

A man wearing a yellow hard hat and a blue work shirt is smiling broadly while looking at a smartphone. He is in an industrial setting with machinery in the background. A green horizontal bar is overlaid on the image, containing white text.

Standards and Regulations in the USA and how Facility Insights contributes

Energy efficiency

Standards and regulations in USA

Sources: WBDG web
www.wbdg.org

Rating systems:

- **LEED**: In 2000, the U.S. Green Building Council (USGBC) followed suit and developed and released criteria also aimed at improving the environmental performance of buildings through its Leadership in Energy and Environmental Design (LEED) rating system for new construction.

Standards:

- **ANSI/ASHRAE/USGBC/IES Standard 189.1-2014** purpose of this standard is to provide minimum requirements for the siting, design, construction, and plan for operation of high-performance green buildings.
- **ISO50001 standard** - the International Energy Management standard

Green Product Certifications:

- **Energy Star** is a widely recognized government-run product certification label for energy efficient products.

Rating systems

Certification Program: LEED

Sources: LEED web

www.lead.usgbc.org



LEED



LEED

LEED, or Leadership in Energy & Environmental Design, is transforming the way we think about how our buildings and communities are designed, constructed, maintained and operated across the globe.

LEED stands for green building leadership. LEED is transforming the way we think about how buildings and communities are designed, constructed, maintained and operated across the globe.

LEED certified buildings save money and resources and have a positive impact on the health of occupants, while promoting renewable, clean energy.

Life Is On

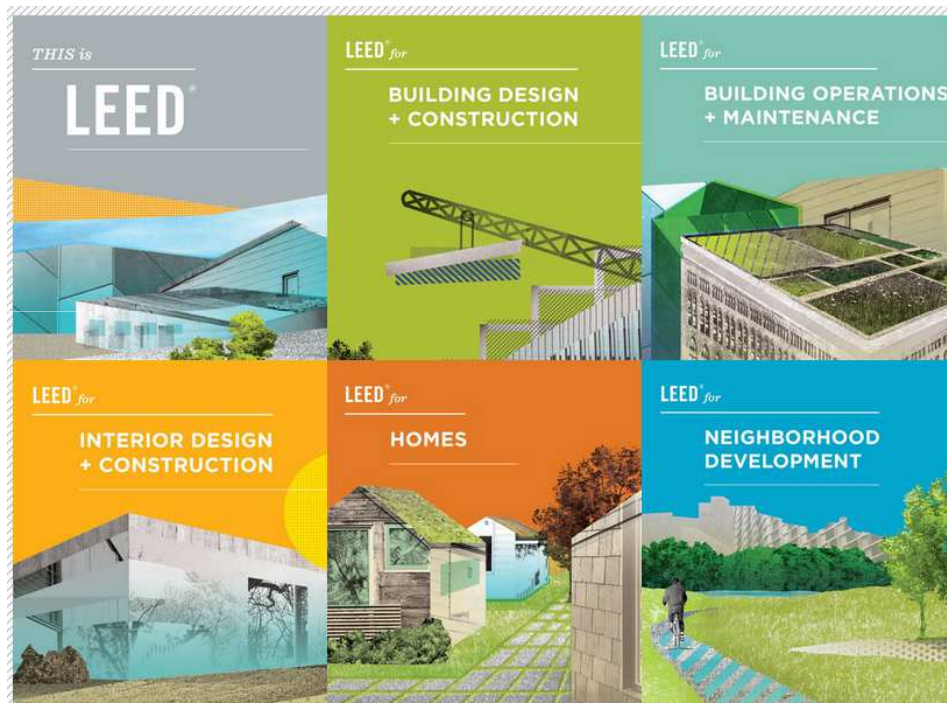
Schneider
Electric

LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices.



