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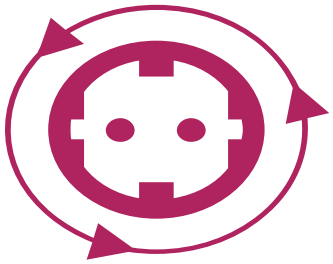
# Monet

## Siemens Energy Management System

Claudia Guenzi - Siemens SpA - Energy Management

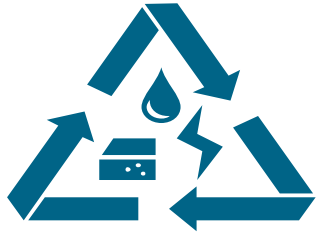
# Le principali sfide del sistema energetico

**Economic efficiency**



**Reliable power supply**

**Climate protection**



**Resource efficiency**

# Expo 2015
Some figures …

**May 1 to October 31, 2015**

**1,1 Mln m2 between Milano and Rho**

**75 MW required**

**160 temporary buildings**

**2 permanent buildings**

***20 Mln visitors expected***

***30 electric people mover***

***50 hybrid bus***

***Show case of worldwide and innovative technologies***

# Expo 2015
## A model for tomorrow smart city

The organizing committee of Expo Milano 2015 has decided to build-up and operate the Expo site developing a model for the Smart City of the future

The Expo 2015 Smart City will be
- Sustainable
- Efficient
- Informative
- Safe

The solutions that will manage the Expo 2015 microgrid will join consolidated and innovative technologies developed by Siemens Italy named "**Enel's strategic partner for Smart Grid technology of Expo Milano 2015**"

# Expo 2015
## Objectives

- **Stability of supply and grid resilience**
- **Energy demand and grid capacity real time balancing**
- **Monitor, control and optimized energy management inside Expo Area**
- **Energy consumption optimization and CO2 reduction**
- **Real test of new Smart City technology**

# EXPO Milano 2015
## Strategic Partnership

Enel Distribuzione

Global Official Smart Energy Partner of EXPO 2015 and
leader in Smart Grids and Smart Cities solutions

chose

**SIEMENS**

leader in Smart Grids and Building Management Technologies
as **Strategic Partner** for EXPO.

# Monet – Monitor and Operate New Energy of things

Siemens Energy Management System

**Monet** is a*Cloud* platform able to provide **Energy Monitoring** and **Energy Management** services following the *Software as a Service* model

Monet is a solution of monitoring, control and optimization of Energy flow inside a microgrid, a Smart City, a block of buildings

