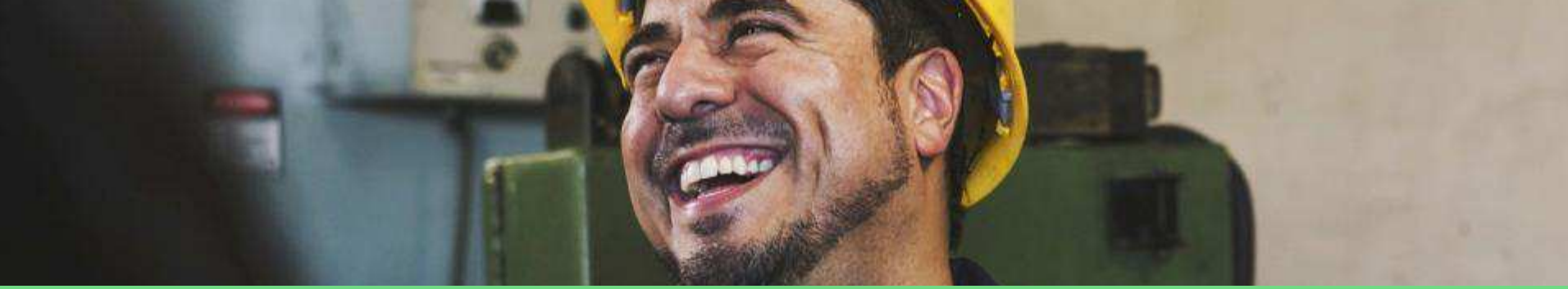


# Standards and Regulations in the USA and how Facility Insights contributes

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 sitting, 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.leed.usgbc.org


**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.**

# 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**

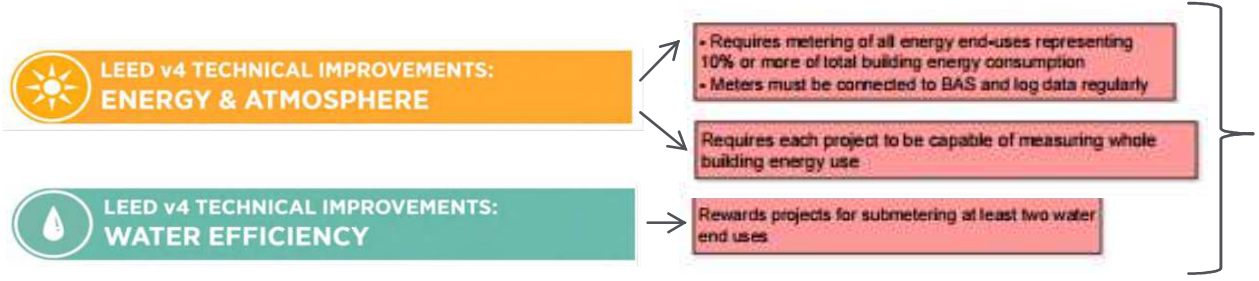
# LEED – How Facility Insights can contribute


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




**Facility Insights Services easily measures and monitors energy and water usage**

Life Is On Schneider Electric

# Standards

# ASHRAE 189.1
# Standard for the Design of High-Performance Green Buildings

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

HPB
HIGH PERFORMING
BUILDINGS

ASHRAE

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 sitting, design, construction, and plan for operation of high-performance green buildings.

