

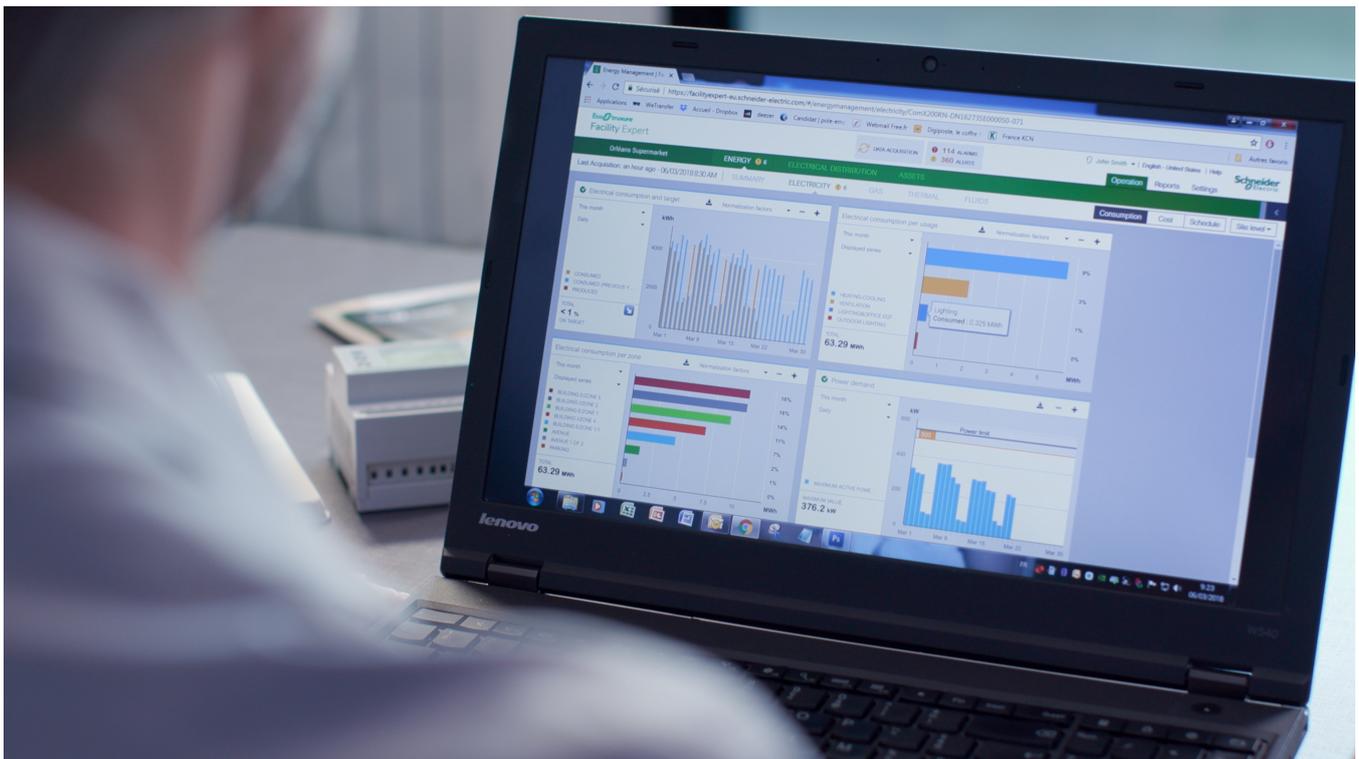


Facility Expert For Energy Management

User Guide

EcoStruxure offers IoT-enabled architecture and platform.

ESXFEUG003EN-01
02/2022



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As part of a group of responsible, inclusive companies, we are updating our communications that contain non-inclusive terminology. Until we complete this process, however, our content may still contain standardized industry terms that may be deemed inappropriate by our customers.

Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

Before you Begin

Electrical monitoring and control equipment and related software are used in a variety of buildings. The type or model of electrical monitoring and control equipment suitable for each application will vary depending on factors such as the system dependability level, unusual conditions, and government regulations.

Only the user can be aware of all the conditions and factors present during setup, operation and maintenance of the solution. Therefore, only the user can determine the electrical monitoring and control equipment and the related safety mechanisms and interlocks which are appropriate. When selecting electrical monitoring and control equipment and related software for a particular application, the user should refer to the applicable local and national standards and regulations. The National Safety Council's Accident Prevention Manual also provides useful information.

Ensure that appropriate safety mechanisms and mechanical/electrical interlocks protection have been installed and are operational before placing the equipment into service. All safety mechanisms and mechanical/electrical interlocks protection must be coordinated with the related equipment and software programming.

Start-up and Test

Before using electrical control and automation equipment for regular operation after installation, the system should be given a start-up test by qualified personnel to verify correct operation of the equipment. It is important that arrangements for such a check be made and that enough time is allowed to perform complete and satisfactory testing.

Follow all start-up tests recommended in the equipment documentation. Store all equipment documentation for future reference.

Software testing must be done in both simulated and real environments.

Verify that the completed system is free from all short circuits and grounds, except those grounds installed according to local regulations (according to the US National Electrical Code, for instance). If high-potential voltage testing is necessary, follow recommendations in equipment documentation to prevent accidental equipment damage. Before energizing equipment:

- Remove tools, meters, and debris from equipment.
- Close the equipment enclosure door.
- Perform all start-up tests recommended by the manufacturer.

Operation and Adjustments

The following precautions are from the NEMA Standards Publication ICS 7.1-195 (English version prevails):

- Regardless of the care exercised in the design and manufacture of equipment or in the selection and ratings of components, there are hazards that can be encountered if such equipment is improperly operated.
- It is sometimes possible to misadjust the equipment and thus produce unsatisfactory or unsafe operation. Always use the manufacturer's instructions as a guide for functional adjustments. Personnel who have access to these adjustments should be familiar with the equipment manufacturer's instructions and the machinery used with the electrical equipment.
- Only those operational adjustments actually required by the operator should be accessible to the operator. Access to other controls should be restricted to prevent unauthorized changes in operating characteristics.

Safety Precautions

The following safety messages apply to installation, configuration and operation of EcoStruxure Power solutions, based on EcoStruxure Facility Expert cloud-based software, electrical and digital architectures using Com'X, Acti 9 PowerTag Link C or PrismaSeT Active as a gateway to cloud, and to the Schneider Electric connected products and sensors mentioned in the document.

⚠️ DANGER**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Only qualified personnel familiar with low and medium voltage equipment are to perform work described in this set of instructions. Workers should understand the hazards involved in working with or near low and medium voltage circuits. Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462, NOM 029-STPS or local equivalent.
- Perform such work only after reading and understanding all of the instructions contained in this bulletin.
- Turn off all power supplying this equipment before working on or inside equipment.
- Use a properly rated voltage sensing device to confirm that the power is off
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, grounded, and tagged. Understand the connection of sources within the power system. Equipment may be supplied from multiple power sources including back feeding.
- Handle this equipment carefully and install, operate, and maintain it correctly in order for it to function properly. Neglecting fundamental installation and maintenance requirements may lead to personal injury, as well as damage to electrical equipment or other property.
- Do not make any modifications to the equipment or operate the system with the interlocks removed. Contact your local field sales representative for additional instruction if the equipment does not function as described in this guide.
- Carefully inspect your work area and remove any tools and objects left inside the equipment.
- Replace all devices, doors, and covers before turning on power to this equipment.
- All instructions in this guide are written with the assumption that the customer has taken these measures before performing maintenance or testing.

Failure to follow these instructions will result in death or serious injury.

⚠️ WARNING**UNINTENDED EQUIPMENT OPERATION**

- Do not use the software to control time-critical functions because communication delays can occur between the time a control is initiated and when that action is applied.
- Do not use the software to control remote equipment without creating an authorized access level, and without including a status object to provide feedback about the status of the control operation.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

INACCURATE DATA RESULTS

- Ensure correct configuration of the software. Incorrect configuration can lead to inaccurate reports and/or data results.
- Use messages displayed by the software as one input to maintenance, service actions or to determine the system is meeting all applicable standards and requirements. Follow all maintenance and service recommendations in the instruction material.
- Consider the implications of unanticipated transmission delays or failures of communications links.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTICE

LOSS OF DATA

- Activate product and component licenses prior to the expiry of the trial license.
- Activate sufficient licenses for the servers and devices in your system.
- Backup or archive any SQL Server database data before adjusting any database memory options.
- Only personnel with advanced knowledge of SQL Server databases should make database parameter changes.

Failure to follow these instructions can result in loss of data.

NOTICE

UNAUTHORIZED OR UNINTENDED ACCESS TO CUSTOMER DATA

Do not set up access links to sensitive or secure data. Data links are not secure

Failure to follow these instructions can result in unauthorized or unintended access to customer data.

NOTICE

NETWORK INOPERABILITY

Do not make unauthorized changes in the network configuration.

Failure to follow these instructions can result in an unstable or unusable network.

Cybersecurity Safety Information

▲ WARNING

POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

- Change default passwords at first use to help prevent unauthorized access to device settings, controls, and information.
- Disable unused ports/services and default accounts to help minimize pathways for malicious attackers.
- Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection).
- Use cybersecurity best practices (for example, least privilege, separation of duties) to help prevent unauthorized exposure, loss, modification of data and logs, or interruption of services.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

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Introduction

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About the Book

EcoStruxure Master Range

EcoStruxure is Schneider Electric’s IoT-enabled, plug-and-play, open, interoperable architecture and platform, in Homes, Buildings, Data Centers, Infrastructure and Industries. Innovation at Every Level from Connected Products to Edge Control, and Apps, Analytics and Services.

Document Scope

This guide intends to help users get the best of EcoStruxure™ Facility Expert by:

- Supporting beginners in the configuration of their account and in the daily use of their interface and energy dashboards.
- Getting a general view of the EcoStruxure Facility Expert features and capabilities that evolve with the periodic releases according to software development or to new equipment, gateway, or sensors integration.

Refer to your *EcoStruxure Facility Expert Release Notes* to be informed of the latest improvements. Release Notes are automatically sent at software release on the user email indicated during the account creation. All EcoStruxure Facility Expert release notes are also available on [Schneider Electric Exchange for EcoXpert partners](#).

- Promoting best practices to set up easily and efficiently the parameters of your energy dashboards depending on the electrical architecture that has been installed.

This guide does not detail all the software functionalities.

Validity Note

This guide applies to EcoStruxure Facility Expert with software release 13.0.

Online Information

The information contained in this guide is likely to be updated at any time. Schneider Electric strongly recommends that you have the most recent and up-to-date version available on www.se.com/ww/en/download.

The technical characteristics of the devices described in this guide also appear online. To access the information online, go to the Schneider Electric home page at www.se.com.

For detailed information go to:

- EcoStruxure Facility Expert
- EcoStruxure Power
- PrismaSeT Active

Related Documents

Title of documentation	Reference number
<i>EcoStruxure Facility Expert Starter Guide for Operations</i>	ESXUG001EN
<i>EcoStruxure™ Power - Commissioning Guide for Digital Solutions based on PrismaSeT Active</i>	ESXP1G005EN

Title of documentation	Reference number
<i>EcoStruxure™ Power- Design & Selection Guide for Energy & Operations Management Solutions</i>	ESXP1G001EN
<i>PrismaSeT Active - Installation and Maintenance Guide</i>	DOCA0203EN
<i>PrismaSeT Wireless Panel Server (SMT10015 / SMT10016 / SMT10019) - Instruction Sheet</i>	NNZ50846
<i>Com'X 210 Energy Server - User Manual</i>	DOCA0098EN
<i>Com'X 510 Energy Server - User Manual</i>	DOCA0036EN
<i>How Can I Reduce Vulnerability to Cyber Attacks?</i>	Cybersecurity System Technical Note
<i>Top 3 technologies that improve energy and asset performance for buildings with limited resources</i>	Web access

You can download these technical publications and other technical information from our website at www.se.com/ww/en/download.

Reference Architectures

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EcoStruxure Facility Expert cloud-based platform collects energy data from different Schneider Electric gateways depending on the application type and the project size.

- For large sites and advanced projects, Com'X gateway supports many metering devices types including third party and custom devices.
- For small businesses, PowerTag Link C gateway connects up to 8 wireless energy sensors with Ethernet connection.
- For simple and native connectivity, Wireless Panel Server connects up to 15 wireless energy sensors to the cloud through LoRa network.

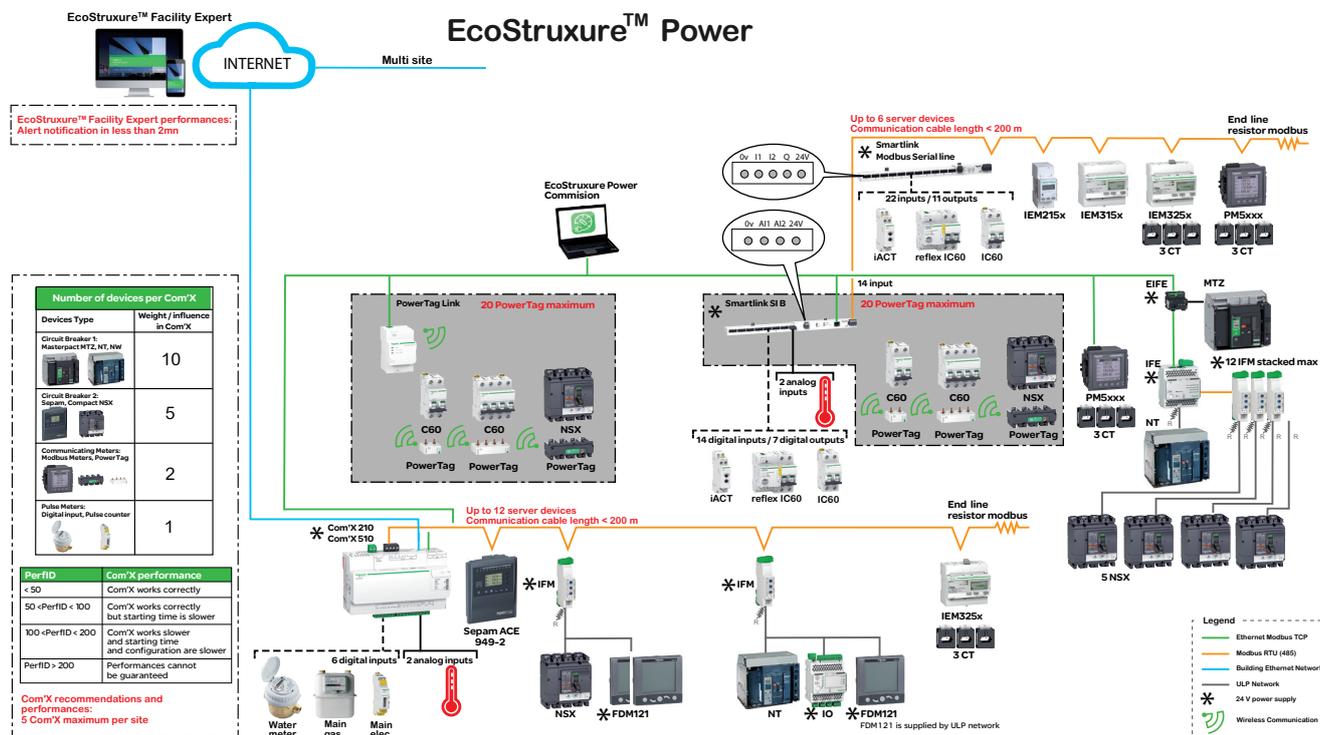
Each reference architecture presents the system overview, limits, and capabilities.

Architecture with Com'X Gateway

The following topic presents a typical architecture with a Com'X gateway to cloud using Ethernet network .

This solution offers the following advantages and services:

- 24/7 notifications to the maintenance team when equipment is no longer supplied.
- Record of all regulatory maintenance interventions with an associated report.
- Monitoring of when and where the energy is consumed in the building and over-target consumption alerts.
- Alerts in case of peaks or low power factor to avoid penalties on the electricity bill.
- Alerts in case of high harmonics on your electrical network and planning of corrective actions to avoid lighting disturbances.
- Display of energy savings on a screen at the building entrance (optional).



More Information

For more information about Com'X gateway, refer to the following documents:

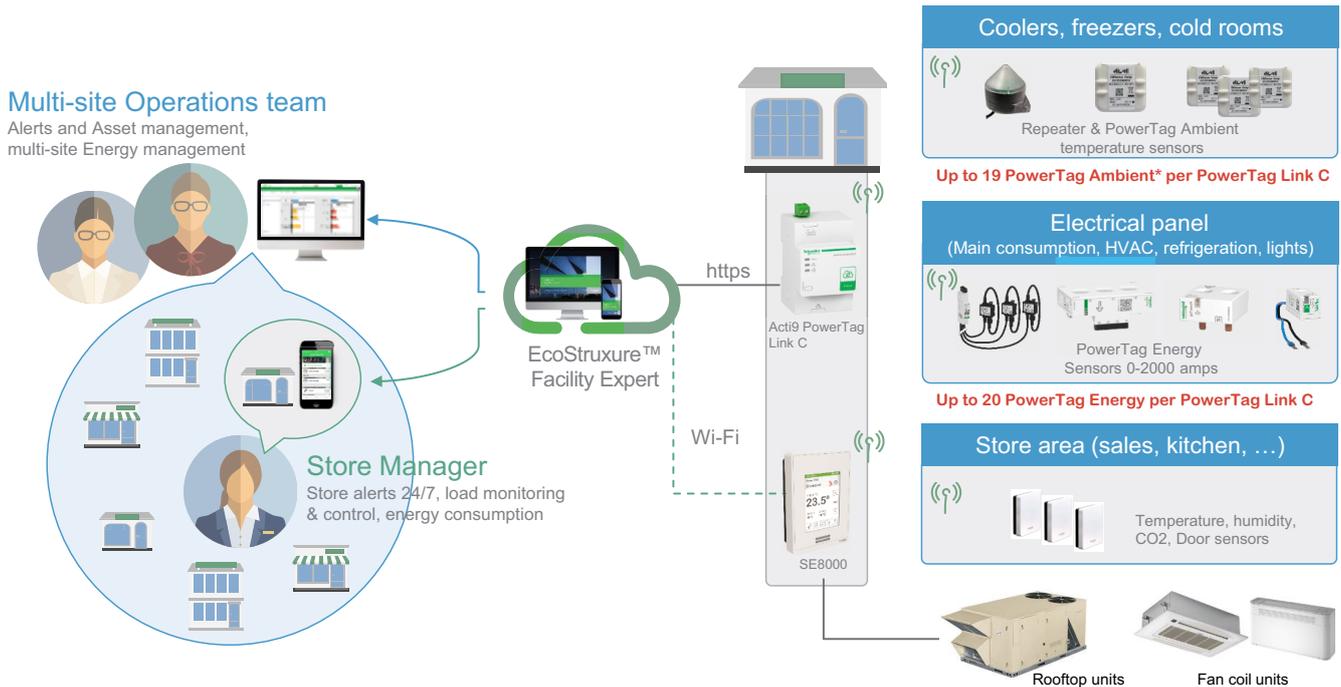
Title of documentation	Reference number
<i>EcoStruxure™ Power - Commissioning Guide for Connected Panels and Facility Expert Software</i>	ESXP1G004EN
<i>EcoStruxure™ Power- Design & Selection Guide for Energy & Operations Management Solutions</i>	ESXP1G001EN
<i>Com'X 210 Energy Server - User Manual</i>	DOCA0098EN
<i>Com'X 510 Energy Server - User Manual</i>	DOCA0036EN

Architecture with PowerTag Link C

The following topic presents a typical architecture with a PowerTag Link C.

This simple and cost-effective solution offers the following advantages and services:

- 24/7 notifications to the maintenance team when equipment is no longer supplied or stops running.
- Record of all regulatory maintenance interventions with an associated report.
- Monitoring of when and where the energy is consumed and over-target consumption alerts.
- Energy costs dashboard with time of use.
- Display of energy savings on a screen at the building entrance (optional).



