SIMATIC Energy Management

Integrated and transparent

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Why is Energy Management important in industry?
The factors influence energy management



Sustainability

The **17 Sustainable** Development **Goals** (SDGs) by the United Nations **to be achieved by 2030**[1]



Climate change

Increase in average surface temperature (by 1.2 **degrees Celsius**) due to CO_2 and other emissions[2]



Decentralization

28% increase in energy demand between **2015** and **2040**[3]



Digitalization

Increase in production and energy data **to 175 zettabytes by 2025** (fivefold)[4]

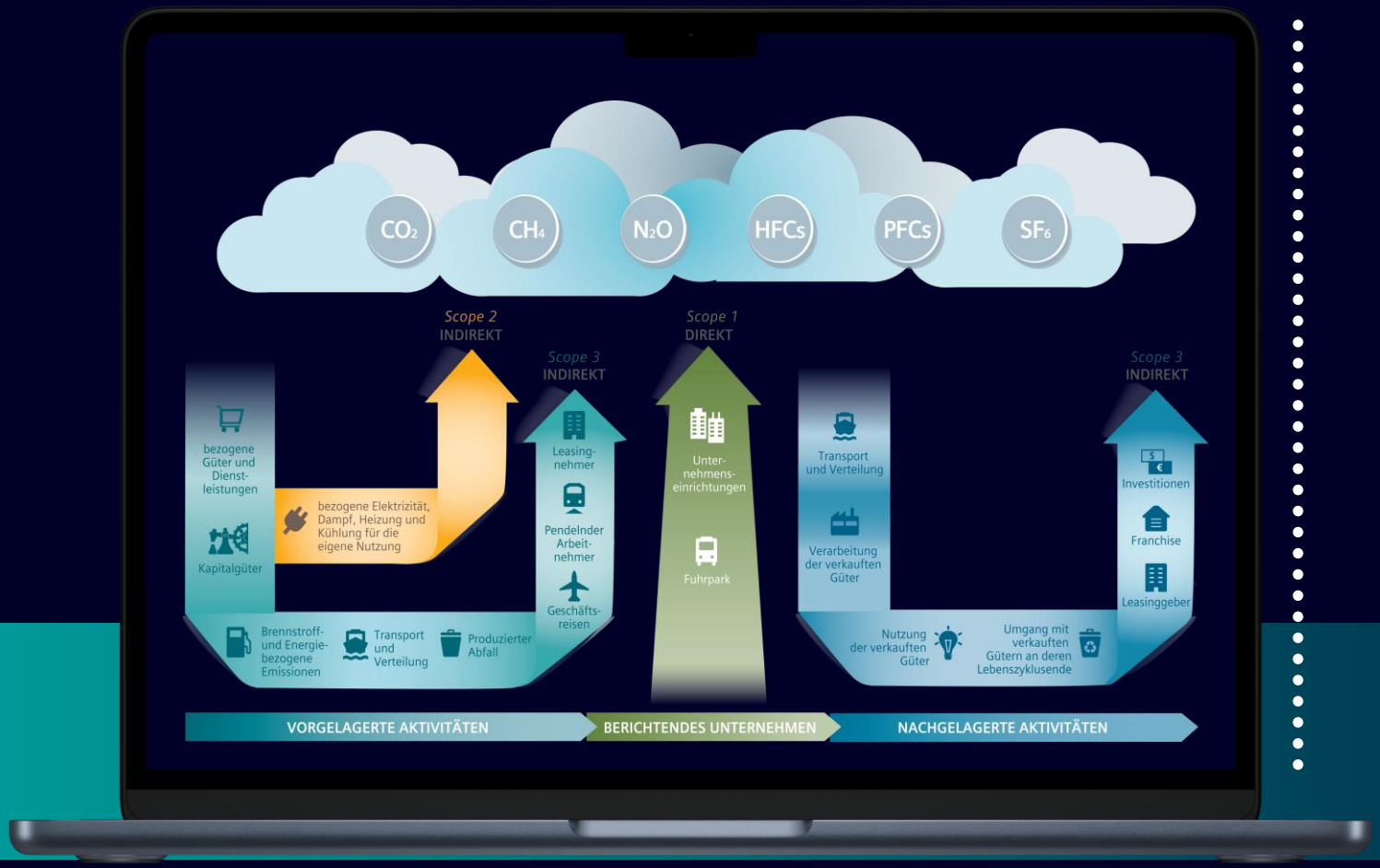
What is our responsibility? **Increase energy efficiency and reduce CO_2-emissions!**

1 SDG UNO (Link) | **2** NASA Gov (Link) | **3** EIA Gov (Link) | **4** Statista (Link)

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Motivation for energy management
The CO_2 footprint is becoming increasingly important



The **carbon footprint** as a key figure to indicate the development of the commitment to sustainability

Investors evaluate **climate risks** and expect compliance with environmental and climate protection standards

Customers demand environmentally friendly products and include this in their **purchasing decisions**

Increasing prices for **CO_2 Certificates**
Feb 2022 > €96 p.t. CO_2

Active, transparent handling of the CO_2 issue is essential!
Managing your product carbon footprints with SiGREEN from Siemens

Source: SiGREEN (http://www.siemens.com/sigreen)

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What are the operational challenges for Industrial Energy Management?

