

# Smart ENERGY Management



## Energy Analytics & Monitoring

PowerHud® provides an accurate analysis of energy use, identifies waste, and reduces your bill with demand management and smart reporting features.

## 01 What is PowerHud®?

PowerHud® is an Energy Analytics Platform that gives a real-time analysis of your energy consumption. It collects, processes, and analyzes large volumes of energy data, generating insightful reports of your energy performance to drive improvements. PowerHud® identifies hidden energy cost drivers and operational inefficiencies using real-time and historical data aggregated from IoT devices. Its Heads-Up Display (HUD) provides a wealth of data – at a glance – that is useful and easy to understand.

## 02 Who Needs It?

Nowadays, businesses rely and depend on energy more than ever. From industrial manufacturing plants, hotels, schools, hospitals, banks, retail chains to commercial buildings, businesses are powered by energy. A large budget is allocated for this necessity, as well as time and resources to better understand (and reduce) energy consumption (and waste).

PowerHud® is an innovative solution to better understand the performance of devices, systems and their energy consumption, as well as gaining insights into energy savings, operational efficiencies and sustainability.

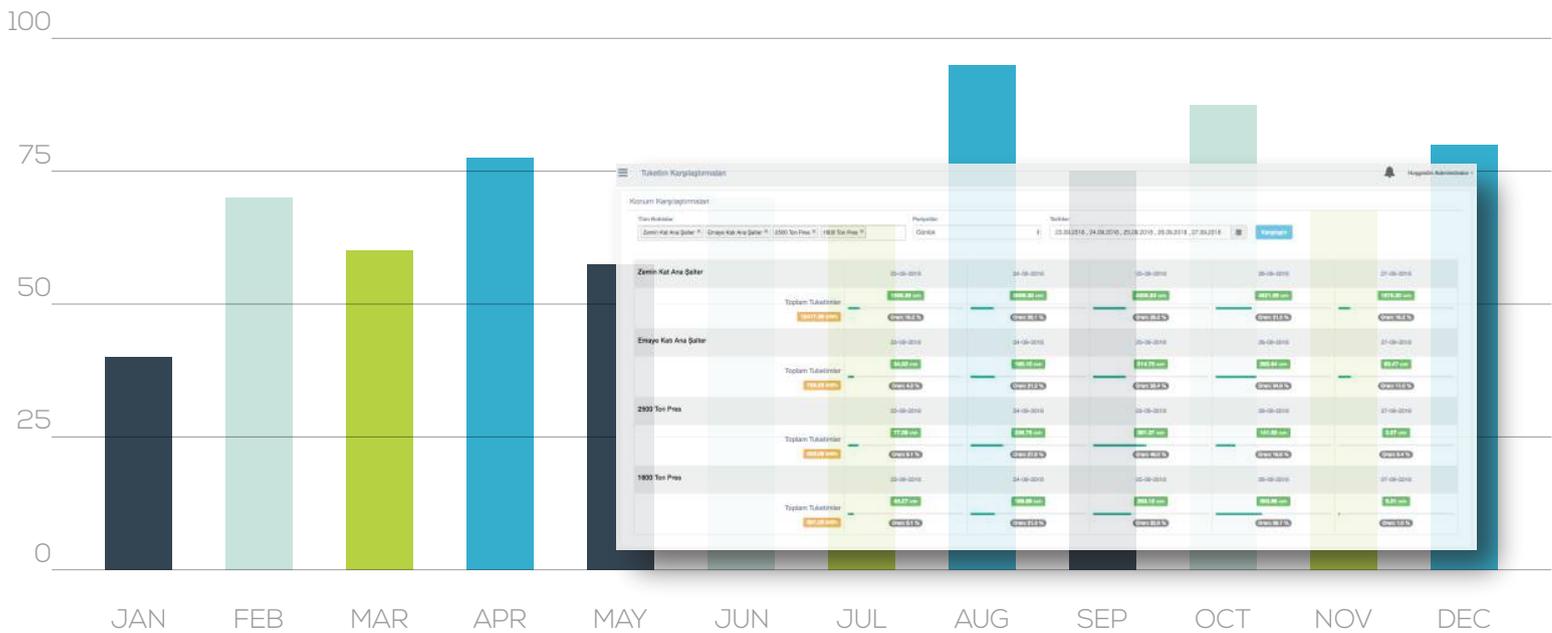
## 03 What are the Benefits?

