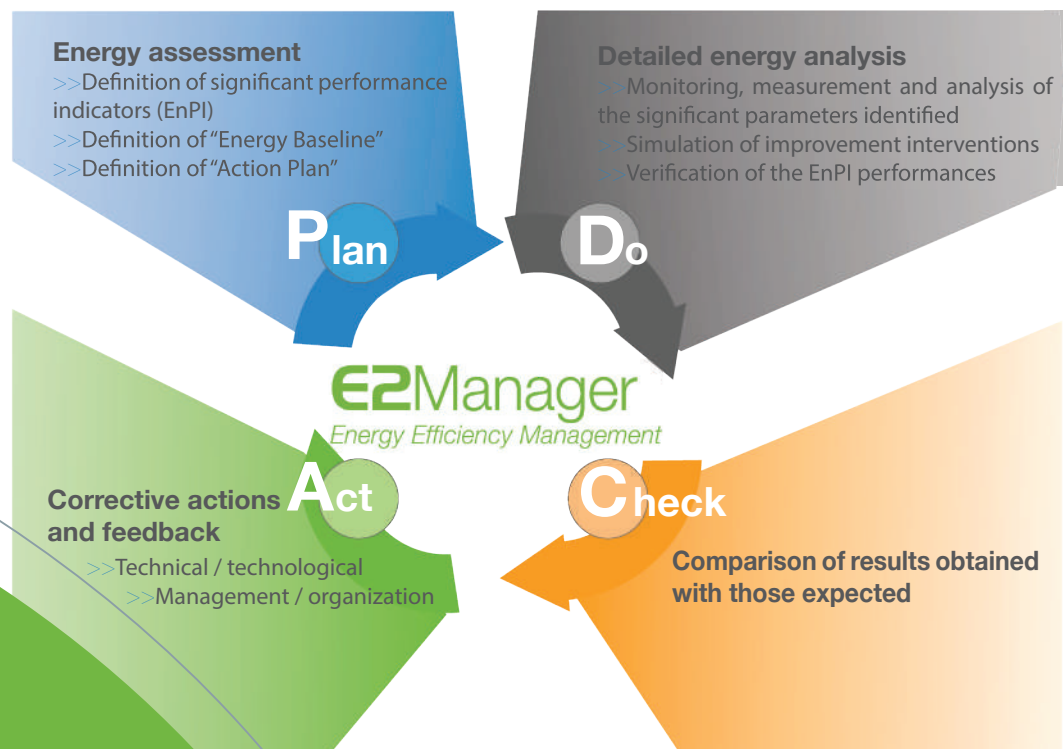


## The integrated solution for the monitoring and the active management of energy efficiency

E2manager follows the systemic approach of the Deming cycle (PDCA: Plan, Do, Check, Act) aimed at the continuous improvement of energy performance for tertiary CRE, industrial.

### Key Features

- >> Supporting for the evaluation of possible energy efficiency improvement by energetic system simulation: **What-if** (what - and how much savings - if before implementation).
- >> **Characterization of the environmental scenario for analysis, monitoring and correlation with habits and consumption**(i.e. climate impacts) thanks to a multi-year historical weather data (measured and satellite).
- >> Management of **self-consumption**, optimizing the benefits of renewable energy generation (production and consumption forecast).
- >> Optimal coupling of the consumption with **electric storage**.
- >> Compliance with **ISO 50001** Energy Management procedures.

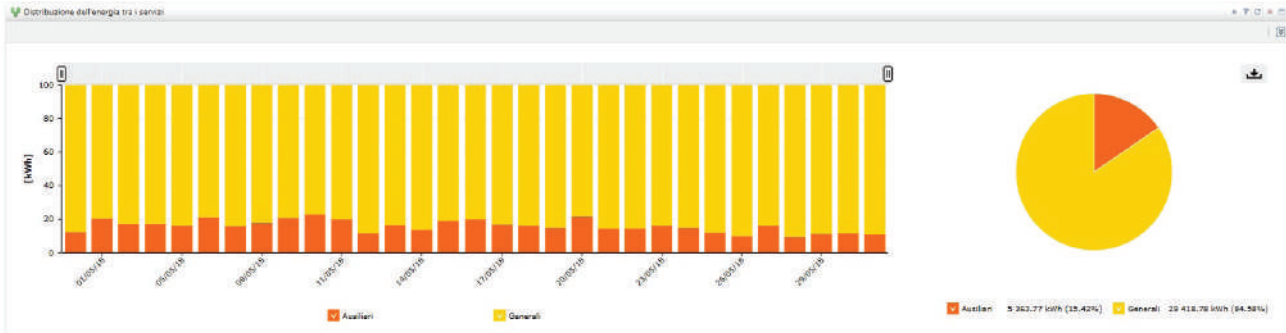


## Service Description

E2Manager allows real time data stream acquisition from metering and submetering, with a data sampling from 1 minute up to 1 hour. The application can monitor **any kind of energy from metering and submetering systems**: electrical, gas, vapor etc.