Increase energy efficiency

Energy data transparency
Production KPI indication and analysis

Optimum use of renewable energy

Holistic concept for generation,
storage and utilization/sourcing & supply



Reduce energy cost

- Energy peak management
- Optimize energy procurement
- Optimum use of waste heat/energy

Reduce CO_2 footprint

- Emission monitoring and control
- CO_2 recycling

Compliance and legal regulations

ISO-50001, legal requirements, tax refunds,
carbon footprint certificates

Increase employee awareness

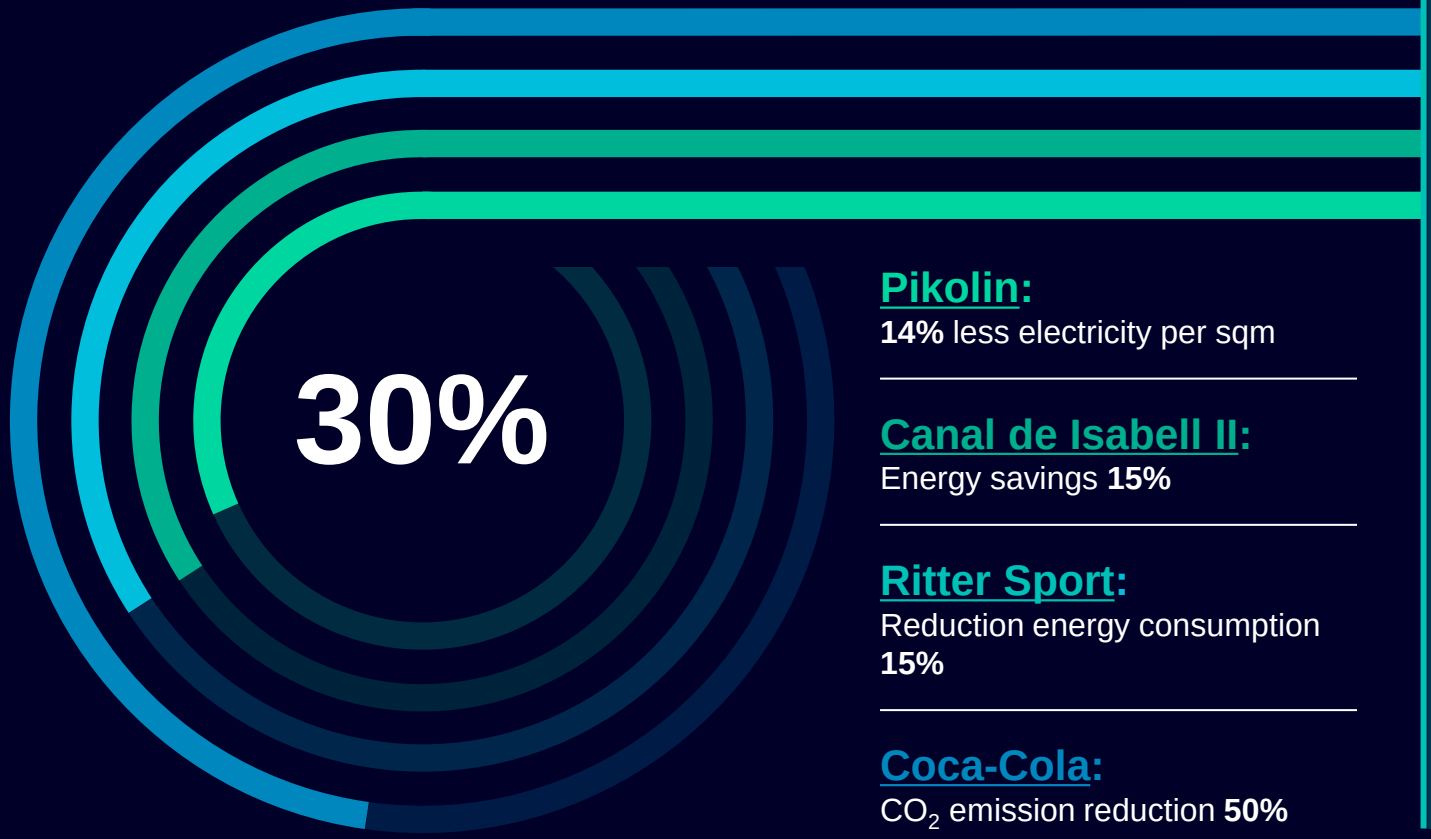
Active consideration of energy costs through the value chain, from plant floor
to utility facilities

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Reach potential savings of up to 30% from an energy management system

