



**Web-based Energy Management Systems  
a necessary tool for Energy Efficiency**



**Build IT**  
creating intelligent assets

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# Presentation Structure

**1. Build-IT Profile**

**2. Paper Introduction**

**3. Build-IT Solution**

**4. Energy Efficiency Method**

**5. Case studies**

**6. Conclusions**

# Build-IT at a glance

- **Build-IT** is a new, innovative company.
- Its main activities concern the Internet of the Things & energy management systems.
- It was founded on January 2008 from Allweb Solutions S.A.
- Has spent more than 2 years in Research and Development.
- Targets both US and European Market.
- It counts already a significant number of installations.
- In essence, Build-IT is an innovative “specialised **GREEN** integrator”.

# The ecosystem of Build-IT

HVAC & Indoor Air Quality



IP Security & Surveillance



Intelligent Building



Independent Living



Smart Grids & Energy Management



Smart & Connected Home



# Driving Forces for Green Solutions

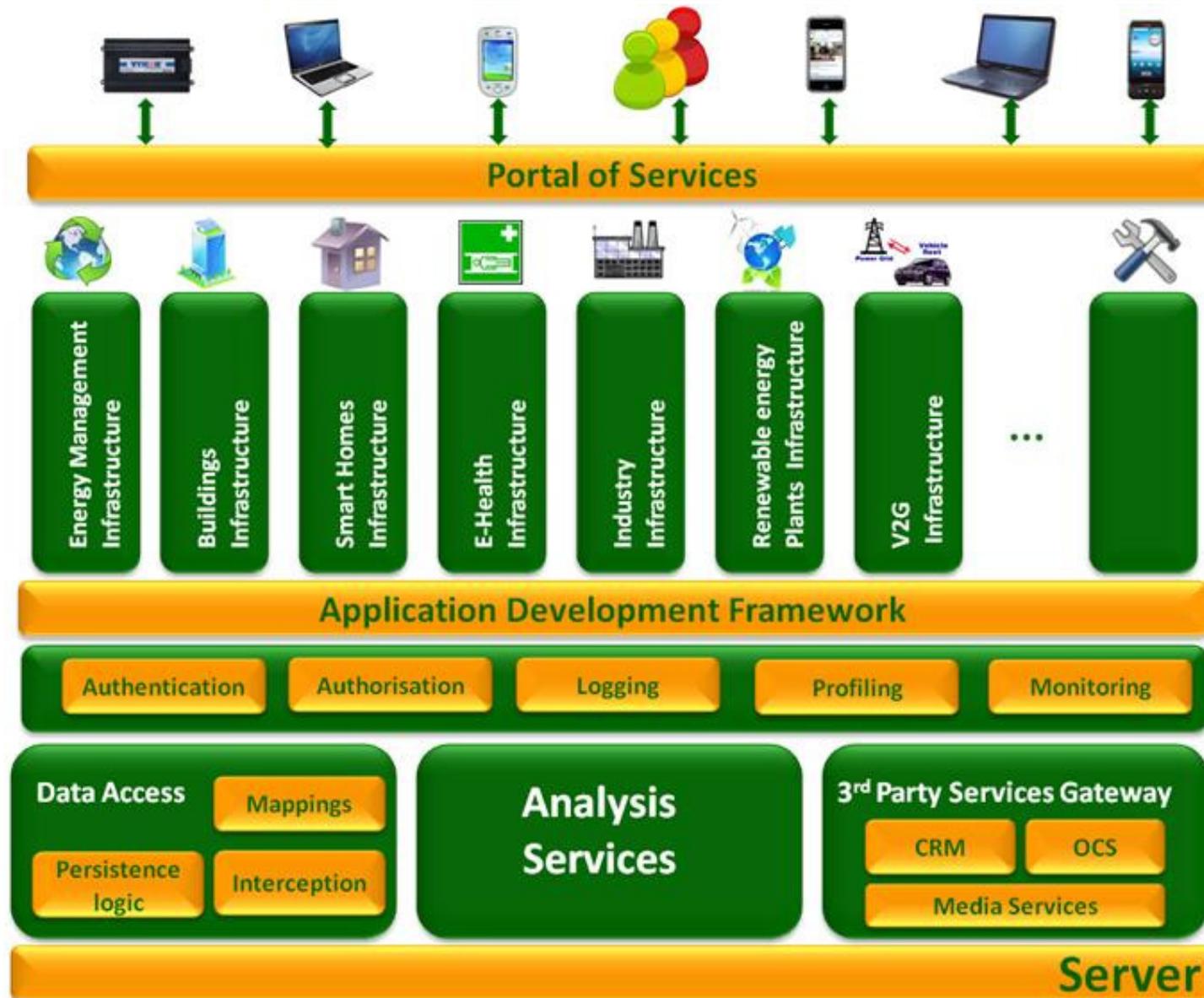
- **Greening businesses is crucial for their survivor and growth.**
- **Increasing energy prices influence EBITBA of businesses .**
- **Mandatory Carbon Reduction Schemes obligate businesses to manage their energy consumption and adopt more eco-efficient practices .**

