

The path to net-zero buildings: measure and monitor energy and carbon

Decarbonize with connected digital power technologies and services

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Life Is On

Schneider
Electric

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Decarbonization is critical for the planet, people, and organizations

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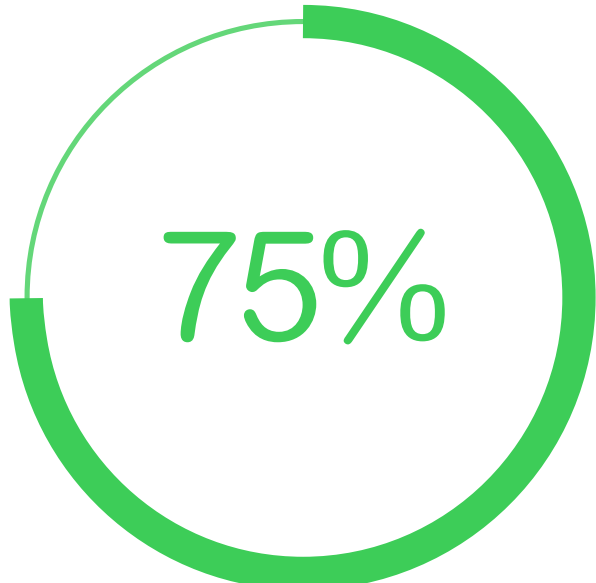
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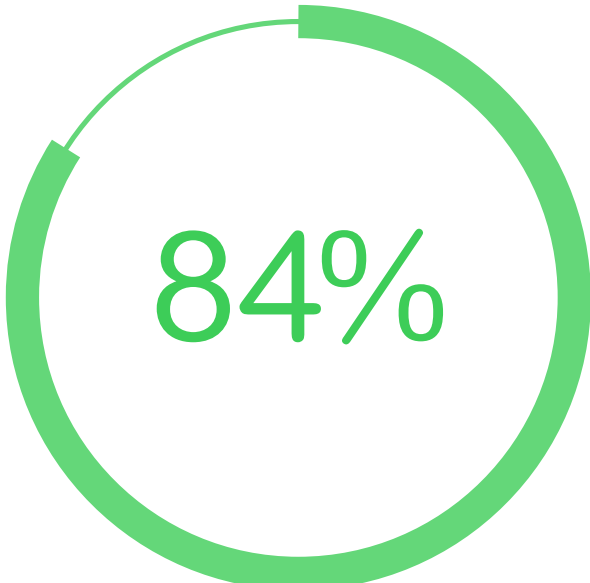
Decarbonization is critical for the planet, people, and organizations

Thousands of companies and institutions have established net-zero carbon targets in line with the latest climate science.

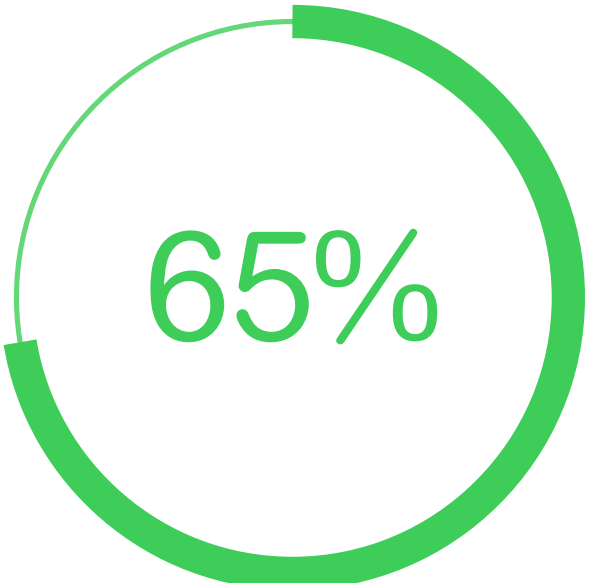
However, to align with the *Net Zero Scenario* set by the United Nations Framework Convention on Climate Change, carbon emissions from building operations must be cut in half by 2030, requiring all new buildings and retrofits to be zero-carbon-ready by then.¹