# Monet – Monitor and Operate New Energy of things

How it works

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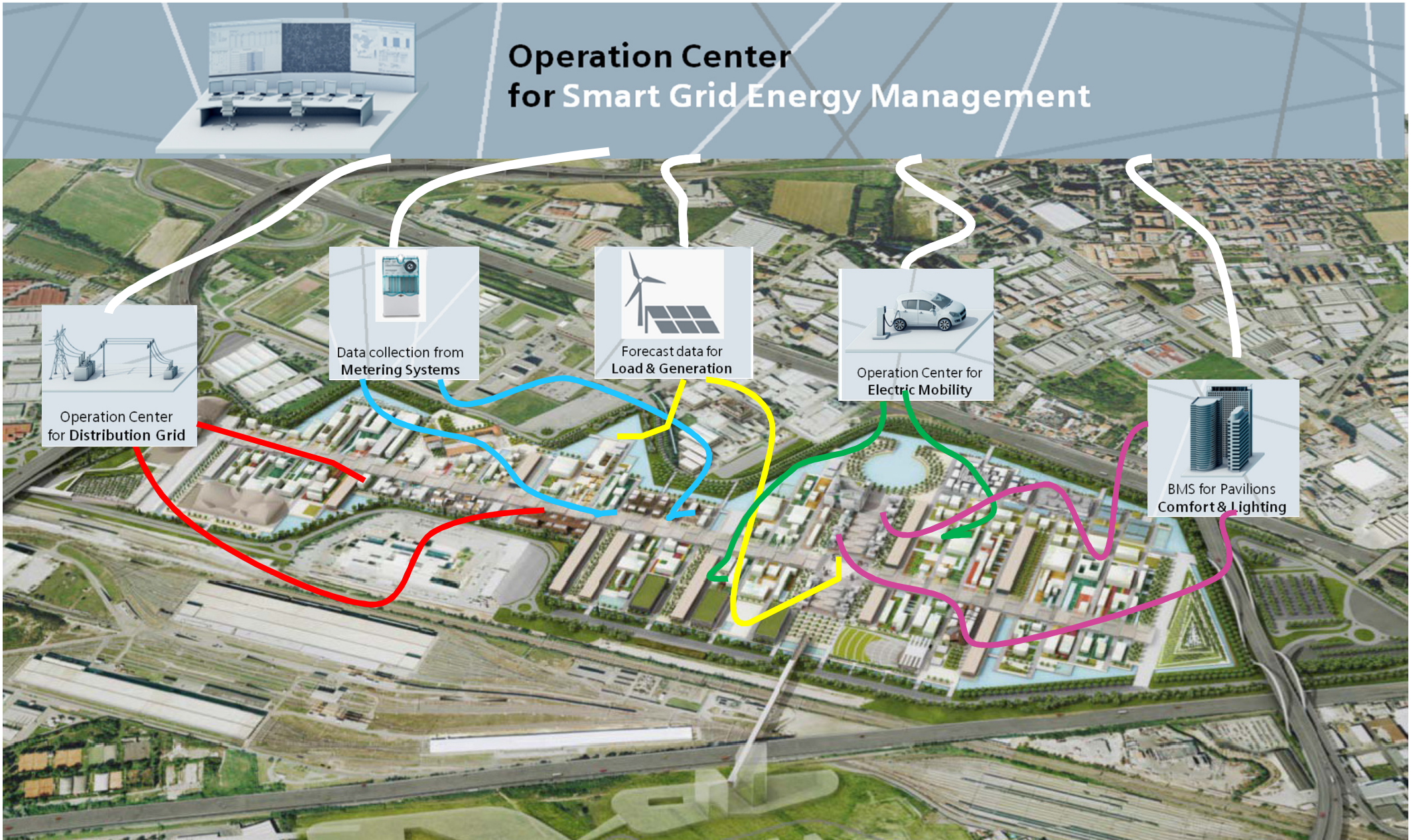
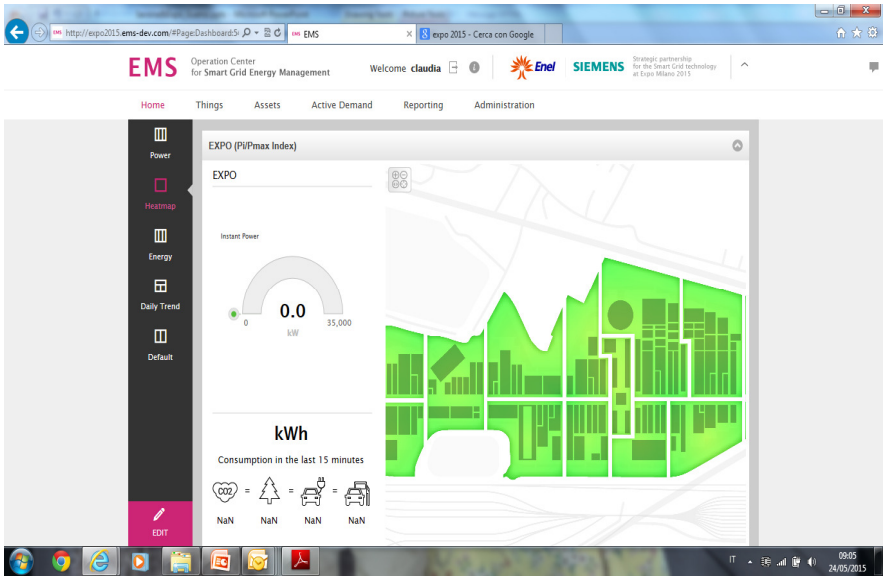
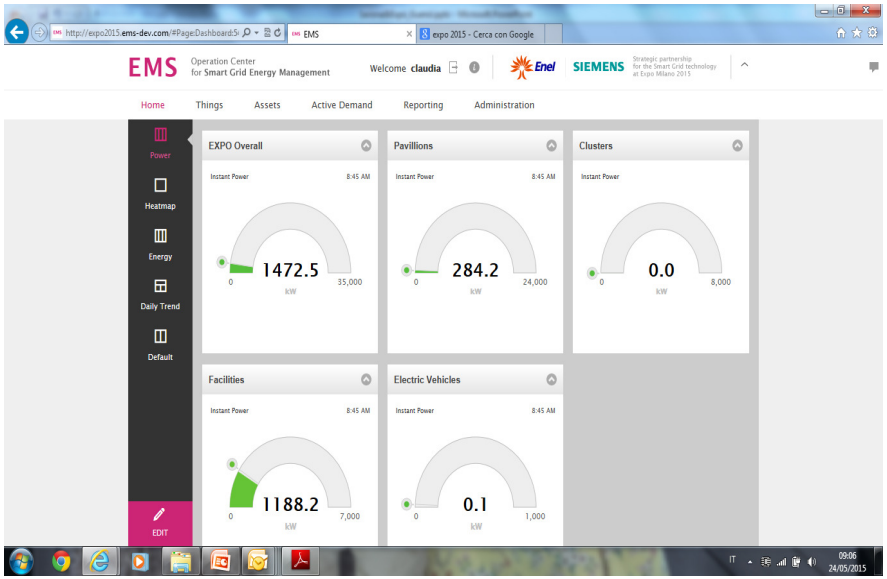


# Monet – Monitor and Operate New Energy of things
Application




## Web application

The service can be used through different devices - PC, Tablet and Smartphone




## Support Business Decisions

HMI is based on **dashboard/cockpit** and provide to the different users high level information **able to support business decision** thanks to an intuitive interface

# Monet – Monitor and Operate New Energy of things
## Main functionalities

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EMS is a **Multi-Tenant** system used by **Service Provider** to provide services to the managed customers
Monet manage **Things** belongings to different categories

- Confort
- Lighting
- Meters (contatori)
- Loads
- Generation Units
- Electrochemical storage

Monet manages all the **energy flows:**: electrical, thermal, gas, water
Main functionalities are

- Manage of “Areas” and **Things**
- Assets Management
- Energy Monitoring
- Energy Reporting
- Energy Efficiency
- **Demand Response**