Keep pace with your competitors



Pikolin:
14% less electricity per sqm

Canal de Isabell II:
Energy savings **15%**

Ritter Sport:
Reduction energy consumption **15%**

Coca-Cola:
CO_2 emission reduction **50%**

Energy management works

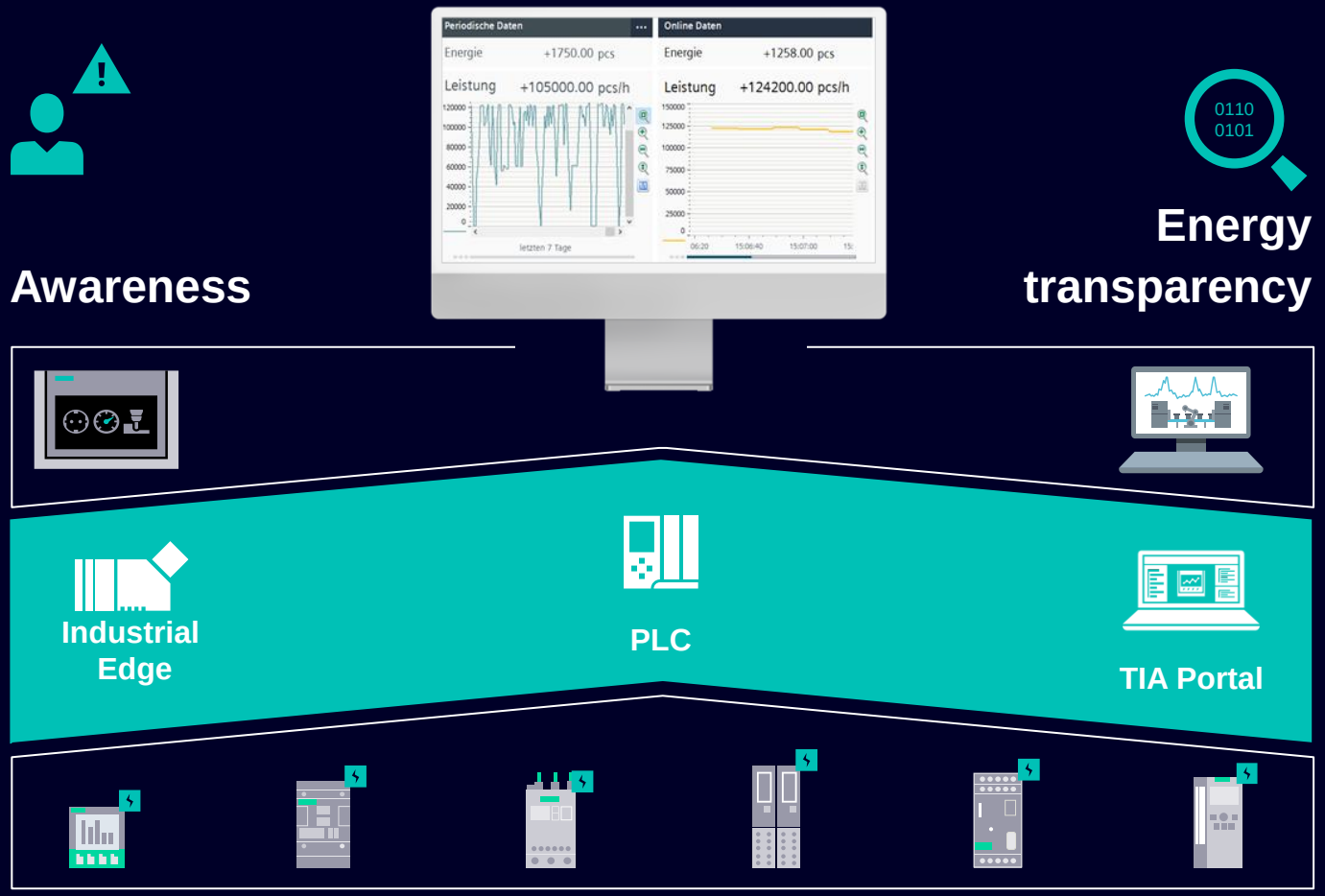
How much could you save?

- Certified ISO-50001 solution
- Achievement of sustainability agenda with focus on responsible consumption and reduction
- Transparency of energy consumption helps to comply with legal regulations (e.g., CO_2-emissions) and increase energy efficiency by finding energy efficiency measures

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Transparency starts at the field level
Energy data acquisition and visualization



Further information: SIMATIC Energy Management

Energy Efficiency

Optimized use of resources

Situation

- No transparency on energy demand in production environment
- No clue how to increase energy efficiency

Requirements

- Energy transparency within the production by linking production and energy data
- Increased energy data availability through archiving and intelligent buffering

Benefits

- Consistency and scalability with integrated solution in automation
- Derive measures to increase energy efficiency

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Measuring energy across all media
Siemens extensive portfolio

Meters

Electrical energy



SIMATIC ET 200SP Energy Meter



SIMATIC S7-1200 SM 1238



MID[1]

Sentron 7Kx PAC-Series

Non-electrical types of energy



SITRANS-Series flow, pressure, temp, …



Wateramount WFx 40

Metering incorporated in device

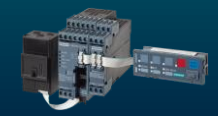
Electrical energy



Molded Case Circuit Breaker 3VA



SINAMICS-converters



SIMOCODE pro Motor Management

Product

Name

User-friendly integration of energy data even in the automation environment

1 Measuring Instruments Directive

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Siemens Process instrumentation

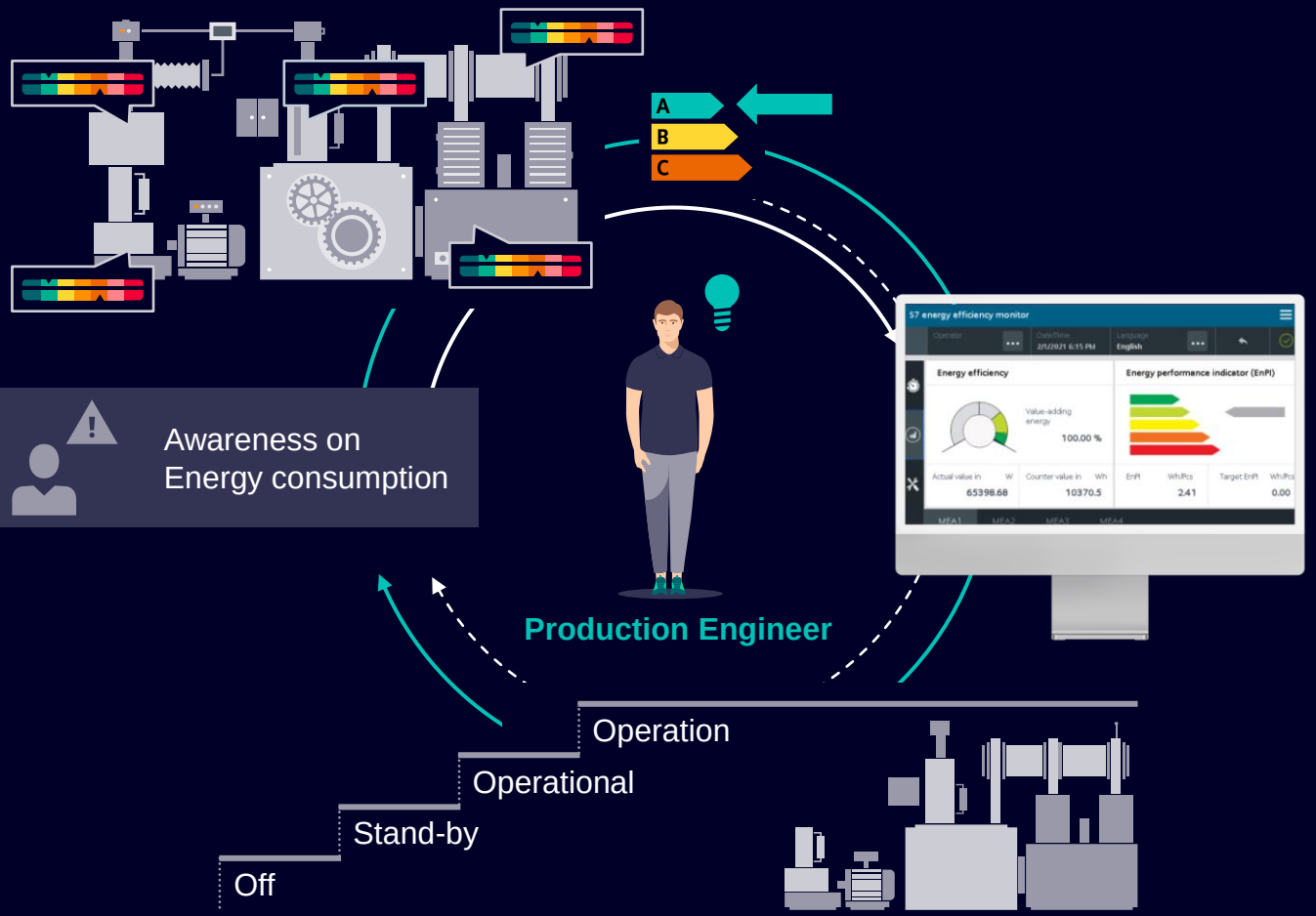
For any customer requirement SITRANS product portfolio for other media at a glance