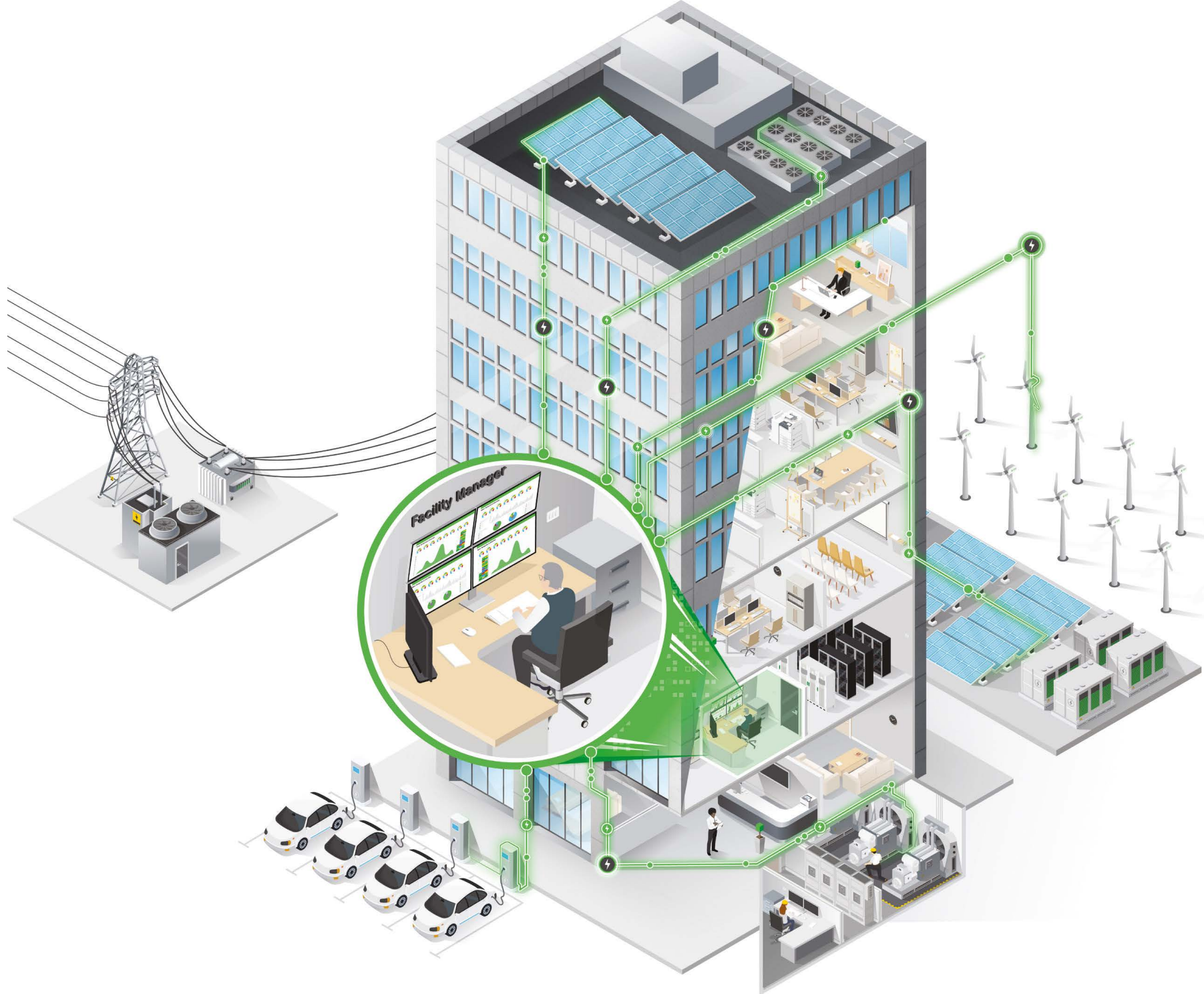
of countries have committed to net zero by 2050.²



of premium office buildings are sustainability certified.³



of hiring prospects said they would be more likely to work for a company with robust environmental policies.⁴



1. United Nations "For a livable climate: Net-zero commitments must be backed by credible action."
 2. Race To Zero Campaign, United Nations Climate Change

3. "Environmentally-Conscious Space Has Become a Key Demand By Tenants," Globetest
 4. "Employees Demand That We Become More Sustainable," Forbes



Building decarbonization challenges



~1.5%

of the European building stock is renovated yearly, but it needs to reach 3% yearly to meet net-zero goals.⁷

50%

of today's building stock will likely be used in 2050.⁸

New buildings can be designed for efficiency, but to meet global net-zero commitments, existing buildings' retrofits must triple, with one in five buildings worldwide retrofitted to be zero-carbon-ready by 2030.⁶

5. Schneider Electric, "Designing electrical systems for future-proof, energy-efficient green buildings"

6. IEA, "Net zero by 2050 hinges on a global push to increase energy efficiency"

7. BSRIA-HVAC Market


8. IEA, Energy Technology Perspectives



How do you achieve your net-zero goals?

To address these decarbonization challenges, you must accelerate your path to net-zero carbon by embracing **Electricity 4.0** – the combination of digital and electric solutions.