* Recommendation to install PowerTag Ambient sensors: consider the distance from the closest PowerTag Link C:

- Consider the distance from the closest PowerTag Link C:
 - < 5 meters: direct connection between PowerTag Ambient and PowerTag Link C.
 - 5 to 15 meters: additional repeater may be required.
 - > 15 meters: add another gateway closer to the PowerTag Ambient.
- Consider the environment:

Do not use PowerTag Ambient with PowerTag Link C installed in a metallic enclosure. If this is the case, use Kaedra plastic box or equivalent.

More Information

- For more information about Acti9 PowerTag Link C visit the product range webpages.
- To commission Acti9 PowerTag Link C with eSetup application, refer to the system installation guide FESBSUG0001EN *EcoStruxure Facility Expert Installation Guide*

Architecture with PrismaSeT Active Wireless Panel Server

The following topic presents a typical PrismaSeT Active architecture with Wireless Panel Server using LoRa communication.

The Wireless Panel Server is a gateway embedded in the roof of PrismaSeT P Active or PrismaSeT G Active switchboards, enabling wireless connectivity to Schneider Electric cloud.

The Wireless Panel Server offers the following advantages and services:

- Switchboard voltage loss monitoring
- Fire prevention in electrical distribution switchboards
- Power availability alarming
- Energy consumption management

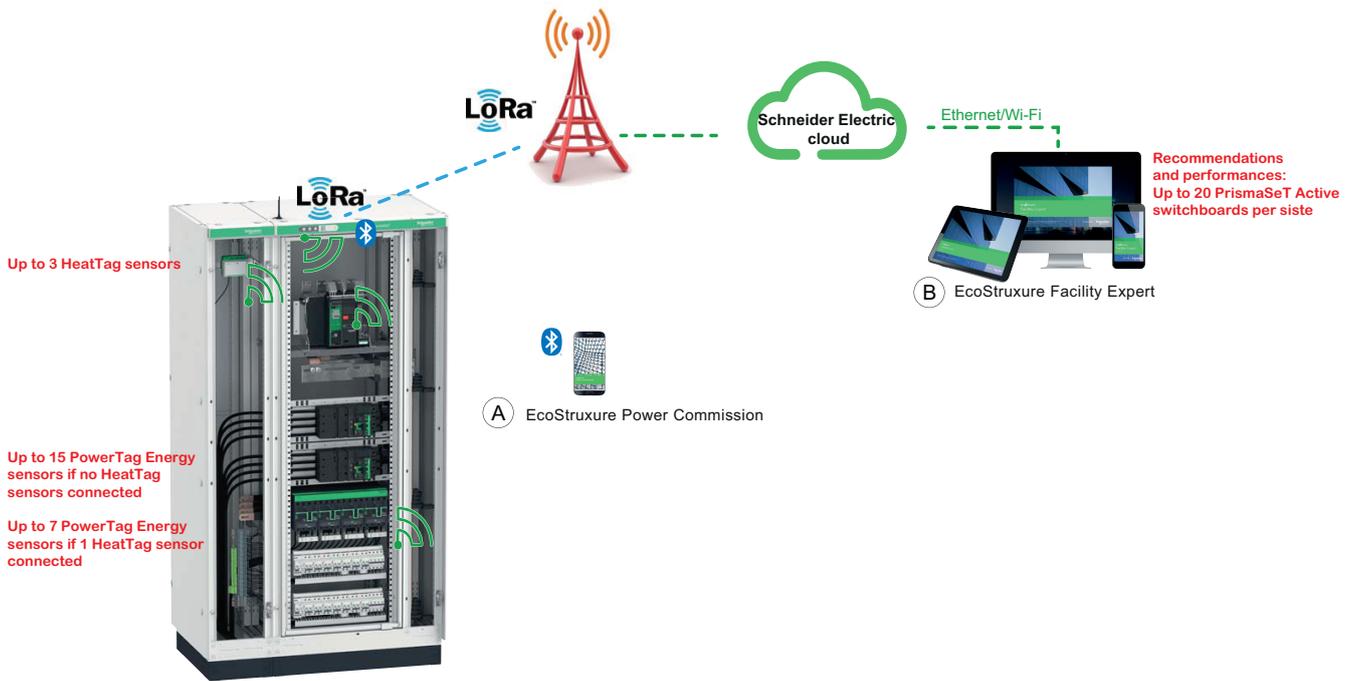
The Wireless Panel Server provides monitoring of the switchboard via EcoStruxure Facility Expert software.

The Wireless Panel Server provides the following features:

- Voltage presence indicator, locally with the Wireless Panel Server LEDs.
- Voltage loss detected in the switchboard:
 - Locally with the Wireless Panel Server LEDs.
 - Remotely by notifications on mobile devices (smartphone or tablet).
- LoRa communication enables voltage loss monitoring through long range communication.
- IEEE 802.15.4 wireless communication enables communication with wireless devices installed in the switchboard:
 - HeatTag sensors
 - PowerTag Energy sensors
 - Wireless indication auxiliaries for ComPacT NSX and ComPacT NSXm (available beginning 2022)
 - Acti9 Active (available end 2022)
- Remote communication with a smartphone or tablet through Bluetooth® wireless technology.
- Remote alerts with actionable details through EcoStruxure Facility Expert App - Operations subscription.
- Continuous monitoring and trends through EcoStruxure Facility Expert App - Energy subscription.
- Firmware update.

For more information about LoRaWAN protocol, refer to [DOCA0203EN PrismaSeT Active - Installation and Maintenance Guide](#).

The following illustration shows a possible architecture of the Wireless Panel Server.



LoRa™ LoRa™ communication

 Bluetooth® communication

 IEEE 802.15.4™ wireless communication

- A. EcoStruxure Power Commission App for wireless devices configuration
- B. EcoStruxure Facility Expert cloud-based software for asset and energy management:
 - Voltage loss notification
 - Sensors' alert system through App and webpages (with EcoStruxure Facility Expert - Operations subscription)
 - Energy management through webpages (with EcoStruxure Facility Expert - Energy subscription)

Maximum Performance

Supported Wireless Devices

The following table presents the IEEE 802.15.4 wireless devices installed in a PrismaSeT switchboard and able to communicate with the embedded Wireless Panel Server.

Application	Wireless device	Description
 Fire prevention	HeatTag sensors 	Innovative smart sensor, able to analyze gas and particles in the switchboard and alert before any smoke or insulator browning occurs.
	Acti9 Active (available end 2022) 	Arc Fault Detection Device that helps protect circuits against short-circuits and overcurrent, persons against earth-leakage, and assets thanks to an in-built arc flash detection device.
 Power availability	Wireless indication auxiliary for ComPact NSX and ComPact NSXm (available beginning 2022) 	Wireless indication auxiliary that provides remote and local information about the circuit breaker status (open, close, trip, trip on electrical default).
 Energy management	PowerTag Energy sensors 	Compact and easy-to-install Class 1 wireless communication energy sensor that monitors and measures energy and power in real-time. PowerTag Energy sensor sends alerts in the event of an electrical anomaly.

More Information

For more information about Wireless Panel Server, visit the [product range webpage](#) and refer to the following documents:

Title of documentation	Reference number
<i>PrismaSeT Wireless Panel Server (SMT10015 / SMT10016 / SMT10019) - Instruction Sheet</i>	NNZ50846
<i>PrismaSeT Active - Installation and Maintenance Guide</i>	DOCA0203EN
<i>EcoStruxure™ Power - Commissioning Guide for Digital Solutions based on PrismaSeT Active</i>	ESXP1G005EN
<i>EcoStruxure Facility Expert Starter Guide for Operations</i>	ESXUG001EN
<i>How Can I Reduce Vulnerability to Cyber Attacks?</i>	Cybersecurity System Technical Note

EcoStruxure Facility Expert

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Overview



EcoStruxure Facility Expert - Energy is a license from EcoStruxure Facility Expert, a cloud-based software merging mobile App, Web platform, and IoT, that helps customers deliver valuable services to optimize operational efficiency, energy consumption in single or multi-site buildings.

Discover EcoStruxure Facility Expert and EcoStruxure Facility Expert - Energy subscription.

Discover EcoStruxure Facility Expert - Energy

Objectives

EcoStruxure Facility Expert - Energy helps you to reduce costs and provide savings on energy:

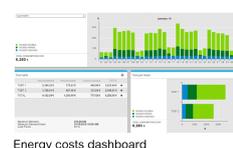
- Gain a better understanding of energy usage and costs.
- Use multi-site comparison to easily identify poorly performing sites.
- Save time by avoiding manual data logging and spreadsheets.
- Offer opportunity to promote a sustainable image.

Features

EcoStruxure Facility Expert - Energy provides the following features:

- Energy consumption and cost monitoring: mains, usage, zone, meter
- Monthly scorecards and KPIs
- Manual reading collection and storage
- Energy consumption benchmark by aggregated or multi-site comparison view
- Cost allocation for budget optimization
- Power demand and power factor monitoring and alerts
- Alerts for over-target energy consumption
- Multi-site comparisons, consumption aggregation
- Energy site performance vs. standards
- Energy kiosk - Option

To discover the main features of your EcoStruxure Facility Expert web portal, watch the video.



Prerequisites

How to Get EcoStruxure Facility Expert

<i>NOTICE</i>
DENIAL OF ACCESS TO THE APPLICATION
To access the cloud-based platform you must have a valid EcoStruxure Facility Expert - Energy subscription.
Failure to follow these instructions can result in not accessing data application.

You can purchase the best adapted subscription from your Schneider Electric sales representative using the reference table below:

EcoStruxure Facility Expert - Energy	
Description	Subscription reference
1 year	SVSFE0002
1 year – 1 meter	SVSFE0002A2
3 years	SVSFE0002A3
3 years – 1 meter	SVSFE0002A4

Once a subscription is purchased, you receive an email with subscription confirmation and a link to complete your registration on the platform. Create your user account by connecting to [EcoStruxure Facility Expert home page](#).

Technical and IT Prerequisites to Get the Best of EcoStruxure Facility Expert

The following web browsers are recommended to access the EcoStruxure Facility Expert web application:

- Chrome (v67 or higher)
- Firefox (v59.0.2 or higher)

<i>NOTICE</i>
POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY
<ul style="list-style-type: none"> • Change default passwords at first use to help prevent unauthorized access to device settings, controls, and information. • Disable unused ports/services and default accounts to help minimize pathways for malicious attackers. • Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection). • Use cybersecurity best practices (for example, least privilege, separation of duties) to help prevent unauthorized exposure, loss, modification of data and logs, or interruption of services.
Failure to follow these instructions can result in non-operational system.

For recommendations about Com'X data outputs, refer to [Troubleshooting](#), page 83.

I START: I Create a User Account and I Activate the Service

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Introduction

NOTICE

DENIAL OF ACCESS TO THE APPLICATION

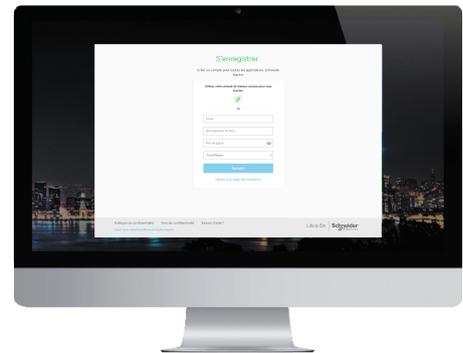
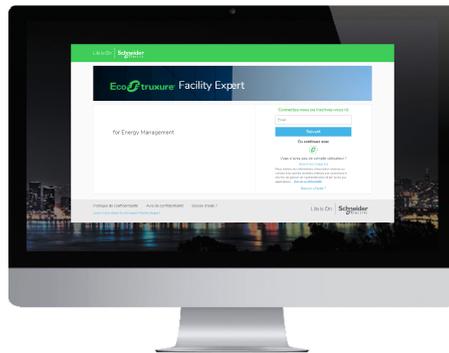
To access the cloud-based platform you must have a valid EcoStruxure Facility Expert - Energy subscription.

Failure to follow these instructions can result in no service provision.

Refer to the following instructions as the process is gateway dependent.

For account creation:

1. Contact your local Schneider Electric representative who must register your email to initiate the process.
2. Once you have received credentials to set up your user account, connect to the home page of EcoStruxure Facility Expert.



Using Com'X as a Gateway to Cloud

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To learn more about the performance and limitations of a system using Com'X gateway, read chapter I have a question, page 79.

Data Required to Set Up EcoStruxure Facility Expert

Prerequisites

<i>NOTICE</i>
<p>SERVICE NOT ACTIVATED</p> <p>To activate the service, all mandatory fields must be completed.</p> <p>Failure to follow these instructions can result in not providing service.</p>

All fields (mandatory or not) can be modified later on during service operation.

Data Required to Create a Customer

Customer details	
Name ¹	
Email	
Country ¹	
Activity ¹	
Logo	
¹ Mandatory data.	

The non-mandatory data can be filled in at a later point.

Activity corresponds to the industrial sector concerned (for example, office buildings, factories, hotels, schools, public services).

Data Required to Create a Site

Site details	
Name ¹	
Address ¹	
Zip code ¹	
City ¹	
State ¹	
Time zone ¹	
Surface area ¹	
Site picture or logo	
Working days and opening hours	
Targets and initial values for monthly consumption: <ul style="list-style-type: none"> • Electricity • Gas • Fluids 	
Subscribed electrical power (kW or kVA)	
Service part number ¹	
Data logger serial number ¹	RN-DN... (for Com'X)
¹ Mandatory data.	

The non-mandatory data can be filled in at a later point.

NOTE: The surface area is used to normalize the following data in the performance table: electricity consumption, gas consumption, and monthly targets.

Data Required for Data Company Agreement Signature

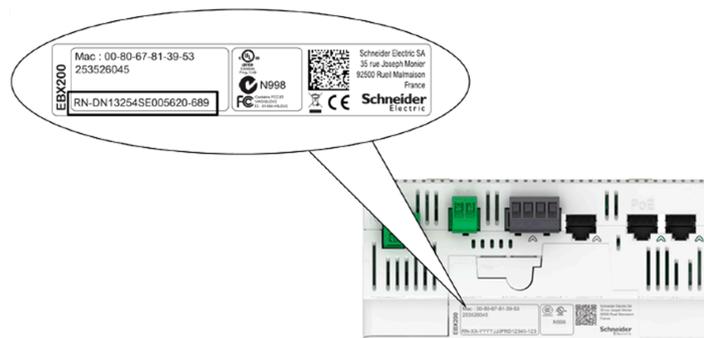
At the end of the setup, an email is sent to the end user or building owner to sign the data company agreement.

Site details	
Name ¹	
Email ¹	
¹ Mandatory data.	

The non-mandatory data can be filled in at a later point.

Com'X Serial Number

The serial number of the Com'X can be found in the Com'X embedded webpage, in the **About** area or on the top of the product, as displayed in the following figure.



Mandatory Details to Configure Data Publication (Com'X)

Functions of the Com'X

The data acquisition system Com'X can perform the following functions:

- Data export through Ethernet or 3G connection (if there is no network infrastructure).
- Data collection of meters or circuit breakers in serial or Modbus TCP.
- Data collection of pulse meters.

For further details, refer to DOCA0098EN *Com'X 210 Energy Server - User Manual* or DOCA0036EN *Com'X 510 Energy Server - User Manual*.

NOTE: Recommendation for events publication: Schneider Electric recommends using Ethernet publication if you use the real-time eventing function of the Com'X.

Ethernet Publication

Contact the local IT manager to get the password and the following information.

Ethernet network details		
Proxy (if needed)	Address ¹	
	Port ¹	
	User ¹	
Ethernet (publication)	IP Address ¹	
	Mask ¹	
	Gateway ¹	
	DNS Server ¹	
Ethernet (if separate network for data collection)	IP Address	
	Mask	
¹ Mandatory data.		

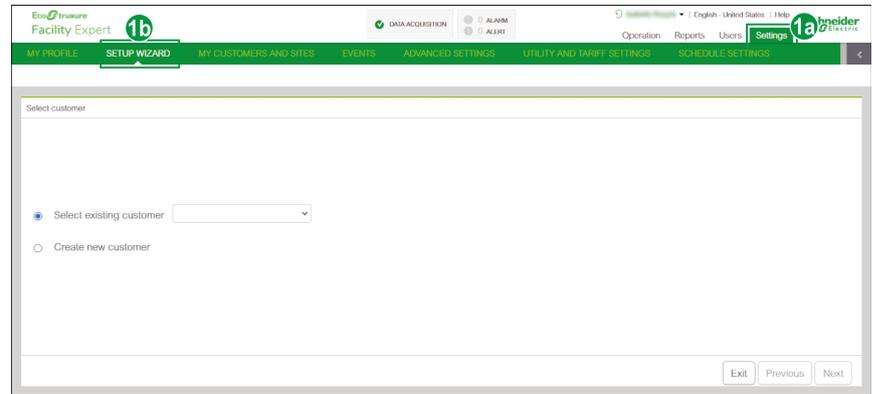
The non-mandatory data can be filled in at a later point.

Activating the Service with Com'X as a Gateway to Cloud

1. Launching EcoStruxure Facility Expert setup wizard:

Follow this procedure to launch EcoStruxure Facility Expert:

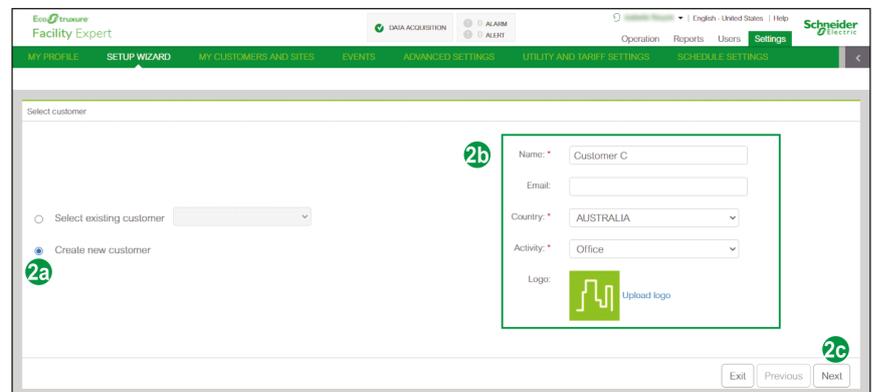
- Go to the **Settings** menu (top right corner).
- Select the **SETUP WIZARD** tab.
- Follow each step of the wizard and click each time **Next** to go to the next step.



2. Creating a new customer

Follow this procedure to create a customer:

- Select **Create a new customer**.
- Enter data for the customer.
- Click **Next**.



Activity type defines the default indicators (for example, the number of meals served for a restaurant or the number of production units for a factory). The activity type is applied to all sites of the customer. Customer logo is not mandatory and can be added later.

3. Creating a site

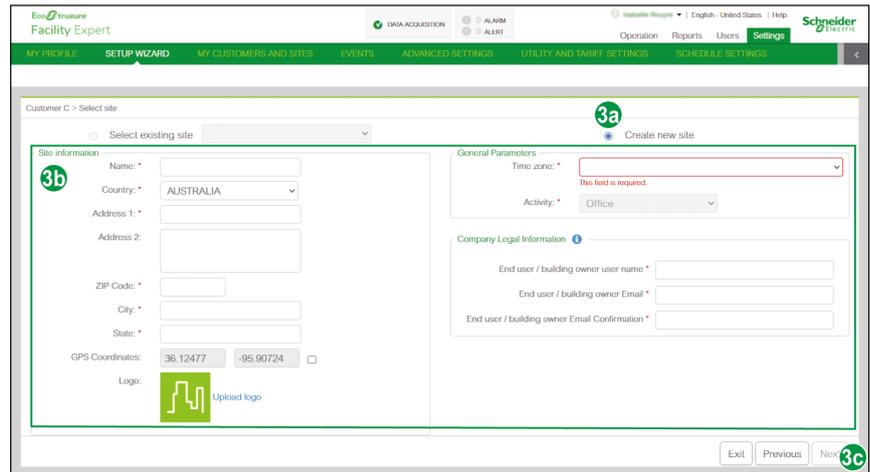
Follow this procedure to create a site:

a. Select **Create a new site**.

b. Enter the following information:

- Site information
The address is used to locate the site on the map and to have relevant weather data (see Normalization factors, page 86)
- Time zone
- Name and email of the legal representative of the customer

c. Click **Next**.