Life Is On Schneider Electric

# 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.

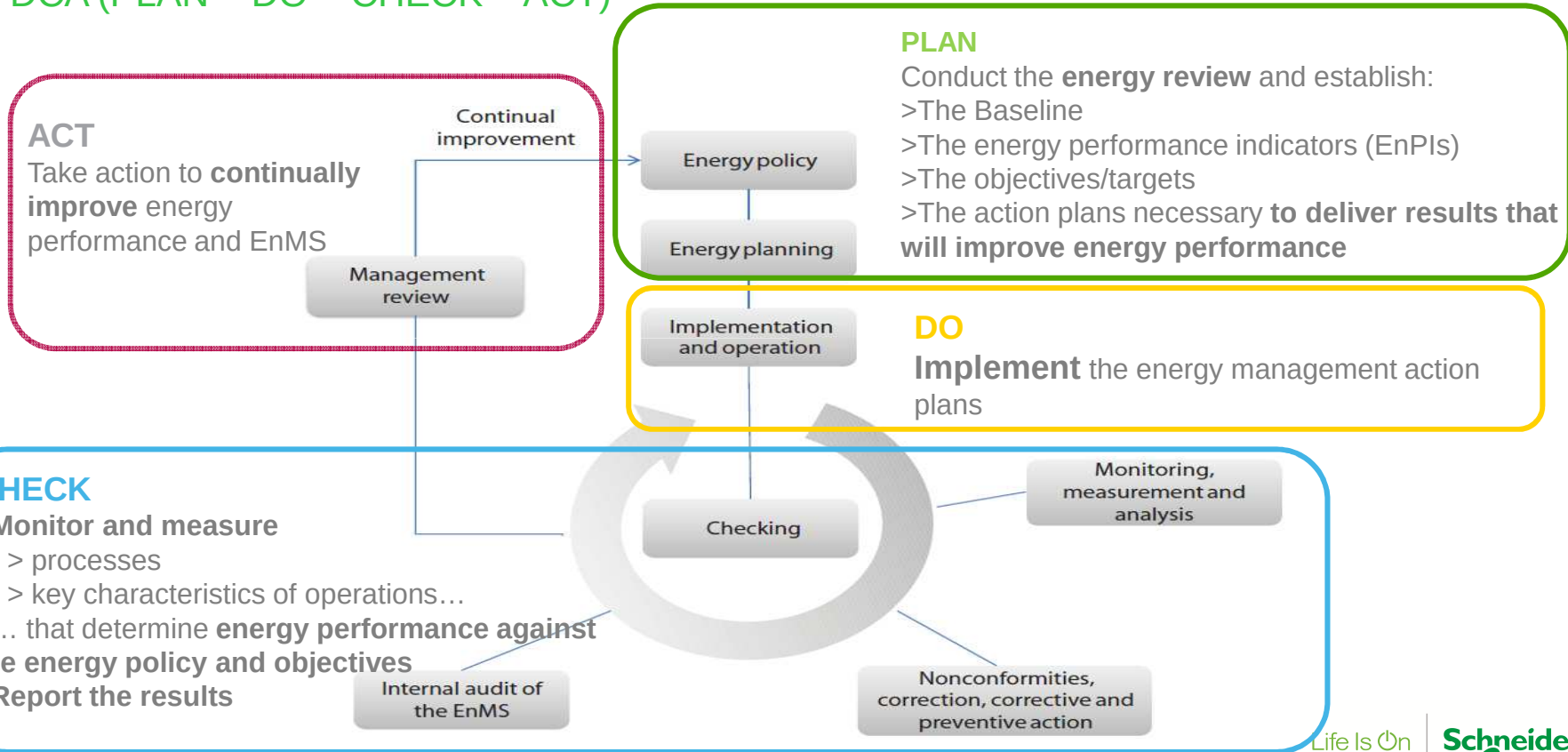
ISO 50001:2011 applies to all variables affecting energy performance that can be monitored and influenced by the organization. ISO 50001:2011 does not prescribe specific performance criteria with respect to energy.