# **Monet**
Architecture

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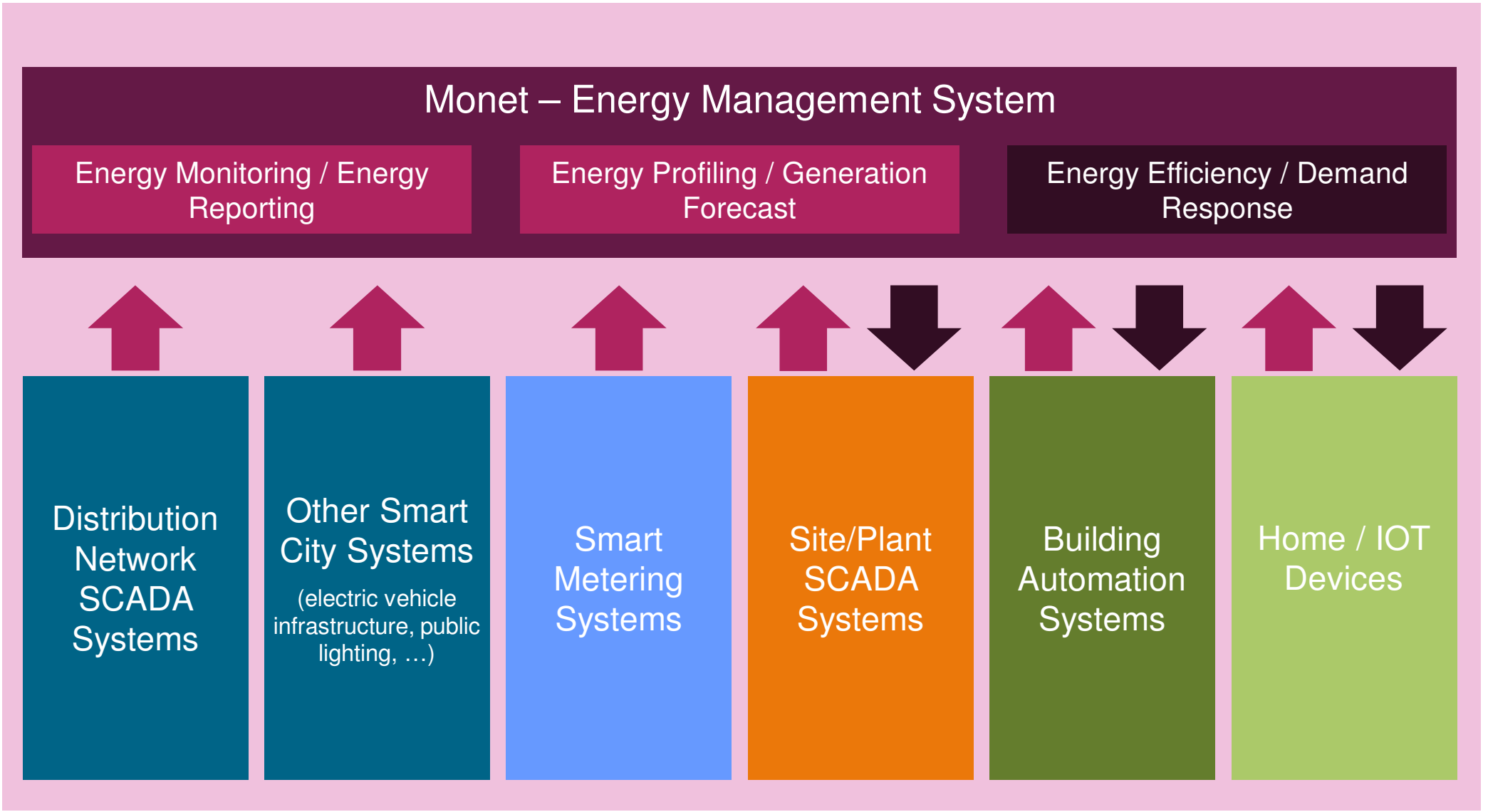
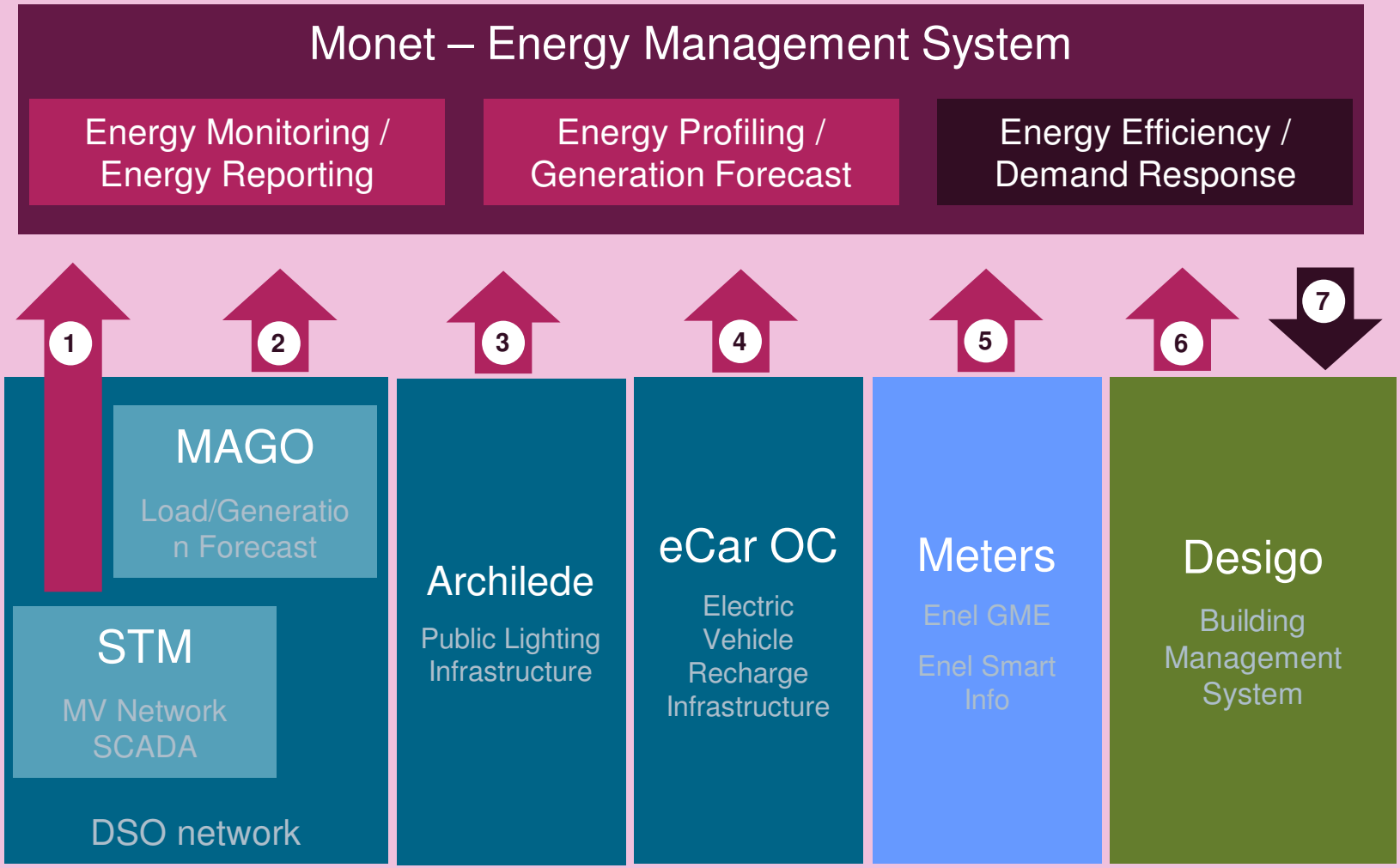