**Need for an Internet based, smart energy management platform**



✓ **BUILD-IT Solution**

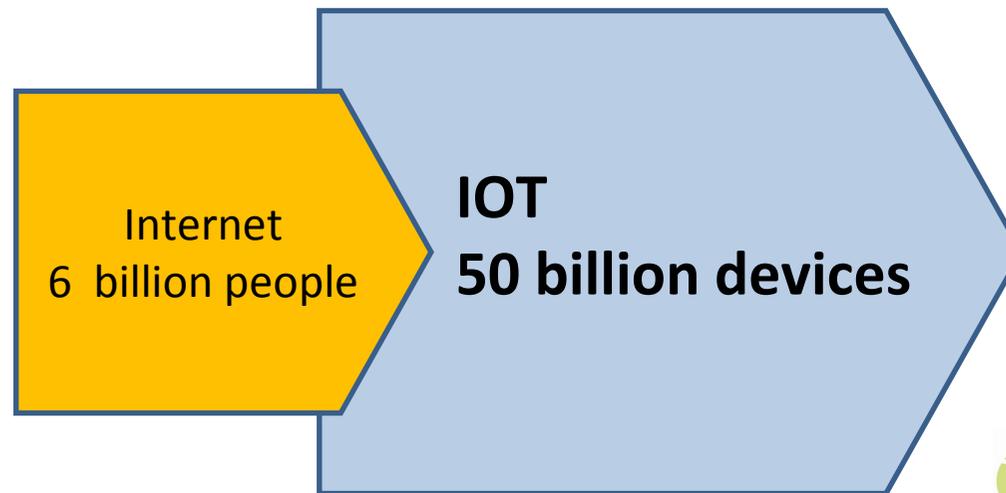
# Common Web Infrastructure



# Common Web Infrastructure

## Internet of the Things (IoT)

IoT is a worldwide data network which connects people with devices (H2M) or devices between each other (M2M) with common communication protocols

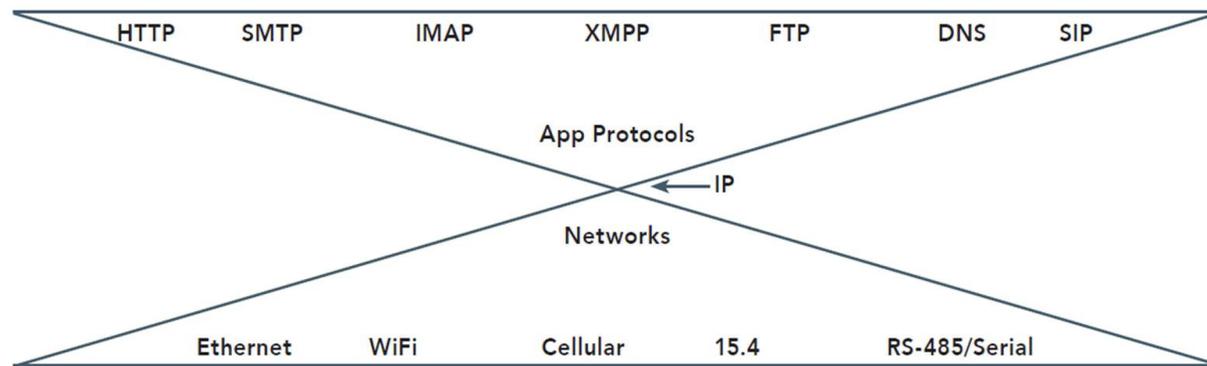


# Communication Protocols for IoT

- From specialized communication protocols

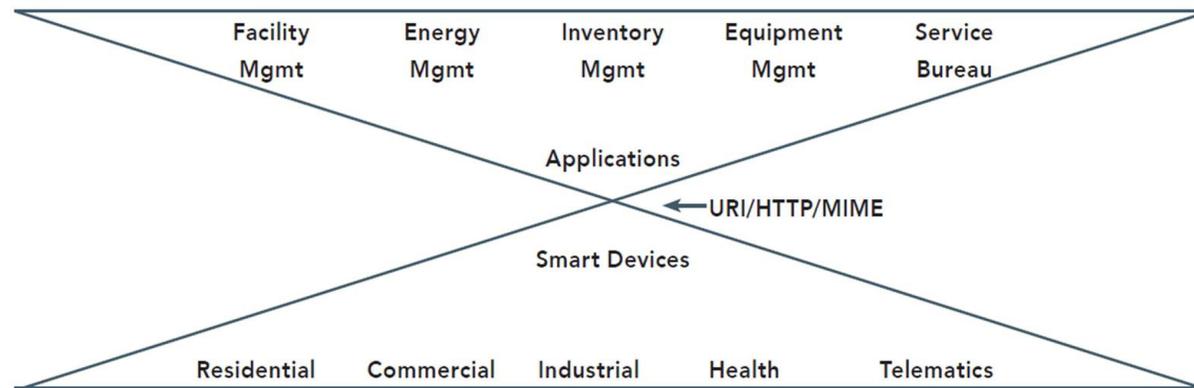
Residential				Commercial		Lighting	Industrial				Automotive	Metering	Verticals
X10	Zigbee	Z-Wave	Konnex	BACnet	Lonworks	DALI	Modbus	ProfieBus	DeviceNet	ControlNet	CAN-Bus	M-Bus	Proprietary