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Production-related energy monitoring
Efficiency evaluation of machines



Further information: S7 Energy efficiency monitor

Energy Efficiency

Cutting energy costs

Situation

- How can the efficiency of an industrial machine be determined?
- How can the energy efficiency of machines be compared?

Requirements

- Vendor-independent machine analysis in accordance with specification VDMA 34179
- Easy energy acceptance process due to standardized evaluation and uniform acceptance form

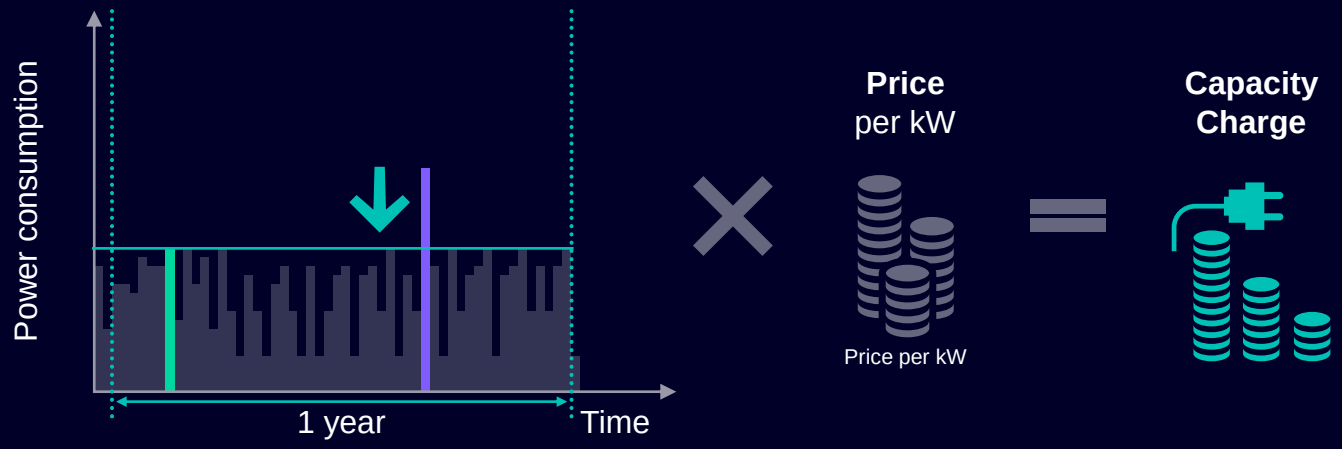
Benefits

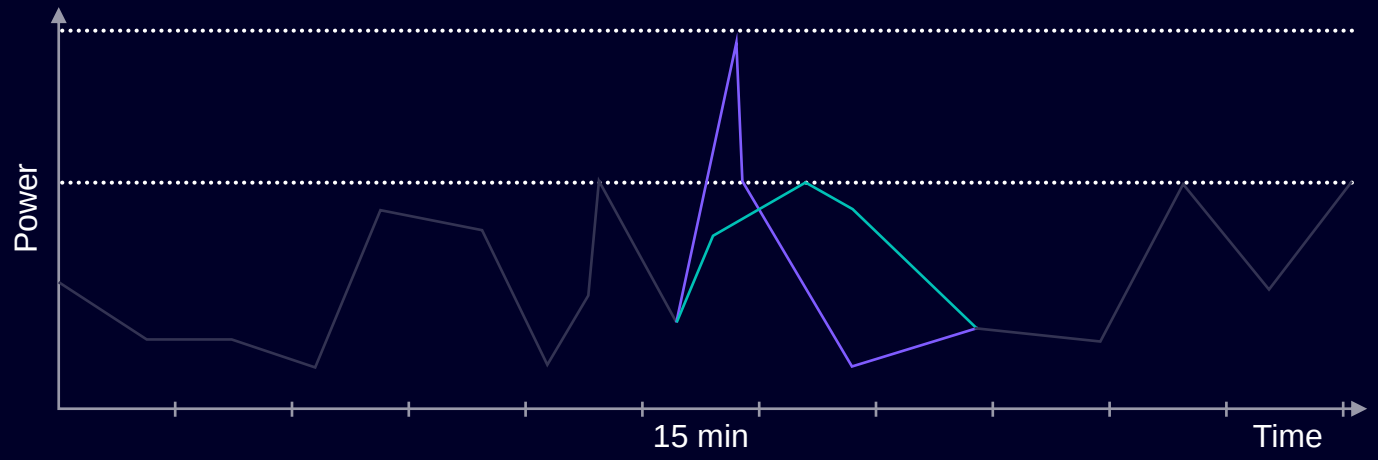
- **Identification** of **savings potentials** through status-related analysis
- **Increase employee's awareness** of energy consumption