# Monet
## Expo 2015 scenario




**Target Customer**:
Smart City

1. Network information on primary and secondary substation
2. Load and Generation forecast
3. Public lighting loads information
4. E-car charging infrastructure information
5. Smart Meters systems
6. Information on confort / lighting
7. Temperature and lighting setpoint

# Monet
# \ Dashboard

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# Monet
# \ Dashboard

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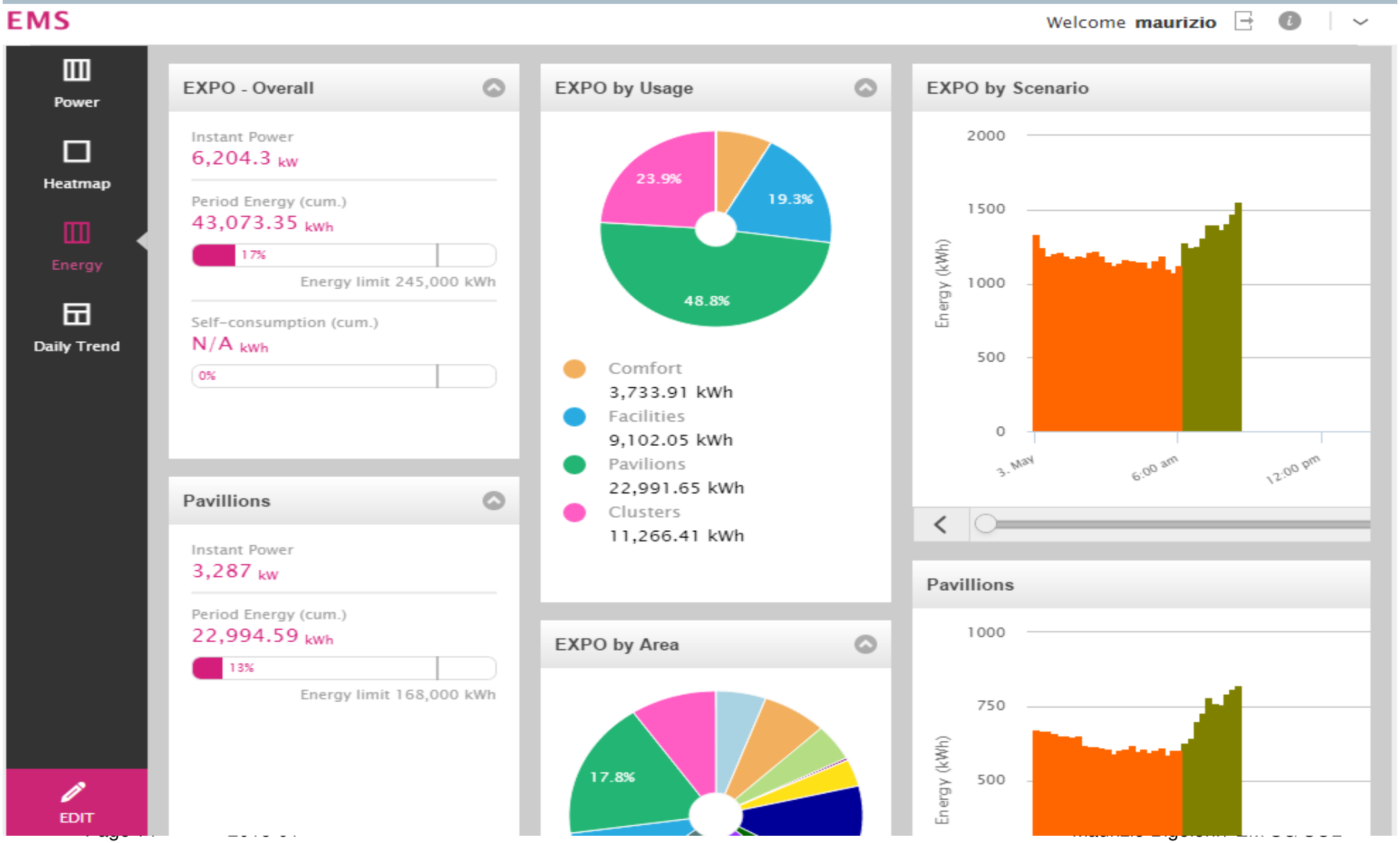