PowerHud® implements a systematic approach to energy efficiency that not only significantly improves energy performance, but also results in greater productivity and lower maintenance needs. Key benefits are:

- Manage and track energy usage and payments through a single dashboard.
- Pinpoint root causes of energy waste and inefficiencies.
- Uncover hidden trends & patterns.
- Identify opportunities to save.
- Avoid risks to uptime & reduce operational costs.
- Monitor reactive penalty limits and payment due dates
- Unify management of all utilities.
- Continually evaluate and improve energy management.
- Achieve energy savings and sustainability

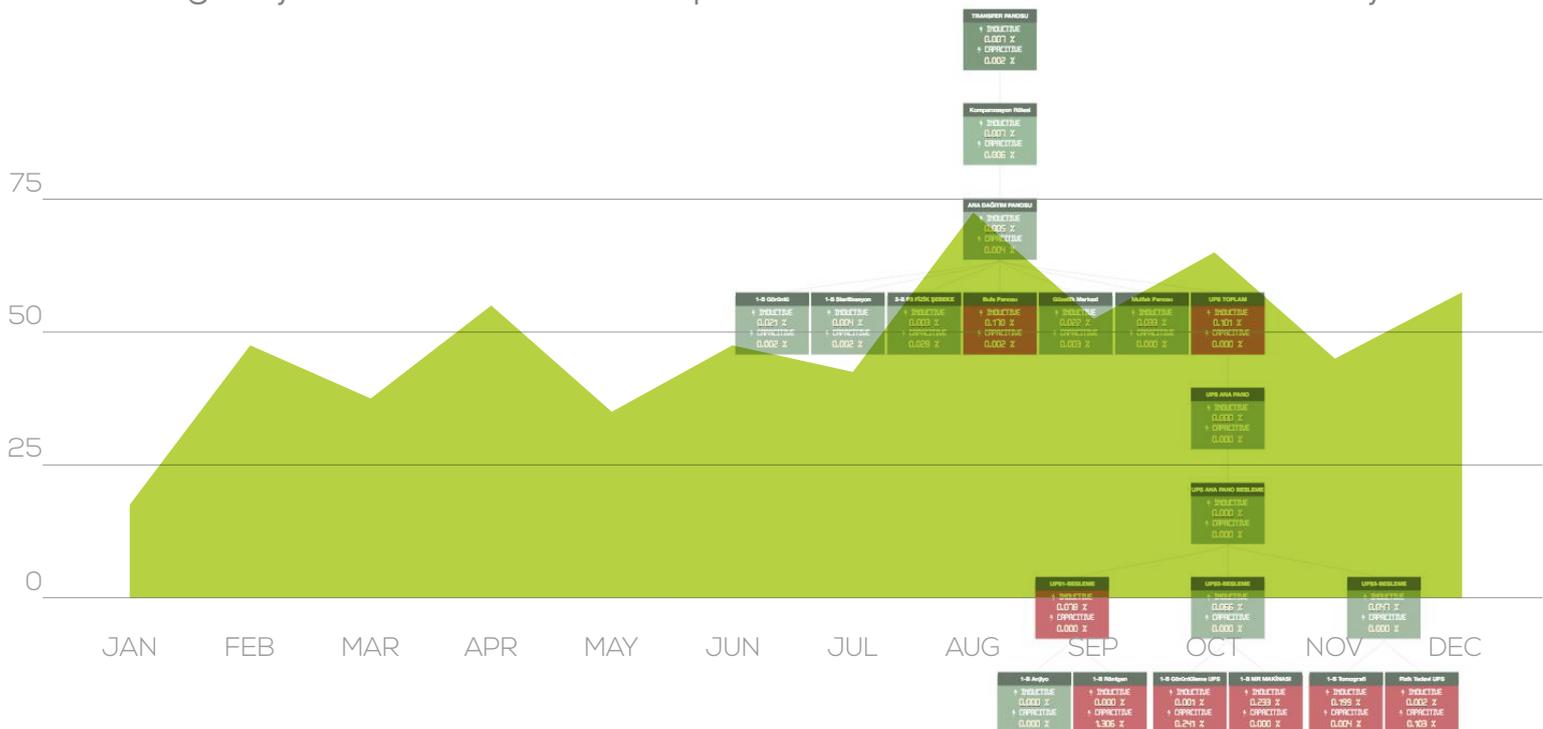
# Features

# Charts



## DAILY / MONTHLY / YEARLY CONSUMPTION COMPARISON

Detailed comparisons are the best way to distinguish your current and previous energy consumptions, enabling you to identify astronomical increases or when an energy-related component is likely to fail. This actionable insight helps prevent emergency maintenance, lowers operational costs and increases efficiency.