- To IP communication protocols



# IoT Applications are becoming mainstream...

- to smart devices for multiple applications



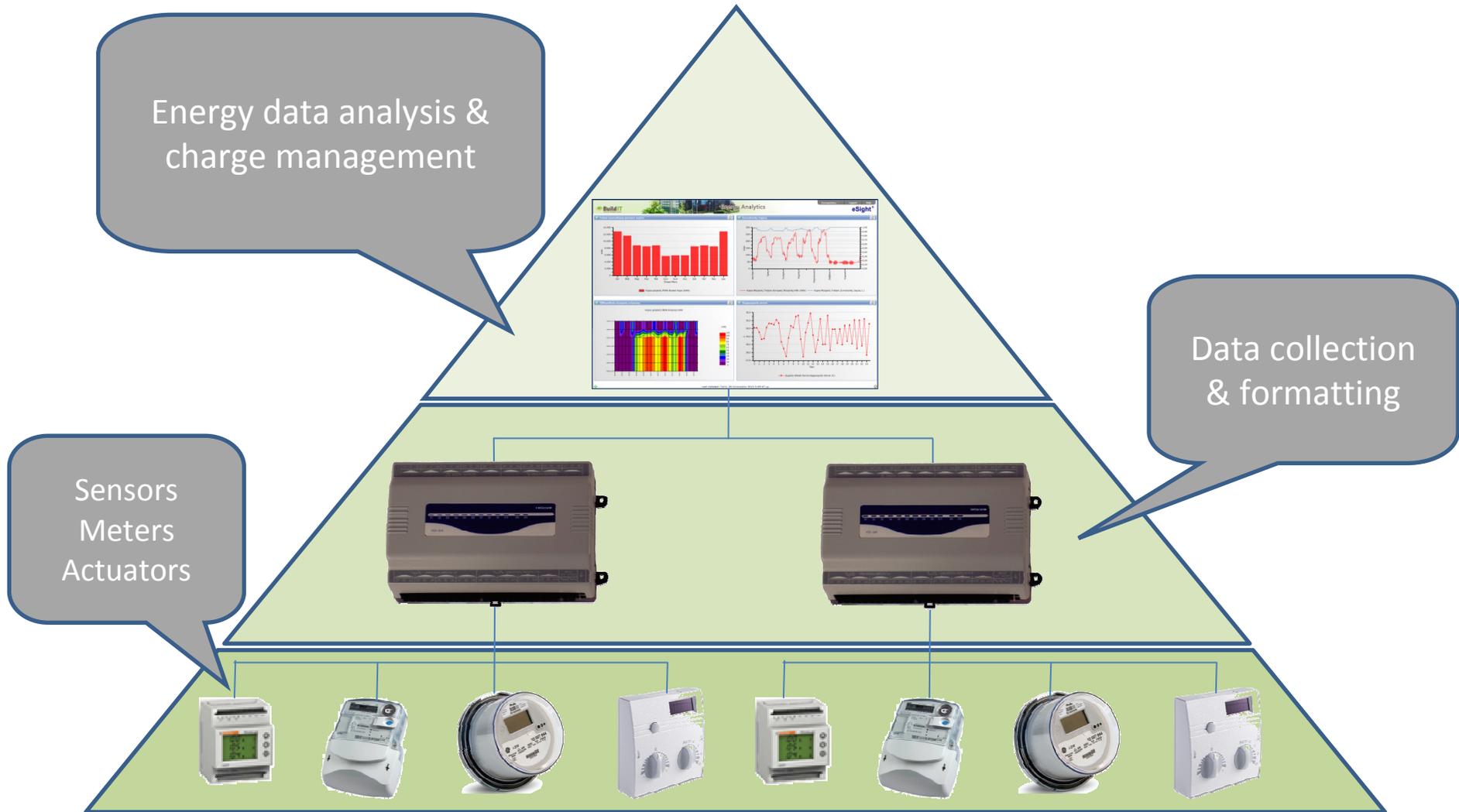
- and to smart services



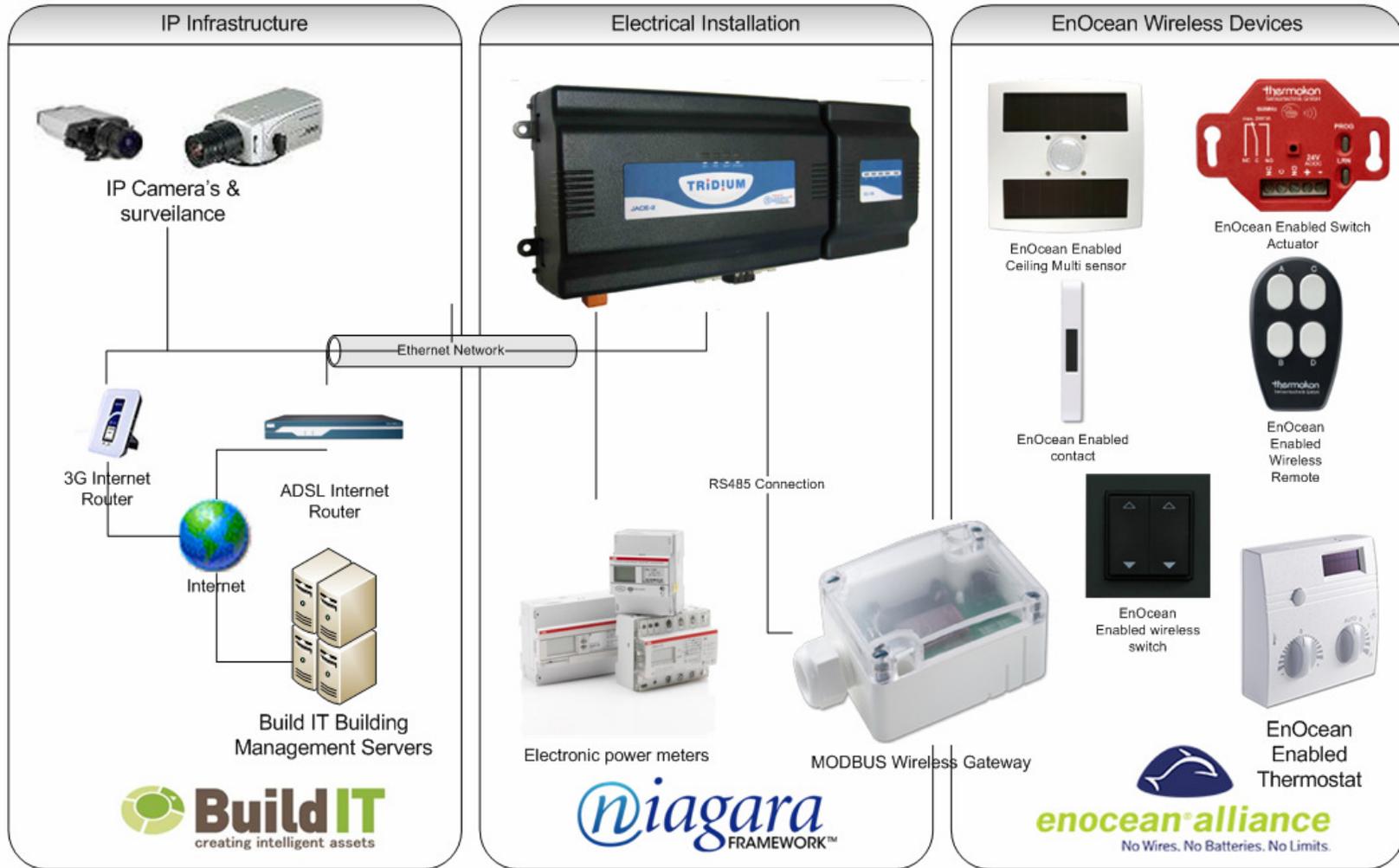
# The Buildings Infrastructure

- Our system monitors in real-time building's energy sources (power, gas, water, diesel etc).
- It monitors the internal temperature, brightness, indoors air quality and outdoors temperature.
- It monitors the number and the positions of the people working in the building, as well as their time schedules.
- By analysing all this data we can optimise both comfort and energy use.