# Monet
# \ Geographical Navigation

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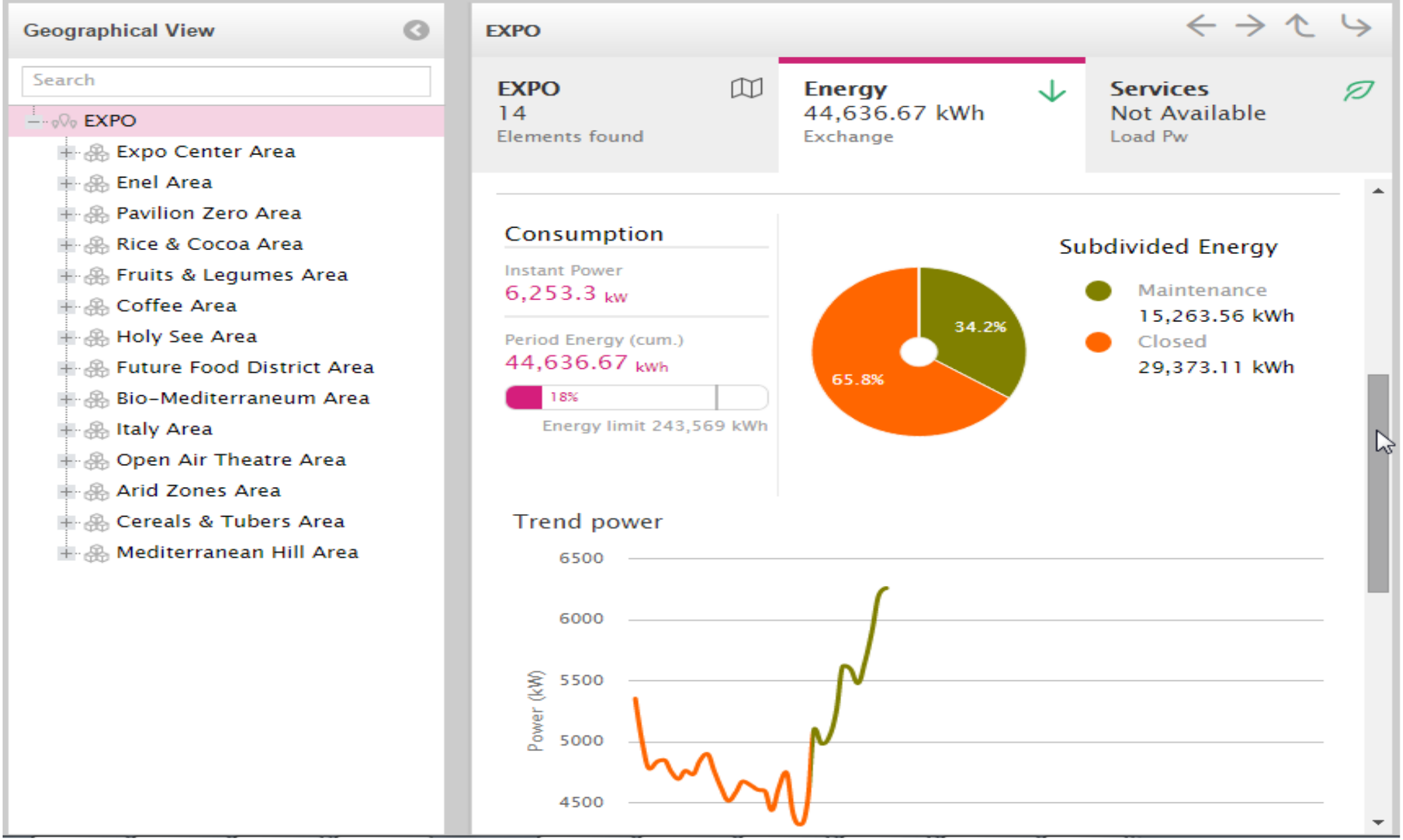

# Monet
# \ Electrical navigation

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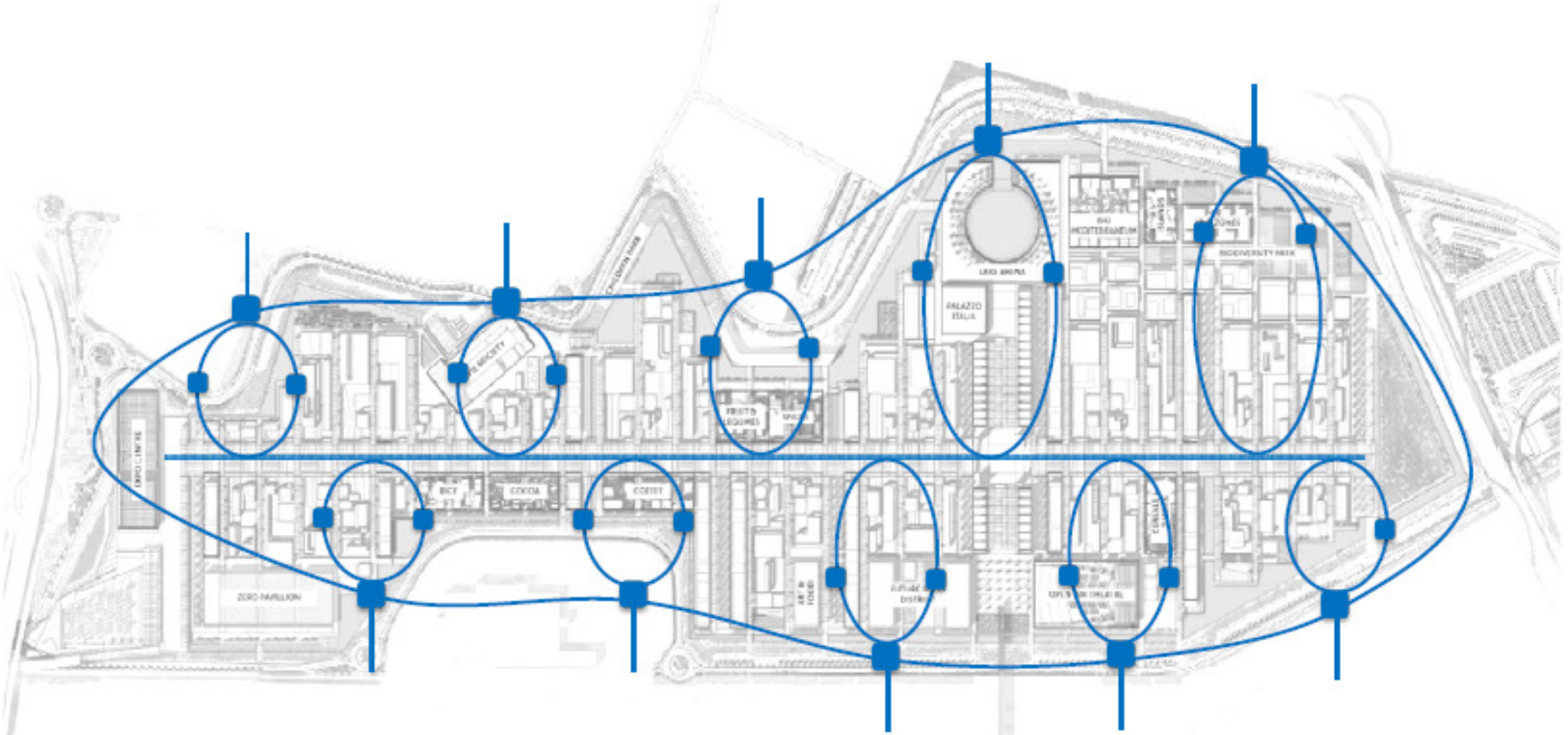
**The services provided by Enel Distribuzione allow the Pavilions to be completely integrated with the meshed configuration of EXPO Smart Grid**