LEED is divided into 5 Rating Systems:

- Building Design + Construction
- Building Operation + Maintenance
 - Focusing on Energy Efficiency *
- Interior Design + Construction
- Homes
- Neighborhood Development



* Facility Insights Services can help you to achieve your building Operation and Maintenance goals

LEED – How Facility Insights can contribute

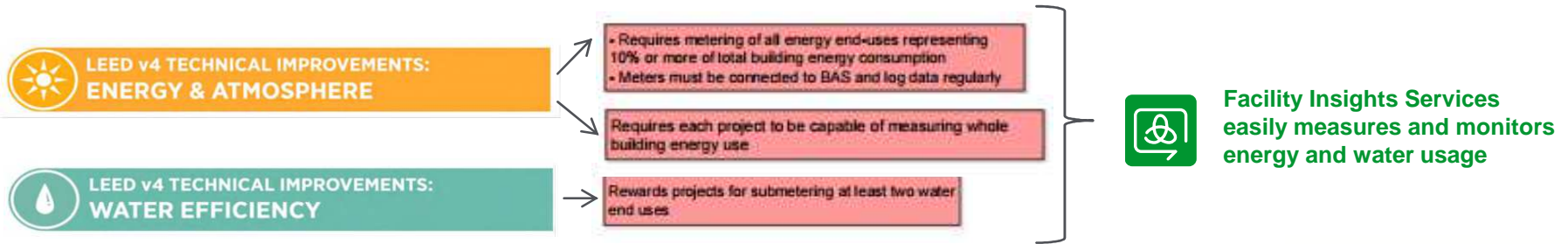


Building Operations
and Maintenance

Rating systems (USA) : LEED – Building Operations + Maintenance

Meet the LEED solution for existing buildings everywhere. Existing buildings hold incredible promise. Many older buildings around the world are inefficient and resource-depleting. With some keen attention to building operations, that can be turned around drastically by using LEED for Building Operations and Maintenance (LEED O+M). Consider that it can take up to 80 years to make up for the environmental impacts of demolishing an existing building and constructing a new one, even if the resulting building is extremely energy efficient. You may have heard the phrase, “The greenest building is the one already built.” We believe it, and LEED can help you achieve it.

<http://leed.usgbc.org/o-m.html>



Standards

ASHRAE 189.1

Standard for the Design of High-Performance Green Buildings



Standard 189.1 provides total building sustainability guidance for designing, building, and operating high-performance green buildings. From site location to energy use to recycling, this standard sets the foundation for green buildings by addressing site sustainability, water use efficiency, energy efficiency, indoor environmental quality (IEQ), and the building's impact on the atmosphere, materials and resources.

- **ANSI/ASHRAE/USGBC/IES Standard 189.1-2014** purpose of this standard is to provide minimum requirements for the siting, design, construction, and plan for operation of high-performance green buildings.

Sources: Ashrae
<https://www.ashrae.org/>



ANSI/ASHRAE/USGBC/IES Standard 189.1-2014:

Sources: Ashrae
<https://www.ashrae.org/>

WE

Water Use Efficiency

Mandatory Provisions

- Site water use
- Building water use
- HVAC Systems, equipment
- Water consumption management

EE

Energy Efficiency

Mandatory requirements

- Renewable energy provisions
- Remote or automatic reading meters** *criteria based on size*
- Meters communicate to central recording system
- Data storage for minimum 36 months



Facility Insights Services
easily measures and monitors
energy and water usage



Standards - ISO 50001

Sources: ISO web

<http://www.iso.org>



PDCA : PLAN – DO – CHECK – ACT

ISO 50001:2011 specifies requirements for establishing, implementing, maintaining and improving an energy management system, whose purpose is to enable an organization to follow a systematic approach in achieving continual improvement of energy performance, including energy efficiency, energy use and consumption.

ISO 50001:2011 specifies requirements applicable to energy use and consumption, including measurement, documentation and reporting, design and procurement practices for equipment, systems, processes and personnel that contribute to energy performance.

ISO 50001:2011 applies to all variables affecting energy performance that can be monitored and influenced by the organization. ISO 50001:2011 does not prescribe specific performance criteria with respect to energy.