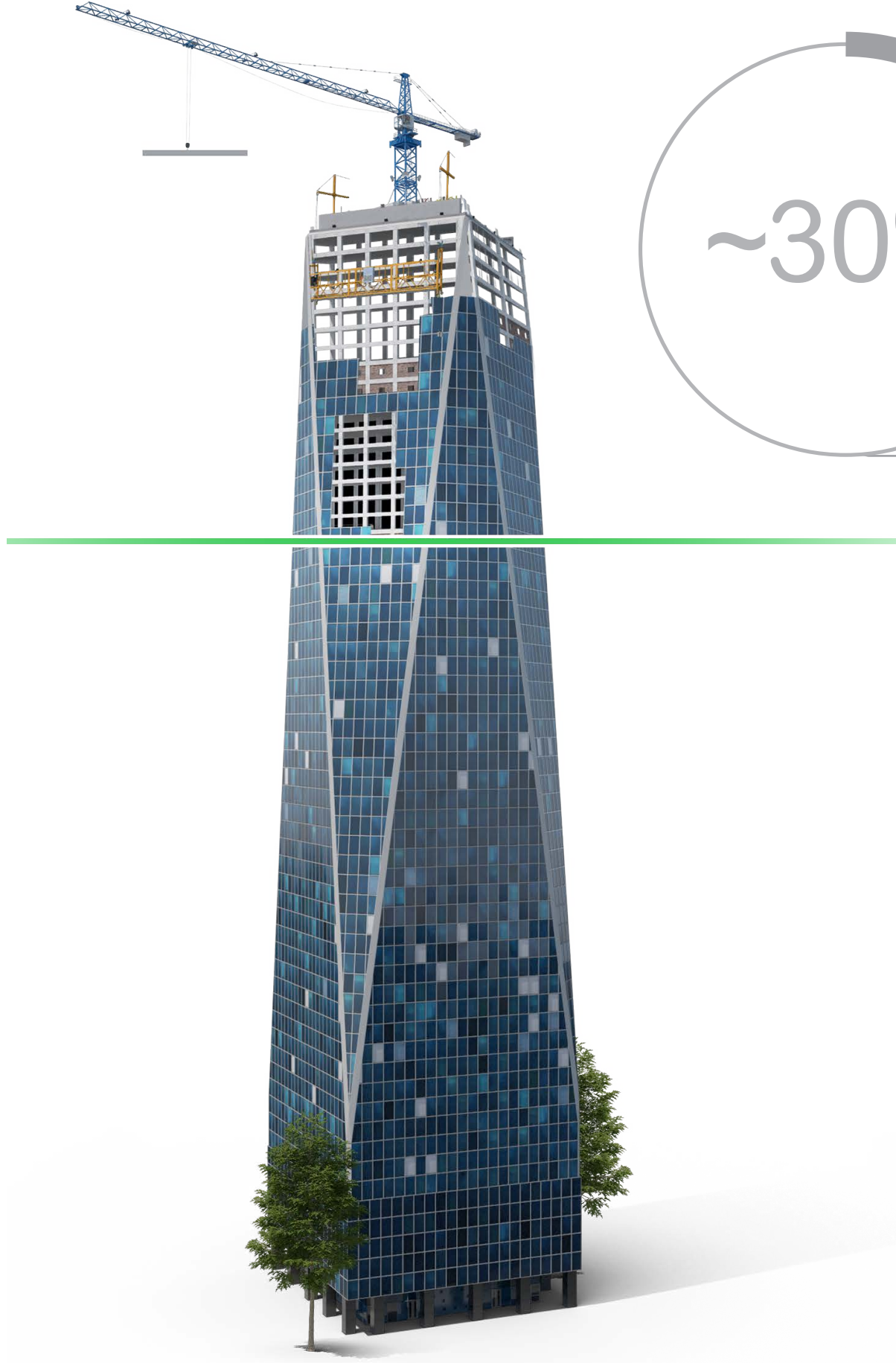
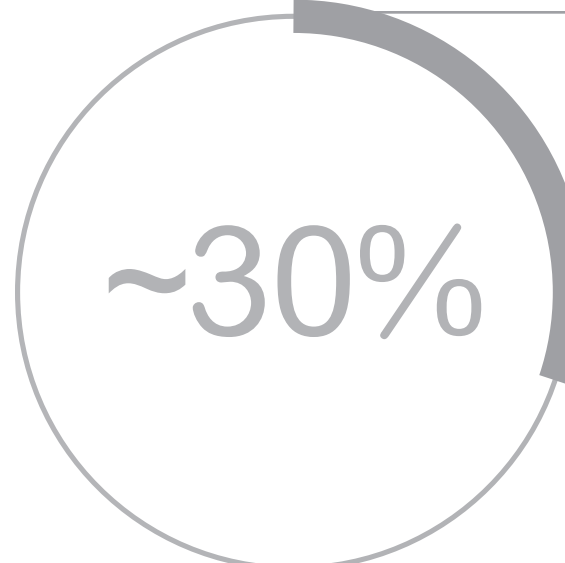
Digital solutions deliver the insights you need to identify opportunities to reduce the carbon impacts of your new or existing buildings, most of which occur during the operational phase.