## MONITORING ENERGY QUALITY AND REACTIVE ENERGY

Most of the time, businesses discover bad energy quality when critical energy related equipment fail. Moreover, they may receive high penalties in their utility bills if the reactive power compensator is not monitored. PowerHud® sends real-time notifications to help prevent or analyze possible failures or penalties immediately.

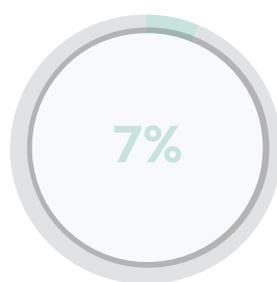
# Features

# Charts

Businesses with multiple branches can monitor and analyze their energy use across all locations from a single point. PowerHud® offers various comparison charts of total energy consumption between the locations. It also shows a breakdown of total consumption into different energy use areas of each location.



HVAC SYSTEMS



LIGHTING SYSTEMS



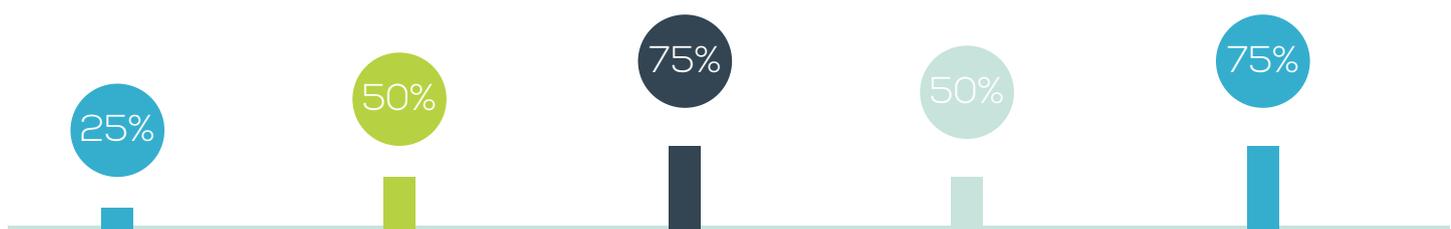
PRODUCTION LINES



OTHER CONSUMPTION

## AND MANY MORE SMART CHARTS

PowerHud® users may customize a wide range of smart charts, from reactive limits to harmonic distortions, according to their needs.