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Cutting energy costs by avoiding load peaks





Further information: SIMATIC Energy Suite (www.siemens.com/energysuite)

Legal regulations

Cutting energy costs

Situation

Electricity costs increased significantly over the last years and will increase even more in the future Load peaks can cause fines up to €100 k

Requirements

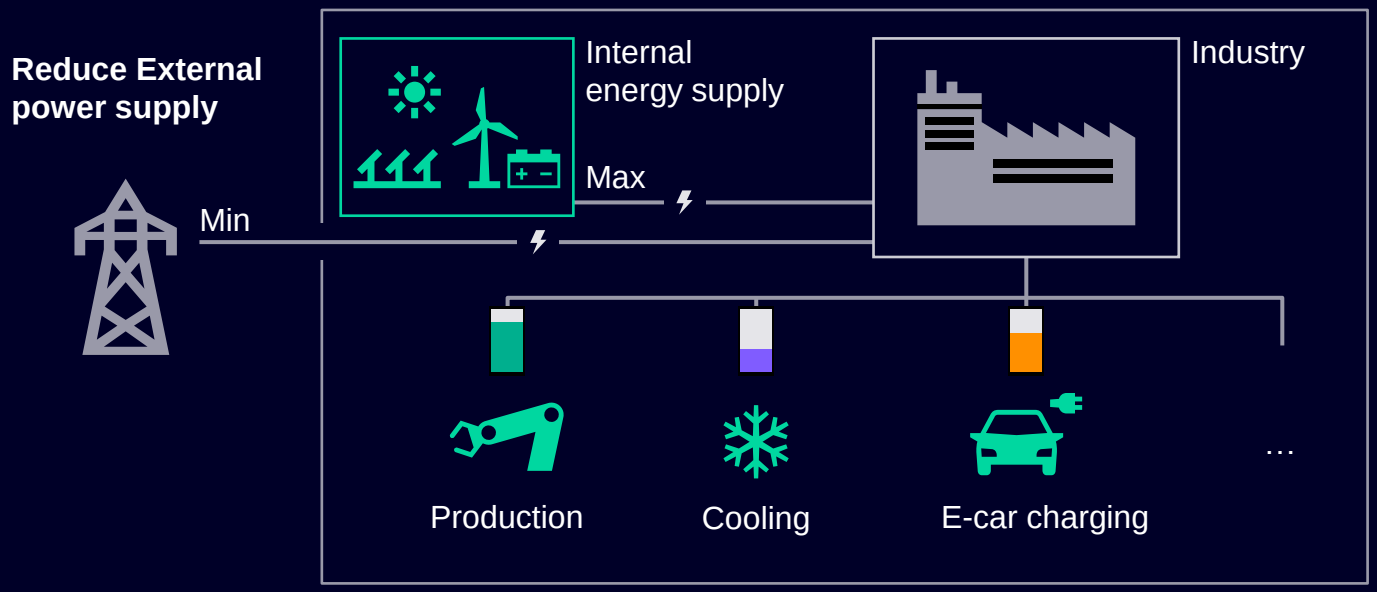
- Avoid load peaks
- High availability of production
- Inclusion of several energy feeds

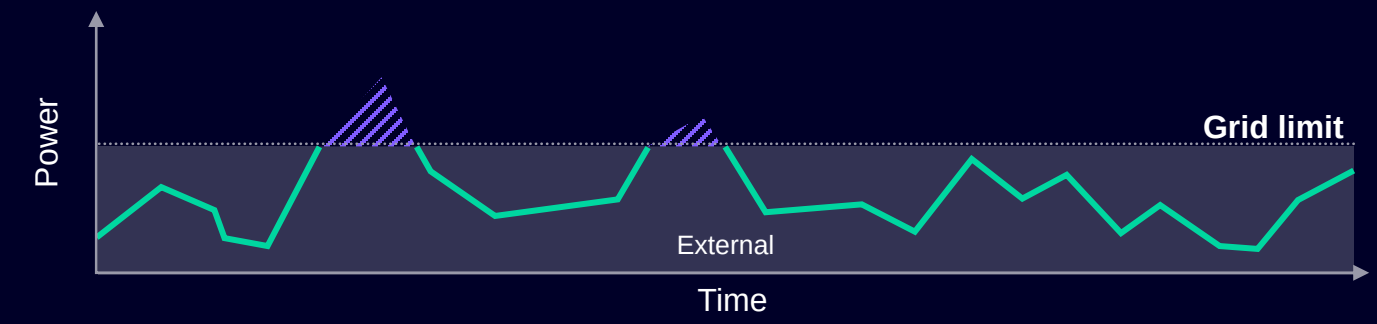
Benefits

- Combine generators with production to reduce energy consumption
- Reduce energy costs by avoiding load peaks
- Short amortization time
- Higher availability than PC based systems

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Why is it important to increase the grid stability for production reliability?