Operate & Maintain
Operational carbon emissions relate to the energy consumed during the use phase of the building

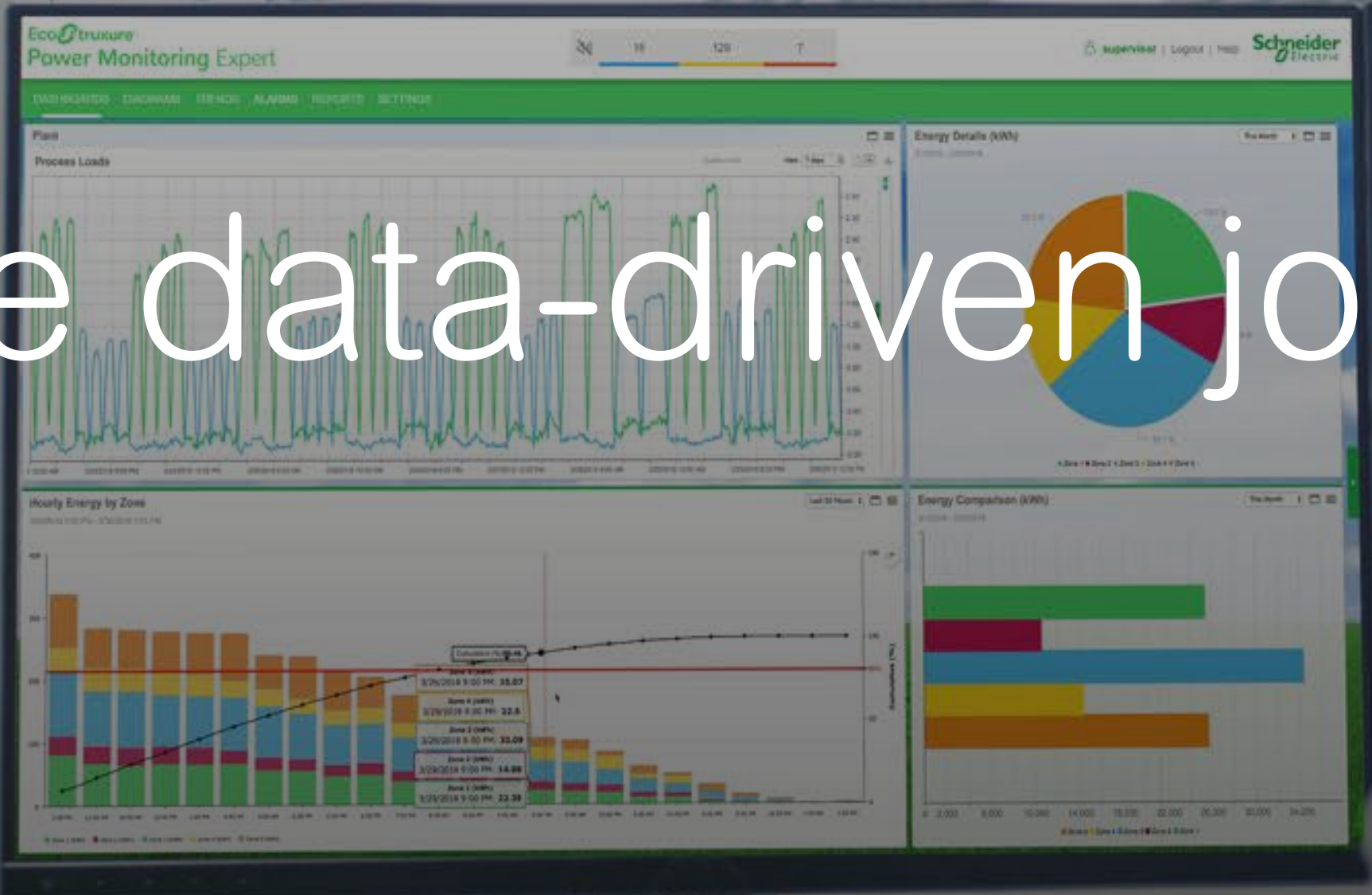
This eGuide highlights Schneider Electric’s methodology, digital technologies, and services to take action on **reducing operational emissions**.

Findings based on Schneider Electric field studies

Design & Build
Embodied carbon emissions relate to the building materials manufacturing, transport, installation, use, maintenance, and replacement/disposal

The data-driven journey to net zero



The data-driven journey to net zero

Accelerating decarbonization requires the data and insights to bridge ambition to action. Schneider Electric has created a proven path to net zero that helps you use a **structured, 3-step integrated approach** comprising 10 key priorities.

Strategize
1. **Create** decarbonization roadmap

Digitize
2. **Track** embodied carbon


3. Measure and monitor energy and carbon

Decarbonize

4. **Reduce energy and carbon** through automation
5. **Purchase offsite renewables**
6. **Electrify transportation**
7. **Upgrade building systems** and electrical infrastructure
8. **Install on-site renewables**
9. **Limit embodied carbon**
10. **Offset residual carbon emissions**

Priority 3 – Measure and monitor energy and carbon

Gain visibility to energy usage patterns and anomalies while delivering energy and carbon savings insights.



Learn more about our decarbonization process. [Download eGuide](#)

The data-driven journey to net zero

After creating a strategic roadmap, it's time to gain insights and measure progress for your ambitious plan. Whether a single site or portfolio, **power digitalization is the foundation of sustainable buildings**, helping you **measure and monitor energy and carbon**.