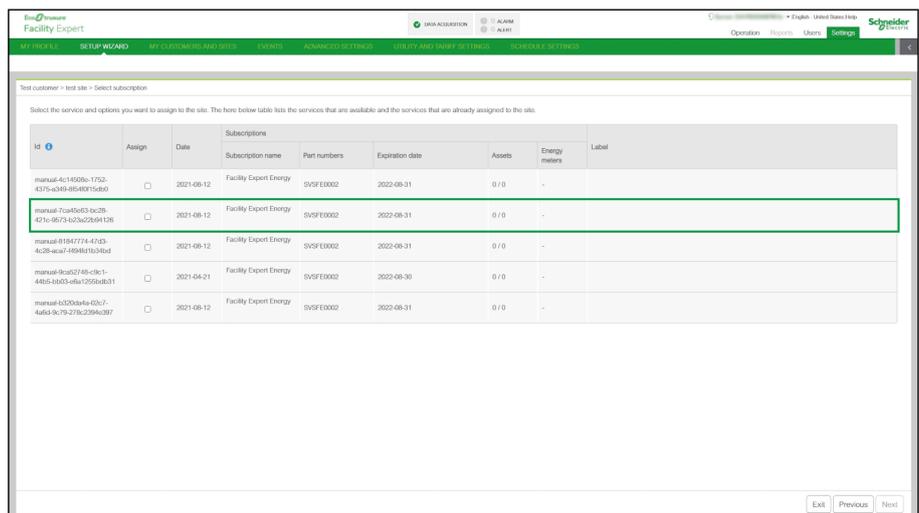


NOTE: Other information such as **Previous Year Consumption** and **Targets** can be entered later. See step 5 in Energy efficiency and targets, page 44.

4. Assigning a subscription to the site

Select in the list the subscription you want to associate to this site.

At least one service reference must be available.



5. Pairing the Com'X

To commission the Com'X, refer to *ESXP1G004EN EcoStruxure™ Power - Commissioning Guide for Connected Panels and Facility Expert Software*.

Follow this procedure to connect the Com'X to the EcoStruxure Facility Expert server:

- a. In the **Settings > Schneider Electric Services** tab, enable the Schneider Electric Services. Click **Save**: the Com'X connects to the EcoStruxure Facility Expert server and initializes its configuration. When the connection is established, the three indicators **Authenticate**, **Active**, and **Connect** turn green.
- b. In the **Settings > General Settings** tab, select the **Publication** sub-tab, and then select **DSP (Digital Service Platform)**. Change the publication frequency to **Once per hour**. Click **Save**.
- c. In the **Device Settings** tab, enter a name for the Com'X device so it can be easily identified afterwards in EcoStruxure Facility Expert. For example, Com'X_site name.
- d. Enter Com'X serial ID located on the top of the device or found in the **About** webpage of the Com'X.
- e. When the registration process has finished (after about 2 minutes), you get a message about data logger association to the site.

Activating PrismaSeT Active Wireless Panel Server

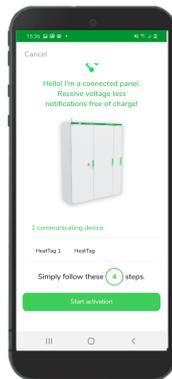
From the field, start scanning the QR code located on the PrismaSeT Active panel.

1. Scan the QR code located at the top of the panel with your camera or with the feature "Scan a QR code" of your Facility Expert application if you have already used it.



If you are not already using EcoStruxure Facility Expert, you will be proposed to download the mobile application and to create a new account.

2. The activation wizard appears with the list of communicating devices if there are any. Click **Start activation**



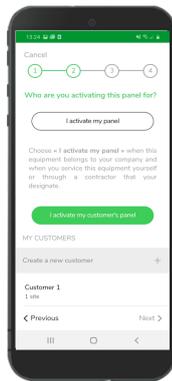
3. **Refer to the indication to press and hold the button located at the top of your panel for 5 seconds.**



- On the panel, the indicator light will go from a few seconds on solid orange to flashing green during the service activation phase. Then click **Next**.

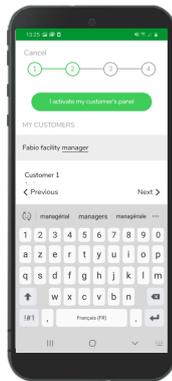


- Choose between **I activate my panel** or **Activate the panel for a customer**.



NOTE: If you activate the panel for your own usage, your next step will be directly step 7.

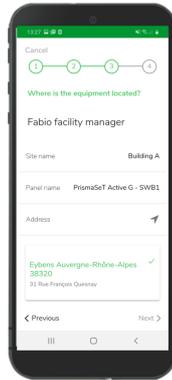
- Enter the name of the customer who will own the PrismaSeT Active panel. Click **Next**.



Confirm that you have received consent from your customer to access his equipment data.
Click **I OBTAINED THE CONSENT** to continue.



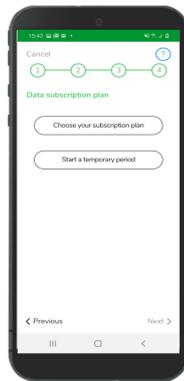
7. Create or select the switchboard site.



8. Enter information or simply click on the GPS location button to automatically retrieve the address if you are at customer site.

9. Click **Next**.

10. Select **Subscription plan**.



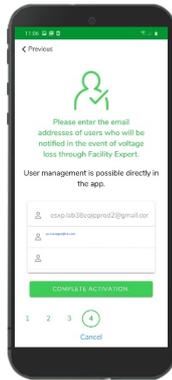
NOTE: A valid EcoStruxure Facility Expert- Energy license is required to monitor the energy consumption and receive load availability alerts.

11. Enter your Activation code. Select **Facility Expert Energy** subscription and click **OK** to validate.



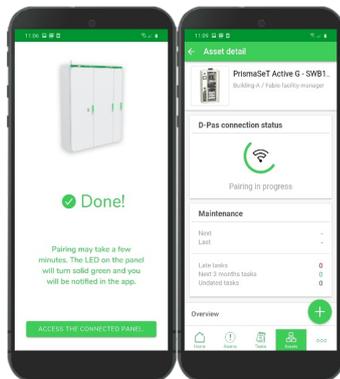
NOTE: To get an activation code, Schneider Electric recommends to purchase a subscription from your local sales representative or distributor who will send you the code by email.

12. Add the email addresses of the users who should be notified in case of an event.



NOTE: If the users do not have EcoStruxure Facility Expert, they will receive an email inviting them to download the app.

13. Click **COMPLETE ACTIVATION**.
14. The panel finishes its activation by attempting to connect to the cloud via the LoRa network.

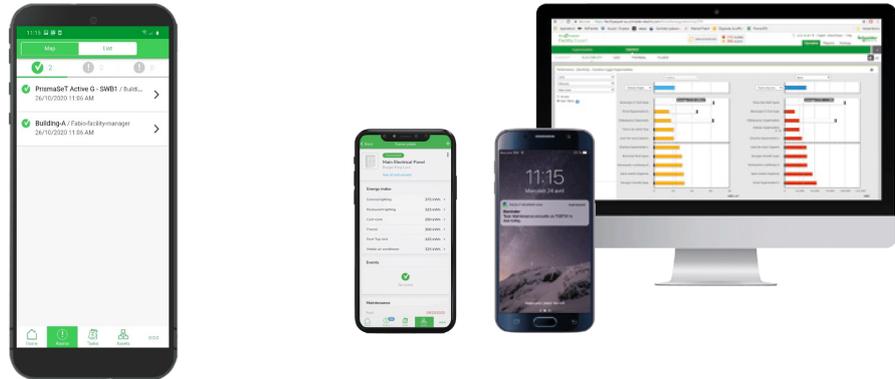


Result: All phase LED indicators are now active and the connectivity symbol is green.



15. Your PrismaSeT Active panel is now registered in the asset library of your application:

- You will be notified in case of an issue with actionable details and recommendations that help you react quickly.
- Alerts on abnormal consumption, power demand excess or power factor drift are activated, and you gain remote visibility on energy usage, from loads to multiple buildings.



I SET UP PARAMETERS

What's in This Part

My Customers and Sites Settings.....	38
Events and Alerts Settings	51
Utility and Type of Tariff Entry	54
Calendar and Schedules Entry	60

My Customers and Sites Settings

What's in This Chapter

Presentation	39
Meters Configuration: Main Meter, Usages, and Zone	39
Declaring a Main Meter for Electricity and Other Utilities	39
Declaring Submeters to Monitor Usages and/or Zones	41
Customer Site Parameters	42

Presentation

It is important to correctly define the meter settings to get:

- Relevant displays in your dashboards
- Relevant analysis thanks to the detailed metering data
- Complete content in your monthly reports

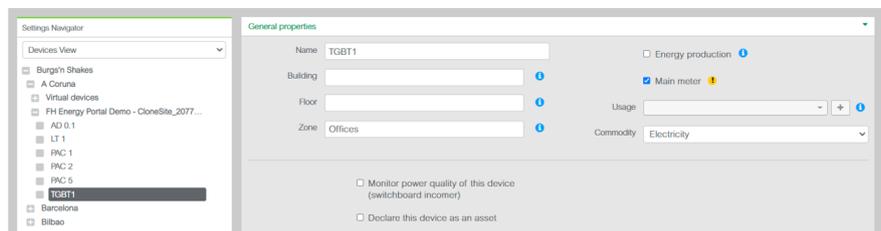
Meters Configuration: Main Meter, Usages, and Zone

If you want to monitor the total site consumption of an energy commodity, at least one device must be defined as a main meter in the field **Usage**.

If multiple meters are defined as main meters, their respective consumption is added automatically to calculate the site total consumption.

Example:

- TGBT1 is defined as Main meter.



- Three meters are defined as submeters with zone and usage indications:



Zone: Restaurant; Usage: Food Refrigeration



Zone: Restaurant; Usage: HVAC



Zone: Restaurant; Usage: Cooking

Declaring a Main Meter for Electricity and Other Utilities

You can monitor energy production from any renewable (solar, wind, hydro) or other energy sources produced on the site.

By tagging the meter as production meter, the energy produced on site will be displayed in the main energy dashboard, in red.

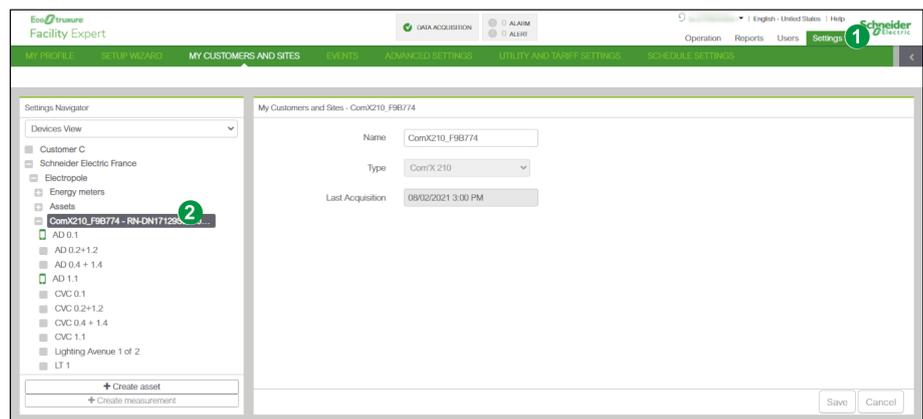
If several meters are producing energy, you can tag them all.

EcoStruxure Facility Expert will automatically sum up the total energy produced and display it in the main energy dashboard as energy produced.



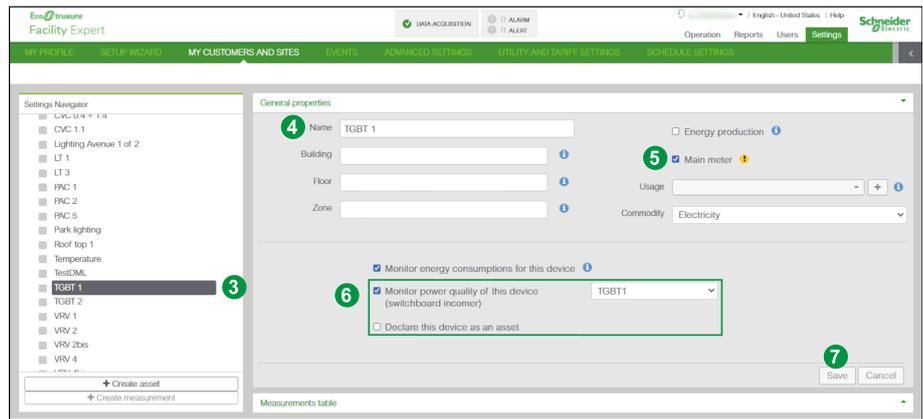
The total energy produced on the site is displayed in red in the building's aggregated consumption widget.

1. Open your **Settings** menu.
2. In the devices view, click to open the Com'X entry.



3. Select the meter.
4. Verify that the meter name is relevant. It should be easily readable and understandable when displayed on graphs.
5. Select the **Main Meter** check box.
6. You can declare the meter as a switchboard incomer and/or as part of your asset list by selecting the corresponding boxes.

7. Click **Save**.



For other utilities (water, gas, for example) verify that at least one meter is declared as Main Meter per energy and/or fluid.

Declaring Submeters to Monitor Usages and/or Zones

Declare submeters to monitor usages and/or zones such as parking lighting, heat pump, compressed air.

In case of hierarchy of 2, 3, or more submeter levels (for example, general lighting and 3 lighting submeters), each calculated percentage in graphics is established relative to the main meter consumption.

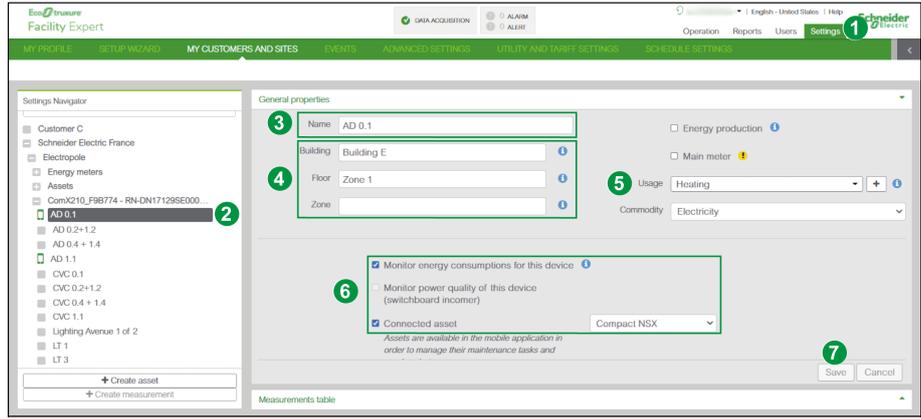
NOTICE
LACK OF READABILITY OF DASHBOARDS
Use relevant, readable, and understandable names for meters because all the fields are concatenated in the Zone dashboard.
Failure to follow these instructions can result in dashboards difficult to read.

1. Open your **Settings** menu.
2. Select the meter.
3. Verify that the meter name is relevant. It should be easily readable and understandable when displayed on graphs.
4. Enter description in **Building/Floor/Zone**.

NOTE: If no **Zone** is defined, the widget **Energy per zone** will not be displayed in your Electricity dashboard.
5. Select usage in the predefined list or create a new one with the **+** button.

NOTE: If no **Usage** is defined, the widget **Energy per usage** will not be displayed in your Electricity dashboard.
6. Enter additional information and tag the submeter according to your needs using the check boxes.

7. Click **Save**.



Customer Site Parameters

The **Devices View** navigator displays either customer or site information.

By selecting a customer in the list, you access customer data, country data, and group management sub-menus to set up parameters.

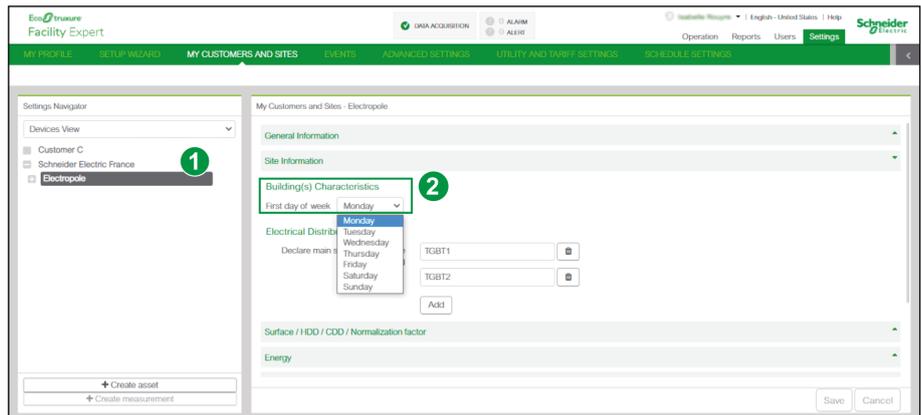
For more information, see [Customer information settings](#), page 49.

By selecting a site in the list, you access sub-menus that are necessary to better determine your consumption dashboards, manage tariffs and monthly reports and to establish alert targets according to your building routine and location.

Building Characteristics

1. Select a site in your list.
2. Under **Building(s) Characteristics**, define the building operating days and hours by entering the first day of week.

These values are compared to days and schedules by EcoStruxure Facility Expert analytics to detect potential deviations.

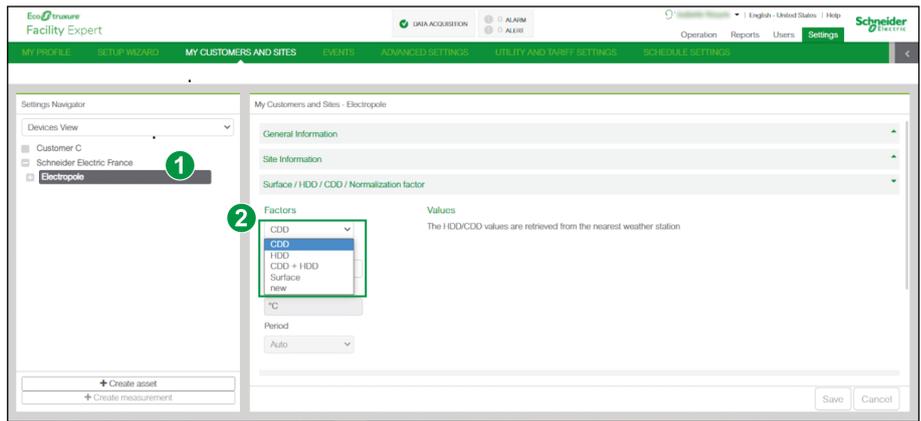


Predefined Normalization Factors

Select and set up the most appropriate normalization factors. Verify the main necessary values are Surface and HDD/CDD.

1. Select a site in your list.

2. Access the list of predefined factors.



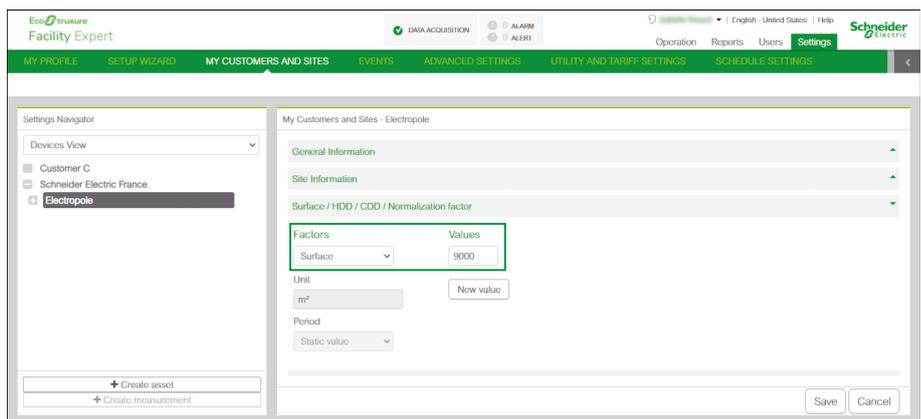
3. Check the **Surface** value and adjust it if necessary.