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)



# 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.

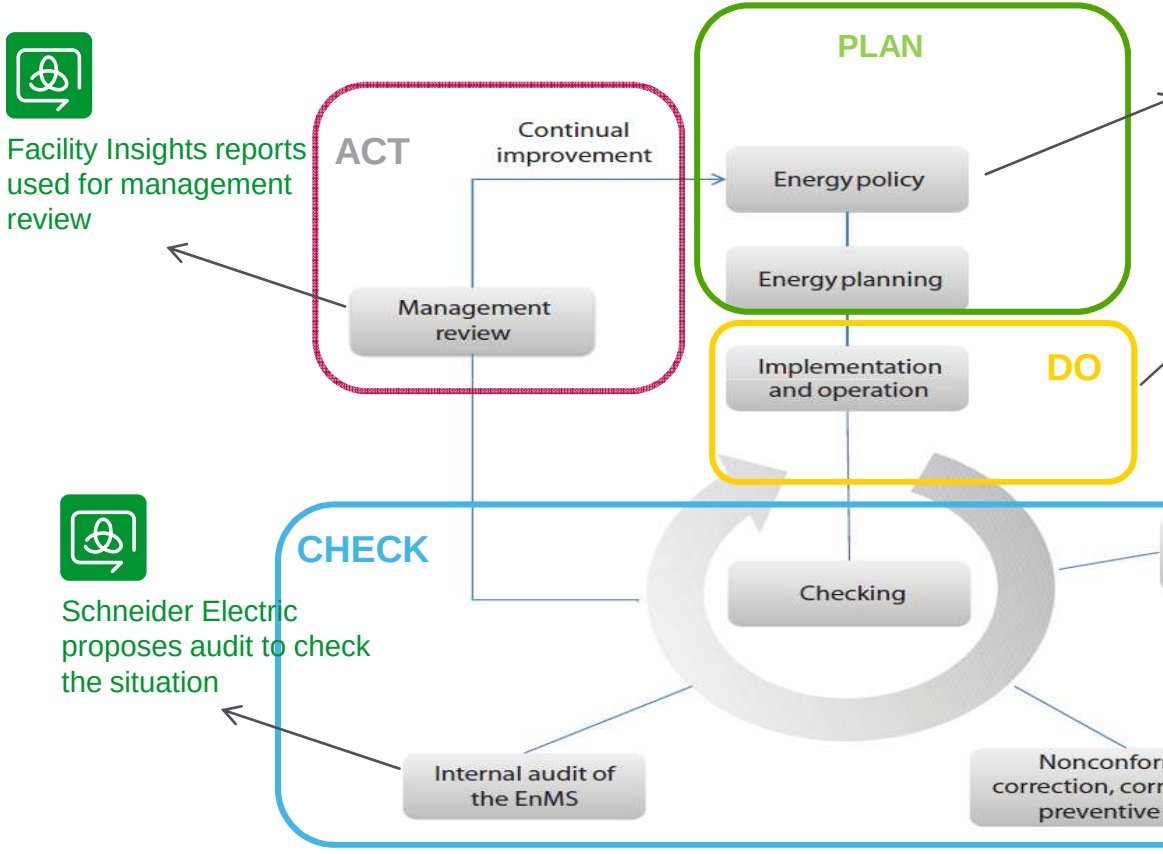
An energy measurement plan, appropriate to the size and complexity of the organization and its monitoring and measurement equipment, shall be defined and implemented.

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

# 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…

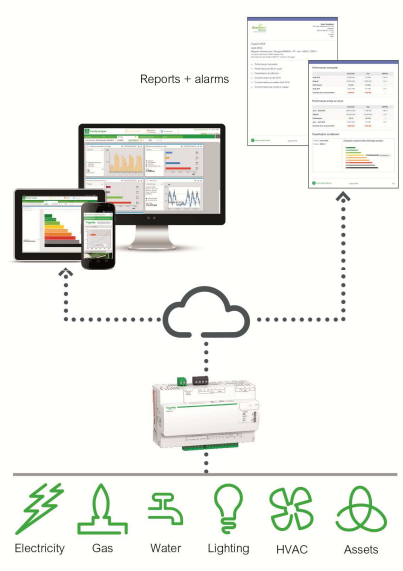
Sources: Energy Star web
http://www.energystar.gov/

**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)




Facility Insights services

Energy Star score is calculated by Facility Insights reports (monthly)

Measure how you improve your Energy Star score with Facility Insights KPIs