Connect critical electrical assets – smart devices, loads, renewable generation, electric vehicle (EV) chargers, etc. – collecting energy, event, and performance data.



Benchmark ongoing building performance – uncover anomalies and sites that may have the greatest opportunity for improvement.



Enable data-driven decisions – use facility or cloud-based apps for data visualization, unleashing efficiency by optimizing how you purchase, generate, and consume electrical energy.

Follow best practices

Measurement and verification standards like ISO 50001 recommend using energy management technology to ensure continuous success, maximize return on investment (ROI), and faster payback.



The data-driven journey to net zero

Embracing the newest technologies and interoperable solutions will also realize five powerful business benefits:

- 1 **Demonstrating compliance** with building energy codes and disclosure ordinances
- 2 **Activating energy cost** allocation and tenant billing
- 3 **Simplifying tasks** and automating processes to save time for facility teams
- 4 **Prioritizing actions** to streamline troubleshooting by engaging expert advisory services
- 5 **Improving power reliability**, safety, and operational uptime

This guide will show you the benefits of **smart devices, apps, analytics, and services** and why Schneider Electric is the strongest partner to help you reach net zero.

Connecting electrification to digitalization

Replacing fossil-fuel-based loads with electric alternatives like heat pumps can accelerate achieving net zero.

Along with EV charging stations, there are now many more electrical assets to connect and manage through digitalization.



Four ways digitalization helps you decarbonize

Decarbonization is critical

The data-driven journey to net zero

Four ways digitalization helps you decarbonize

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Four ways digitalization helps you decarbonize

Leveraging **power digitalization to measure and monitor energy use and carbon emissions** delivers four outcomes:

- 1 ▶ **Increased visibility** for analysis and reporting
- 2 ▶ **Advanced insights** into energy and carbon savings opportunities
- 3 ▶ **Improved efficiency** with modern power management systems
- 4 ▶ **Enhanced reliability, safety, and uptime**

Our **EcoStruxure™ Power** platform provides digital tools, including integrated IoT technologies and tailored services to help your facility team achieve these outcomes.

[Learn more](#)



Four ways that digitalization helps you decarbonize

1 Increased visibility for analysis and reporting

IoT-enabled facility and cloud-based energy and power management systems (EPMS) simplify electrical and energy system management by providing:

- **Simple and cost-effective EPMS for mid-size buildings** – wireless meters, cloud-hosted apps, and advisory services for on-site facility resource support
- **Advanced EPMS for large or critical buildings** – auditable emissions reporting tools, enterprise-wide scalability, and adaptable metering and analytics for space reconfiguration
- **Data visualization** from connected meters, wireless sensors, and intelligent breakers with built-in metering
- **Increased understanding of energy consumption** to uncover opportunities to reduce energy, utility costs, and associated carbon emissions. Track energy use by floor, area, tenant, or load
- **Carbon and environmental, social, and governance (ESG) reporting**



To counter rising energy costs, the hotel uses EcoStruxure Energy Hub to precisely measure and monitor energy consumption within their 600-year-old building.

↓ **up to 15%** energy consumption in 6 months
On target to reduce energy use by at least **40% by 2030**

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EcoStruxure Energy Hub

[Learn more](#)

EcoStruxure Power Monitoring Expert

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Power Metering and Energy Monitoring Systems

[Learn more](#)

PowerLogic™ PowerTag

[Learn more](#)

MasterPact™ MTZ

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Four ways that digitalization helps you decarbonize

2 Insights into energy and carbon savings opportunities

Cloud-based apps and advisory services help identify opportunities to maximize building performance by:


- **Leveraging fault detection and diagnostics** to identify equipment and system performance issues and help prevent performance degradation
- **Optimizing power system performance** using proactive, analytics-based services leveraging metering data diagnostics
- **Identifying opportunities to improve power quality and carbon savings** with data analysis experts

EcoStruxure Energy Hub

[Learn more](#)

EcoStruxure Power Advisor

[Learn more](#)



Swire Properties

Uses EcoStruxure Power solutions to analyze the energy and operational performance of office buildings and shopping centers in Hong Kong and mainland China.

10 to 20% annual energy savings

↓ carbon footprint to meet sustainability goals

[Learn more](#)



Four ways that digitalization helps you decarbonize

3 Improved efficiency with modern power management systems

Facility or cloud-hosted power and operations management systems help improve energy efficiency by:

- **Sharing data seamlessly with stakeholders** to establish and communicate decarbonization objectives
- **Discovering quick fixes for energy waste** using low-cost methods (e.g., turning off lights after hours, avoiding simultaneous heating and cooling)
- **Driving sustainable behavior** by allocating energy costs to tenants so they can see and reduce energy waste
- **Reducing energy waste by mitigating poor power quality** through power factor correction, phase balancing, and harmonic mitigation

EcoStruxure Power Monitoring Expert


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EcoStruxure Power Operation

[Learn more](#)

PowerLogic AccuSine EVC Plus

[Learn more](#)



Aspiria campus, USA

200-acre mixed-use campus uses EcoStruxure Power and Building solutions to prevent energy waste and maximize operational efficiency.

