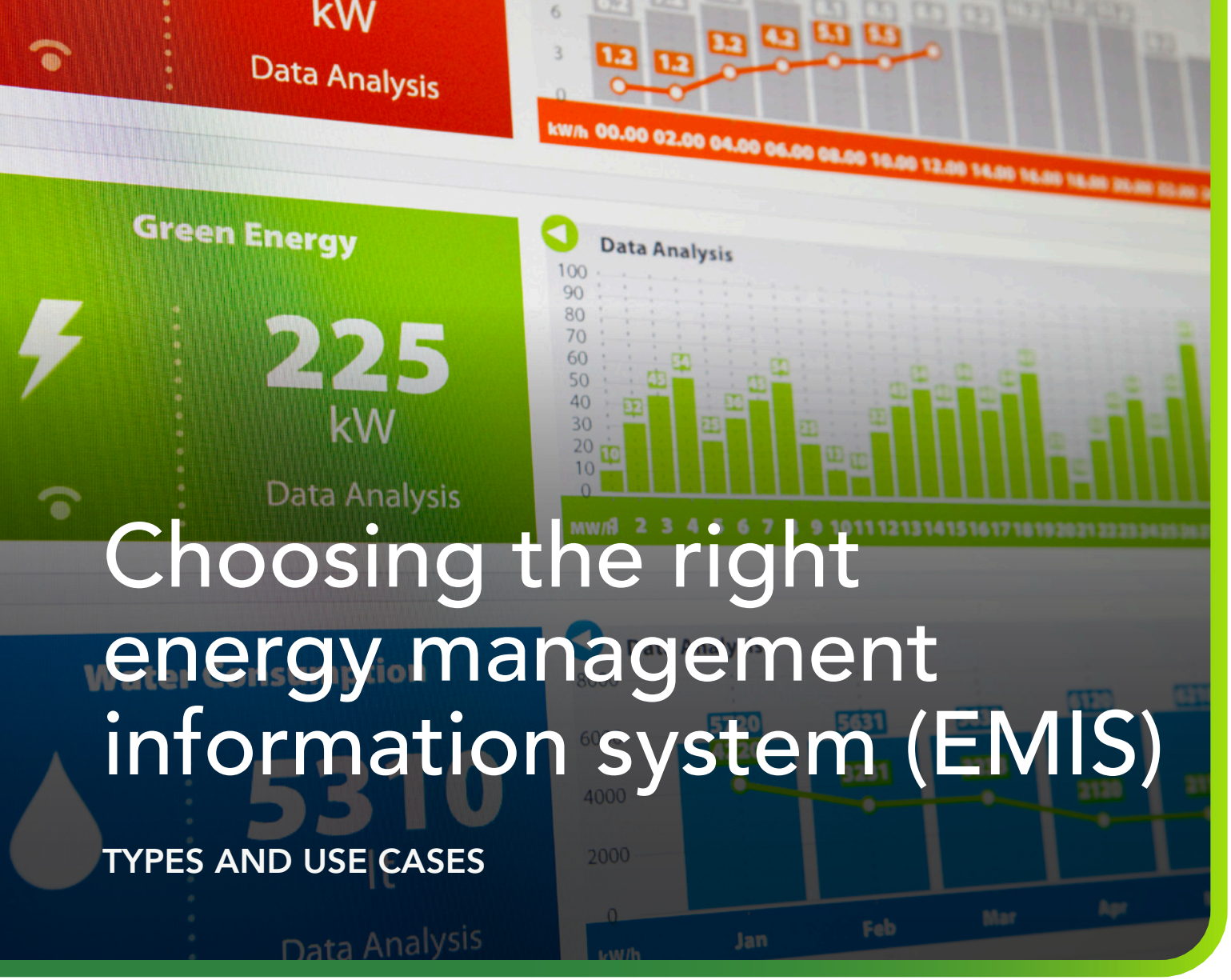

Choosing the right energy management information system (EMIS)

TYPES AND USE CASES

An **EMIS** provides critical information to make energy performance visible and actionable across your organization. It collects energy data from meters, stores it and converts it into performance reports that offer insights and identify opportunities for improvement.