Further information: SIMATIC Energy Suite (www.siemens.com/energysuite)

Legal regulations

Grid Stability

Situation

- Steadily increasing number of energy consumers (e.g., E-car charging stations)
- Decentralization of energy generation (renewables) leads to unstable grids which could cause production outage

Requirements

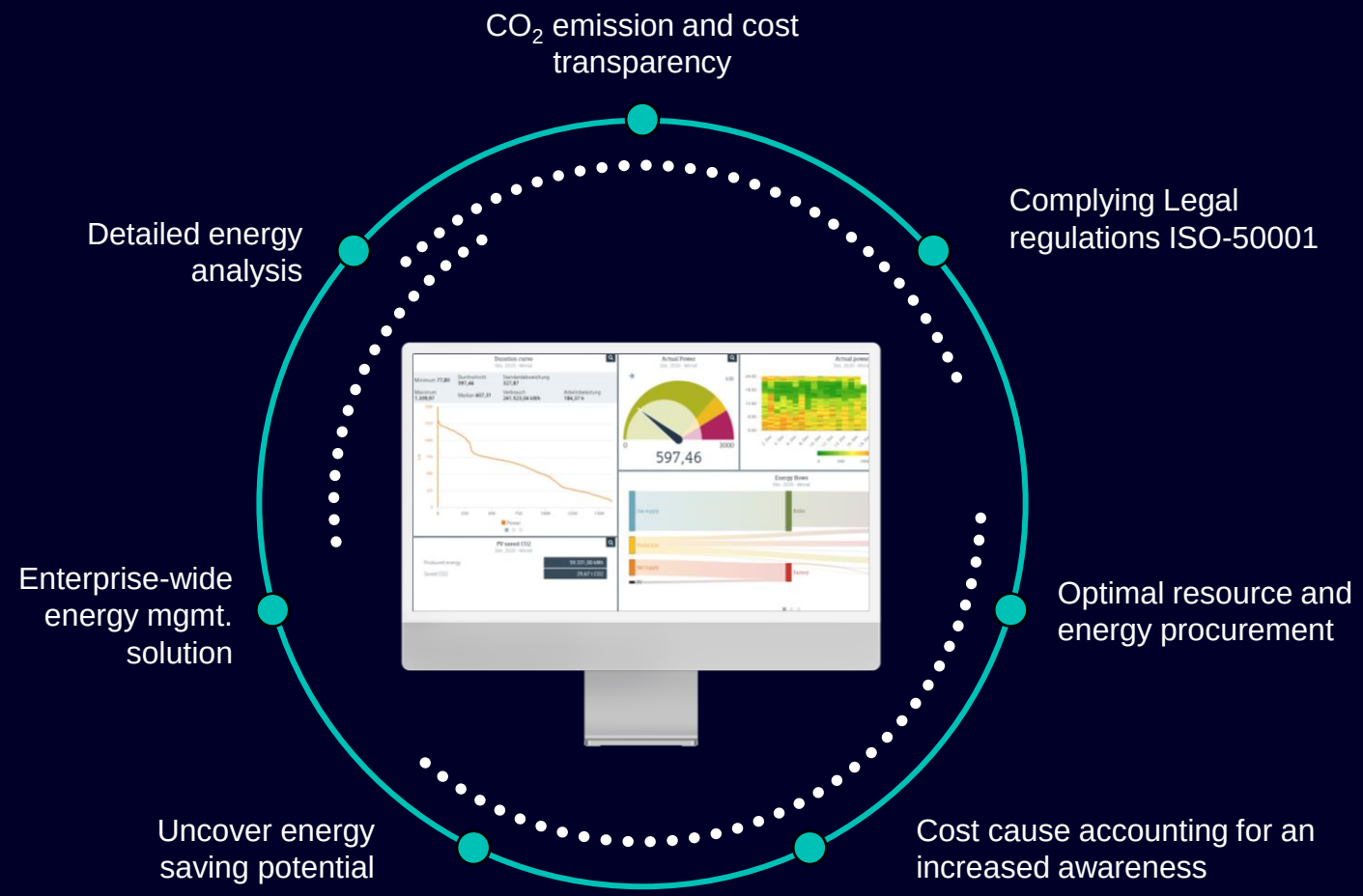
- Use company internal energy sources (cogeneration power plants, wind, photo-voltaic, batteries)
- Avoid high load peaks

Benefits

- Cost savings through avoiding load peaks
- Reliable and scalable PLC-based system
- Holistic concept for energy generation, buffering and consumption

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Obtain the greatest value from transparency



Further information: Energy Manager (www.siemens.com/energymanager)

Legal regu-lations

Carbon Footprint

Optimized use of resources

Situation

- Insufficient data and analytics
- Inability to conduct detailed energy analysis

Requirements

- Enterprise-wide energy management solution
- Complying legal regulations ISO-50001

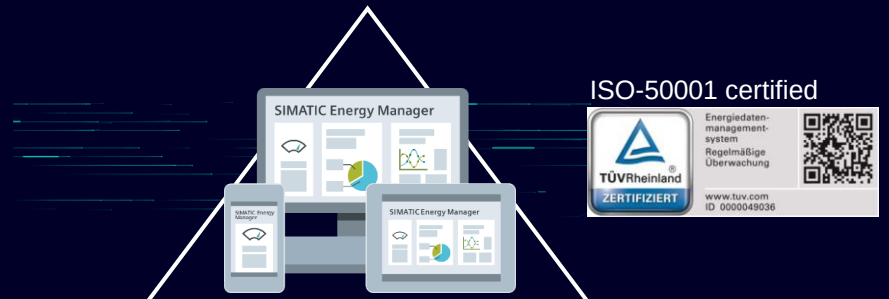
Benefits

- Providing a holistic view about the energy and resource consumption
- Comprehensive analysis functions to investigate and improve of energy efficiency
- Transparency of energy costs and CO_2 emission from different plants worldwide

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SIMATIC Energy Management
Transparency and efficiency from machine to company level

