

# EU Energy Efficiency Directive

Unveiling the **EED** and Siemens' Energy Management Product Solutions



“Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient and competitive economy”



**EU Green Deal -**  
Basis for the Energy Efficiency Directive (EED)

## EU Green Deal targets



The **1<sup>st</sup>** climate-neutral  
continent by 2050



At least **55%** less net  
greenhouse gas emissions by  
2030, compared to 1990 levels

# Energy Efficiency Directive (EED) – Aiming for climate-neutrality in the EU by 2050

## What is the EED?

Established in 2012 by the European Union and revised in 2018 and 2023.

Is the key legislation that sets the overall framework for achieving energy savings across the European Union.

Energy saving obligations and strategic measures such as the obligation to introduce an energy management system are main levers of the EED.

## Revised EED 2023

Revision of the EED based on the objectives of the **EU Green Deal**.

The revised EED consists of **enhanced and stricter ambitions on energy efficiency** aimed at:

- regular energy audits
- certified energy management system
- validated environmental management system
- reducing total final energy consumption

# Energy efficiency targets from the revised EED

The EED's requirements are to be adopted by EU member states into national law. Every local implementation of the EED can be different.

National implementation must be carried out by all EU Member States by October 2025 at the latest.

## ➤ Overall Energy Consumption Reduction

**Energy efficiency target:** Reduce final energy consumption by at least 11.7 % by 2030 compared to the projections of the energy use for 2030

**Primary Energy Consumption:** <sup>i</sup> Target of 992.5 Mtoe

**Final Energy Consumption:** <sup>i</sup> Target of 763 Mtoe

## ➤ Annual Energy Savings Rate

**EU Countries:** Achieve an average annual energy savings rate of 1.49 % from 2024 to 2030, up from the previous requirement of 0.8 % (2021-2023).



Annual obligation to reduce final energy consumption compared to the previous year in accordance with EU Energy Efficiency Directive 2023/1791 in percent

# Requirements of the revised EED



## Companies



## Public entities



## Data centers

### ✓ Definitions

The EED provides the framework with rules and obligations for achieving the EU energy efficiency targets.

A distinction is made between companies, public entities and data centers.

#### What is considered a company?

- An entity which carries out economic activity. This also includes trade activities and activities which are carried out as one-person or family businesses.
- The definition of a company is independent of its legal form.
- The smallest legally independent unit which keeps accounts and prepares balance sheets for commercial and/or tax law purposes, including its branch locations, subsidiaries and operations or parts of operations, is always taken into account.

#### What is considered a public entity?

- National, regional or local authorities and entities directly financed and administered by those authorities but not having an industrial or commercial character.

#### What is considered a data center?

- A structure or a group of structures used for housing, networking and operating computer systems/servers and associated equipment for the storage, processing and/or distribution of data and for related activities.

➤ New requirement: Legal obligations now depend on total final energy consumption, not company size.

➤ Example: National implementation of the EED in Germany

# Requirements of the revised EED



Companies



Public entities



Data centers

## > Definitions

### ✓ New requirement: Legal obligations now depend on total final energy consumption, not company size.

#### > 10 TJ (~ 2,7 GWh) annual total final energy consumption over the past 3 years

- Carry out regular energy audits according to EN 16247-1 / ISO 50002
- Energy management system is recommended

#### > 85 TJ (~ 23,6 GWh) annual total final energy consumption over the past 3 years

- Energy management system according to ISO 50001

#### Pioneering role of the public sector

- Reduce annual Energy Consumption by 1.9 %
- Energy management system is recommended

#### Power demand of the installed IT $\geq 1$ MW

- Taking into account the best practices referred to in the latest version of the [European Code of Conduct on Data Centre Energy Efficiency](#)
- Energy management system or a validated environmental management system

The EU member states set the exact thresholds and measures for companies, public entities and data centers. These can also be lower than those specified in the EED.

## > Example: National implementation of the EED in Germany

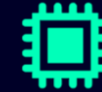
# Requirements of the revised EED



Companies



Public entities



Data centers

> Definitions

> New requirement: Legal obligations now depend on total final energy consumption, not company size.

## ✓ Example: National implementation of the EED in Germany

National limits set by Germany based on the EED targets.