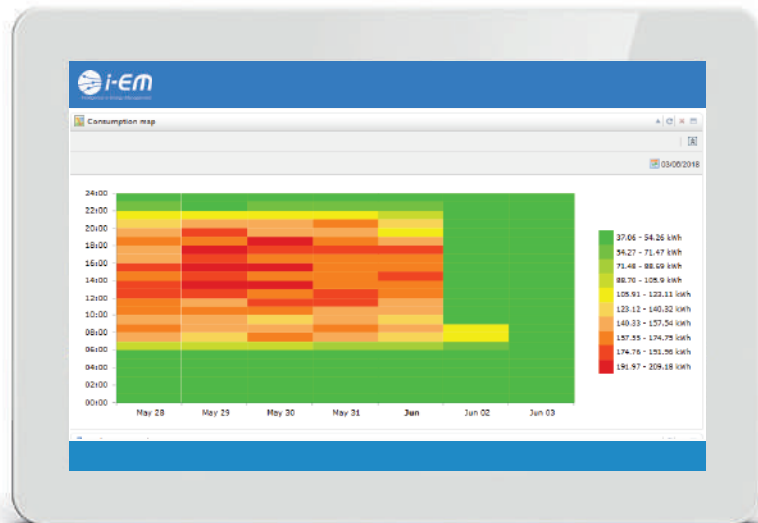
The IT highly flexible infrastructure allows to manage **3d party metering devices data**.

Energy Diagnosis, according to Italian D.LGS. 102/2014 with the distribution of energy consumption between auxiliary and general services, on a monthly and annual basis.



E2Manager provides a summarized view of **energy daily peak by daily time band** and allows to easily and automatic identify possibly waste of energy exploiting, for example, heating map (so called "carpet plot").

Weekly energy distribution  
"carpet plot"



# E2Manager

Energy Efficiency Management

## Energy efficiency does not only mean adapting to regulation,

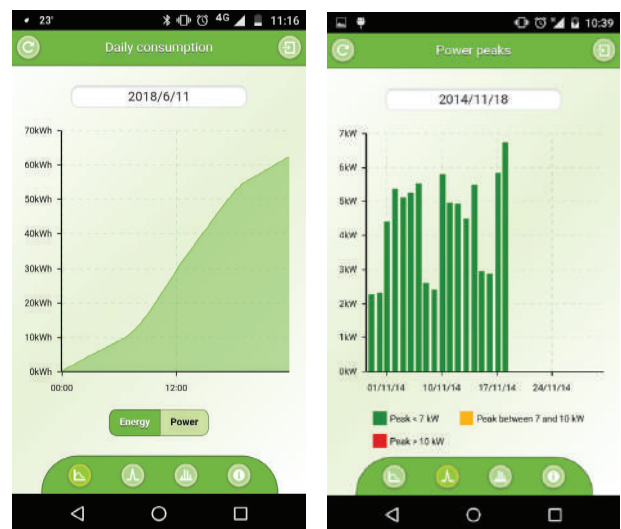
it means start saving energy and economic resources, increasing productivity

The platform provides real-time alerting capabilities related to demand, consumption or power factor (or other parameters).

The level of configurability of this feature is maximum:

- >> thresholds
- >> persons/users to advise
- >> frequency (real time, daily report other)
- >> SMS/email/web visualization (depending on the severity defined)

App visualization



## Big Data Analytics capabilities

- >> The application provides data analytics capabilities and a regression models for energetic baseline assessment and prediction.
- >> No limit in the period of historical data that can be gathered from the platforms to perform analytics processing, thanks to i-EM cloud infrastructure.
- >> The energetic variables (e.g. temperature, humidity, building occupancy, ...) needed to fine tune the model adapt donamically to the current situation.
- >> The main features available are baseline calculation, peak monitoring, anomaly consumption identification, night baseload monitoring, week-end consumption monitoring.
- >> Normalized KPIs (according to ISO 50001) are compared with internal or external ones or between more sites.

## Comparative Analysis

	Features	Features Description	
OT, IT and Dashboard	Meter & Submeter Data significant	Real time data stream acquisition from metering and submetering, with data sample settable (from 1 to 60 min) Monitoring of any kind of energy from metering and submetering systems: electrical, gas, vapor etc	
	Weather Data	Real Time weather data streams acquisition (temperature, umidity, wind, etc)	
	Dashboard		Real-time energy profiling/consumption view and historical data comparison and analysis
			Aggregated view/heatmap of consumption in all areas/locations, building departments, or industrial product lines monitored
			Consumption KPI reporting (Internal / External, normalized according to ISO 50001)
	Consumption Analysis	Daily, weekly and monthly summary of consumption, energy KPIs and peaks Comparison of energy usage by weekday and by season day (e.g. winter, spring etc), to take in account the seasonality	
	Platform and Device Integration		High level of integration with existing devices and systems
			Cloud platform based on IoT achitecture (PaaS and SaaS solution)
Web Access and User Interface	User-friendly WEB interface for multiple access and centralized management		
Analytics, alerting and optimization	Analytics and energy consumption model. Automated/Real Time Optimization	Energy consumption model based on analytics exploiting Artificial Intellingence for energy prediction	
		Intelligent management of DER resources for economics optimization	
	Baseline calculation and comparison (analytics capability)	Historical (hour/year) and periodical optimization exploits analytical regression model for baseline computation	
		Comparison of different periods usage for baseline evaluation	
		Normalized Measurement and Verification (M&V) analysis, according to ISO 50001	
		Energy saving prediction (baseline prediction vs current)	
	Technical Monitoring and Alarming/notification	Monitor electricity usage real time, demand and power factor for a technical monitoring	
Real-Time alerting (Consumption, Demand, Power Factor etc), with maximum level of configurability			