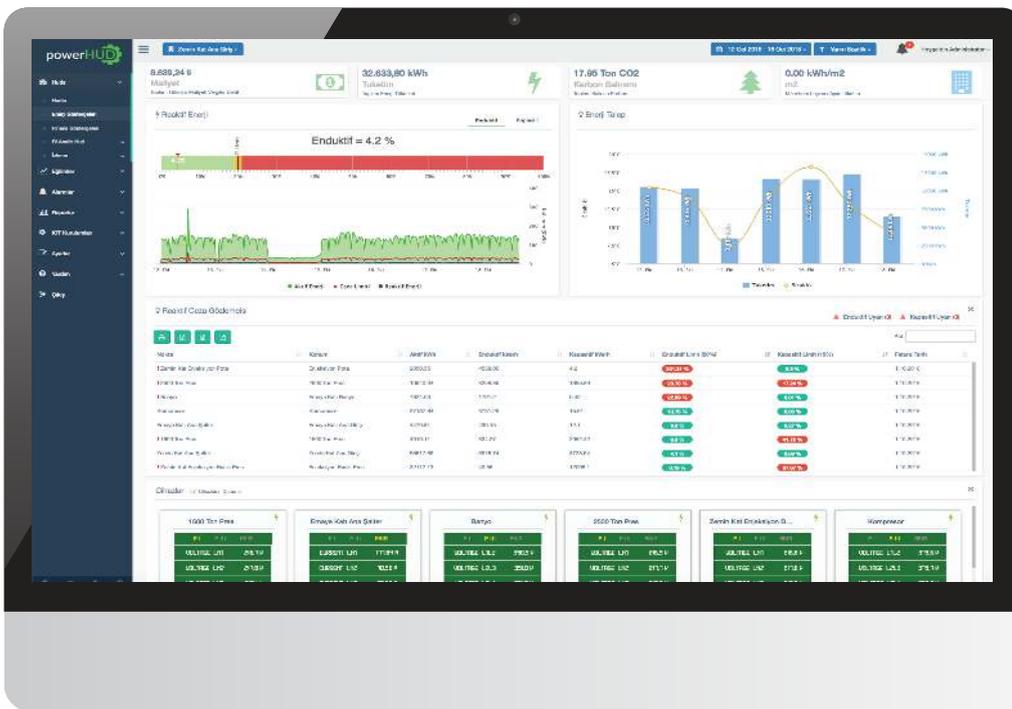


# Features

# Specs

Many current processes for energy analysis are labor intensive, but they don't have to be. PowerHud® provides innovative business intelligence with regular processing, management and analytics for large quantities of energy data at high speed, to save time and solve many headaches.

You receive daily, weekly and monthly energy consumption reports, as well as instant alarm notifications if anything goes beyond the rule boundaries that are defined in the system.