Energy Manager for MindSphere

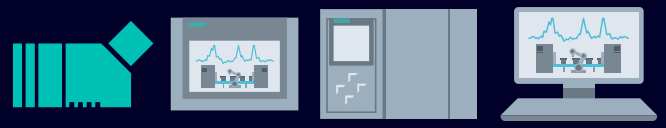


ISO-50001 certified

Management level

Energy Manager for Industrial Edge

Processing and monitoring with WinCC



Production level

Acquisition



Field level, e.g., drive motor

SiGREEN
Product Carbon Footprint



SIMATIC Energy Manager
Plant and company-wide energy analysis

S7 EE-Monitor
Standardized efficiency evaluation of machines

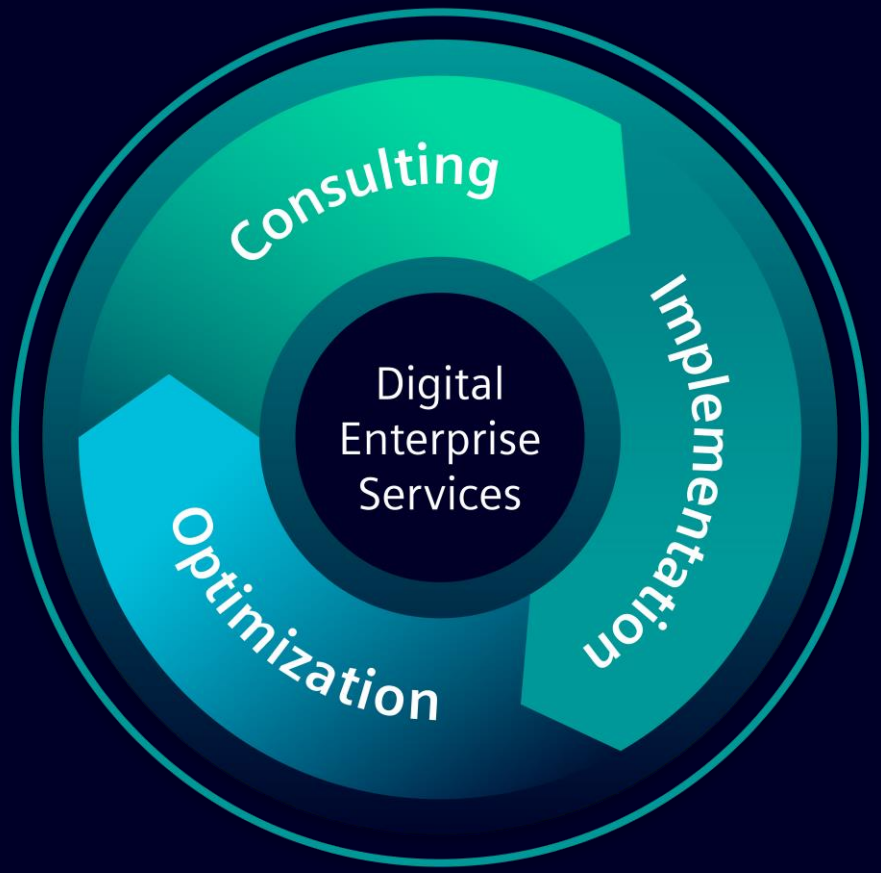
SIMATIC Energy Suite
Energy data acquisition and Load management – simple and integrated

Integrated energy measurement
Directly in the field: For example with SIMATIC Energy Meter (ET 200SP)

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Industrial Energy Management Services



01 | Consulting

Concept Workshop

- Definition of Energy Performance Indicators (EnPIs)
- Creation of measuring concept
- Evaluation of data collection and connectivity requirements

02 | Implementation

- Installation of the needed hardware and software
- Data modeling and preprocessing of the input data
- Creation of dashboard and reports

03 | Optimization

- Energy Efficiency analysis
- Analysis of the potential for optimization of energy performance
- Customized recommendations to act and optimize energy performance
- Customizable service contract

Services are available in UAE, India, Spain & Germany. Other countries on request.

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Structured approach from analysis to implementation

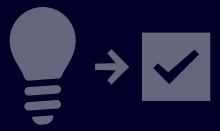
Analysis
Collection of data and evaluation of the savings potential



Concept
Design of the measures and definition of the baseline



Implementation
Execution of the measures and verification of savings

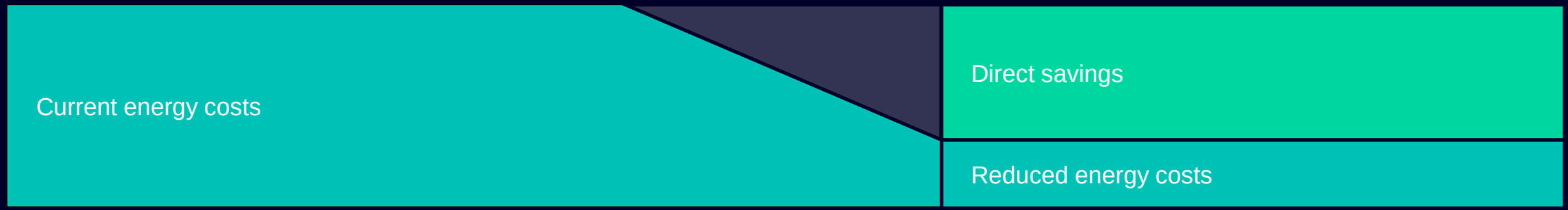


Operation
Cutting energy costs,
Increase grid stability,
Fulfil legal requirements



Service
Inspection, maintenance, repair and ensuring of savings





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SIMATIC Energy Management
Why is Siemens the right partner?