NOTICE

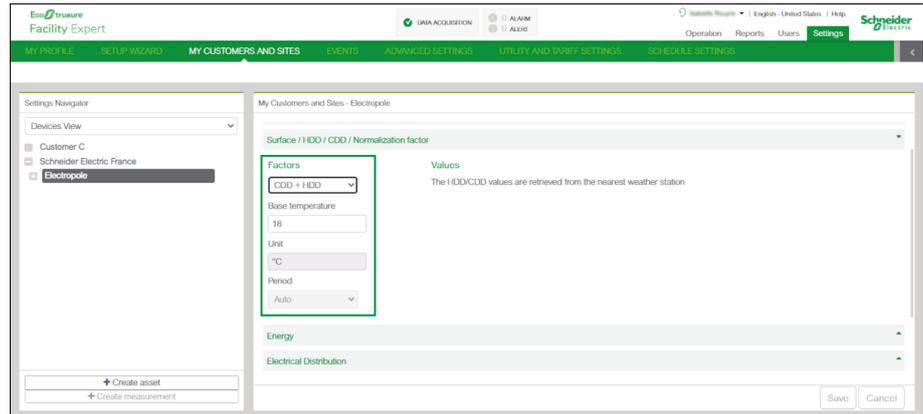
INCORRECT DATA

Verify that the surface data is set to the correct value.

Failure to follow these instructions can result in erroneous calculations in dashboards.



4. Select other available factors in the predefined list (for example, **HDD**, **CDD**, number of occupants, number of production units) and if necessary, set up the values.



In the **ADVANCED SETTINGS** menu you can create new normalization factors and apply them by activities.

HDD value is set to 18 °C by default for calculation.

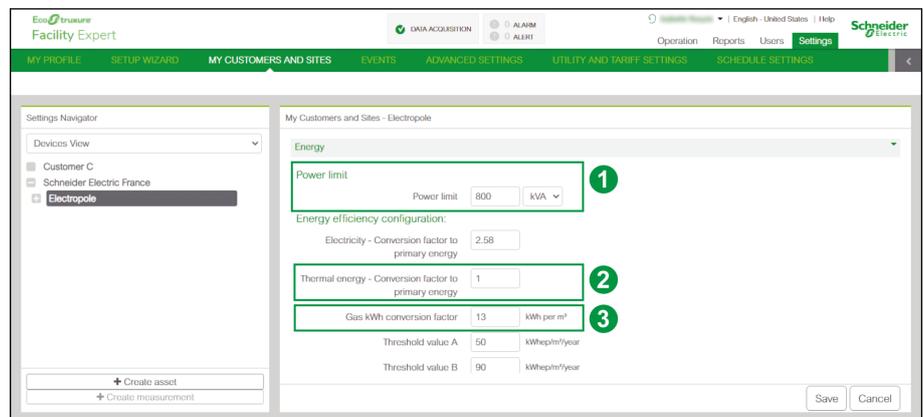
The local weather data comparison algorithm is based on the building location you entered following the wizard first setup. See how to create a new customer.

Energy Efficiency and Targets

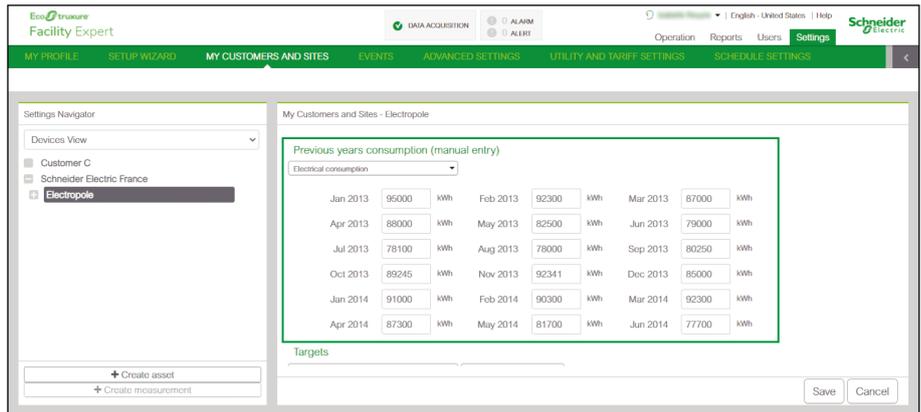
Monthly reports show electricity, gas, and the two first fluids created for the site. The monthly consumption targets must be set because they are used in the monthly performance table.

Set the information for site energy as follows:

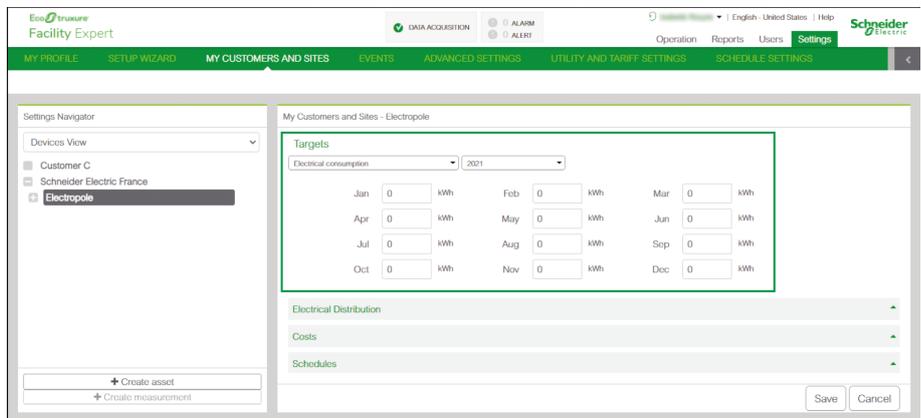
1. In the **Energy** section, set up the **Power limit** value. In order to get relevant power overrun alerts, you must select the **kW** unit.
 - NOTE:** If Power Demand is much higher than Power limit, all energy data is ignored by EcoStruxure Facility Expert. It is considered incorrect data.
2. Set up the thermal conversion factor in primary energy which allows global energy efficiency widget calculations.
3. If necessary, set the gas conversion factor in kWh per m³ which is used for:
 - Global energy efficiency widget calculations
 - Displaying features of gas widget



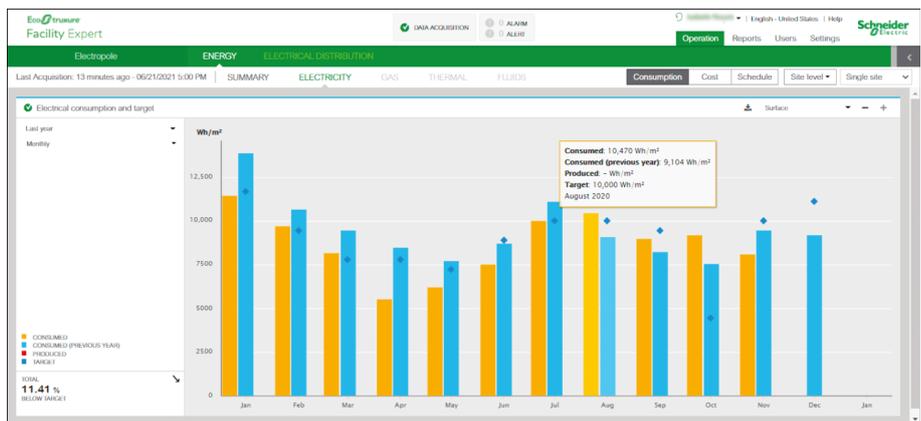
- In the **Energy** section, enter the monthly objectives for consumption of energy and fluids, and CO₂ emissions for the current year.



- You can set up targets. For example, deduct 5% from the consumption of the previous year.



Entering consumption of previous years enables you to visualize the monthly consumption and to calculate trends. These elements are displayed on the **Electrical consumption and target** widget of your Electricity dashboard.



Tariffs and Costs Settings

NOTICE

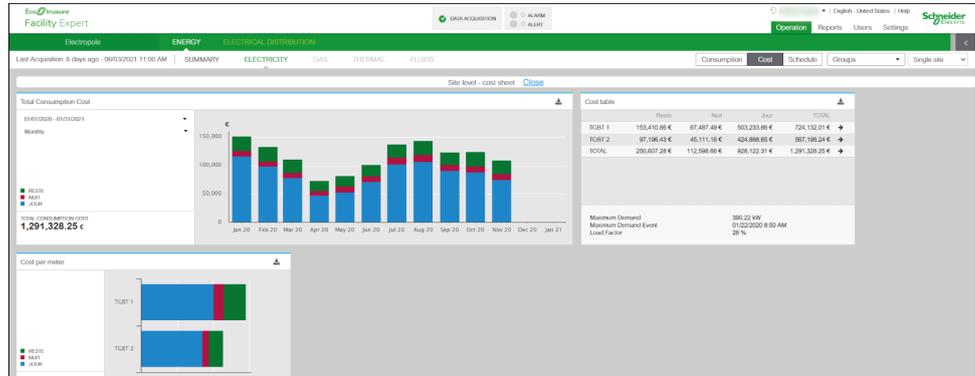
DENIAL OF ACCESS TO CUSTOMER DATA

You must have Manager rights to carry out the tasks described in this section.

Failure to follow these instructions can result in incomplete data.

To manage tariffs and costs you must create a utility, set up tariffs, and create cost sheets. For detailed information about the procedure, see [Utility and Type of Tariff Entry](#), page 54.

Setting up tariffs and costs enable you to understand and allocate costs through your EcoStruxure Facility Expert dashboards.



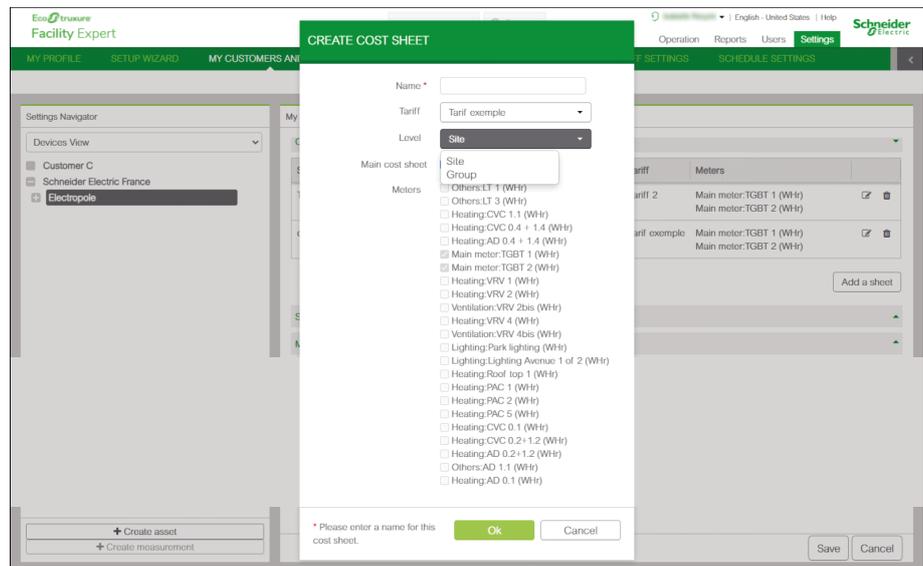
Creating a Cost Sheet for a Site or for a Group

When you create a cost sheet for a group, you assign a tariff to the group and define the meters that belong to the group.

1. Go to the **MY CUSTOMER AND SITES** menu.
2. **For a site:** In the **Settings Navigator** panel, expand the customer item and then select the site.
Result: Information for the site is displayed.
3. In the **Costs** field, click the arrow to expand the cost area, and then click **Add a sheet**.
Result: The **CREATE COST SHEET** window is displayed.
4. In the **CREATE COST SHEET** window, enter the following information:
 - **Name:** Enter a name for the cost sheet.
 - **Tariff:** Select a tariff from the list.
 - **Level:** Select **Site** or **Group**.

You must assign the current tariff structure on the main meter to be enabled to assign the tariff structure to a meter and/or submeters.

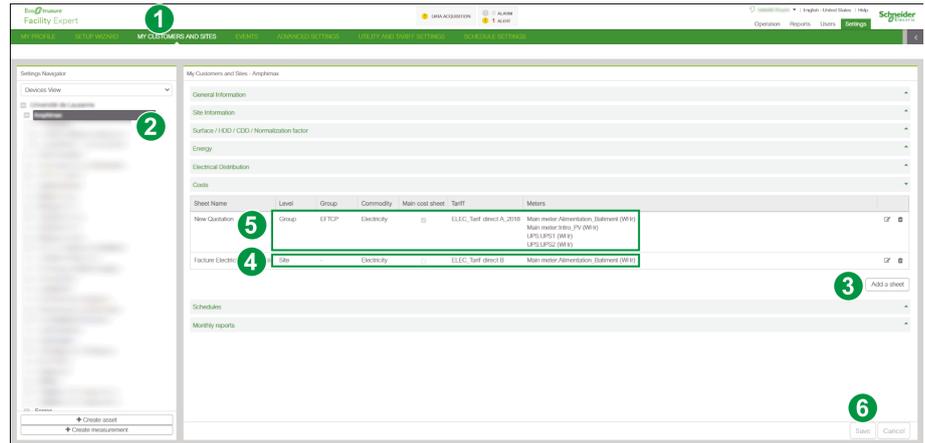
NOTE: The **Meters** option cannot be selected for a site.



5. **For a group:** Select a group name or click **+** to create a new group. Select meter boxes for the group. The consumption of each meter is added together to calculate the total energy cost of the group.

6. Click **Save** to save the cost sheet.

Result: The cost sheet is displayed under the **Costs** panel.



To assign the tariff structure to a meter and/or sub-meters, you must at least assign the current tariff structure on main meter.

You can assign a simulated or a competitor tariff structure.

You can assign any tariff structure on main meter or on any sub-meter.

Schedule Association

The **Schedule** settings define the alert activation in case of abnormal consumption during closed hours.

NOTICE

INAPPROPRIATE ALERTS

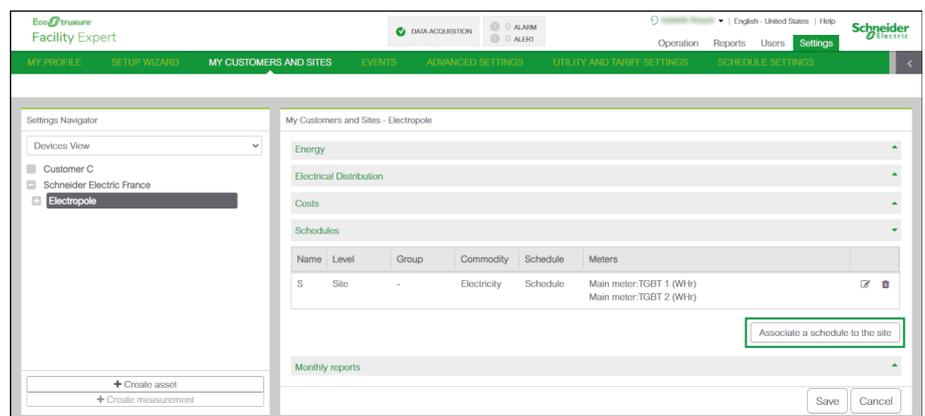
Set the **Schedule** settings as per your required alerts.

Failure to follow these instructions can result in inappropriate alert activation.

For detailed information about the **Schedule** settings, see Events and Alerts Settings, page 51.

When opening the **Schedules** panel, you can create an association between your schedules and the selected customer site. Follow these steps.

1. Click **Associate a schedule to the site**.



2. In the window that displays, select one schedule in your list of schedules.

To learn how to create your list of schedules, see Calendar and Schedules Entry, page 60.

3. Associate the schedule to an energy (for example, electricity, gas, thermal, water).
4. Associate the schedule to main meters.
5. Associate the schedule to a zone or group (for example, restaurant, offices).
6. Name the new association created.
7. Validate the settings by clicking **Ok**.

CREATE SCHEDULE ASSOCIATION

6 Name *

2 Schedule Schedule

3 Commodity Electricity

5 Level Site

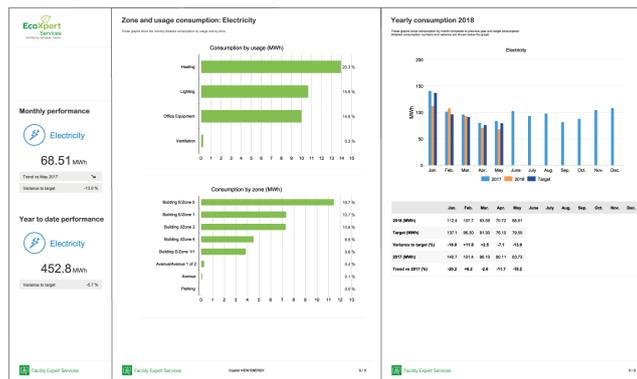
4 Meters

- Others:LT 1 (Whr)
- Others:LT 3 (Whr)
- Heating:CVC 1.1 (Whr)
- Heating:CVC 0.4 + 1.4 (Whr)
- Heating:AD 0.4 + 1.4 (Whr)
- Main meter:TGBT 1 (Whr)
- Main meter:TGBT 2 (Whr)
- Heating:VRV 1 (Whr)
- Heating:VRV 2 (Whr)
- Ventilation:VRV 2bis (Whr)
- Heating:VRV 4 (Whr)
- Ventilation:VRV 4bis (Whr)
- Lighting:Park lighting (Whr)

* Please enter a name for this association.

Ok Cancel

Monthly Reports and KPIs



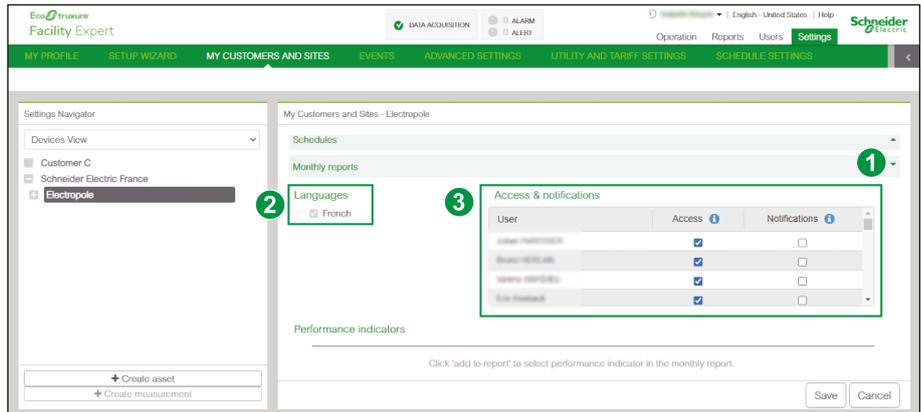
NOTE: One complete month of data is necessary to enable the automated generation of Monthly Reports.

Results are generated by the software every 5th day of month, and the documents are stored in the Reports library.

1. In the **My Customers and Sites** menu click the arrow to open the **Monthly Report** panel.
2. Select the monthly report language.

NOTE: By default, report language is the country language. For multiple-language country select the language in which the report is to be released.

3. Select the access and notifications. You can choose who has access to the report repository and who is notified by email when a new monthly report is available.