# The AMIplus System



# The whole installation

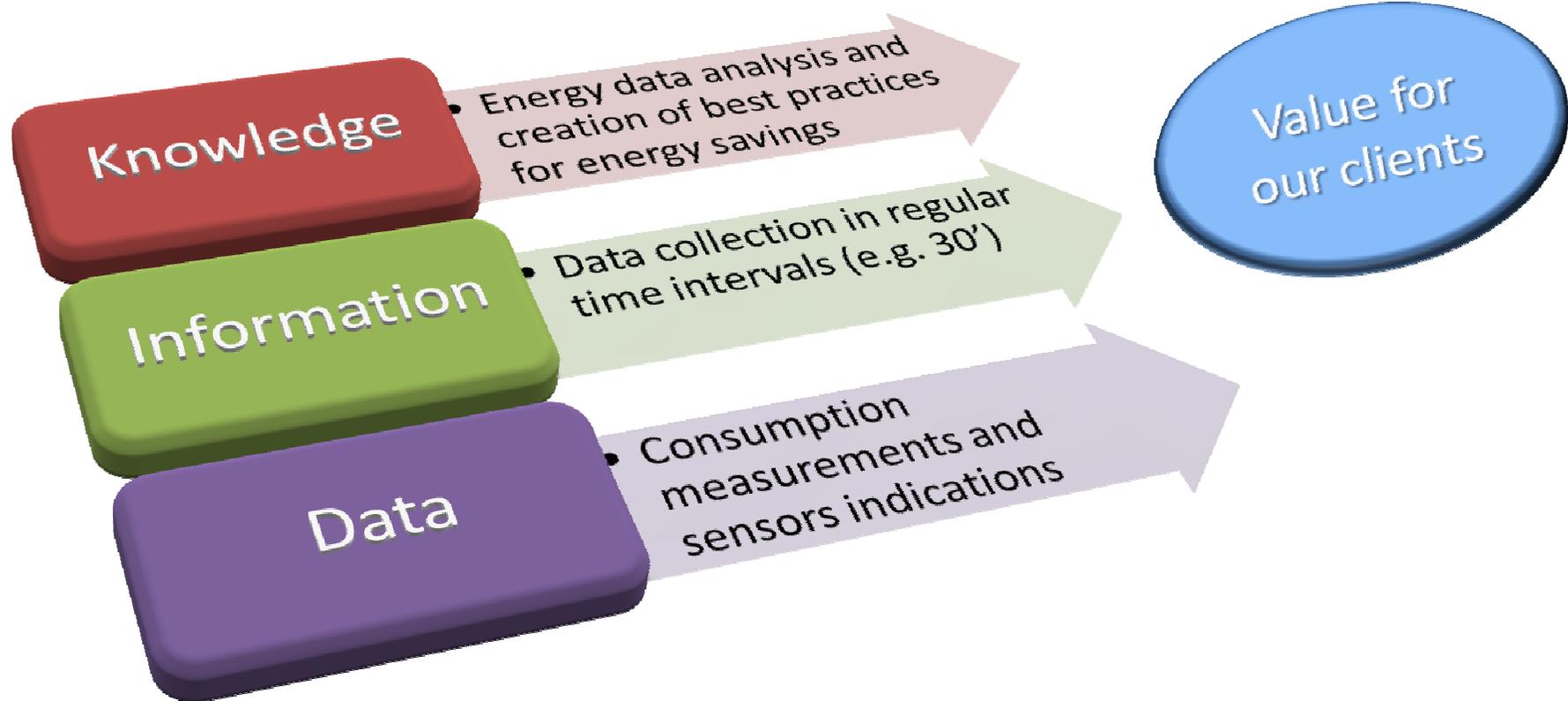


# Energy efficiency method

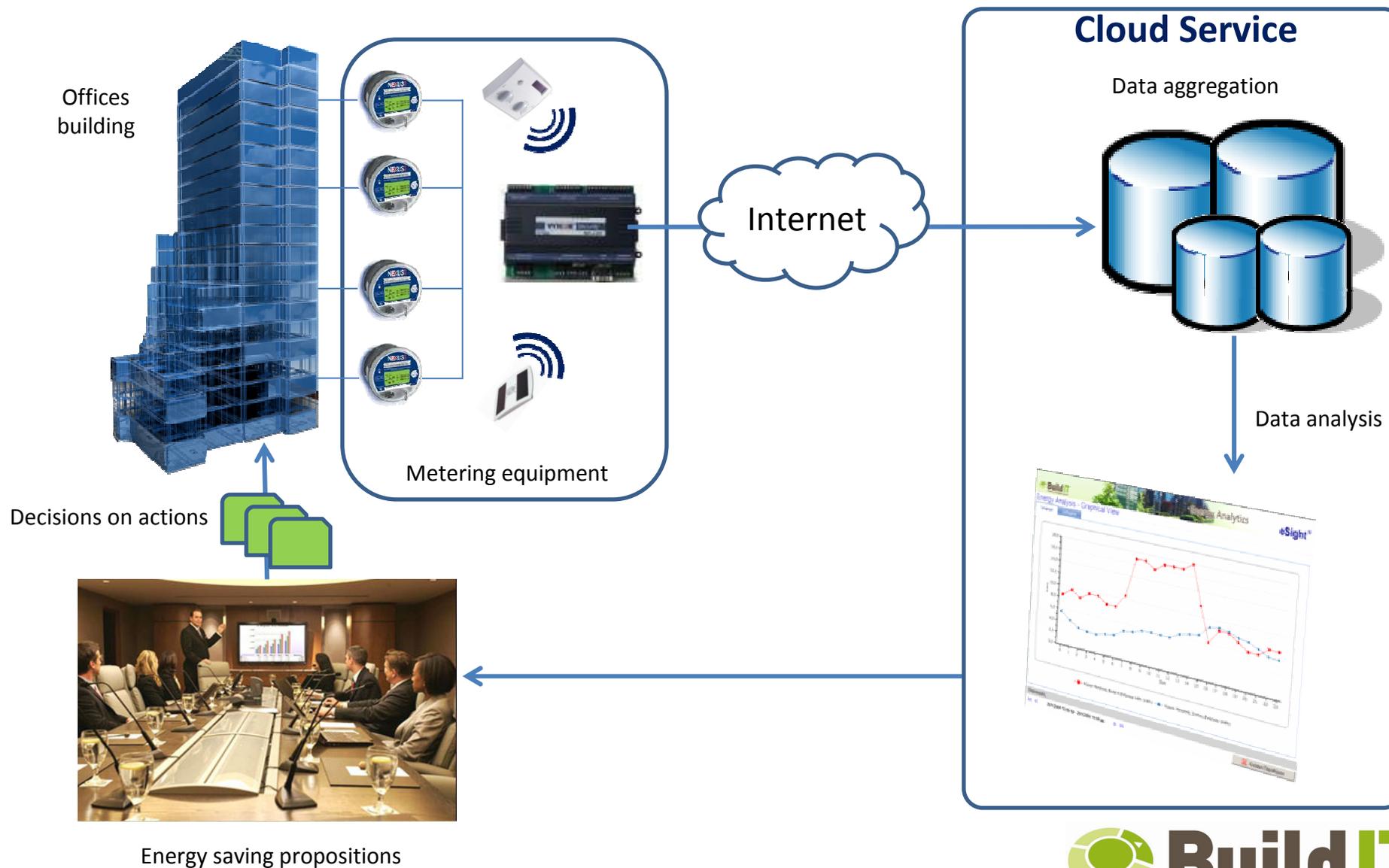
Repeating cycles of 4 steps ...