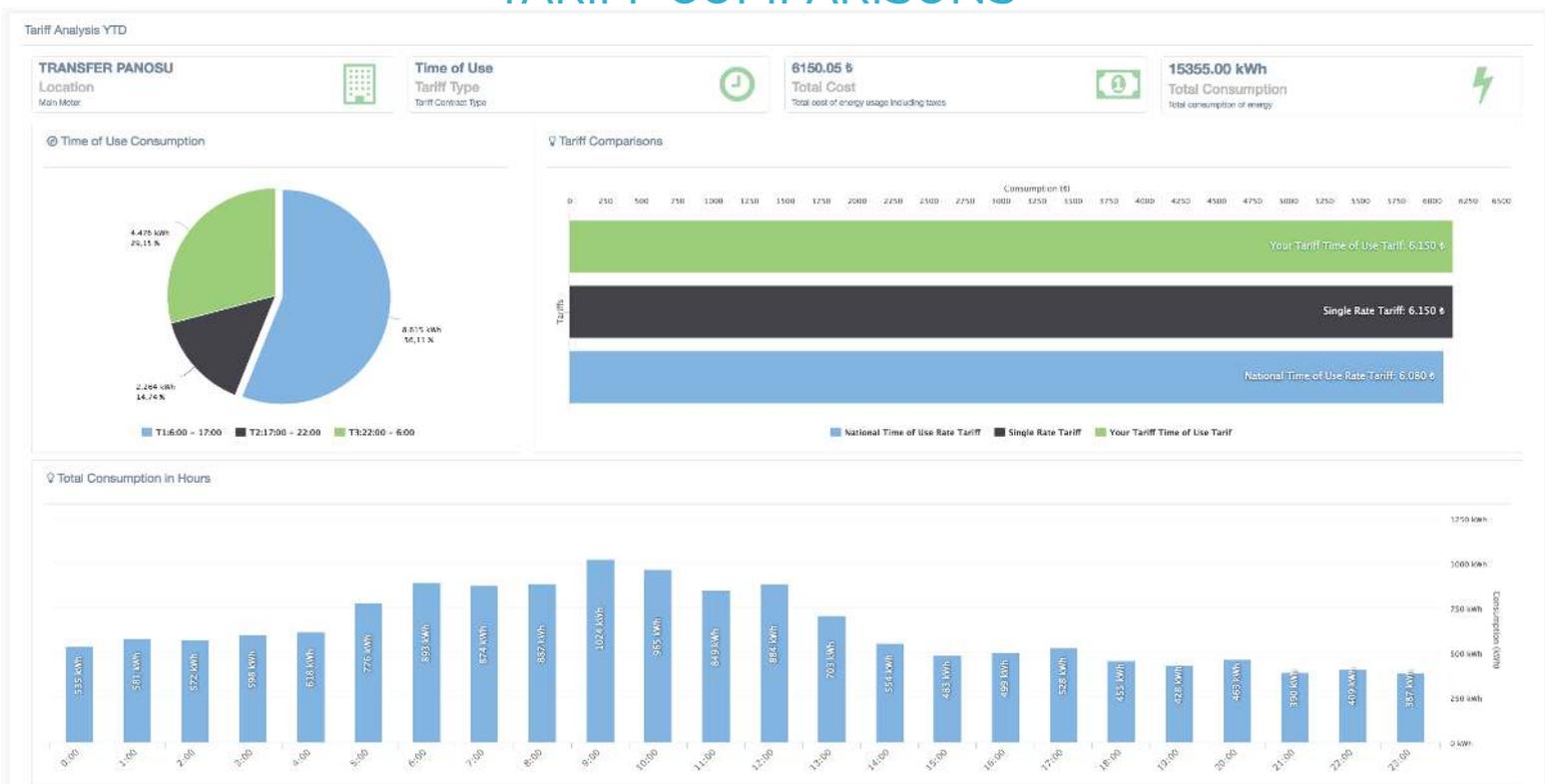
## REPORTING

Customizable reports to quickly and efficiently specify data for your various needs.

## ALARMS

Ensures nothing escapes your sight.