4. Select Key Performance Indicators (KPI) by clicking the **Add to report** button.

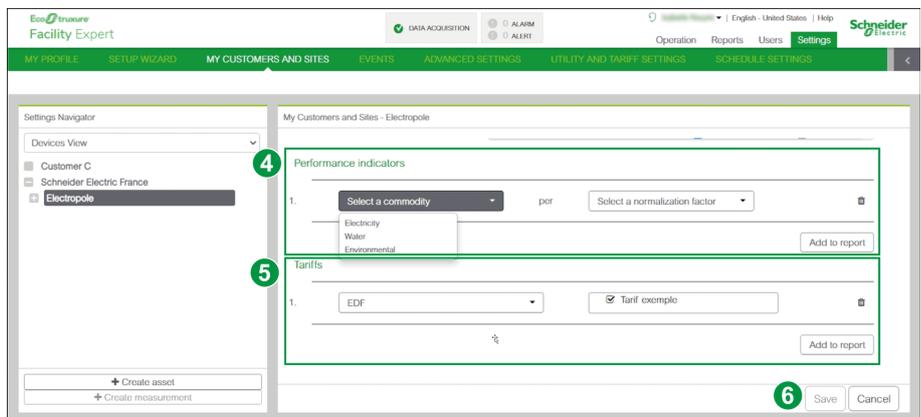
NOTE: For each KPI to be integrated in the report, select the total site consumption (Electricity, Gas or Fluids) and the normalization factor to compute the KPI.

You can create up to 3 KPIs.

5. Set up utility and tariffs by clicking **Add to report** after selecting the tariff and the energy provider.

NOTE: The tariff structures must be defined previously.

6. Click **Save**.

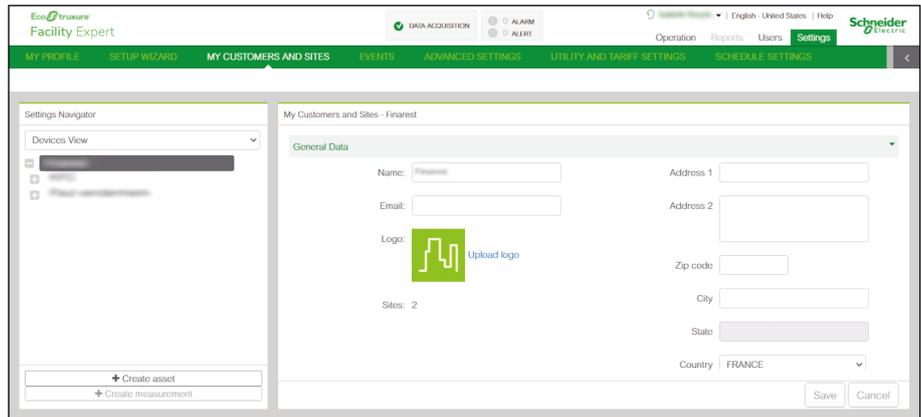


Customer Information and Multi-site Settings

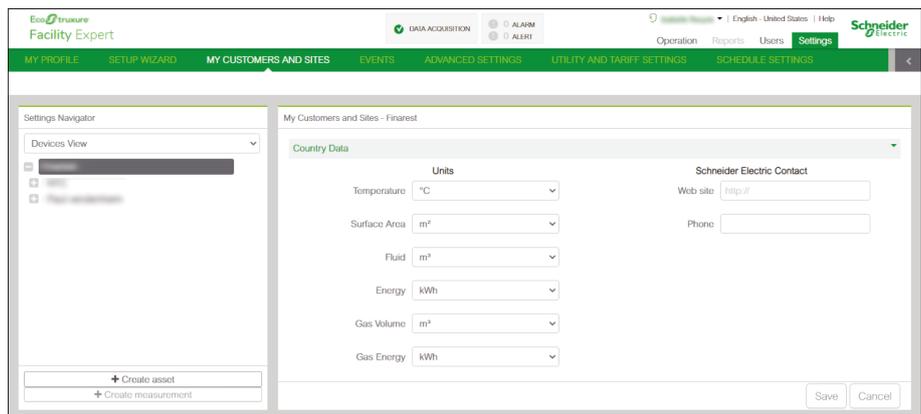
When following the EcoStruxure Facility Expert wizard you have already implemented several mandatory fields (see Activating the service with Com'X as a gateway to cloud , page 29).

In the three panels displayed under the **My Customers and Sites** menu, you can complete customer information and define data that are necessary to monitor the aggregated consumption of the group and benchmark the consumption of the sites.

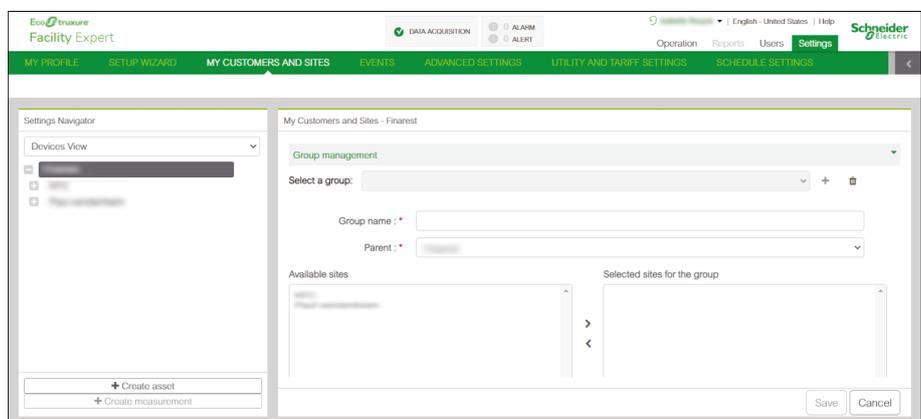
- Under **Customer Data** you can modify customer information and upload a logo.



- Under **Country Data** you can verify and modify default units for temperature, surface, fluid, energy consumption, gas volume, for example.



- Under **Group management** you can associate the site to others by selecting an existing one in your list, create a new group by clicking the + button, or delete a group by selecting it and clicking on the bin icon.



NOTE: You can access and download a report by connecting to the site. All your monthly reports are stored in the **Reports** menu.

Month	Year	Country	Report Name	Action
November	2020	French	..._2020-11.pdf	Download
November	2020	French	..._2020-11.pdf	Download
December	2020	French	..._2020-12.pdf	Download
December	2020	French	..._2020-12.pdf	Download
January	2021	French	..._2021-01.pdf	Download
January	2021	French	..._2021-01.pdf	Download
February	2021	French	..._2021-02.pdf	Download
February	2021	French	..._2021-02.pdf	Download
May	2021	French	..._2021-05.pdf	Download
May	2021	French	..._2021-05.pdf	Download

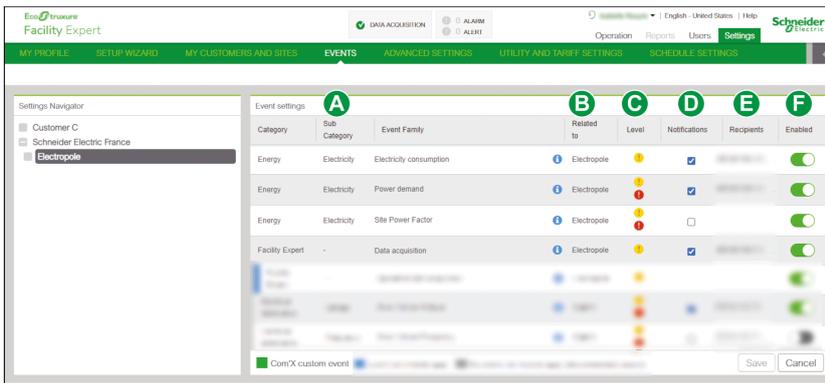
Events and Alerts Settings

EVENTS Menu

Under the **EVENTS** menu you can manage events sent from your gateway to the cloud to be notified quickly about an issue that has occurred on site.

The Com'X gateway includes predefined and custom events that you can set up to better define alerts threshold.

Understanding your Event List



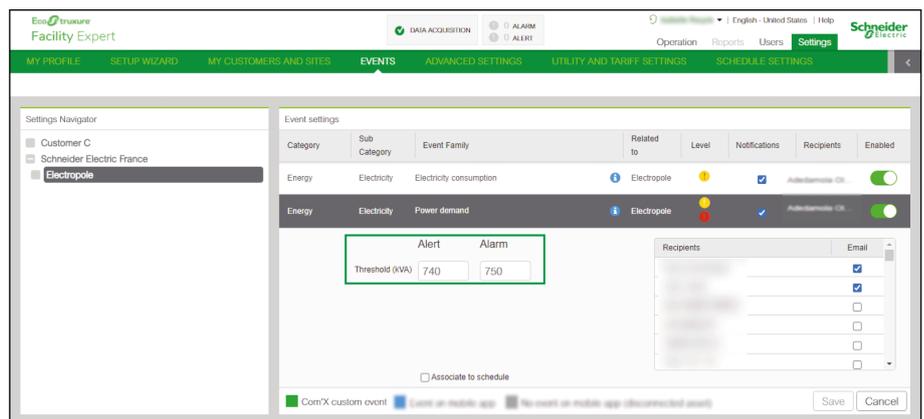
- A. Three levels of information to define the type of event
- B. Identification of site or energy related to the event
- C. Level of alerts or alarm received (orange/red)
- D. Notification selector to receive alerts (email/phone)
- E. List of alert recipients
- F. Toggle button to activate/deactivate the event service

Detailed Alert Configuration

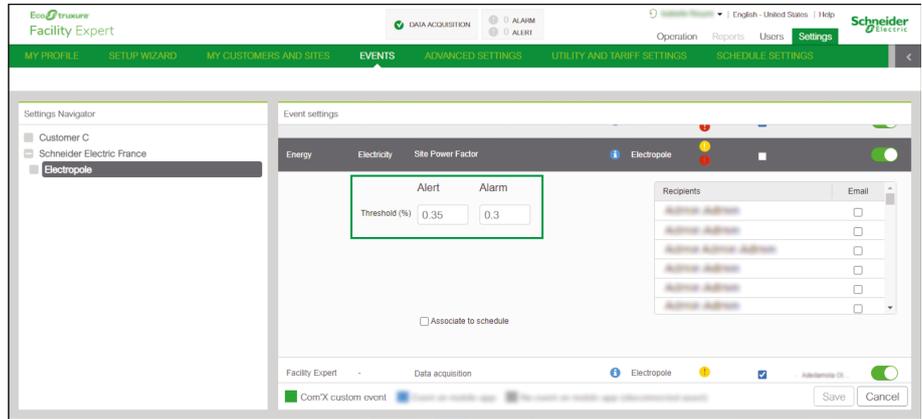
Click an event line to define information, such as recipient list, to set up alert and alarm thresholds or to associate alerts with building schedules.

Examples of events and alert settings:

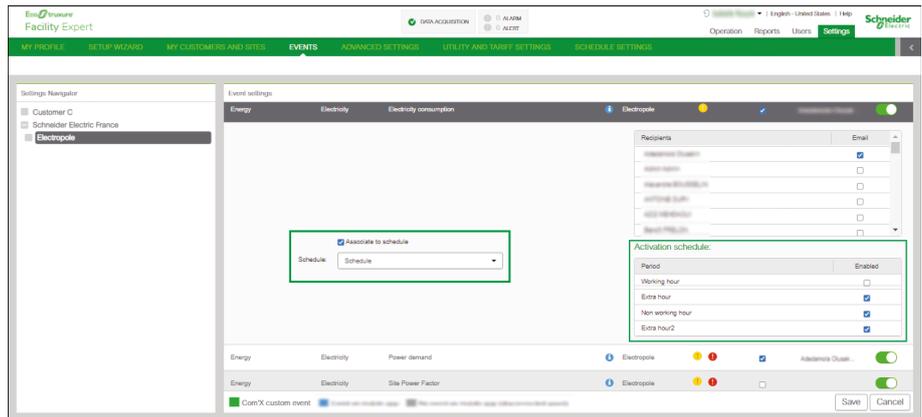
- Power demand settings



- Power factor settings



- Period and type of schedule settings

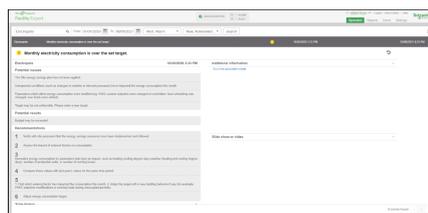


Main Alert Notification

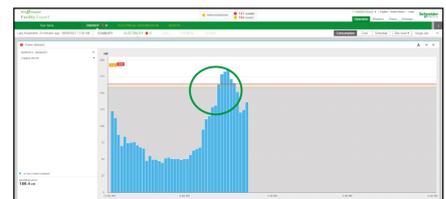
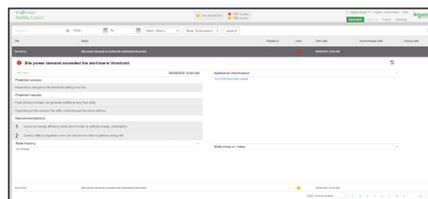
Watch the video showing the main alert notification with visualization of the related event.

The following screens illustrate different types of alerts:

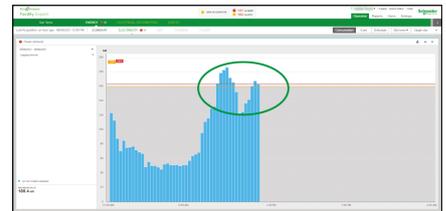
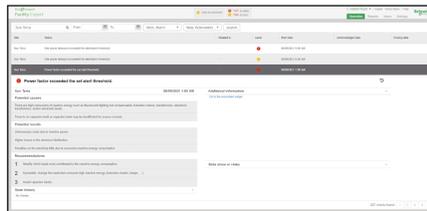
- Alert on Electricity overconsumption and target drifts



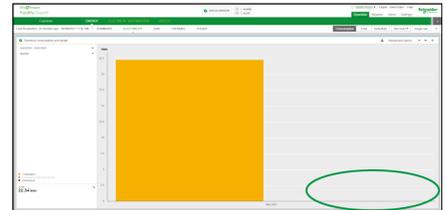
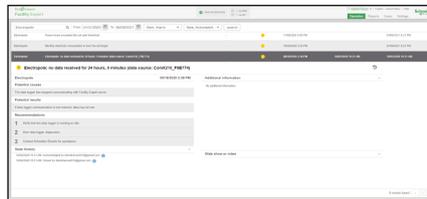
- Alert on Power demand excess to avoid penalties



- Alert on Power factor drift



- Alert on Data acquisition issue



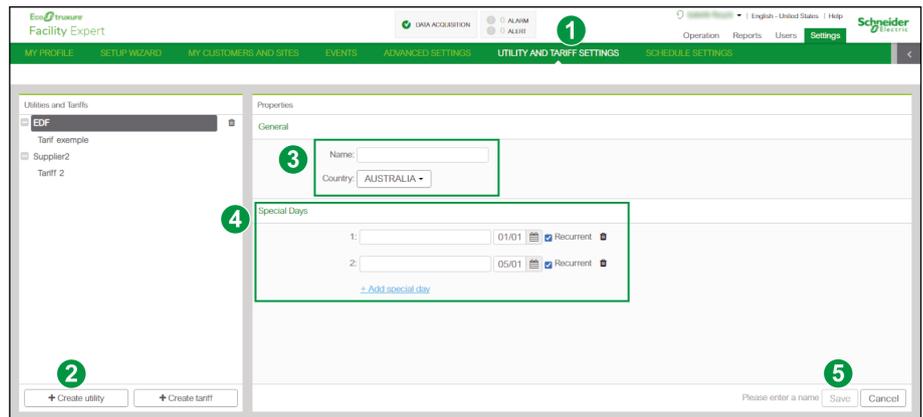
Utility and Type of Tariff Entry

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Creating a Block Tariff.....	58
Duplicating and Updating a Tariff	59

Creating a Utility

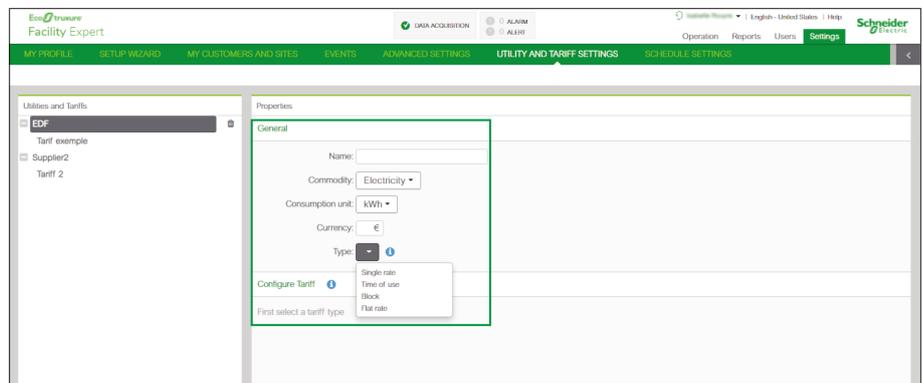
1. Select the **UTILITY AND TARIFF SETTINGS** menu.
2. Click **Create utility**.
3. Enter the utility name and its country.
4. (Optional) Add one or more special days.
 - In **Special Days**, click **Add special day**
 - Enter the name of the special day and the date.
 - If the special day occurs at the same date each year, select **Recurrent**.
 - Click **Add special day** to add more special days.
5. Click **Save**.



Creating a Single-Rate Tariff

When you use single-rate tariff, the rate for the commodity is constant.

1. Click **Create tariff**.
2. In the **General** panel, enter the following information:
 - **Name:** Enter a name for the tariff.
 - **Commodity:** Select a commodity from the list.
 - **Currency:** Enter up to three letters for the tariff currency. By default, the tariff is in euros.
 - **Type:** Select **Single rate**.



NOTE: You cannot **Configure Tariff** for a single-rate tariff.

3. In the third **Tariff Price** panel, click **+ Add price** and enter the following information:
 - Select a date after which the tariff is valid.
 - (Optional) **Fixed charge**: Enter a fixed charge for each month.
 - (Optional) **Demand charge**: Enter a demand charge (in kW) and the threshold above which the demand charge applies. The power limit is displayed in the **Power demand** widget of your dashboard.
 - **Price**: Enter the commodity price (in euros/kWh).

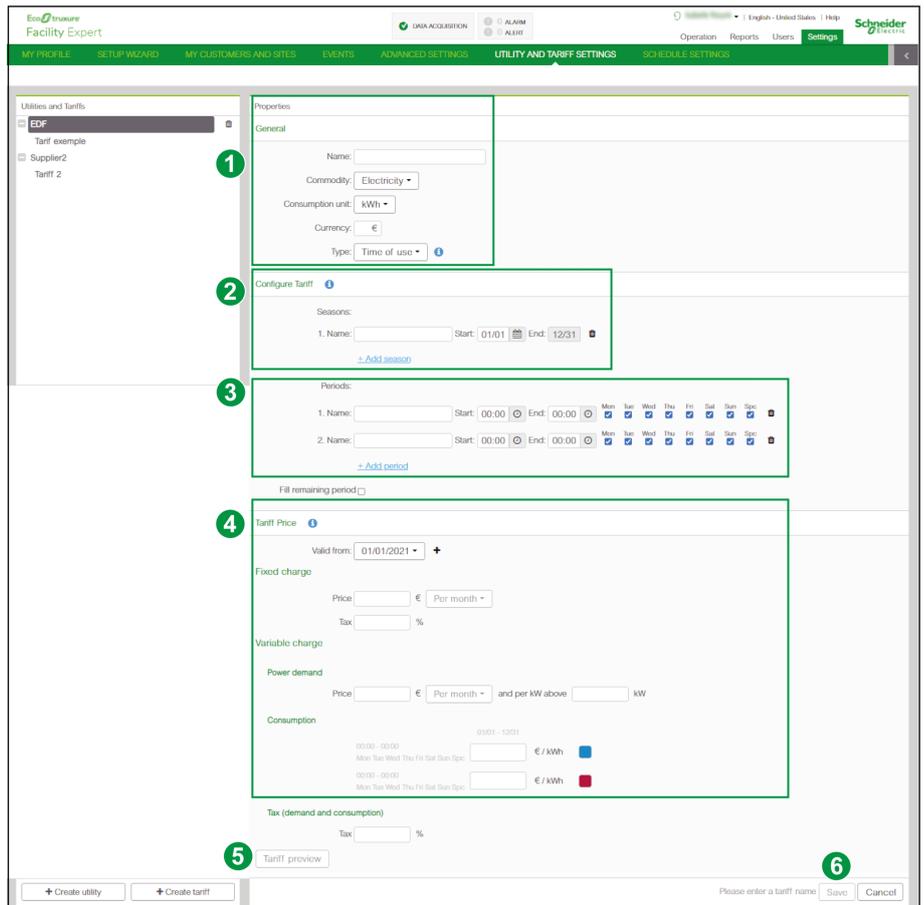
4. Click **Save**.
The tariff is added to the utility in the **Utilities and Tariffs** panel.