16% annual energy consumption savings

\$1.5 million annual energy cost savings

36% ↓ in carbon footprint

[Learn more](#)



Four ways that digitalization helps you decarbonize

4 Enhanced reliability, safety, and uptime

Business sustainability depends on resilience against power-related risks. EPMS and advisory services help optimize power reliability and safety in your distribution system by:


- **Ensuring proper system functioning**, including meters, power quality mitigation equipment, and power monitoring software to help minimize unexpected downtime
- **Identifying power quality issues and their root causes** within your electrical distribution system
- **Notifying on-site staff of system issues and concerns** before they become critical
- **Supporting condition-based maintenance** to help extend equipment life and reduce costs

EcoStruxure Power Monitoring Expert

[Learn more](#)

EcoStruxure Power Advisor

[Learn more](#)



Guardian Glass

Uses EcoStruxure to improve power reliability, efficiency, and performance.

2 year investment payback

Achieved **97%** power factor for a **4%** monthly credit on utility bills

[Learn more](#)



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Schneider Electric – the sustainability leader

To help make your net-zero carbon journey simpler and faster while delivering a greater ROI, choose a partner with the right mix of expertise, technologies, and support.



Use deep domain expertise



Simplify the process



Reduce business risks



Reduce environmental impact and support circularity

We are globally recognized for:

- Best-in-class sustainability practices
- Being a clean energy leader in building microgrids
- Consulting on renewable energy purchasing

We've accelerated our decarbonization goals by five years to be:

- Carbon neutral in our operations by 2025 (with CO₂ offsets)
- Net-zero carbon for Scope 1 and 2 emissions by 2030 and extend across our entire value chain by 2050

Watch the Schneider Electric Impact Company Model video. [Learn more](#)

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Smart connected devices

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EcoStruxure Power Monitoring Expert

EcoStruxure Power Operation

Schneider Electric Services

Schneider Electric offers a wide range of intelligent devices that easily access data from your power distribution network:

PowerLogic™ PowerTag

A range of easy-to-install wireless energy sensors and control modules can turn any new or existing panel into a connected panel allowing real-time monitoring and remote electrical installation control.

[Learn more](#)

PowerLogic energy and power quality meters

Provide accurate energy data that helps make the invisible visible, letting you identify specific areas of inefficiency. Models with advanced features help analyze and isolate risks to equipment reliability and facility uptime.

[Learn more](#)

MasterPact™ MTZ

Intelligent breakers with built-in Class 1 accuracy active power and energy metering to uncover energy waste.

[Learn more](#)



EcoStruxure Power – world-class technology for power, energy, and emissions management

Smart connected devices

EcoStruxure Energy Hub

EcoStruxure Power
Monitoring Expert

EcoStruxure Power
Operation

Schneider Electric Services

Ideally suited for small to mid-sized businesses and buildings,
EcoStruxure Energy Hub:

- Is a **turnkey cloud-based energy management** software uniquely designed for buildings, helping you achieve your business and sustainability goals.
- **Offers fast startup** with minimal upfront and lifecycle maintenance costs and the ability to scale as your energy management maturity grows.
- **Seamlessly connects** your energy systems to help gain insights to conserve energy, reduce costs, and increase resilience.

[Learn more](#)

[Watch now](#)



EcoStruxure Power – world-class technology for power, energy, and emissions management