**10 interconnected rings which allow a complete re-feeding even in the case of failure to a A2A feeder**

13

# Monet
# \ Electrical navigation

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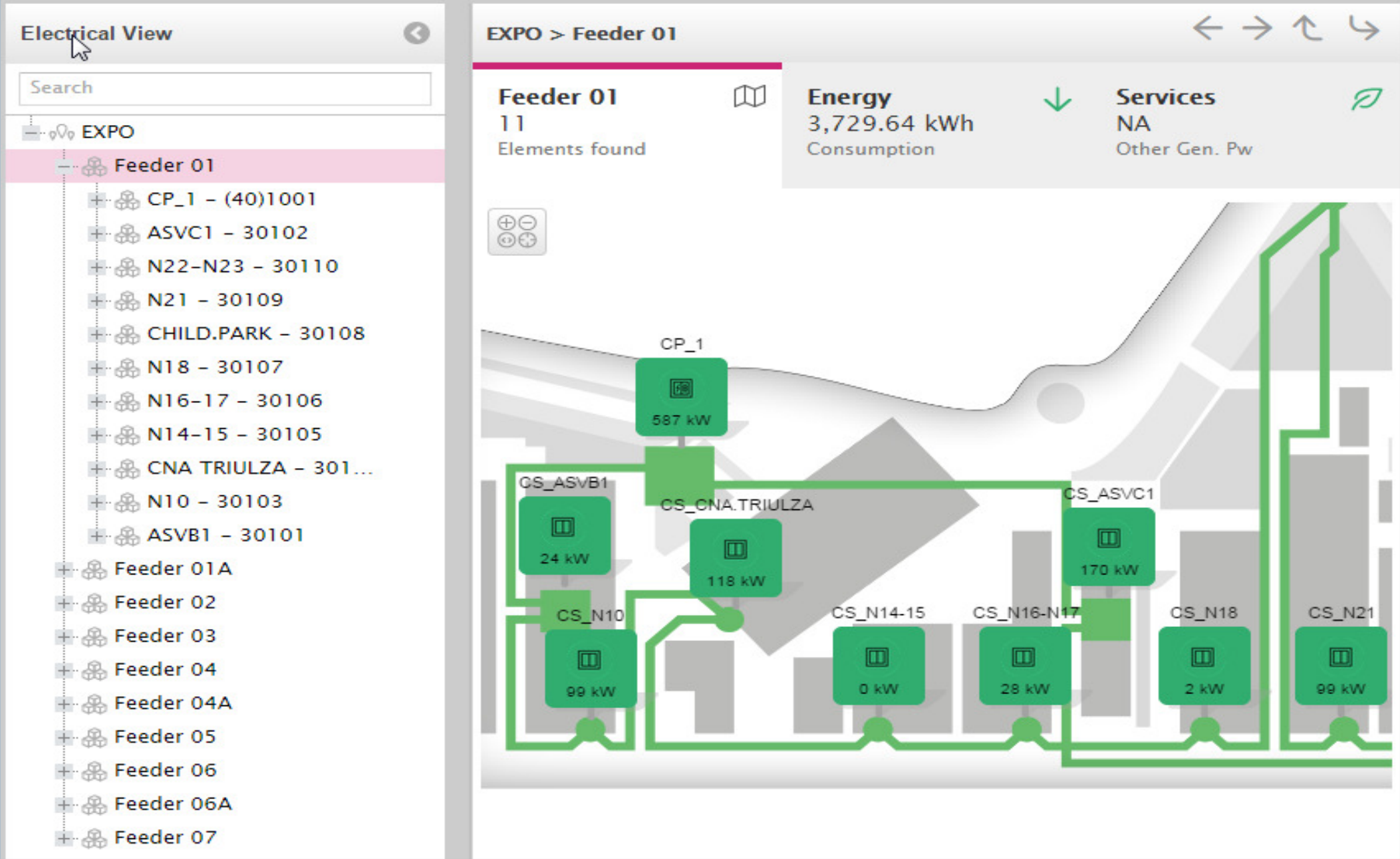
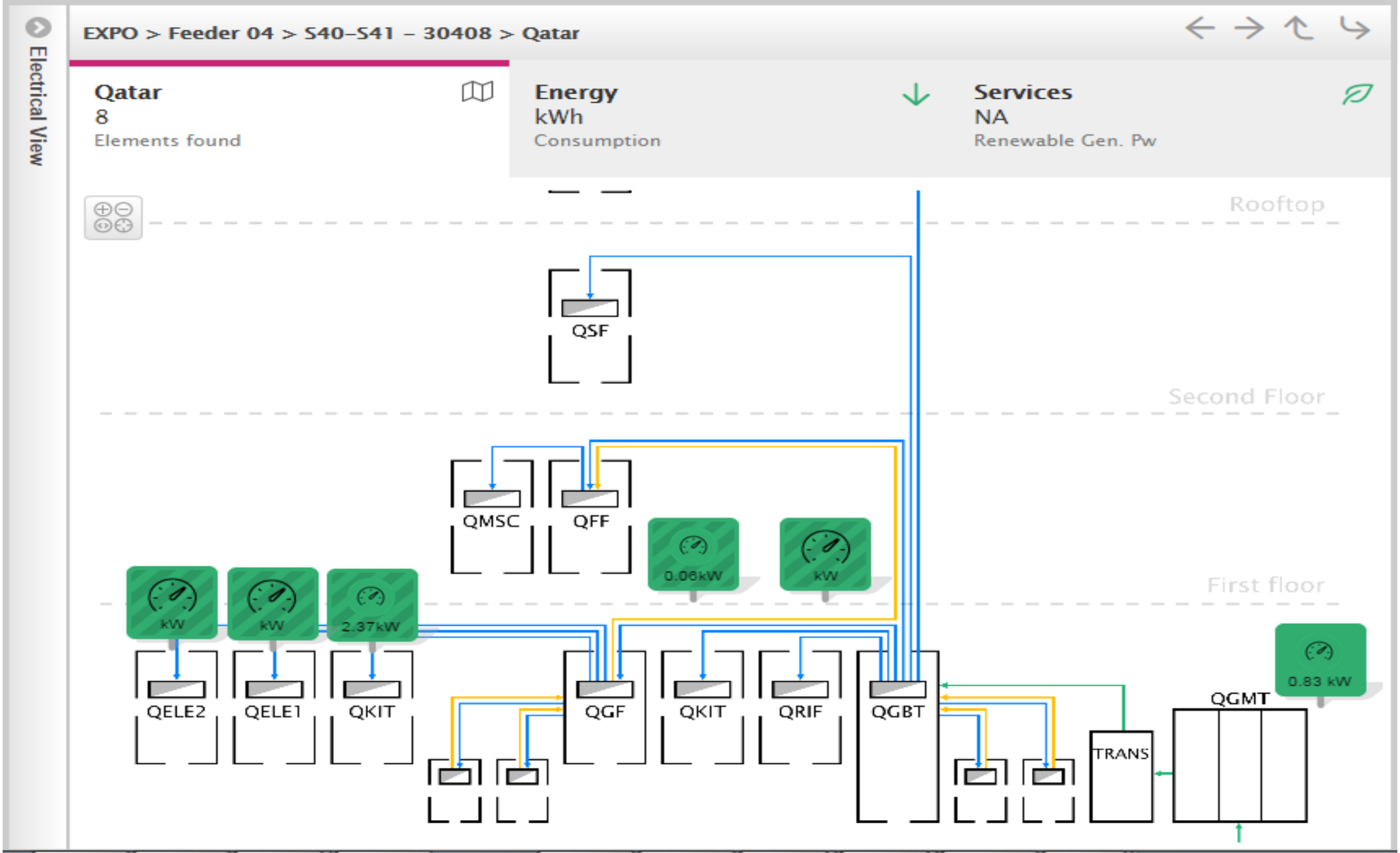