Creating a Time-of-Use Tariff

When you use a time-of-use tariff, the rates for the commodity depend on the time of day that the commodity is used, and optionally on the season of the year.

1. In the **General** panel, enter the following information:
 - **Name**: Enter a name for the tariff.
 - **Commodity**: Select a commodity from the list.
 - **Currency**: Enter up to three letters for tariff currency. By default, the tariff is in euros.
 - **Type**: Select **Time of use**.
2. (Optional) In the **Configure Tariff** panel, click **+ Add season** and enter the following information:
 - **Name**: Enter a name for the season.
 - **Start**: Select a start date for the season. The end date is automatically set with the next period.
 Repeat this step to define other seasons.
3. Add the following information for the time-of-use period:
 - **Name**: Enter a name for the period.
 - **Start and End**: Select a start and end time for the period.
 - Select the days of the week on which the period applies.
 (Optional) Click **+ Add period** and repeat the previous steps to define more periods.
 (Optional) Select **Fill remaining period** and enter a name for the time that is not defined by a period.

4. In the **Tariff Price** panel, click **+ Add price** and enter the following information:
 - Select a date after which the tariff is valid.
 - (Optional) **Fixed charge**: Enter a fixed charge for each month.
 - (Optional) **Demand charge**: Enter a demand charge (in kW) and the threshold above which the demand charge applies.
 - Rates for defined seasons and periods: Enter the rate for each season and period you have defined. If a time period is not defined for a season, leave the field blank.
5. Click **Tariff preview** to view the time periods in each season.
6. Click **Save**.



TARIFF PREVIEW screen:



Creating a Block Tariff

When you use a block tariff, the rate for the commodity decreases as the consumption increases.

1. In the **General** panel, enter the following information:
 - **Name:** Enter a name for the tariff.
 - **Commodity:** Select a commodity from the list.
 - **Type:** Select **Block**.
2. (Optional) In the **Configure Tariff** panel, click **+ Add season** and enter the following information:
 - **Name:** Enter a name for the season.
 - **Start:** Select a start date for the season. The end date is automatically set with the next period.Repeat this step to define other seasons.
3. Add the following information for the block periods:
 - **Name:** Enter a name for the period and a threshold above which the rate changes to the next block.
 - **Blocks:** Select blocks per day or per month.(Optional) Click **+ Add block** to add and configure more blocks.
4. In the **Tariff Price** panel, click **+ Add price** and enter the following information:
 - Select a date after which the tariff is valid.
 - (Optional) **Fixed charge:** Enter a fixed charge for each month.
 - (Optional) **Demand charge:** Enter a demand charge and the threshold above which the demand charge applies.
 - **Rates for defined seasons and periods:** Enter the rate for each season and period you have defined. If a time period is not defined for a season, leave the field blank.

5. Click **Save**.

Duplicating and Updating a Tariff

Copying and Pasting a Tariff

Follow these steps to copy and paste an existing tariff:

1. On EcoStruxure Facility Expert, select **Settings > Utility and Tariff Settings > Utilities and Tariffs**.
2. Select a tariff to copy and click the copy icon.
Result: The **Copy Tariff** window opens.
3. In the **Copy Tariff** window:
 - Enter a name for the new tariff.
 - Select a utility to which the tariff applies.
4. Click **OK**.

Result: The new tariff is added to the **Utilities and Tariffs** view.

Updating Prices

Follow these steps to change a tariff price:

1. On EcoStruxure Facility Expert, select **Settings > Utility and Tariff Settings**.
2. Select a tariff to update, and then in **Tariff Price** click **+** to create a new valid date.
3. Update the rates.
4. Click **Save**.

NOTE: To view rates for a previous period, select the period in the **Valid from** drop-down list.

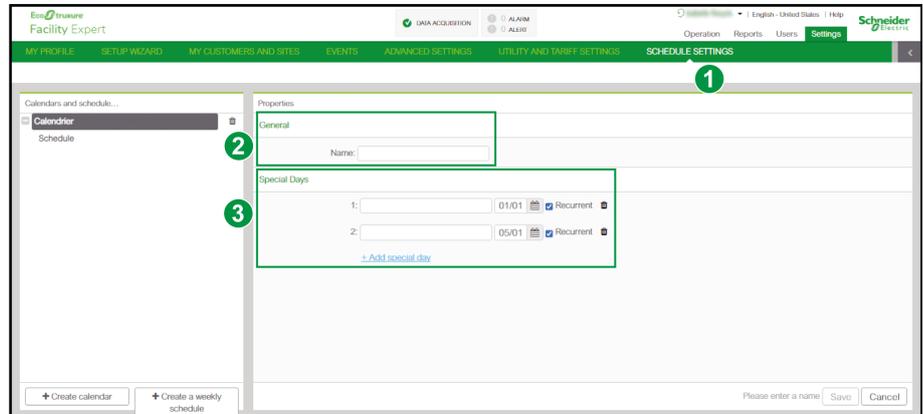
Calendar and Schedules Entry

What's in This Chapter

Create a Calendar	61
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Create a Calendar

1. In the **SCHEDULE SETTINGS** menu click on **+ Create calendar**
2. Name the calendar.
3. If necessary, indicate special days such as bank holidays and define their name, date, and recurrence.



Create and Visualize Weekly Schedules

1. In the **SCHEDULE SETTINGS** menu click on **+ Create a weekly schedule**.
2. Enter a name.
3. Configure schedules by setting:
 - **Seasons** (dates)
 - **Periods (Open/Closed)**
 - Valid days per period
4. Define validity of periods per season.
5. Click the **Schedule preview** button to preview your schedules.



6. Click **Save**.

The screenshot displays the 'SCHEDULE SETTINGS' page in the Schneider Electric Facility Expert software. The interface is divided into a sidebar and a main content area. The sidebar on the left shows 'Calendars and schedule...' with 'Schedule' selected. The main content area is titled 'Properties' and includes the following sections:

- General:** A 'Name' field containing 'Schedule'.
- Configure schedule:** A section with an '+ Add season' link and a table of periods. The table has columns for 'Name', 'Start', 'End', and days of the week (Mon, Tue, Wed, Thu, Fri, Sat, Sun, Spc). Three periods are listed:

Name	Start	End	Mon	Tue	Wed	Thu	Fri	Sat	Spc
1. Name: Working hour	08:00	18:00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
2. Name: Extra hour	18:00	20:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Name: Extra hour2	06:00	08:00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Fill remaining period:** A section with a 'Name' field containing 'Non working hour' and a checked 'Fill remaining period' checkbox.
- Organize seasons and periods:** A section with a list of items and checkboxes:

Item	Checked	Color
Working hour (08:00 - 18:00)	<input checked="" type="checkbox"/>	Green
Extra hour (18:00 - 20:00)	<input checked="" type="checkbox"/>	Light Green
Extra hour2 (06:00 - 08:00)	<input checked="" type="checkbox"/>	Light Green
Non working hour (Remaining period)	<input checked="" type="checkbox"/>	Red
- Schedule preview:** A section with a 'Schedule preview' label.

At the bottom left, there are buttons for '+ Create calendar' and '+ Create a weekly schedule'. At the bottom right, there are 'Copy', 'Save', and 'Cancel' buttons. Six green circles with numbers 1 through 6 are overlaid on the interface to highlight key elements: 1 points to the bottom left buttons, 2 points to the 'Name' field, 3 points to the 'Configure schedule' section, 4 points to the 'Fill remaining period' section, 5 points to the 'Schedule preview' section, and 6 points to the 'Save' button.

I OPERATE

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A Portfolio of Sites..... 65
A Site 69

Introduction

EcoStruxure Facility Expert provides a view on cost and building performance with a set of simple and relevant graphs and charts available on a web portal.

It enables you to track energy consumption or simply benchmark buildings with local performance scale (A to I graph) and standards (ISO50001, LEEDs, NABERS).

The multi-site comparison feature offers a complete view of building consumption.

Power demand and power factor monitoring and targets help to minimize utility penalty issues, while cost sheets and budget allocation can support your customers' energy purchase by enabling them to compare different tariff possibilities.

A Portfolio of Sites

What's in This Chapter

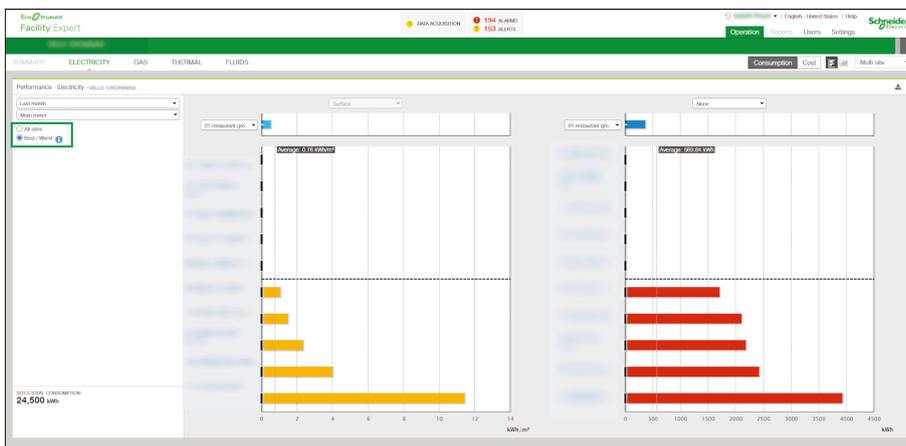
Benchmarking Energy Consumption of All Your Sites	66
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Depending on the number and configuration of your buildings, you can organize your portfolio by creating groups of sites or just by registering them under your customer name.

You can then select a customer in your list to review and benchmark the energy consumption and costs of the related portfolio of buildings.

To monitor energy consumption across multiple sites, watch the [video](#).

- By default, you open 2 diagrams displaying the data of your 5 best and worst performer sites, and the total consumption data indicator. On the left you can access the comparison of kWh/m² (yellow graph) with the possibility to benchmark any other site of your list by selecting it in the fields above the diagram. You can leverage the red diagram on the left if you want to benchmark with another normalization factor, such as CDD or HDD. This best/worst performer comparison view helps you identify quickly which site you should focus on first and indicates the average consumption of your portfolio of sites. By default, the performance settings are **Main meter** and **Last month**. You can change the criteria if needed. Click the customer name (green bar) to go back to your customer list of sites.

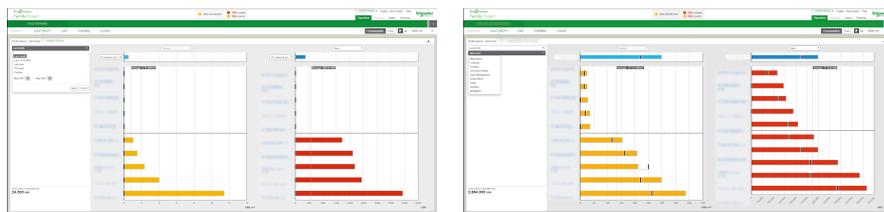


- By selecting **All sites**, you can review the classified list of your building consumption and the consumption targets you set up previously for each site. This view helps you quickly identify if the building is in line with objectives or not.

NOTE: The number of sites displayed on screen is limited to 50.



- You can review data of a specific period or usage by selecting information in the 2 menus and access all energy data (electricity, gas, thermal, and fluids) if meters have been installed to monitor all utilities.



Analyzing Aggregated Data

The aggregated view displays the monthly consumption of all your buildings and can help to track energy consumption, comparing and reviewing key point indicators and diagrams of energy consumed and produced over time periods.

1. Select the period of data you want to compare.
2. By clicking the legend, select the data that you want to be displayed on the graph:
 - Energy consumed (previous year)
 - Energy consumed
 - Energy produced

Moving your pointer displays the data of each bar.



3. Switch to cost entry to review this KPI if you have set up cost sheets.
4. Click a site to access its consumption data.
5. Click **SUMMARY** to access the summery tab of your aggregated consumption data. See [Exporting data for the customer](#), page 76 to learn more.



A Site

What's in This Chapter

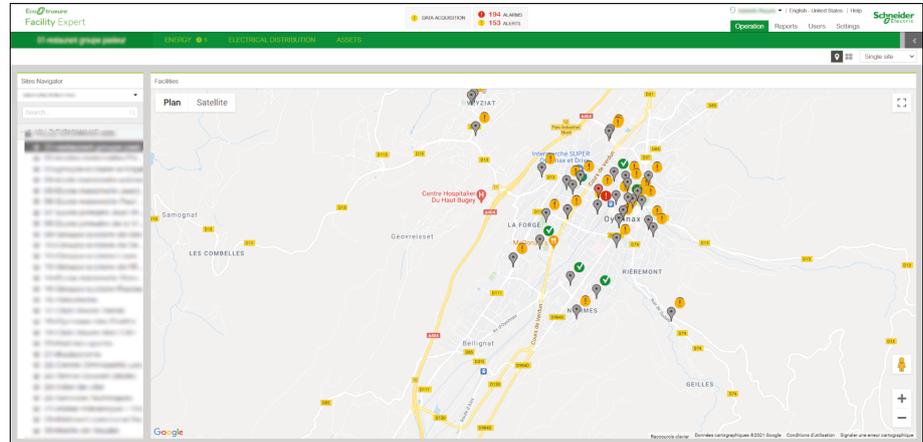
Analyzing Site Energy Consumption	70
Reviewing Total Consumption	70
Analyzing in Detail per Usage, per Zone, or per Meter	73
Reviewing Consumption of Other Utilities (Gas, Thermal, or Fluids)	77

Analyzing Site Energy Consumption

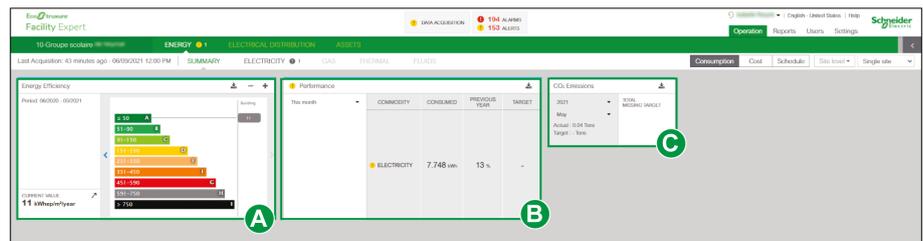
Discover how to use your energy dashboard to improve the performance of one site. Watch the video.

To analyze the consumption of one site:

- Start reviewing the total consumption of the site by selecting the site in your customer list or on the map.



- Select the **ENERGY** tab.
- The synthesis dashboard displays the following information:

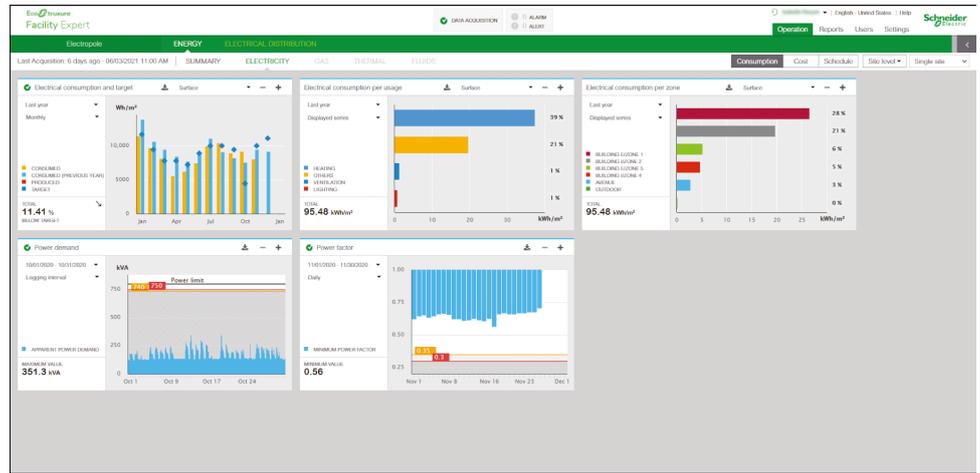


- A. Standard comparison widget
- B. Energy consumption synthesis widget
- C. Target follow-up widget including CO₂ production level
- Select the energy to display the energy consumption dashboard and review the energy consumption of Electricity and other utilities if meters have been installed to monitor water, gas or thermal energy.

See examples in section Reviewing Consumption of Other Utilities, page 77.

Reviewing Total Consumption

To review total consumption based on electricity consumption review, select **Electricity** and access your Electrical consumption dashboard.



Comparing a Consumptions Period Over-years

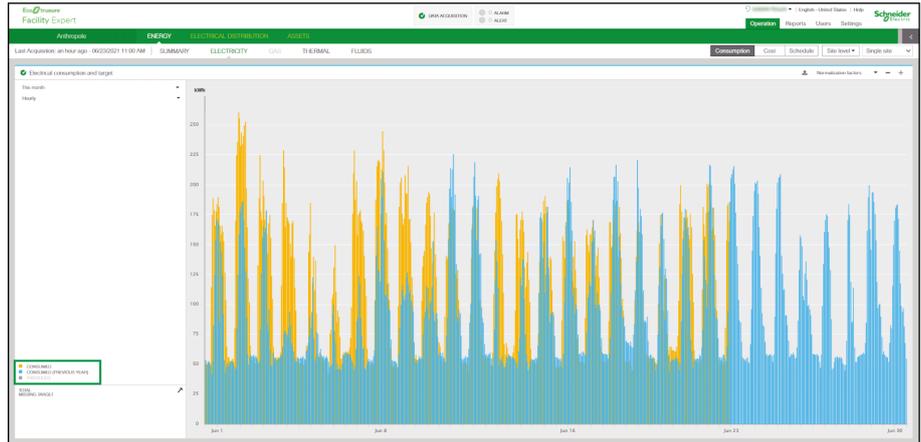
1. Zoom in on your **Electrical consumption and target** by clicking **+**. You can activate or deactivate a consumption parameter by clicking on the diagram legend (**Consumed/Consumed (previous year)/Produced/Target**).
2. Select the period you want to analyze.



3. Select the data periodicity you need (**Monthly/Daily/Hourly/Logging interval = 15 minutes**).



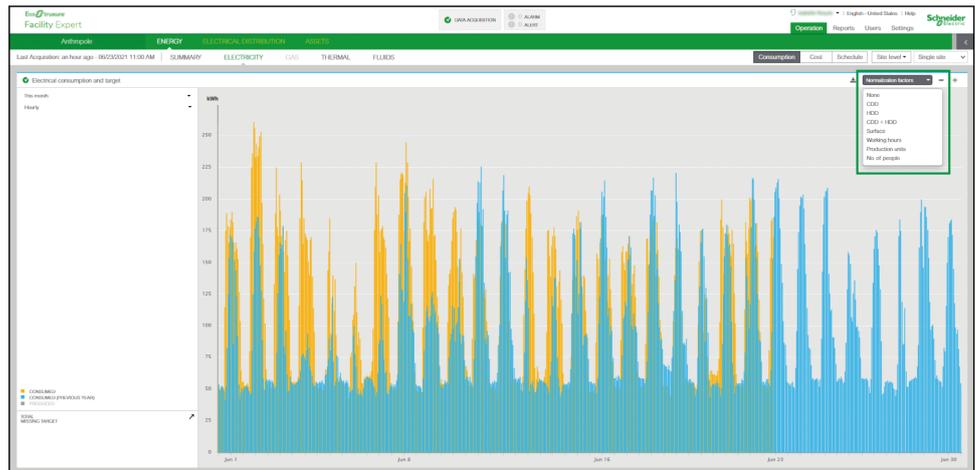
- On the legend activate **CONSUMED (PREVIOUS YEAR)** to compare the previous year's consumption of the same period.



- If you select **Monthly** consumption, you can access consumption detail of a month by clicking a bar, and then analyze even more precisely, for example, by using hourly consumption to identify electrical consumption that should not stay active at night.