Smart connected devices

EcoStruxure Energy Hub

**EcoStruxure Power
Monitoring Expert**

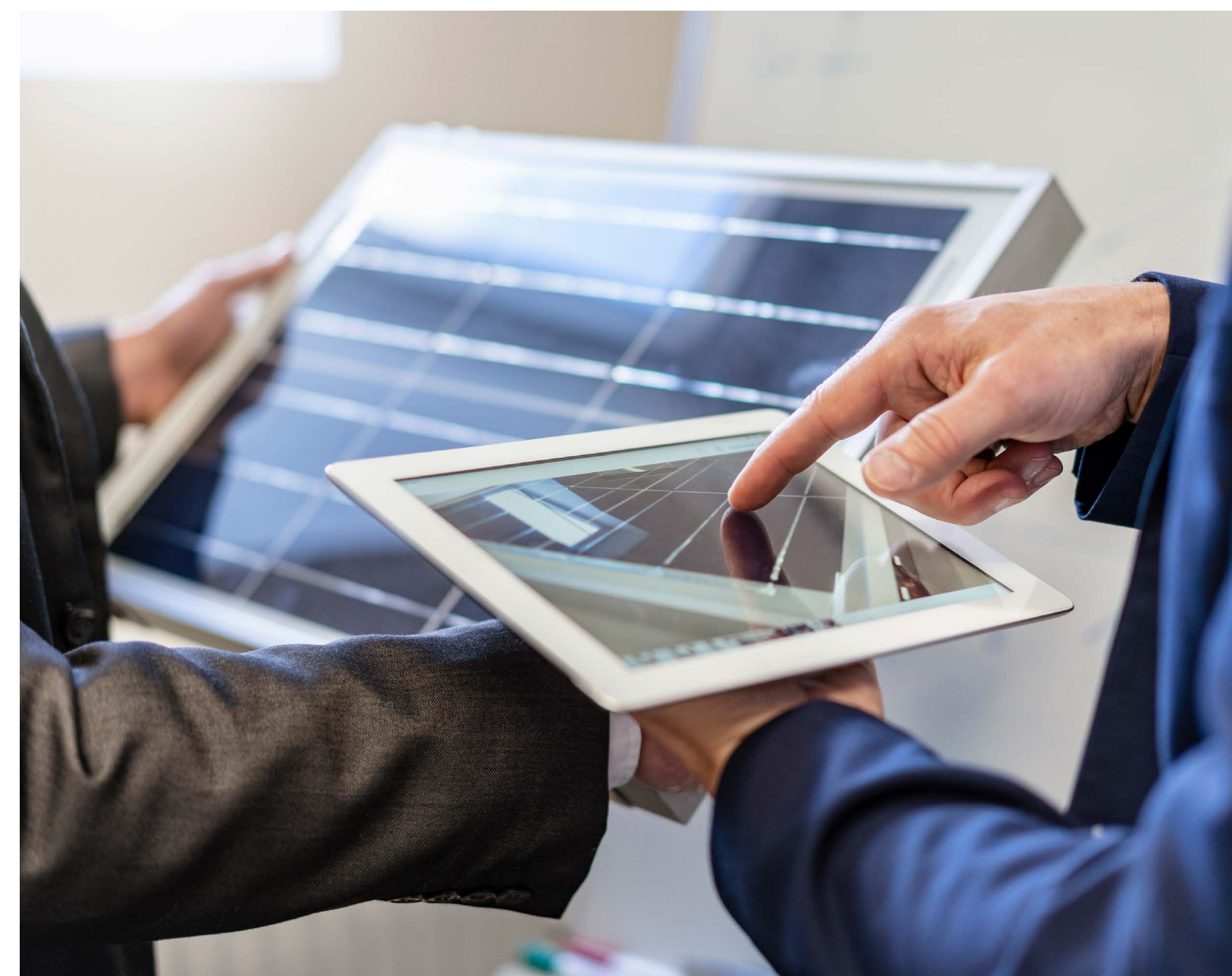
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Operation

Schneider Electric Services

For mid- to large-sized buildings and critical operations, **EcoStruxure Power Monitoring Expert** is a facility or cloud-based software that helps you:

- **Reduce energy spend** and accomplish energy sustainability goals.
- **Understand energy consumption** throughout the facility and proactively detect abnormal energy usage to reveal energy and carbon savings opportunities.
- **Prevent performance degradation** with predictive maintenance service specialists to avoid increased energy consumption and the associated carbon.
- **Maximize uptime** with advanced power quality analysis that helps ensure reliable power network and equipment operation.

[Learn more](#)



EcoStruxure Power – world-class technology for power, energy, and emissions management

Smart connected devices

EcoStruxure Energy Hub

EcoStruxure Power Monitoring Expert

EcoStruxure Power Operation

Schneider Electric Services

EcoStruxure Power Operation is the only software platform with digital intelligence capable of delivering the new efficiencies needed for our modern electrical networks in mission-critical facilities.

- **Improved power availability** – Avoid unplanned downtime and recover quickly when the unexpected happens via real-time analytics and automation.
- **Increased efficiency** – Maintain operational efficiency, maximize business continuity, and reduce energy usage and costs for greater sustainability.
- **Open connectivity** – Simplify and accelerate integration with EcoStruxure and third-party products and systems via various industry-standard communication protocols.

[Learn more](#)



EcoStruxure Power – world-class technology for power, energy, and emissions management

Smart connected devices

EcoStruxure Energy Hub

EcoStruxure Power
Monitoring ExpertEcoStruxure Power
Operation

Schneider Electric Services

EcoCare™

With an **EcoCare membership**, Schneider Electric's expertise and digital capabilities support your team across the entire equipment lifecycle with access to remote experts and on-site maintenance service technicians who:

- **Leverage EcoStruxure Power Advisor and Asset Advisor** to proactively monitor and analyze power distribution, motors, and other facility equipment 24/7.
- **Helps you understand** how to reduce your carbon footprint, maximize efficiency, minimize downtime, and improve safety.
- **Provide exclusive, faster response times** for on-site intervention, spare parts discounts, and more.

EcoConsult™

On-site audits of your electrical equipment can provide actionable insights on monitoring, safety, obsolescence, and modernization to empower you to maximize your assets.

ECOFIT™

Innovative digital life extension and replacement services use data from your electrical, critical power, drives, and building management assets and systems to support reparability and circularity with re-use, re-build, and re-sell second-life solutions to minimize waste while maximizing resiliency, efficiency, and safety.