### > 2.5 GWh annual consumption

- Planning and publication of energy-saving measures

### > 7.5 GWh annual annual consumption

- Introduction of EMAS or ISO 50001

### > 1 GWh annual consumption

- Introduction of simplified energy management (ISO 50005, level 2)

### > 3 GWh annual consumption

- Introduction of EMAS or ISO 50001

### > Power demand of the installed IT $\geq 1$ MW

- Introduction of energy or environmental management system

### Non-redundant connected load

$\geq 1$  MW for data centers

$\geq 500$  kW for IT operators

$\geq 300$  kW for public sector

- External validation or certification

# Getting ready to elevate your energy efficiency in line with EED requirements

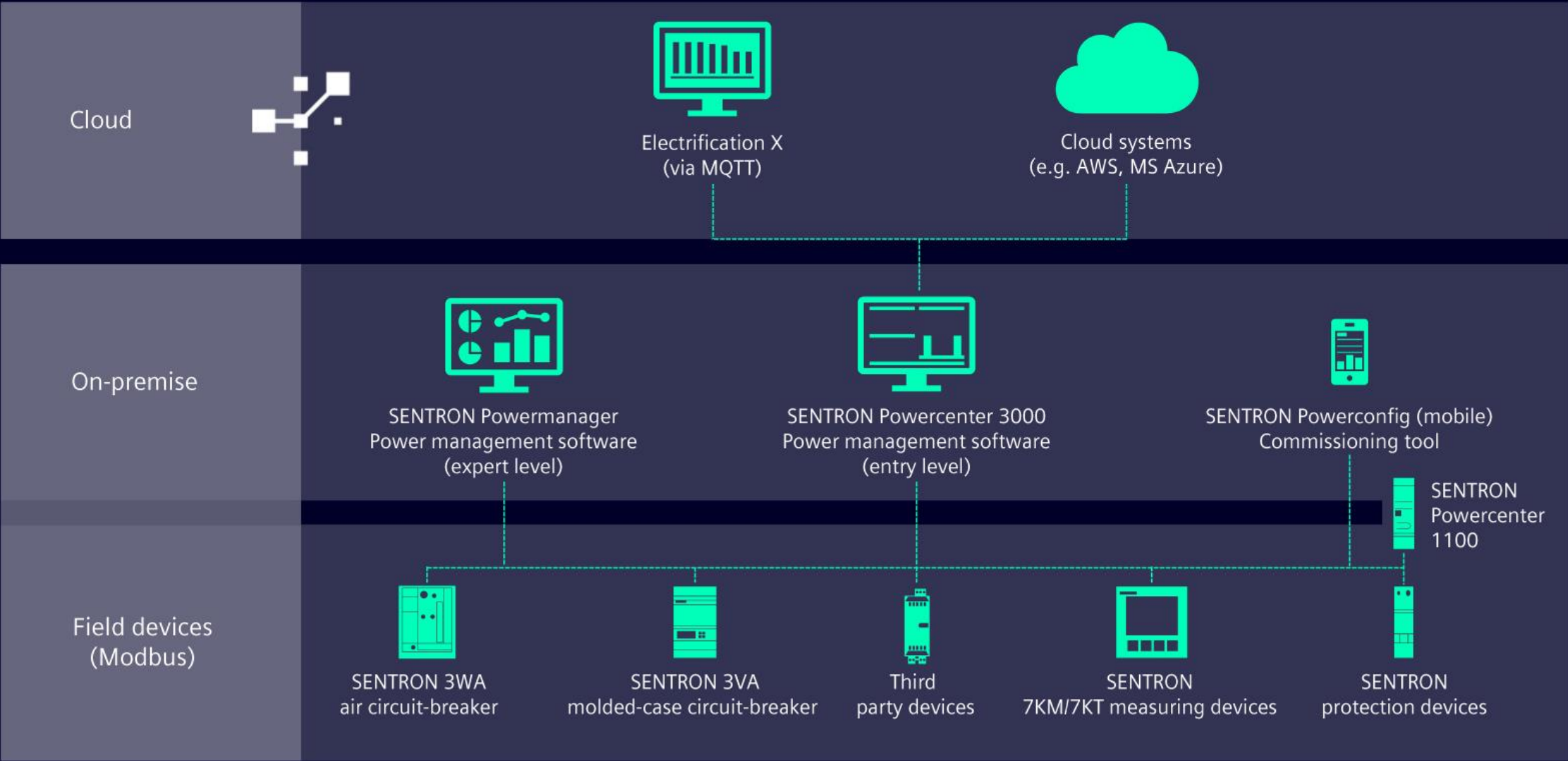
With clear EED requirements to increase energy efficiency, the time is now to prepare to be compliant to the EED based regulations.