Using Normalization Factors

To get even more accurate data you can modify the **Normalization Factors** selector, for example, if you want to understand the abnormal consumption of a specific day regarding season.



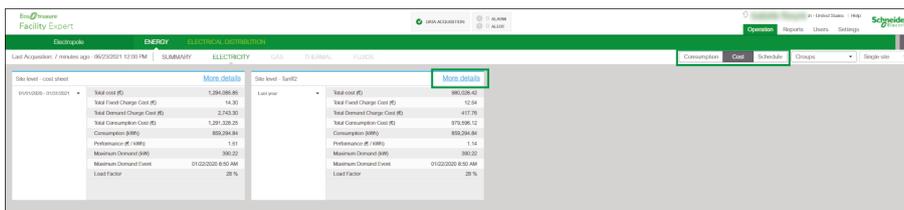
List of normalization factors by default:

- Surface area
- Heating and Cooling Degree Days
- Working hours
- Number of persons
- Number of beds
- Number of meals
- Production units

You can create custom normalization factors and custom activity sectors.

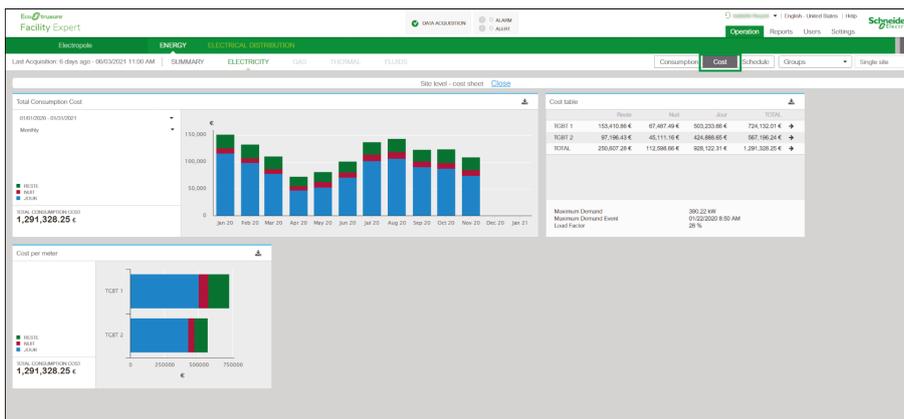
Using Cost Data

1. Select the **Cost** entry to review your energy consumption costs and benchmark utility suppliers for the cost sheet you have created.



The **Cost** dashboard displays a widget per cost sheet created.

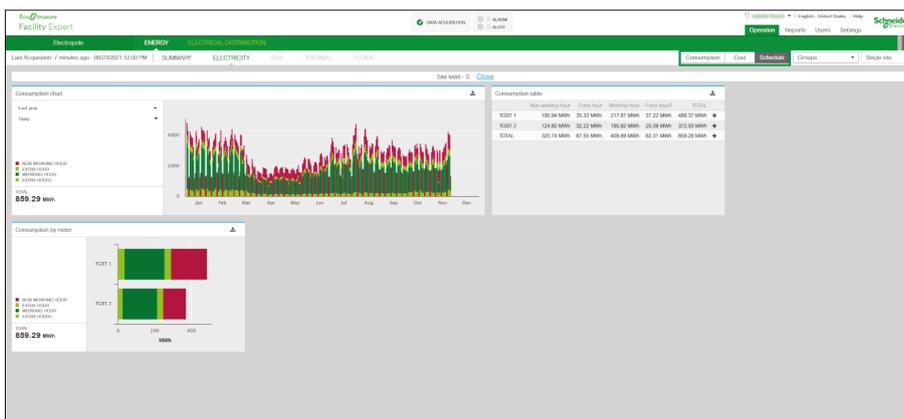
2. To access more details and export data for further usage, click **More details**.



For more information, see how to create cost sheet, page 45.

Using Schedules Data

1. Select the **Schedule** entry to analyze the energy consumption of a period according to the calendar and schedules you have set up.



2. To access more details to review whether the energy consumption is consistent with the building usage, check working/non-working hours consumption for instance, and export data, click **More details**.

For more information, see how to create calendar and schedules, page 60.

Analyzing in Detail per Usage, per Zone, or per Meter

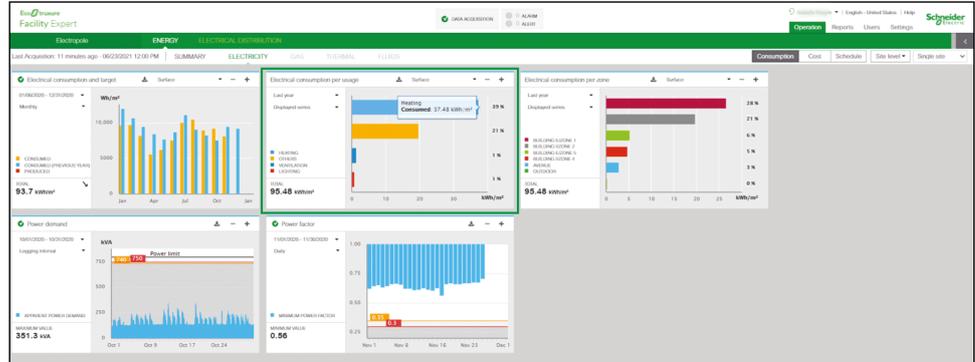
To get more details, identify potential savings, or understand deviation, you can leverage the detailed consumption widget of your energy dashboard.

Usage Review

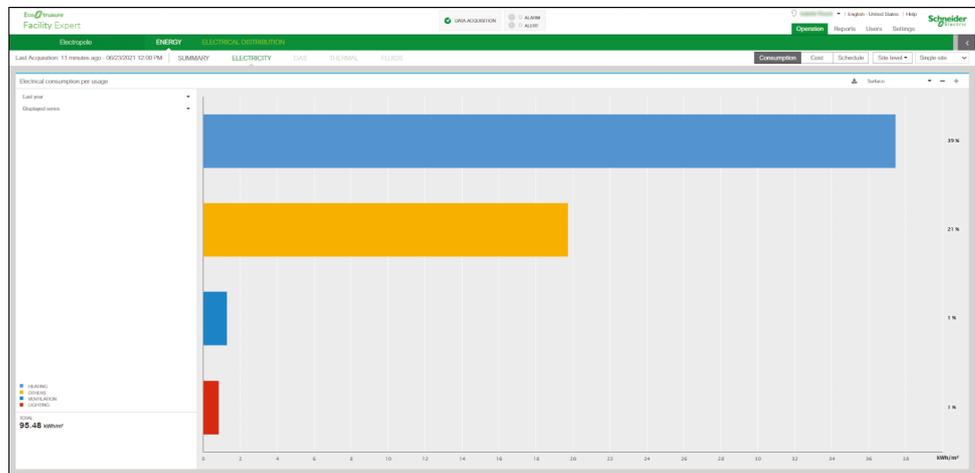
The second widget gives you an aggregated view of consumption per usage.

For a selected period, the diagram indicates the proportion of each usage compared to building total consumption on the same period.

You can display each usage amount by clicking on a bar and use **Normalization Factor** if needed.

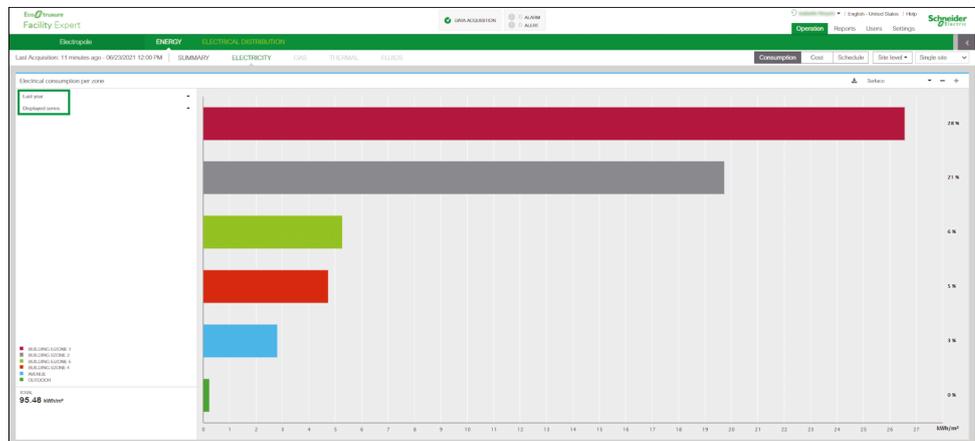


For more information, see how to configure usages, page 39.



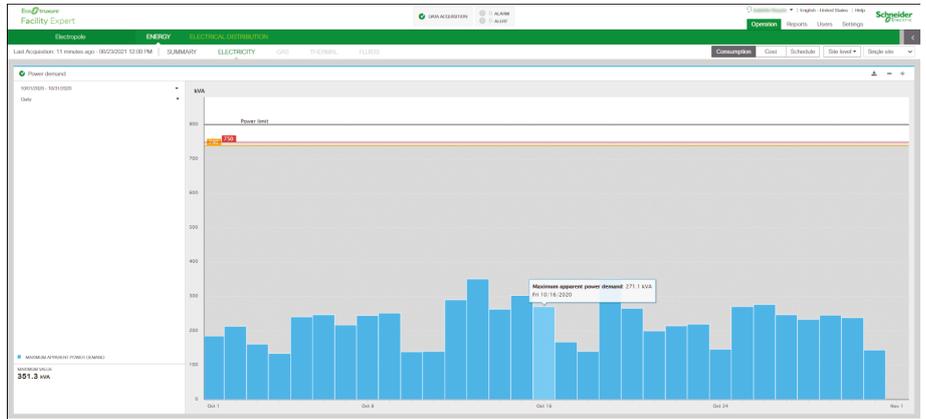
Zone Review

The third widget gives you an aggregated view on the electrical consumption per zone of your building, indicating the impact of each zone on the total consumption during the selecting period.



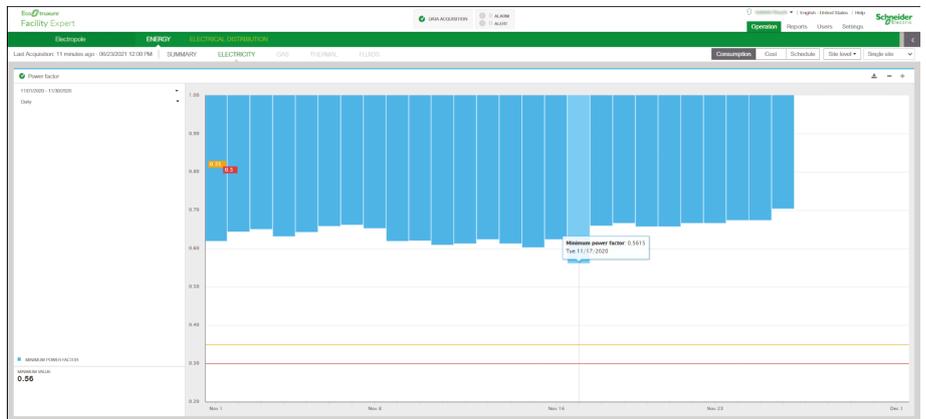
To track parameters that can impact energy bills you can leverage two more widgets to review your electrical consumption.

- The **Power demand** widget displays kVA values and subscription threshold defined in your pre-alert and alert settings.



- The **Power factor** widget indicates the level of reactive energy consumption of the site and threshold overrun.

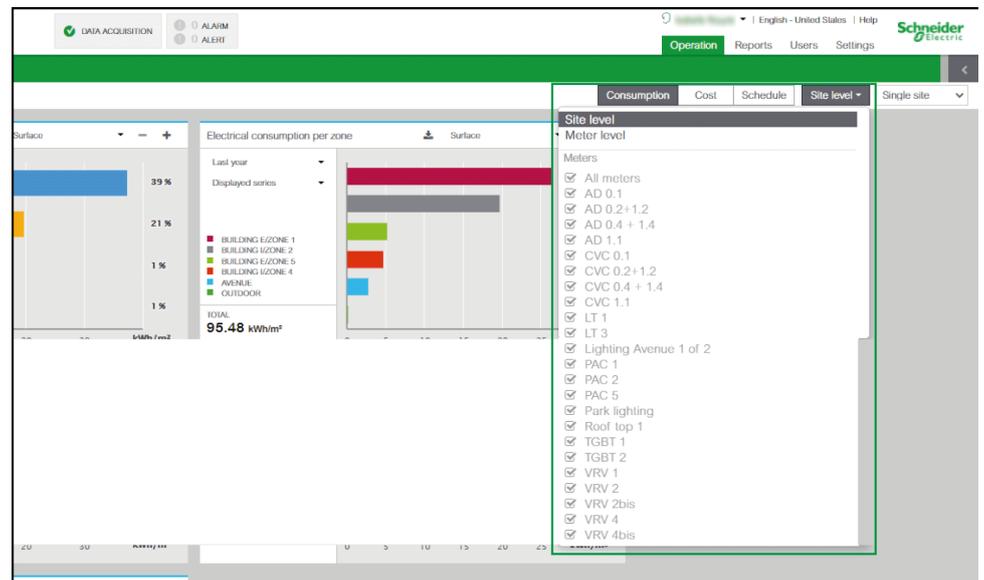
NOTE: It is recommended to set up the average **Power factor** threshold above 0.8 to avoid electricity bills penalties in case of drifts.

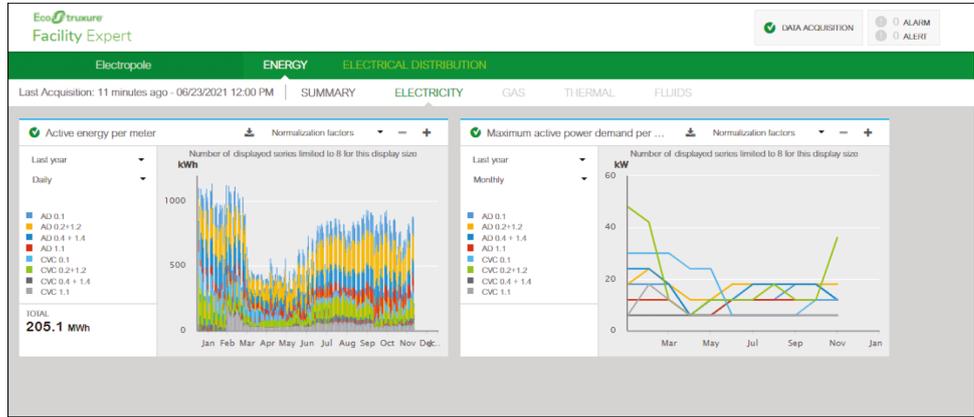


For more information, see how to establish targets, page 44 and set the alerts, page 51.

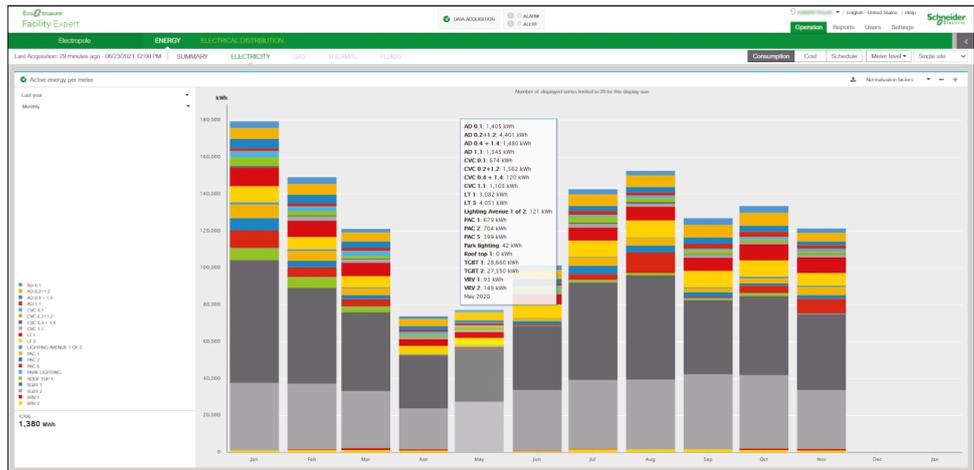
Using Meter Level

When selecting the **Meter level** entry on your dashboard menu, you can access data of all meters, either main or submeters, installed on the site to review **Active energy per meter** and **Maximum active energy per meter** on the selected period.





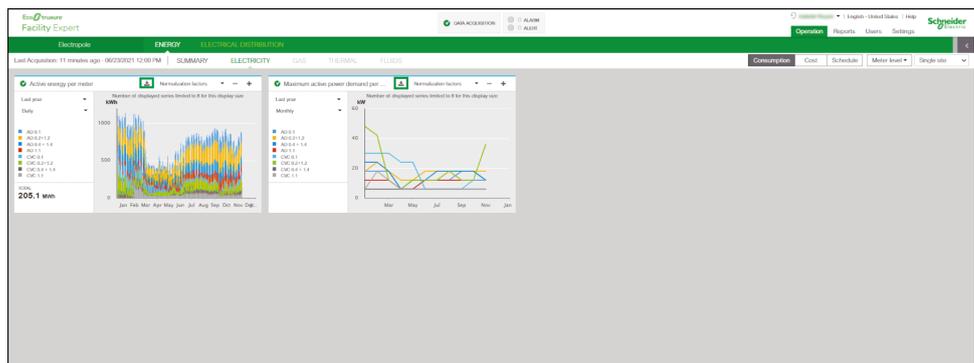
You can even access more insight by reviewing data and graphs in full-screen mode to visualize the consumption in MWh for each meter.



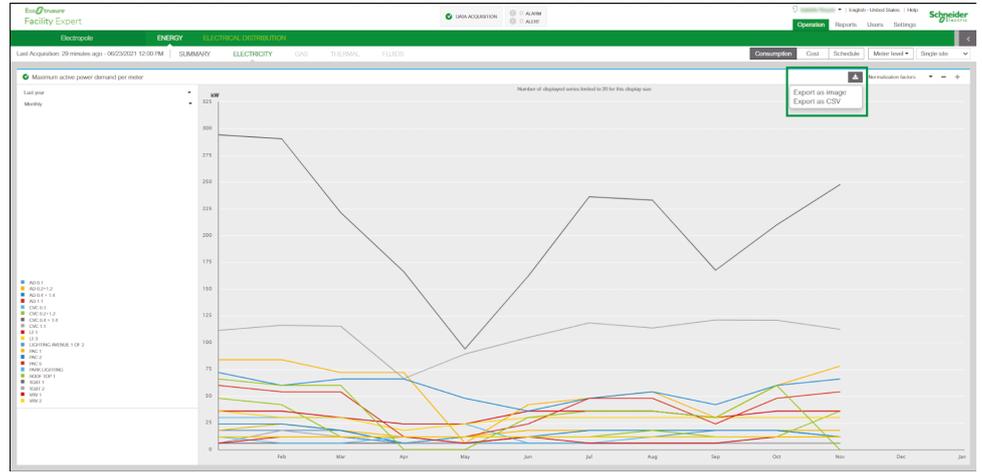
This functionality can help you locating an issue by identifying the associated meter.

Exporting Data for the Customer

Anytime during your review, you can export the data of your energy widgets by clicking the download symbol.