ISO 50001:2011 has been designed to be used independently, but it can be aligned or integrated with other management systems.

ISO 50001:2011 is applicable to any organization wishing to ensure that it conforms to its stated energy policy and wishing to demonstrate this to others, such conformity being confirmed either by means of self-evaluation and self-declaration of conformity, or by certification of the energy management system by an external organization.

ISO 50001 Methodology

PDCA (PLAN – DO – CHECK – ACT)

ACT

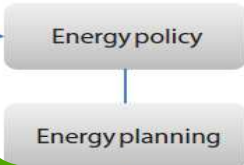
Take action to **continually improve** energy performance and EnMS



PLAN

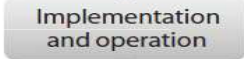
Conduct the **energy review** and establish:

- >The Baseline
- >The energy performance indicators (EnPIs)
- >The objectives/targets
- >The action plans necessary to **deliver results that will improve energy performance**



DO

Implement the energy management action plans



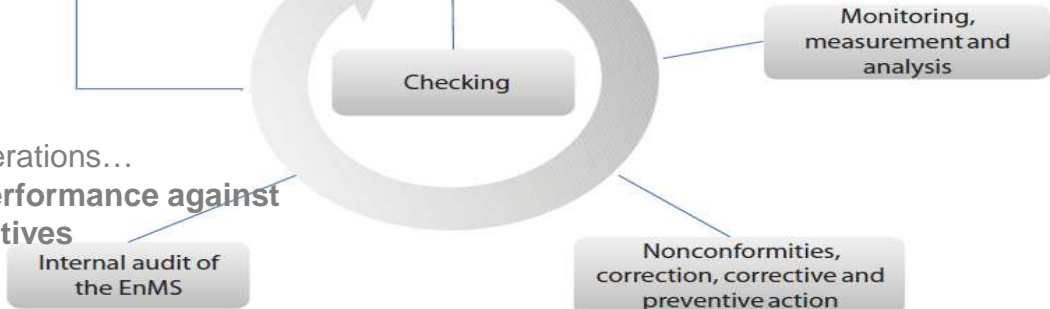
CHECK

>**Monitor and measure**

- > processes
- > key characteristics of operations...

>... that determine **energy performance against the energy policy and objectives**

>**Report the results**



ISO 50001 – Zoom on Measurement & Monitoring



4.6.1 Monitoring, measurement and analysis

The organization shall ensure that the key characteristics of its operations that determine energy performance are monitored, measured and analyzed at planned intervals:

- > significant energy uses and other outputs of the energy review;
- > the relevant variables related to significant energy uses;
- > EnPIs;
- > the effectiveness of the action plans in achieving objectives and targets;
- > evaluation of actual versus expected energy consumption.

The results from monitoring and measurement of the key characteristics shall be recorded.

An energy measurement plan, appropriate to the size and complexity of the organization and its monitoring and measurement equipment, shall be defined and implemented.

NOTE Measurement can range from only utility meters for small organizations up to complete monitoring and measurement systems connected to a software application capable of consolidating data and delivering automatic analysis.

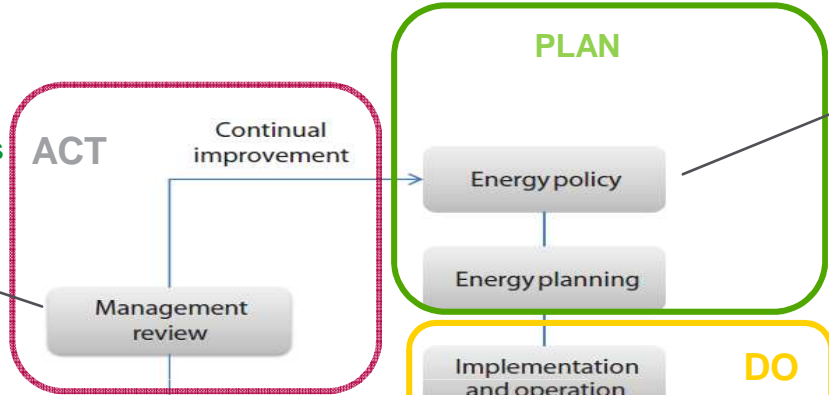
[Link to the Full Standard](#)