Integrated solution in automation with less engineering effort

Scalable and comprehensive products and solutions

Energy efficiency measures based on KPIs

ISO-50001 certified products

For further information

Technical Support, Services and Consulting

Fulfill legal regulations and get tax refund

Optimize use of resources

Digitalize data of your plant



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References

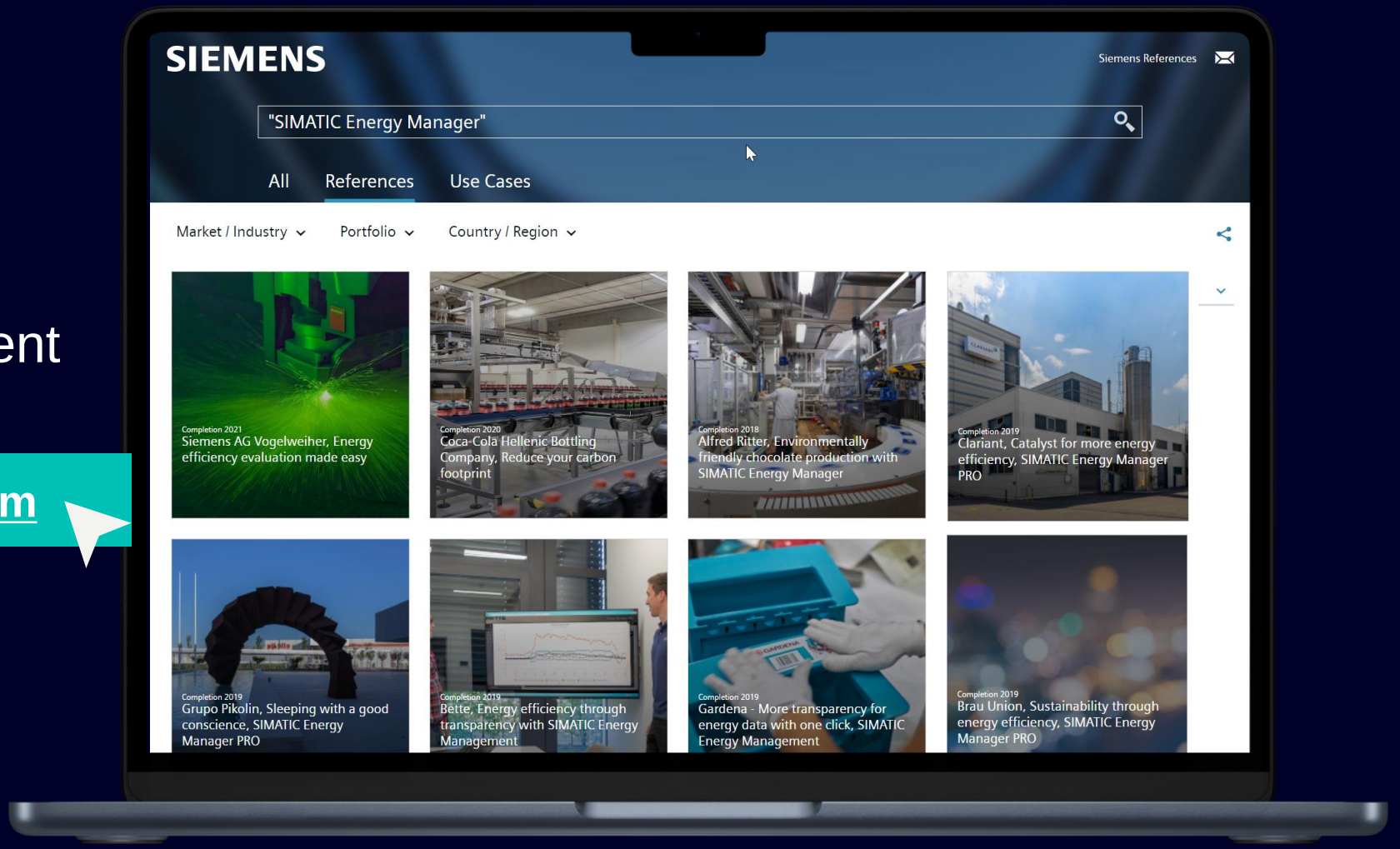
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References

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https://references.siemens.com



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Further information

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Energy Management Media System

All information in one place

- Content
  - Product information
  - Tutorial videos
  - Links to application examples
  - Links to manuals
  - References
- Updated continuously



SIMATIC Energy Management

With the modular product portfolio for energy transparency of Siemens throughout the whole company.

Energy measurement

Energy measuring is the base of every energy management system and is ideal for integrating into the automation environment.

Energy data acquisition

Reliable energy data acquisition is a requirement for every energy management system.

Energy efficiency evaluation for machines

The standardized efficiency evaluation enables integration of status-based analysis of energy data into machines without great effort.

Energy analysis

In addition to increasing the efficiency of production, energy analysis must also meet legal requirements. Monitoring, archiving and documentation are important criteria for this.

Customer references

Learn more about the SIMATIC energy management projects.

https://support.industry.siemens.com/cs/de/en/view/109765100

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SIMATIC Energy Manager
Online – Demo Server



Website for Login Request

www.siemens.com/energymanager



News !!! SIMATIC Energy Manager Demo Server

Do you want to explore our Demo Server?

› Login Request

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SIMATIC Energy Management
Websites



SIMATIC Energy Management
Comprehensive, integrated energy management
from field level to management level
Link_Energy_Management

SIMATIC Energy Manager
Energy mgmt. system for industry, certified in accordance with ISO-50001
Link_Energy_Manager

SIMATIC Energy Suite
Intelligent energy monitoring – from data acquisition to proactive load mgmt.
Link_Energy_Suite

S7 Energy Efficiency Monitor
Standardized efficiency evaluation of machines
Link_S7_EE_Monitor

Energy Efficient Production
Optimizing energy use, reducing CO_2 emission
Link_Energy_Efficient_Production

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SIMATIC Energy Management

Reduce Your
Carbon Footprint



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