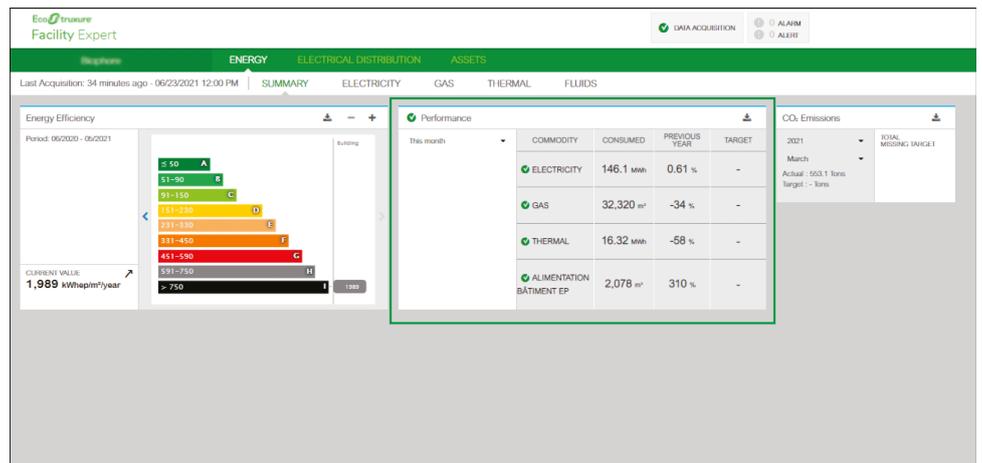


- Select **Export as image** to share or insert an image file, for example, in your company reports or customer presentation.
- Select **Export as csv** to integrate the selected data to your own tools, for example, KPIs, reporting, or analysis.



Reviewing Consumption of Other Utilities (Gas, Thermal, or Fluids)

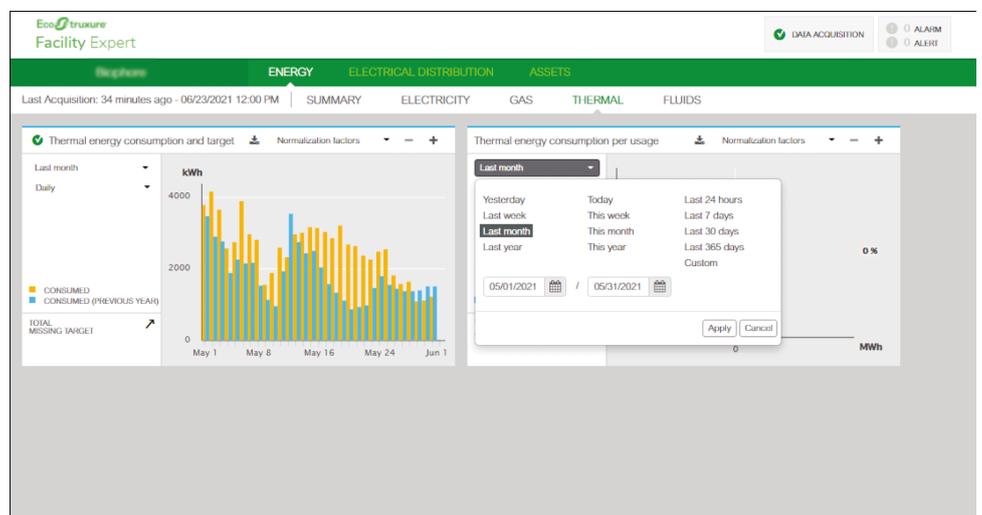
If you are monitoring different utilities and fluids (electricity, gas, thermal, water) you can quickly find on your main dashboard a global table of all the energy consumption.



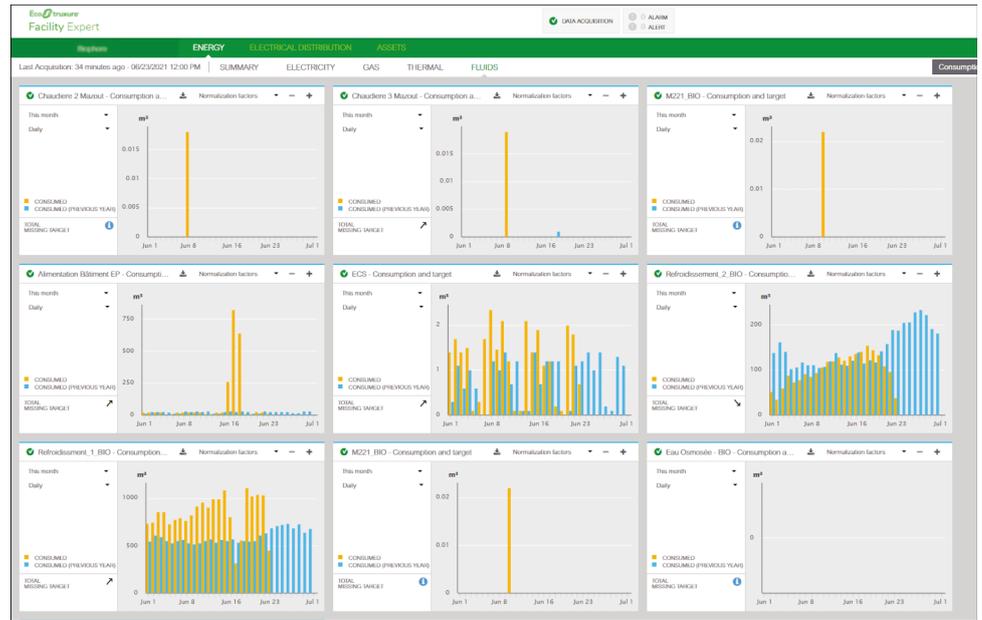
Use the navigation menu to access more details on each type of energy.

Widgets and functions are mostly similar, with values adapted to the energy that is monitored.

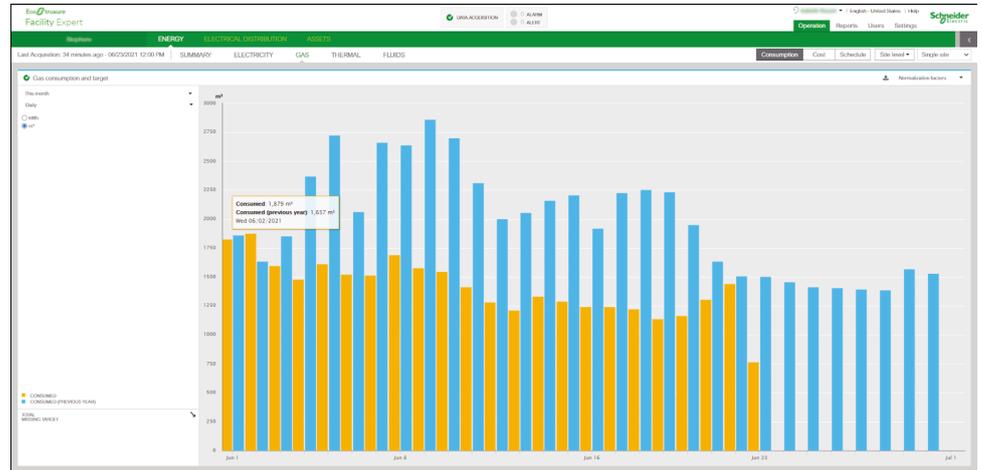
Example: Thermal dashboard



Example: Fluids dashboard displaying one widget per meter



Example: Gas dashboard consumption year to date comparison view



I HAVE A QUESTION

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- Performance and Limitation 80
- Cloud-based Software Cybersecurity Details 81
- Troubleshooting 83
- Data Output from Com'X 84
- Frequently Asked Questions 85
- Schneider Electric Contact 87

Performance and Limitation

Com'X Limitation

Characteristics	Values
Maximum number of meters	64
Maximum number of variables	200
Features limitation	Monitoring only, no control if using Com'X, PrismaSeT Active or PowerTag Link C as a gateway to cloud.

EcoStruxure Facility Expert Limitation

Characteristics	Values
Maximum number of Com'X per site	5
Maximum number of main switchboards per site	5

Recommendations on Dashboard and Energy Widgets

Characteristics	Values
Active energy per meter visualization	<ul style="list-style-type: none"> Widget diagram: up to 8 meters Full screen diagram: up to 20 meters Export feature is limited to visualized meters only.
Zone and usage visualization (2 separate widgets)	<ul style="list-style-type: none"> Widget diagram: up to 8 zones or usages Full screen diagram: up to 20 zones or usages Export feature is limited to visualized zones or usages.
Multi-site comparison view	Schneider Electric recommends up to 50 sites per group to display the multi-site consumption data properly.

Cloud-based Software Cybersecurity Details

EcoStruxure Facility Expert is a Mobile and Web-based application. 100% of corresponding back-end services are hosted on Microsoft Azure cloud.

Secure Development Lifecycle

Schneider Electric is continuously monitoring the changing security landscape of cryptography and cybersecurity to ensure that we offer the best available protections to our customers and their sensitive data.

Our development practices follow a Secure Development Lifecycle which ensures a high level of code quality and usage of up-to-date libraries in order to ensure an optimal level of Cybersecurity.

EcoStruxure Facility Expert applications as well as all Schneider Electric cloud systems are regularly audited by an internal process which includes Penetration tests.

Certified Data Centers

Our cloud services are physically deployed across multiple Microsoft Azure data centers. Microsoft data centers are world-class facilities with more certifications than any other cloud provider.

The data centers used by EcoStruxure Facility Expert are located in multiple countries. Certifications and compliance achievements include ISO/IEC 22301, 27017, 27018, and ISO/IEC 27001 in addition to SOC 1, SOC 2, and SOC 3. To learn more about Microsoft Azure data centers, visit: <https://azure.microsoft.com/en-us/support/trust-center/>.

Data Security At Rest

Schneider Electric follows best practices to create a highly-secured solution and to limit the risk of data being compromised in any meaningful manner while protecting the privacy, control, and autonomy of each customer data independently from any other.

Our solution includes:

- Customer information (PIM: password, email, profile) is stored and encrypted in a corporate Identity Management System (IMS).
- System to system credentials and tokens are stored and encrypted in EcoStruxure Facility Expert databases located in the Microsoft Azure cloud.
- Customer functional data including time-series is segregated logically in the EcoStruxure Facility Expert SQL database located in Microsoft Azure cloud.
- Customer data is encrypted at rest in EcoStruxure Facility Expert databases.

Data Security In Motion

Schneider Electric with EcoStruxure Facility Expert implement best practices as:

- All communications to and from EcoStruxure Facility Expert with internal Schneider Electric systems or external third-party systems, are encrypted using HTTPS (minimum level required is TLS 1.2).
- Certificate involved in these encrypted sessions is leveraging SHA 256 secure hash algorithm.

- This also applies to communications between our on-premises data loggers (Com'X, SE8000, Wireless Panel Server, EcoStruxure Panel Server) and Schneider Electric Cloud platform. Schneider Electric is continuously monitoring the changing security landscape of cryptography and cybersecurity to ensure that we offer the best available protections to our customers and their sensitive data.

Data Privacy

Schneider Electric focuses on securing data flows coming from connected products and solutions (whether they connect to non Schneider Electric hosts or platforms managed by Schneider Electric), and on aligning to the latest data integrity and privacy regulatory requirements such as the European General Data Protection Regulation (GDPR).

- Data policy is compliant with local regulations.
- Customer Data Use and Protection policy is to be electronically signed by the Responsible of the site (for example, Building owner, Tenant). No data will be exported without this agreement.

Data remains customer ownership.

Troubleshooting

Problem	Possible cause	Solution
The sites are not displayed on the web portal.	You did not accept the invitation to join the team.	Find the invitation email and accept the invitation.
The energy consumption of my site is not visible.	You did not validate the Data Agreement email. In that case, EcoStruxure Facility Expert does not process the energy data information.	A message indicates that the site can be operated only after the Company Data Agreement signature. Validate the Company Data Agreement email.
	You did not receive the company data agreement email from the building owner because there is a mistake in the email address you entered.	The email field of the Building owner is non editable after creating the site. Contact your Schneider Electric Customer Care Center.
	You may not have a valid EcoStruxure Facility Expert - Energy license.	A message indicates that your subscription has expired and you must renew it or assign another subscription. Contact your Service provider or your Schneider Electric sales representative to subscribe a new license.
There is no Total Energy Consumption value for my site.	At least one meter must be tagged as Main meter in the My Customers and Sites settings.	Check your settings and ensure that at least one meter is tagged as main.
The total energy consumption of my site is not equal to the sum of usages or zones.	If the submeters are not metering 100% of the load, the total energy consumption is lower than the sum of submeters.	Add submeters on the site.
	If there are sub-submeters in your electrical installation hierarchy, make sure you do not double count the load by assigning the same usage twice to several meters.	You should not define a usage at submeters level if you have paired sub-submeters. See <i>Meters configuration: main meter, usages, and zone</i> , page 39.
The Energy Efficiency widget is not displayed on my dashboard.	One year of data must be completed to display a meaningful Energy Efficiency widget or the NABERS (National Australian Built Environment Rating System) report of your site.	Check the activation date. If the system has been running data for more than a year, contact your Schneider Electric Customer Care Center.
No alerts notifications received in my mailbox.	Some Events settings may be inappropriate.	Check through the Events entry that: <ul style="list-style-type: none"> The event alert is enabled. The notification check box is selected. Threshold values are properly set. The recipients are identified and selected, and their email addresses are correct. See <i>Events and alerts settings</i> , page 51.
No access to the site reports and no notifications received when a new report is available.	Some Reports settings may be inappropriate.	Check the monthly reports section of the My Customers and Sites entry to ensure that user access and notifications are properly defined. See <i>Monthly reports and KPIs</i> , page 48.

Data Output from Com'X

Setting Up and Configuring the Com'X for EcoStruxure Facility Expert

If	Then
The Com'X cannot connect to the EcoStruxure Facility Expert server.	If connected on the Ethernet port, check that there is no proxy present to set. If it is the case, contact your network administrator.
	If connected on the Ethernet port, it is possible that your DNS server is not compatible with Schneider Electric server. Temporarily try the Google DNS address 8.8.8.8 and then contact Schneider Electric technical support.
	Proceed to a Com'X restart.
	Save your configuration if needed and proceed to a factory reset. Load the configuration file again and try reconnecting to the remote platform.
The Com'X is not connected to the EcoStruxure Facility Expert server.	Check that the Com'X has been properly registered in EcoStruxure Facility Expert.

Testing Publication / Data Import in EcoStruxure Facility Expert

If	Then
Following a successful publication, the Com'X name has not been upgraded and the devices do not appear in EcoStruxure Facility Expert tree view.	Refresh the page (Ctrl+F5).
	Sign out and sign back in your Facility Insights account.
	Launch again a publication test.
	Wait 15 minutes and refresh the page.
	Contact Schneider Electric technical support.
No usage is displayed in the widget Consumption per usage or no zone is displayed in the widget Consumption per zone .	Check that the fields Usage , Building , Floor , and Zone have been properly filled in the Facility Insights settings tab. The meter Main Meter is not displayed in those widgets.
	Eight usages and eight zones can be displayed in default widget size and up to 20 usages and 20 zones in larger widget size.
There is no value in the electrical distribution widget.	Check that the Switchboard Incomer check box has been selected for one of the devices in the Facility Insights settings tab.
Some widgets are missing values.	Check the time range displayed.
There is no value in the Baseload widget.	This widget displays values from the day before.
The circuit breaker dashboard is incomplete.	Check that the circuit breaker has been properly instrumented with the complementary module (BSCM for Compact NSX and PowerPact circuit breakers).
There is no circuit breaker in the list of Assets.	Check that the is active check box has been selected for the relevant circuit breakers in the Facility Insights Settings tab.
A wrong device has been configured in the Com'X.	Use the function Replace the device in the Com'X, publish data. Data history is kept.

Frequently Asked Questions

Digital Architecture

Question	Answer
Is it possible to commission several Com'X gateways for a single architecture?	Yes, all the gateways implemented can use the same network to send distinct data to the cloud, up to a limit of 5 Com'X gateways per site.
Is it possible to mix digital gateways on a same site?	Yes. As an example, you can receive data from Com'X and PowerTag Link C for the same site.
I already have Facility Expert Small Business (FESB) installed on a site, how can I export the energy consumption data to EcoStruxure Facility Expert too?	A business code associated with an account in EcoStruxure Facility Expert can be entered in eSetup commissioning app. Contact your Schneider Electric representative to get the business code.
Can I use any PowerTag Link with EcoStruxure Facility Expert and FESB?	Yes, but PowerTag Link C devices must be connected/paired to a Com'X gateway, and then the Com'X connects to EcoStruxure Facility Expert.
Panelboard incomer and some feeders have a rating higher than 63 amps. How can I monitor them?	You should use iEM3000 energy meters, connected to a Com'X gateway to export energy data to EcoStruxure Facility Expert. Note that data will not be displayed in FESB app.
Can I have several PowerTag Link concentrators on the same site?	Yes, several PowerTag Link concentrators can be connected on the same site. Be sure to enter the same site name in the Multi-site section in eSetup, otherwise the PowerTag Link concentrators will not be associated to the same site in EcoStruxure Facility Expert.
How to install PowerTag Ambient?	Consider the following two rules: <ul style="list-style-type: none"> • Distance: <ul style="list-style-type: none"> ◦ < 5 meters: direct connection between PowerTag Ambient and PowerTag Link C. ◦ 5 to 15 meters: additional repeater may be required. ◦ > 15 meters: add another gateway closer to the PowerTag Ambient. • Environment: <p>Do not use PowerTag Ambient with PowerTag Link C installed in a metallic enclosure. If this is the case, use Kaedra plastic box or equivalent.</p>
Is it possible to remotely control consumption when using PowerTag Link C as a gateway?	No, PowerTag Link C will only send the data to the cloud. EcoStruxure Facility Expert enables only monitoring, not control in that configuration. Only SE8000 room controllers connected to EcoStruxure Facility Expert can enable HVAC equipment remote control.
How many energy meters are included in the EcoStruxure Facility Expert - Enterprise subscription?	You can add as many energy meters as you need.
Is it possible to use EcoStruxure Facility Expert APIs to connect to customer server?	There are no standard EcoStruxure Facility Expert APIs that can be used, but custom requests can be addressed to your local Schneider Electric representative.
Is it possible to create a virtual meter?	Yes, it can be done by your local Schneider Electric representative.

Normalization Factor

Question	Answer
How is degree day (DD) normalization factor calculated?	EcoStruxure Facility Expert algorithm considers local weather data base to calculate DD, Heating DD and Cooling DD variables.
How is surface normalization factor calculated?	The ratio used is based on the consumption per surface unit that has been selected in the Normalization factors parameters.
Is it possible to create a custom normalization factor?	Yes. You can normalize consumption per production units or average number of customers, for instance. To do so, you should define monthly value manually in Advanced Settings .

Reports

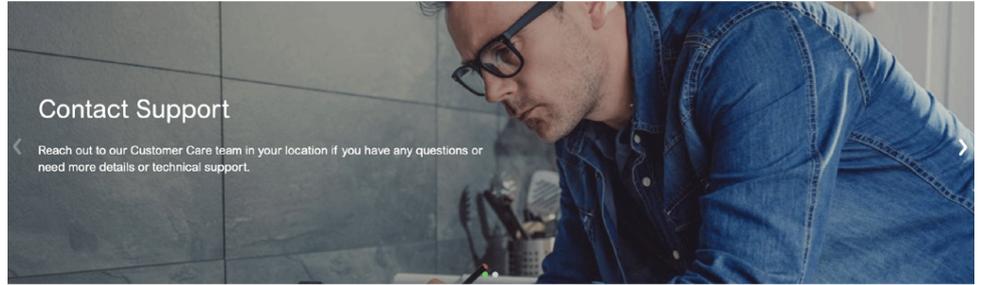
Question	Answer
How many times a month and when is a report available?	Reports are automatically generated and available on EcoStruxure Facility Expert Web platform on the 5 th of each month. The report generator is for country support people only.
Is it possible to customize reports?	Partially. Partner logo can be implemented in the report template. It is possible to select which KPIs and tariffs options should be displayed in the monthly report.
Can I create my own reports?	Yes, by exporting raw data (.csv) from the platform for further analyses or by exporting directly the widget images (.jpeg) to build your company report.

Energy Dashboard and Widgets

Question	Answer
Is it possible to customize the Energy dashboard?	No, Energy dashboard is standard, but you can change the period and select the usage and zone you want to display.
Is it possible to select or customize the widgets to be displayed on the Energy dashboard?	No, widgets are standard in EcoStruxure Facility Expert.
Is it possible to compare usages of several sites?	Yes, if usages are named the same way for every site.

Schneider Electric Contact

For questions, comments or to stop receiving EcoStruxure Facility Expert news, contact your Schneider Electric representative or your local Customer Care Center.



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