In many cases, this goes hand in hand with the mandatory introduction of a certified energy management system, usually in accordance with ISO 50001.

Basis is always a transparent database which can be created using power monitoring systems.

Siemens energy management solutions deliver the functionality to meet the core recommendations of EED.

# Elevate energy efficiency with our SENTRON solutions



# The plug & operate solution: SENTRON Powercenter 3000



## Simple and cost-effective start in energy monitoring

- ✓ Easy access to energy and condition monitoring
- ✓ Complies with legal regulations (certified for ISO 50001)
- ✓ Web-based operational energy management
- ✓ Fast commissioning without major technical effort
- ✓ Secure connection to cloud systems



Cloud  
Systems



Additional secure connection to cloud systems for adaption to growing requirements of operators.

# The expert solution: SENTRON Powermanager

## Scalable solution for professional monitoring of energy and power quality monitoring

- ✓ Expert solution for transparent energy and condition monitoring
- ✓ Enables power quality analysis acc. to EN 50160
- ✓ Supports compliance with legal regulations (e.g. ISO 50001)
- ✓ PC-based software solution
- ✓ Optionally as integrated solution in Desigo CC building management system



[Desigo cc](#)



Power monitoring solution integrated into the scalable Desigo CC building management platform for operators of buildings and properties

# Comparison of SENTRON Powercenter 3000 and SENTRON Powermanager



Attributes	SENTRON Powercenter 3000	SENTRON Powermanager
Platform	IPC	PC (Windows)
Data export	X	X
<b>Reporting</b>	Basic	Advanced
Predefined reports	X	X
Customizable reports	X	X
<b>Real-time and historic data</b>		
Real-time data – graphical	-	X (Measuring element + line chart)
Historical data	X	X
<b>Dashboards</b>		
Predefined dashboards for devices	X	X
Customizable dashboards	X	X

# Comparison of SENTRON Powercenter 3000 and SENTRON Powermanager



**Attributes**

**SENTRON Powercenter 3000**

**SENTRON Powermanager**

Attributes	SENTRON Powercenter 3000	SENTRON Powermanager
<b>Communication</b>		
Northbound interface	MQTT (third-party cloud)	OPC UA/DA
Southbound interface	Modbus	Modbus, OPC UA/DA, IEC 61850, BACnet
Third-party device support	X	X
Limit value / threshold value	X	X
Alarms and notifications	X	X
Graphic editor	-	X
Monitoring of power quality (real-time data of the devices)	X	X
Power quality (EN 50160 dashboard and reporting)	-	X
Condition monitoring	X (individual views)	X (individual & aggregated views)
Software update	Manual	Manual
Purchase	Device purchase + optional licenses	License purchase

# Start optimizing your energy management in 6 easy steps.

## 1 Inform

Familiarize yourself with the new legal situation as soon as possible.

## 2 Verify

Determine your total final energy consumption to check whether you are affected by the new legal requirements.

Note: The total final energy consumption must be recalculated annually and documented in a verifiable manner.

## 3 Plan

Plan the necessary measures for fulfilling your obligations. Seek external support when you are obligated to introduce an energy management system to certify it in accordance with ISO 50001.

## 4 Decide

Examine which solution is best suited to your requirements. Plug & operate solutions like SENTRON Powercenter 3000 are ideal for getting started quickly and easily. SENTRON Powermanager could be the right choice for complex and decentralized energy distribution situations.

## 5 Act

Purchase, implement and commission the selected system at an early stage. Always observe the legally stipulated deadlines for implementing your obligations.

## 6 Implement

Bring professional energy management to life in your day-to-day operations.