Learn more about our Digital Services.

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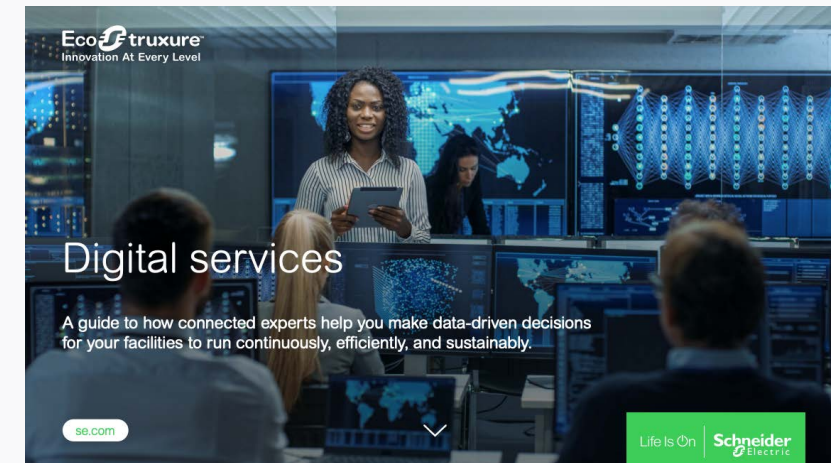


Learn more with these resources



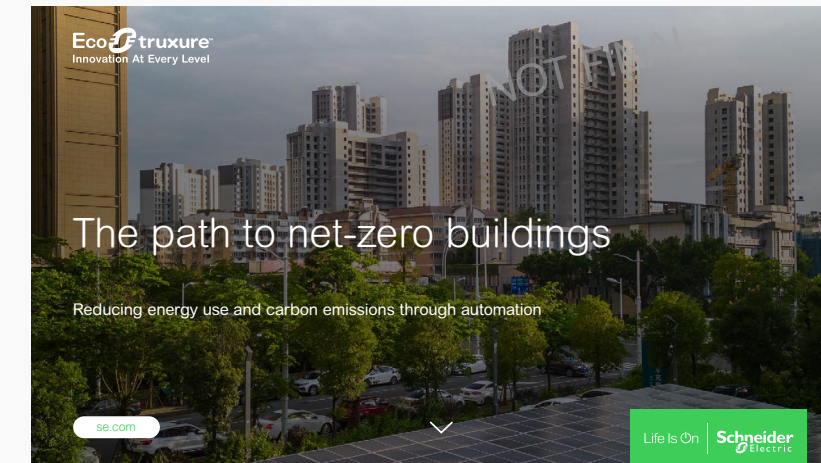
“Do more with less:
Moving power and building management to the cloud.”

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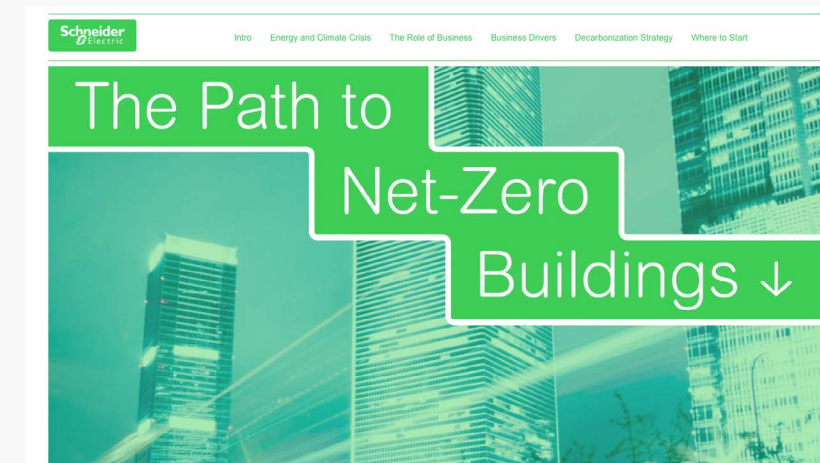
Digital Services: A guide to how connected experts help you make data-driven decisions for your facilities to run continuously, efficiently, and sustainably.

[Download now](#)



“The path to net-zero buildings: Reduce energy use and carbon emissions with automation.”

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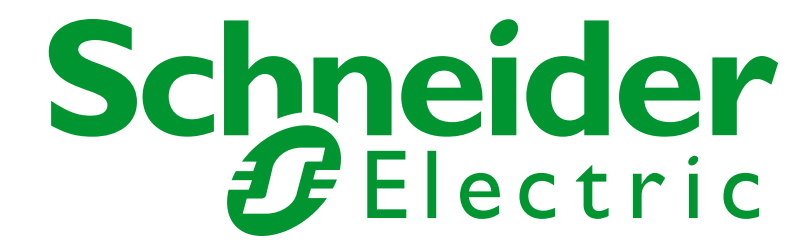
Making the case for net-zero buildings

Access detailed building decarbonization white papers and our top 10 priorities.

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