When paired with effective management practices, this information becomes a powerful decision-making tool. However, choosing the right EMIS for your needs can be challenging. This fact sheet provides an overview to guide your decision-making. It introduces different types of EMIS, outlines common use cases for clarifying the purpose of your EMIS, identifies key considerations for assessing your needs, and provides a four-step process to help you select the right EMIS.

Types of EMIS

It is important to choose an EMIS that matches your needs. While there are different classification systems for EMIS, this fact sheet groups them into three categories.

Basic EMIS

Basic systems rely on manual or basic automated data entry collected from utility and submeters. They have limited analysis capabilities and can be as simple as an Excel workbook.

Advanced EMIS

Advanced systems allow for automated data collection and analysis, offer flexible reporting and can support multiple sites.

Real-time EMIS

The most sophisticated option, real-time systems are ideal for complex operations. They offer continuous data integration, advanced analytics and seamless connectivity to other operational systems.

Type	Data entry	Frequency	Scope	Integration capabilities
Basic	Manual or automated	Daily to monthly	Single site	Limited analysis and reporting
Advanced	Automated	Daily to hourly	Single or multiple sites	Can integrate with other systems
Real-time	Real-time	Real-time	Single or multiple sites	Integration with supervisory control and data acquisition (SCADA) and process control systems

Understanding EMIS use cases

The first step in choosing the right EMIS is clarifying how you plan to use it. Below are common use cases that illustrate the ways an EMIS can benefit an organization and indicate the type of EMIS required to support each use case.

EMIS use cases	Basic	Advanced	Real-time
Reduce energy consumption and costs Monitor energy consumption trends to understand how energy use relates to operations, and uncover opportunities to reduce energy waste.	✓	✓	✓
Benchmark performance Monitor and compare energy performance between similar systems, production lines or facilities to help focus efforts or report progress over time.	✓	✓	✓
Improve decision-making Use energy data to focus efforts, prioritize opportunities, forecast energy consumption and costs, and inform the business case for energy improvements.	✓	✓	✓
Allocate energy-related greenhouse gas (GHG) emissions and costs Measure energy consumption in specific areas and at set times to allocate energy-related GHG emissions and costs to the relevant department or production output.		✓	✓
Influence behaviour Use energy data to encourage behaviours like shutting down idle equipment, closing doors or windows, and reinforcing standard operating procedures. While a basic EMIS can influence behaviour, many of these applications require real-time prompts to be effective.			✓
Support preventive maintenance Leverage energy data to track increased energy consumption which can be an indicator that controls are stuck, actuators are broken, filters need changing or motors or other equipment needs servicing.			✓

Key considerations

Before choosing an EMIS, a consensus should be reached across your organization on the most important considerations and needs in each of the areas listed below. This will help with building a business case for an EMIS, obtaining buy-in across your organization and selecting the ideal EMIS for your organization's needs.

Data sources

Simple systems may collect energy data from a handful of current transformers, while an advanced system may have hundreds of data sources.

- What meters are already in place?
- What meters (and specifications) will be needed?
- What other data sources should be captured?

Data integration and flexibility

Organizations may have legacy systems that need to be integrated. Proprietary data systems can offer advantages, but they can also lock you in, and your data needs may change in the future.

- Can the EMIS integrate with existing metering and systems?
- Can it grow to accommodate new data sources?
- Will it be able to meet changing needs?

Data capture

Wireless connections can reduce costs, but some facilities may require the reliability of wired meters. Understand the design of the existing network infrastructure.

- How will data be collected from meters?
- Will the data connections be wired or wireless?
- Is new network infrastructure required?

Reporting and analytics

Some organizations may have many audiences with complex data needs. Other organizations may not require complex analytics.

- Can the system analyze real-time data and historical trends?
- Can it meet all reporting needs, including regulatory?
- Can it create custom dashboards or reports?
- Can it provide notifications of certain events?

Ease of use

Large organizations may have specialized staff to operate the system, but staff will still need some training. Consider how people who do not normally use the system will get actionable data.