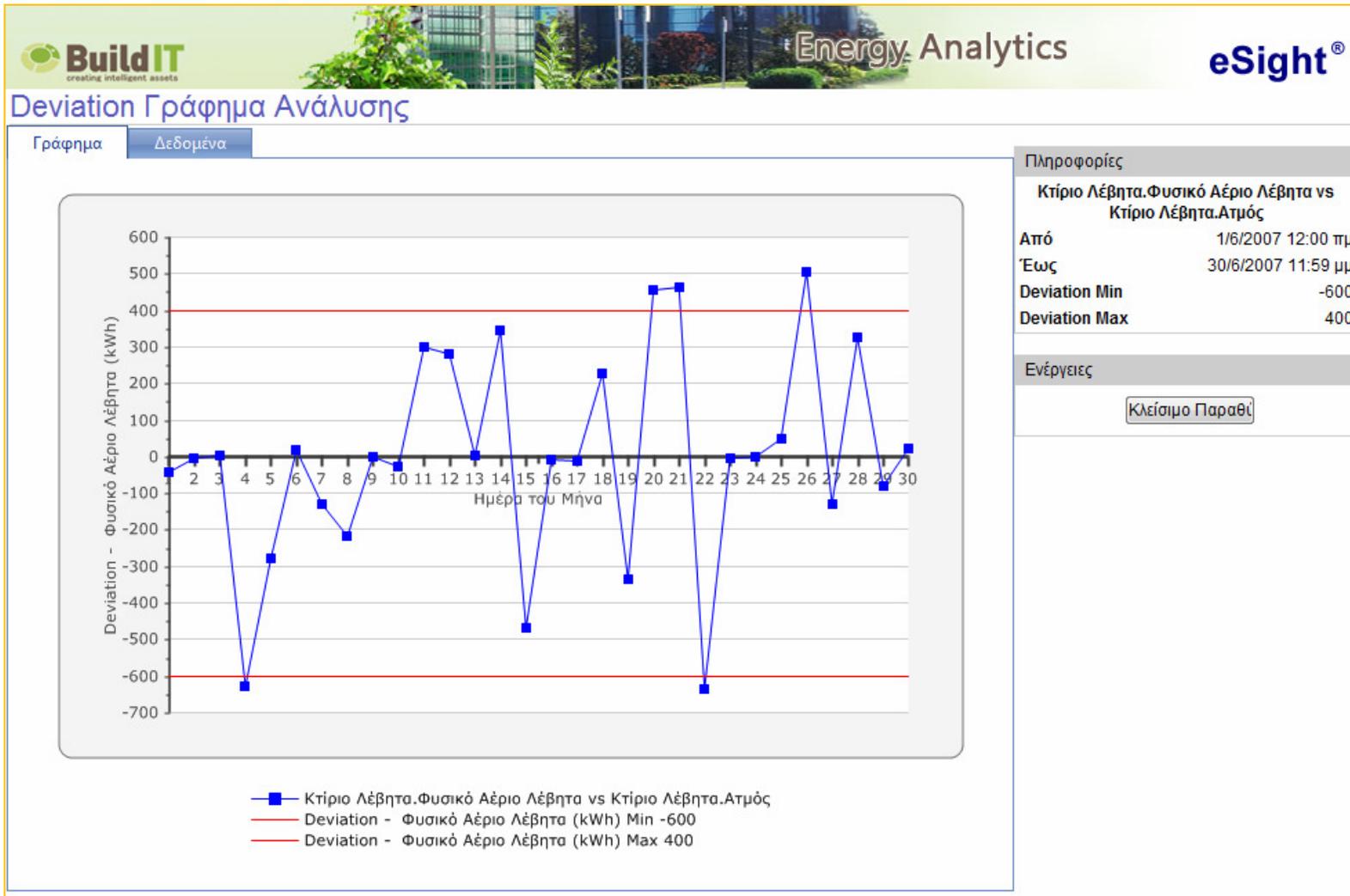
# Goal: Energy Responsive buildings



# Energy management services

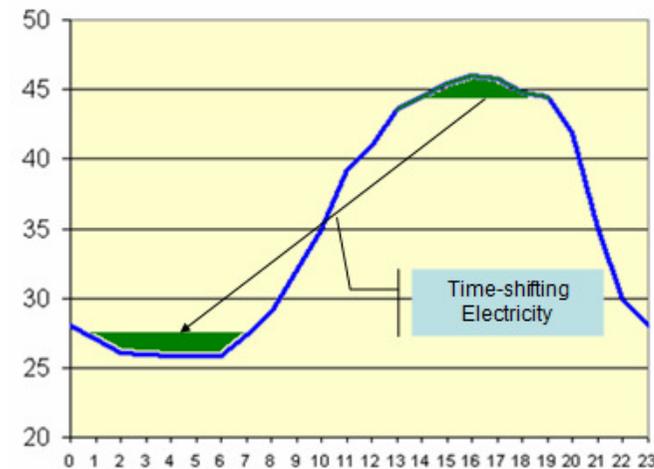


# Energy data analysis



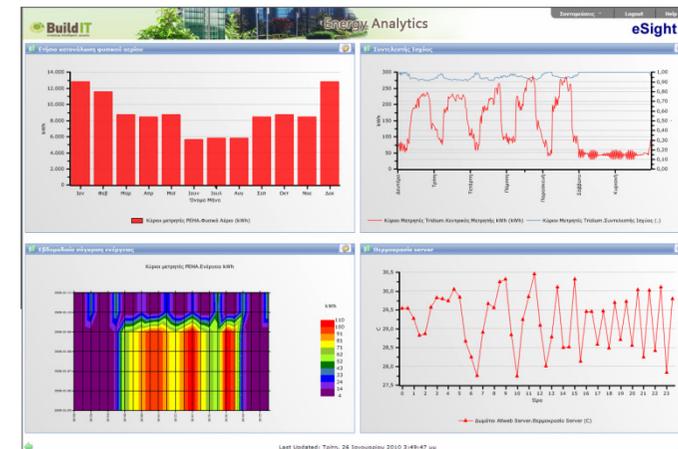
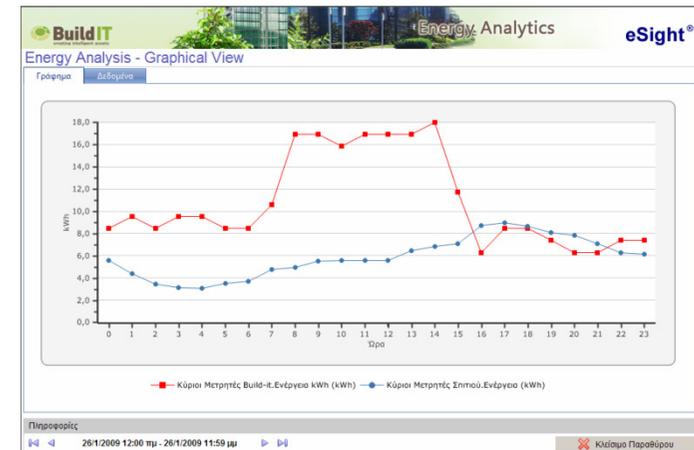
# How is energy efficiency achieved

- Identification of energy consumption picks & unjustified/irrational consumptions.
- Time shifting of loads based on automation technologies.



# How is energy efficiency achieved

- Consumption rates comparisons between days/weeks /months e.tc
- Energy dashboards for both real time and historical monitoring of energy consumption.



# How is energy efficiency achieved

- Automatic alerts through e-mail or SMS in case of emergencies.