# Monet
# \ Electrical navigation (2)



# Monet
# \ Reporting

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EMS

Welcome **maurizio**

Energy

Things

Assets

Report: Electric consumpti

Period: Day

From/To:

Measurement: kWh

Dimension: Usage

$m^2$:

Main site: EXPO

Reference site: EXPO

Date/Typical: Date

Date: 05/02/2015

Date/Typical: Date

Date: 05/01/2015

Search

## Consumption

Instant Power

5,616.93 kW (6,063.13 kW)

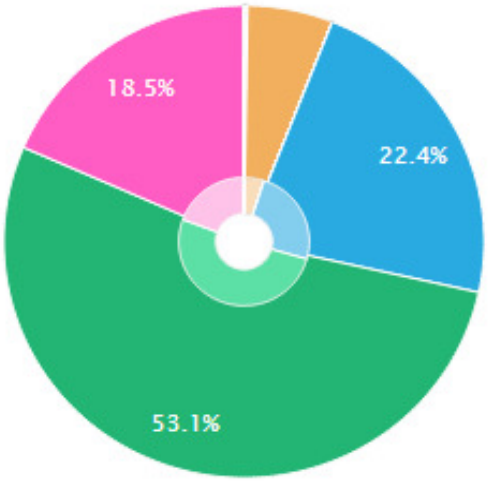
Period Energy (cum.)

170,627.8 kWh (162,675.05 kWh)