- How easy is it to create custom reporting?
- Is it easy for different departments to obtain and understand the desired insights?
- How difficult is it to train people and for them to use the system?

Security, data privacy and reliability

Some organizations have stringent data security policies and reliability requirements, while others simply want a system that meets industry standards.

- Will data be stored on-site or in the cloud?
- Does it comply with security requirements?
- Can it meet your uptime requirements?

Vendor support and reputation

In addition to having confidence in the vendor's capabilities, some organizations may place additional emphasis on strong vendor support, particularly if the system may impact sensitive or mission-critical operations.

- Do they have a track record on similar projects?
- Do they provide adequate support, troubleshooting, updates and system monitoring?
- What is their plan to adapt to emerging technology?

Costs

It is important to consider the upfront costs and the ongoing costs of using, maintaining and upgrading the system. There may be trade-offs between using knowledgeable internal staff versus vendor support.

- What are the initial costs?
- What are costs for training and support with implementation?
- What are the ongoing maintenance and support costs?

Navigating the EMIS selection process

Choosing and implementing an EMIS can be a daunting process, often taking six to 12 months to complete. The four steps below are a guide to help you manage the selection process and develop an action plan.

1 Evaluate current situation and needs

2 Develop a business case

3 Identify and engage vendors

4 Evaluate and select a vendor

1. Evaluate current situation and needs

This first step provides a foundation on which to build your EMIS design. It can be carried out internally or with the assistance of an EMIS auditor. It involves:

Defining the purpose of the EMIS

Gather input from across the organization on what the EMIS should achieve, how it will operate, and what results it should deliver.

Understanding its integration with organizational management

Review existing management systems and identify what's needed to translate insights from energy data into action items.

Defining energy account centres

Establish energy account centres—the organizational building blocks where energy performance is measured—and assign ownership to specific teams or departments.

Assessing metering, data capture, data analysis and reporting

Create an inventory of equipment, including specifications, current operating conditions, key energy drivers, existing data availability and how the equipment should be managed. This will inform the scope of the EMIS project and support the development of the business case.

NAVIGATING THE EMIS SELECTION PROCESS

2. Develop a business case

Reaching a consensus on the purpose and key use cases of an EMIS for your organization will inform the selection process and help determine the most suitable system, while addressing the concerns of all departments. The inventory of equipment and current operating conditions from the previous step can help estimate potential energy savings. Energy savings can include the reduction of energy performance variance (regression analysis can help assess the amount of variance that cannot be explained by changes in energy drivers) and operational improvements identified through the EMIS. Non-energy benefits may include improved preventive maintenance, increased resilience and improved operational data.

3. Identify and engage vendors

EMIS vendors can be found through online directories, industry trade groups and professional networks. Large organizations may already have lists of approved vendors; if not, consider reaching out to peers in similar organizations. Once potential vendors have been identified, ask them to self-assess their suitability based on your situation and needs assessment. Request a demonstration of their software, as well as case studies or results from previous customers. Finally, invite vendors for a site tour and, if they have any questions, share the questions and your responses with all potential vendors.

4. Evaluate and select a vendor

To accurately evaluate different vendor proposals, create a matrix with weighted criteria based on the results of your situation and needs assessment. Determine the features that are critical, important and less important, then assign appropriate weights. It's also helpful to have multiple people evaluate the bids against these criteria. To compare the costs, divide each bid's total by its evaluation score. This will give you a relative measure of cost per point.

For more information on selecting an EMIS:

- Save on Energy has incentives available for industrial facilities to hire an energy manager or install an EMIS, as well as coaching, training, support, and incentives to implement Strategic Energy Management best practices. Contact sem@ieso.ca to connect with a coach and learn more.
- Save on Energy has training and support available on a wide range of energy management and energy-efficiency topics, including understanding energy data, making the business case for energy efficiency and understanding measurement and verification.
- Subscribe to Save on Energy's training and support event calendar to stay on top of upcoming workshops and information sessions.
- Natural Resources Canada has information, guides and tools to help you conduct an EMIS audit, develop an implementation plan and successfully implement an EMIS.

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