Εταιρεία	Allweb		
Χώρος	Δωμάτιο Allweb Server		
Μετρητές	Ενέργεια Server (kWh)		
Περιγραφή	Range Alarm		
Παραπομπή	Προτεραιότητα	Medium	
Ενεργοποίηση Κάθε	1 Ημέρα	Τύπος Ειδοποίησης	Range (0.5 to 2)
Από	On 22/01/2010 18:00 the value was 5464.06(kWh), when the required range is 0.5 to 2(kWh)	Στον Αναγνωραστή	Να μην Αναγνωρισθεί
Στον Αναγνωραστή	22/1/2010 4:24 μμ		

Ρύθμιση Ειδοποίησης

Επιλέξτε τον Μετρητή σας

Επιλέξτε Μετρητή

Ορίστε τις τιμές ενεργοποίησης της ειδοποίησης

Εύρος

Min  Max

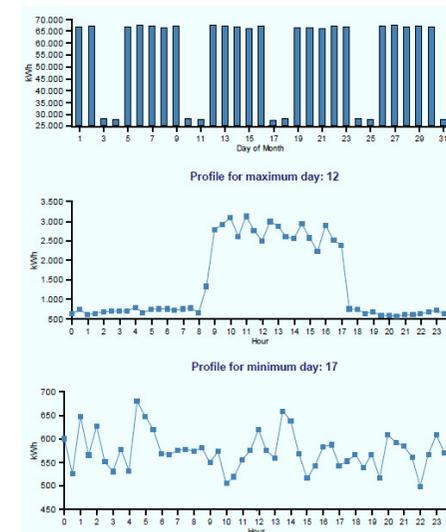
Μέσος Όρος

Min  Max  Υπολογισμός μέσου όρου ανά  (ημέρες)

Εισάγετε μια διεύθυνση e-mail προώθησης (προαιρετικό)

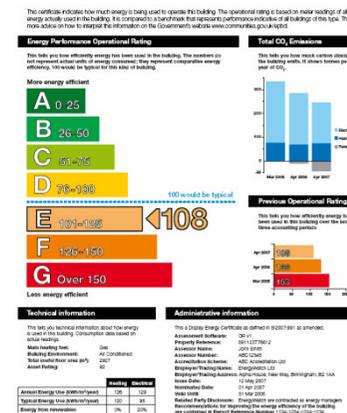
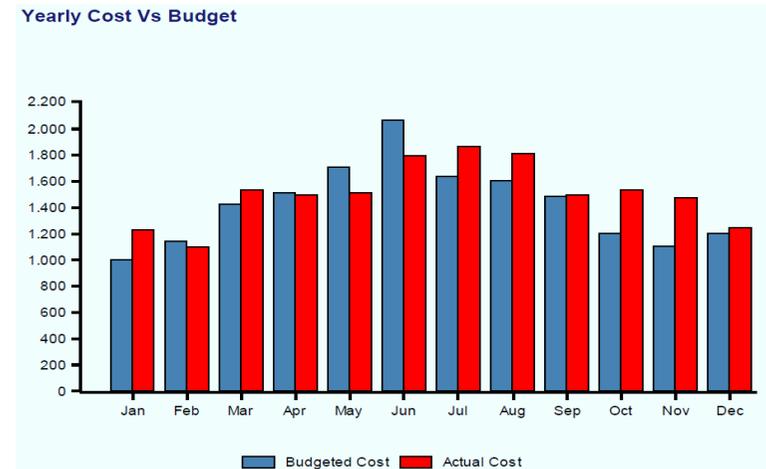
Διεύθυνση Email

- Automated Reporting diversified according to the position of each executive in management team.



# How is energy efficiency achieved

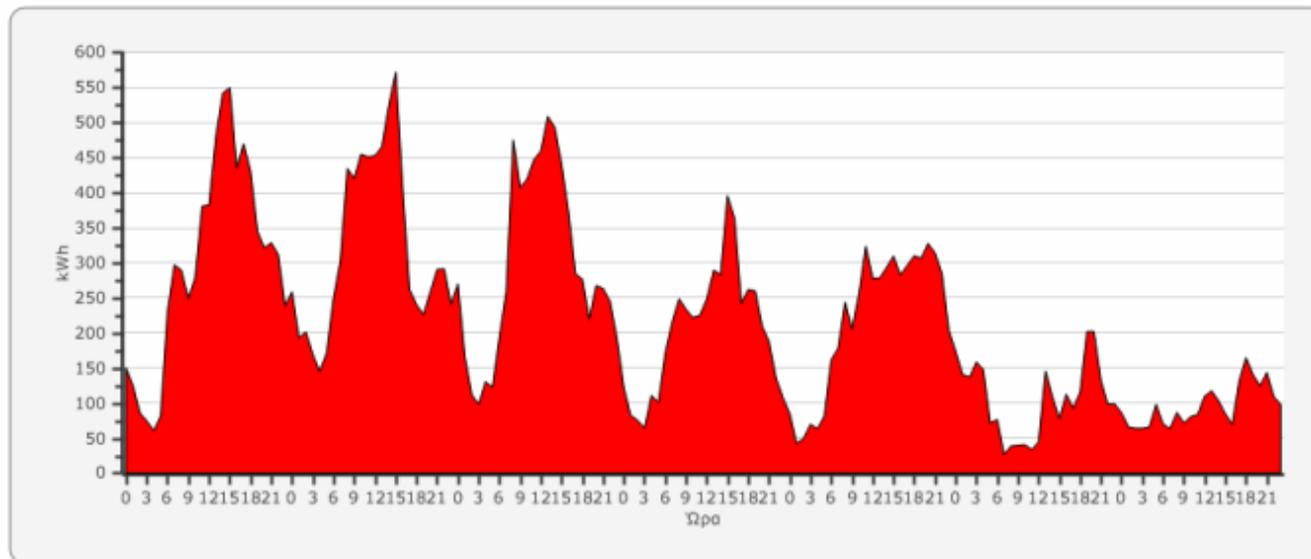
- Financial analysis based on the utility provider's tariffs for creation and implementation of energy budgeting.
- Energy certification based on the "real consumption" and not on "inspections".