http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=51297

ISO 50001 – How Facility Insights contributes



Facility Insights reports used for management review



Facility Insights used to review effects of Energy conservation measures



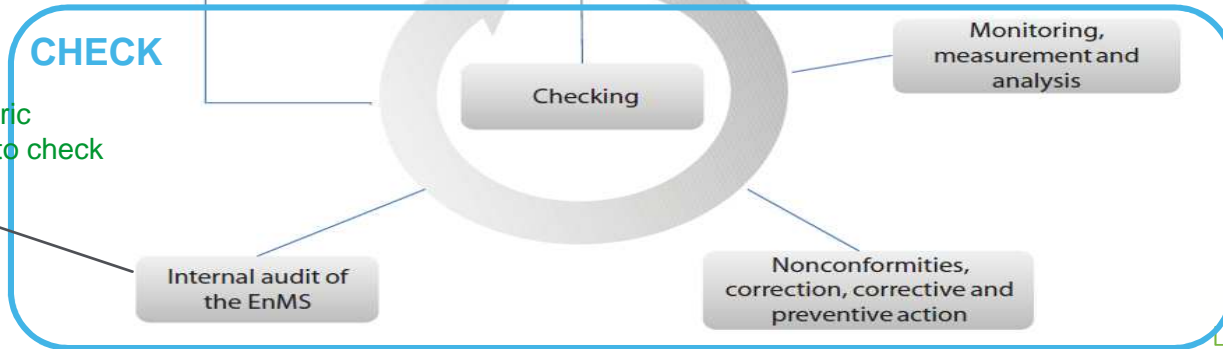
Facility Insights used to compare KPIs



Facility Insights dashboards used as monitoring system for ISO50001



Schneider Electric proposes audit to check the situation



Life Is On



Green product certifications

Green Product Certifications (USA)

Sources: Energy Star web
<http://www.energystar.gov/>



Green product certifications:

A certification is a confirmation that a product meets defined criteria of a standard. ISO defines certification as: "any activity concerned with determining directly or indirectly that relevant requirements are fulfilled." Green product certifications are intended to outline and confirm that a product meets a particular standard and offers an environmental benefit.

ENERGY STAR —First established in 1992 as a voluntary labeling program, Energy Star is a widely recognized government-run product certification label for energy efficient products. It is a joint program of the U.S. EPA and DOE. Energy Star-certified products include appliances, heating and cooling equipment, lighting, home electronics, commercial roofing, and office equipment. Energy Star standards are generally updated and made more stringent every two years.

Like products, building can earn Energy Star points (up to 100). To be eligible for ENERGY STAR certification, a building must earn an ENERGY STAR score of 75 or higher, indicating that it performs better than at least 75 percent of similar buildings nationwide.

ENERGY STAR

- Certain property types receive a 1 – 100 ENERGY STAR score, which compares your property to similar properties nationwide. A score of 50 represents median energy performance, while a score of 75 means your building is a top energy performer — and may be eligible for ENERGY STAR certification.
- ENERGY STAR score details for different building types: Data Center, Hospital, Hotel, School, Medical Office, Multifamily Housing, Office, Parking, Residence Hall/ Dormitory, Retail Store, Senior Care Community, Supermarket/Grocery Store...

Sources: Energy Star web
<http://www.energystar.gov/>



Energy Star parameters (ex: hotel)

- Building Size (sq ft)
- Number of Rooms
- Number of Workers
- Number of Commercial Refrigeration Units
- Presence of a Commercial Food Preparation Area
- Weather and Climate (using Heating and Cooling Degree Days, retrieved based on Zip code)
- Percent of the Building that is Heated and Cooled

Energy Star : how Facility Insights contributes

- Facility Insights reports give you your Energy Star rating (1 to 100)