## TARIFF COMPARISONS

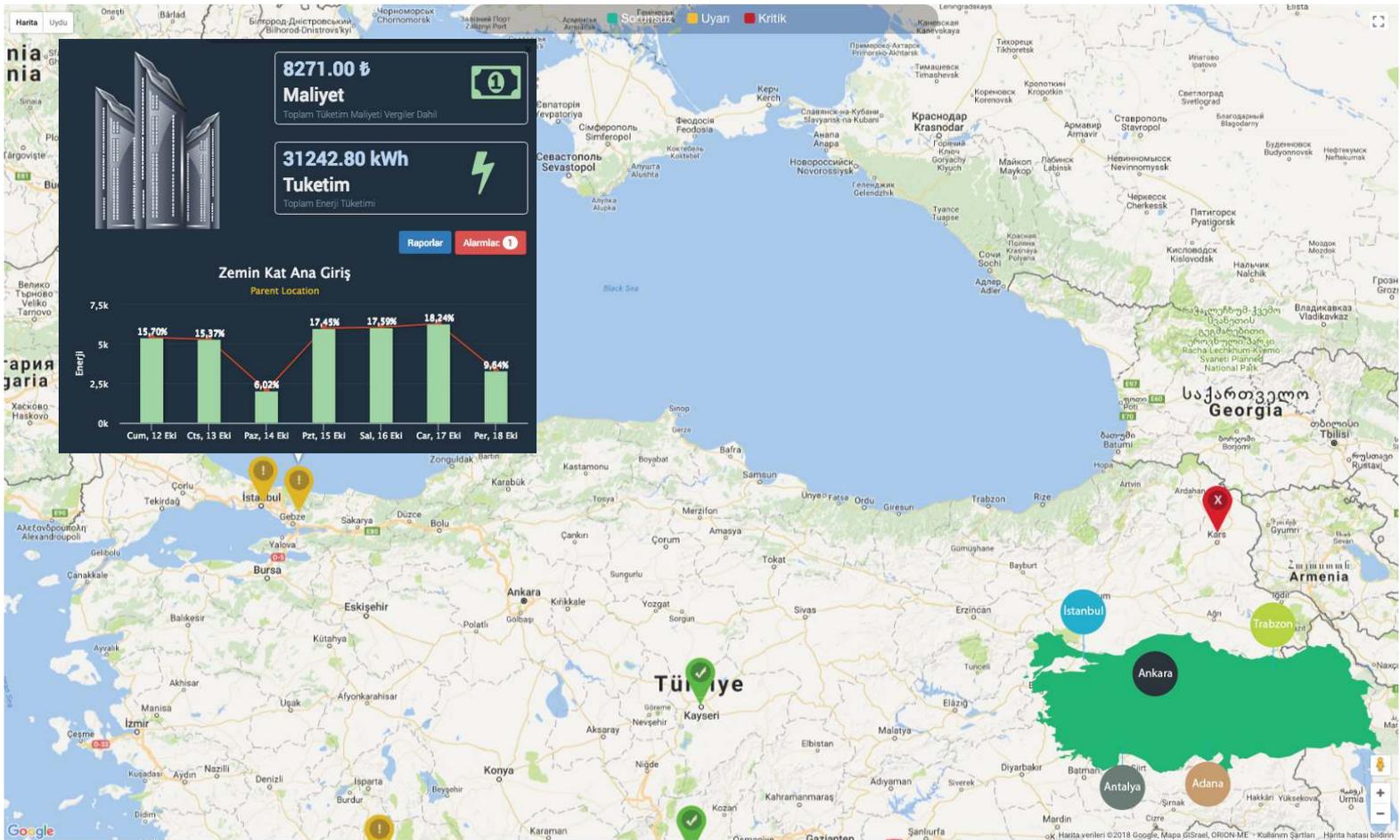


View current and previous tariffs, as well as forecasted energy expenses.

# Features

# Location

PowerHud® provides a live map-view to quickly identify and track potential problems in different regions through Red/Amber/Green statuses. You are also instantly notified about reported problems via email and/or short messages.



## USER ROLES

Custom permissions enables you to enforce powerful security and access control. There are different ways within PowerHud® that maximizes flexibility in how permissions are granted and modified.

A user can be responsible for a single location or an entire region. You may also grant permissions and visibility control at team levels to improve efficiency when dealing with large groups of users. Alarm notifications may be segregated and only sent to the responsible administrator(s) for regions with problem statuses.

## DEMAND MANAGEMENT

If you can't measure it, you can't improve it. Monitor your energy demand costs, identify peaks, and analyze cost savings opportunities.

## ANALYTICS ENGINE

PowerHud's Analytics Engine enables your organisation to easily and quickly adopt Big Data analytics as a core part of your business and accelerate conversion of your data into valuable business insights and Key Performance Indicators.

# Features

# Trends

With trends, you can monitor your energy consumption patterns at each premise. Furthermore, you may visually compare data between specific dates and multiple locations.

## Performance vs Base Indexes

**519.41 TL**  
YTD Cost Index  
Average Cost Index For Year to Date



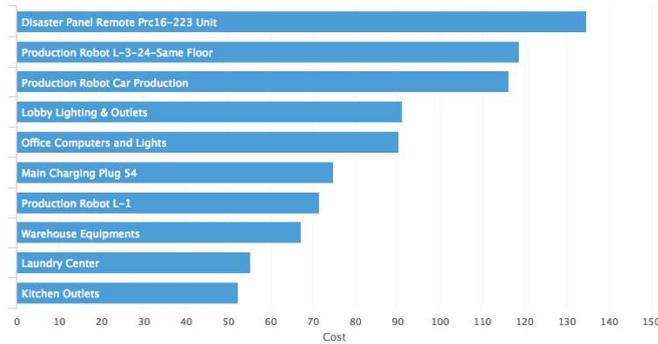
**2364.98 kWh**  
YTD Consumption Index  
Average Consumption Index Year to Date