# Case Studies

## Industry

- Food company with 120 employees and a power demand around 600kW



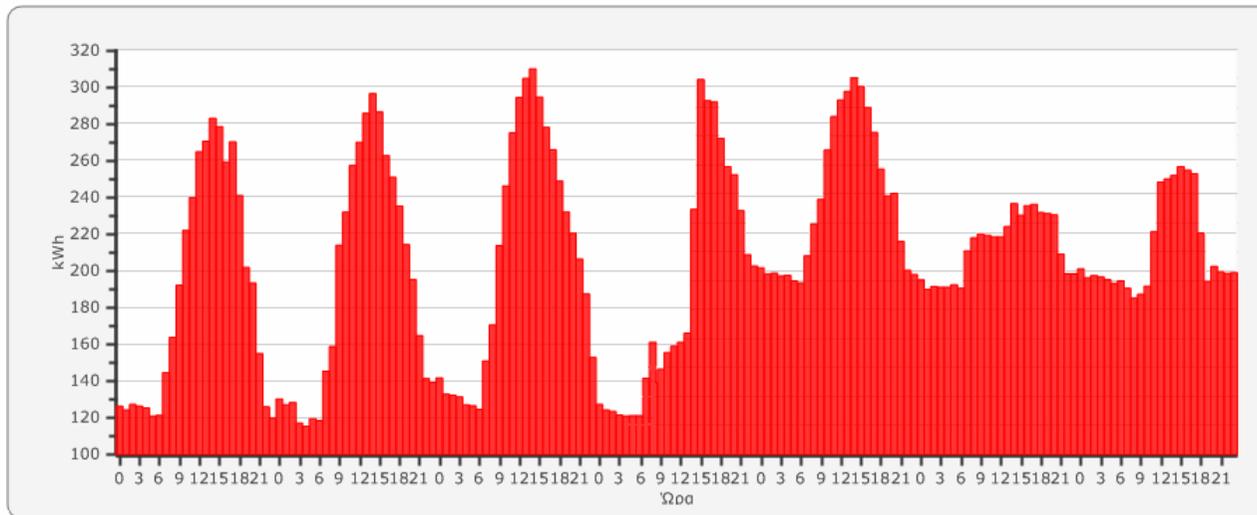
Weekly energy consumption



# Case Studies

## University

- Greek University Campus , meters for the most important consumptions

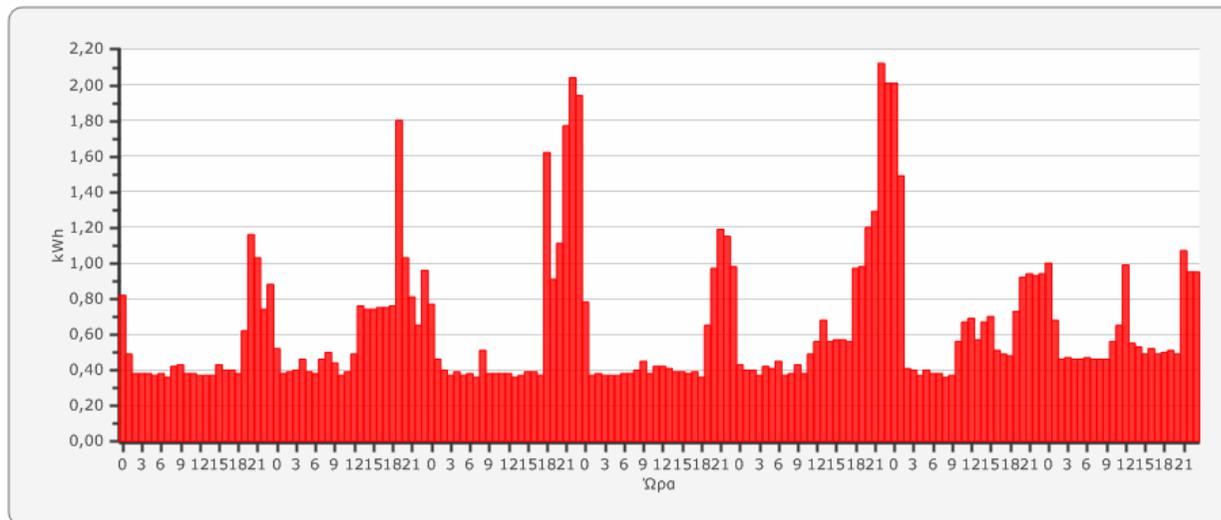


Weekly energy consumption

# Case Studies

## House

- Houses always show undefined energy consumption because of the varied usage from the residents.



Weekly energy consumption

# Case Studies

## The case of 3Alfa

➤ The energy strategy included

**Weekly Key Performance Indicators (KPIs):** which calculated and compared to targets.

**Weekly meeting:** is held with user departments reviewing diagrams for previous 7 days, and any exceptions are discussed.

**Hourly dashboards:** are used at department operator level to monitor usage when the plant is running, stopped, shutdown or during maintenance periods.

**Email alarms:** range and average are used for alerting high usage of specific meters which can have a major impact on utilities costs, environmental compliance, and production output.

# Conclusions

- ✓ **Build-IT** merges automation systems and real-time integration into a single, extensible platform.
- ✓ The AMIplus system is a scalable platform that delivers measurable Return On Investment (ROI) .
- ✓ Our Building Management System is suitable to all kinds of buildings .
- ✓ The new era of technology and energy needs a bridge between systems and devices, simplifying the process of connectivity and integration that makes building and facility management easier.
- ✓ **Build-IT** includes energy measurement and verification tools that allow users to implement the most efficient and sustainable energy strategies in a building today.



**Thank you very much for your attention!!!**