70%

66%

Energy limit 243,569 kWh




## Subdivided Energy

(Mix)
450.48 kWh ↑ 87%

Comfort
10,149.48 kWh ↑ 23%

Facilities
39,628.16 kWh ↓ -5%

Pavilions
93,721.19 kWh ↑ 7%

Clusters
32,601.78 kWh ↓ -1%

# Monet
# \ Efficiency & Demand-Response

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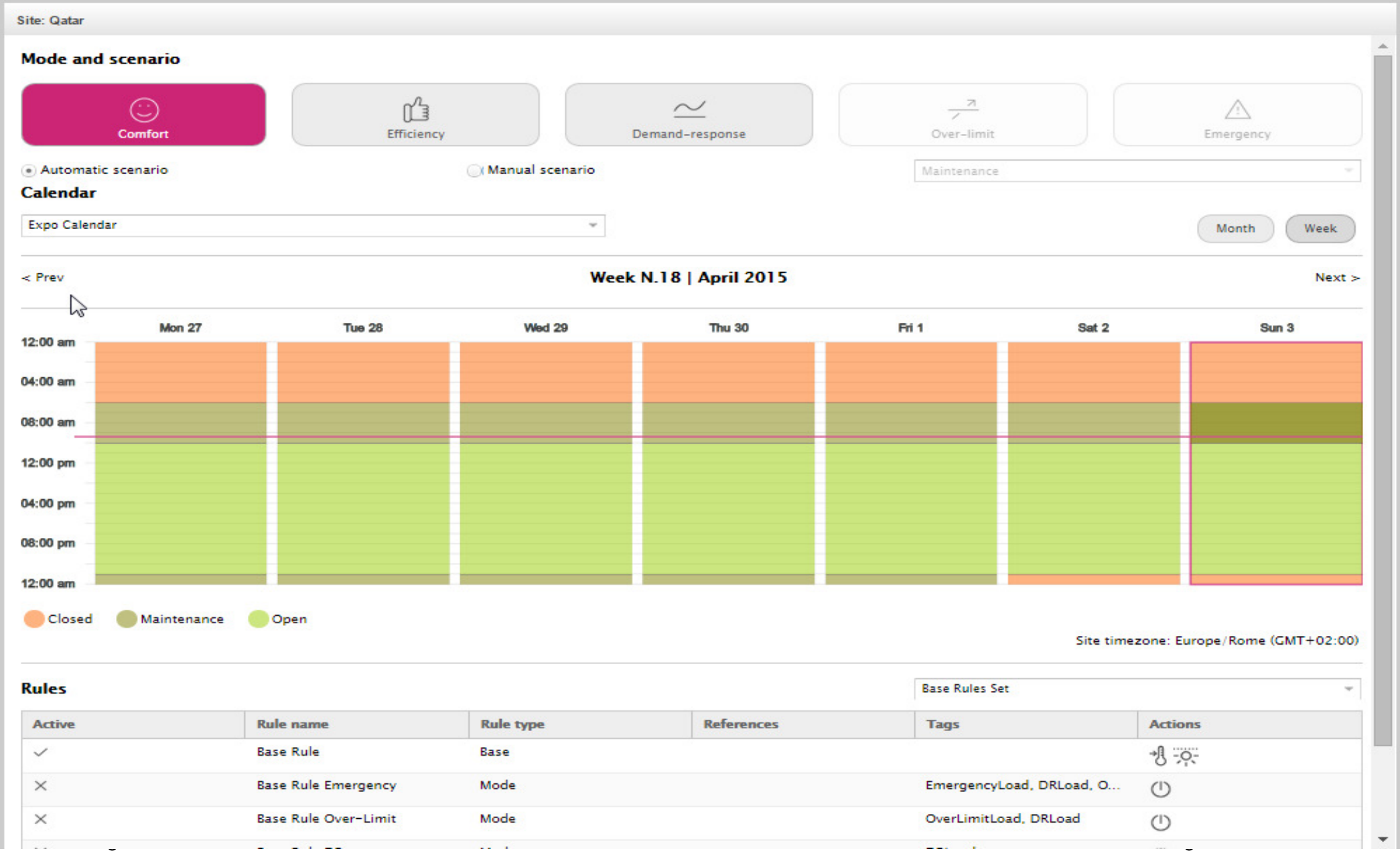

# Monet
# Future projects

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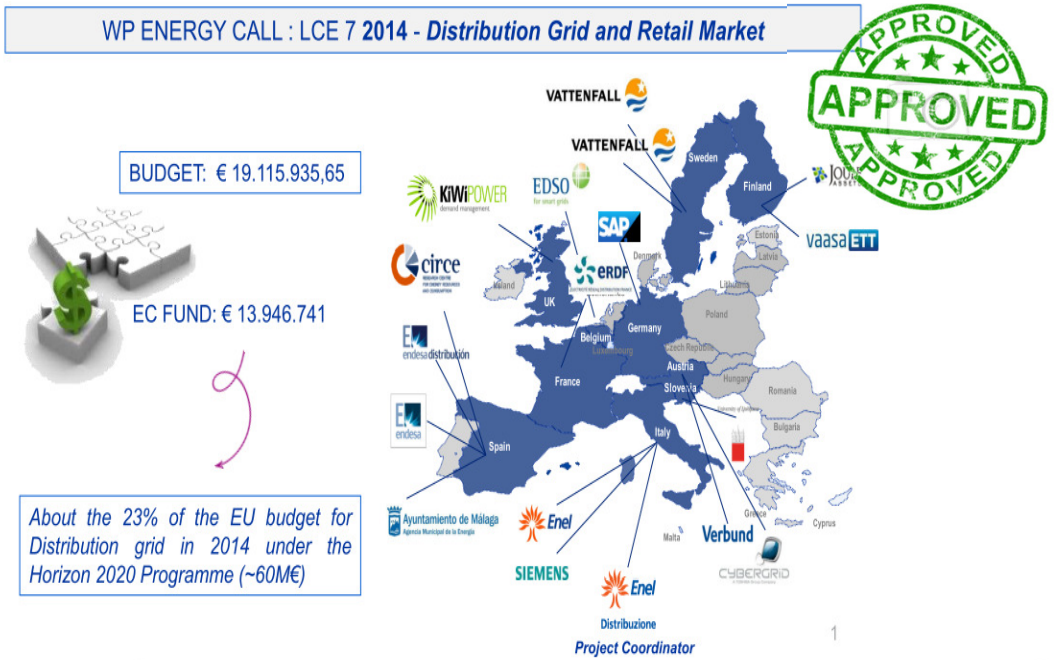
## Horizon 2020
LCE7 Distribution Grid

**FLEXICIENCY**




## Horizon 2020
SCC-01- 2015 Lighthouse
Genova - Anversa - Goteborg

WORK IN PROGRESS

**EASIER**

Engaging And Sustainable Integrated Energy-efficient solutions for Roll-out in cities

## Horizon 2020
SCC-01- 2015 Lighthouse
Bologna – Paris - Berlin

WORK IN PROGRESS

**Smart NExUS**

**New Energy x Urban Sustainability**

# Thanks

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