**5.30 % | Increasing**  
Consumption Prediction  
Prediction +- changes may occur in Indexes



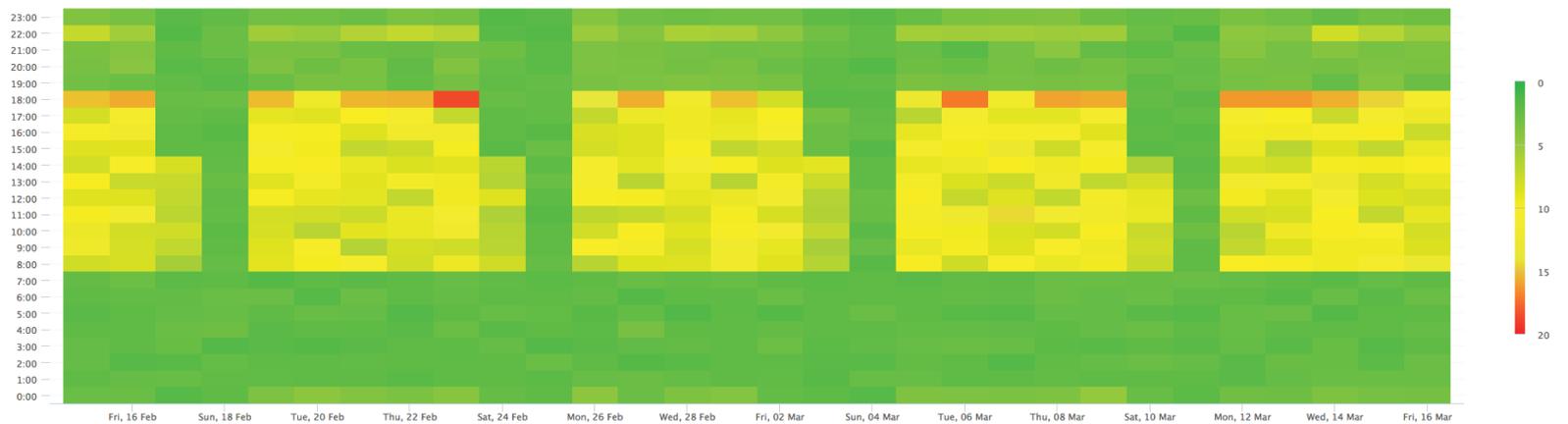
### Top Consuming Points



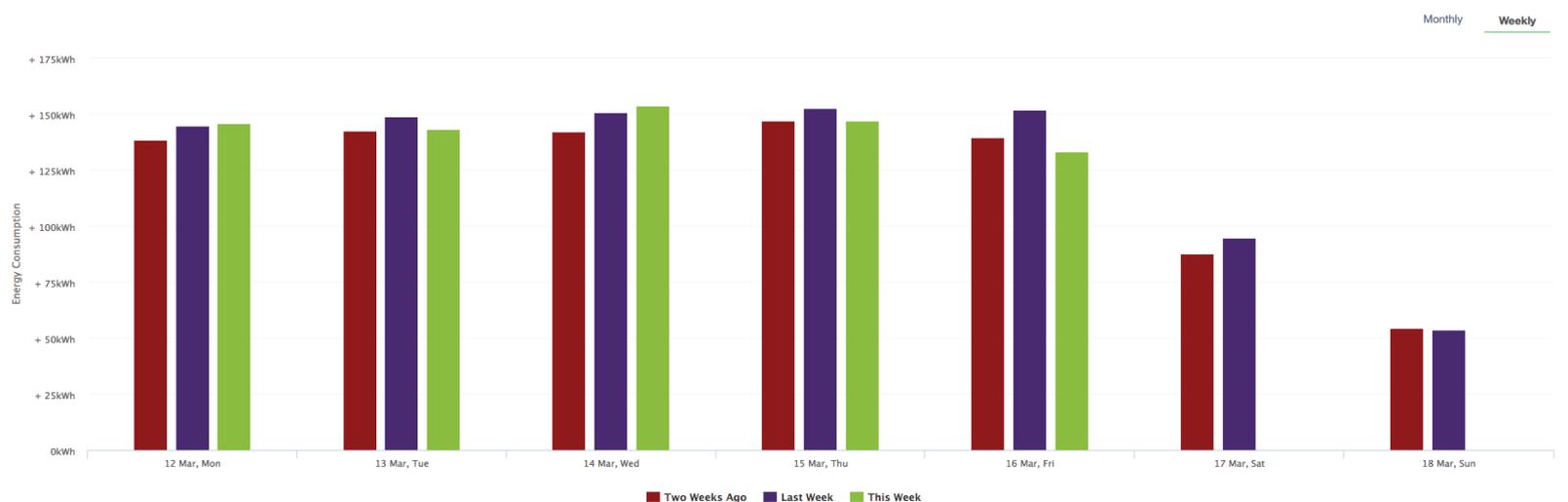
### Consumption Pattern %



## Consumption Map



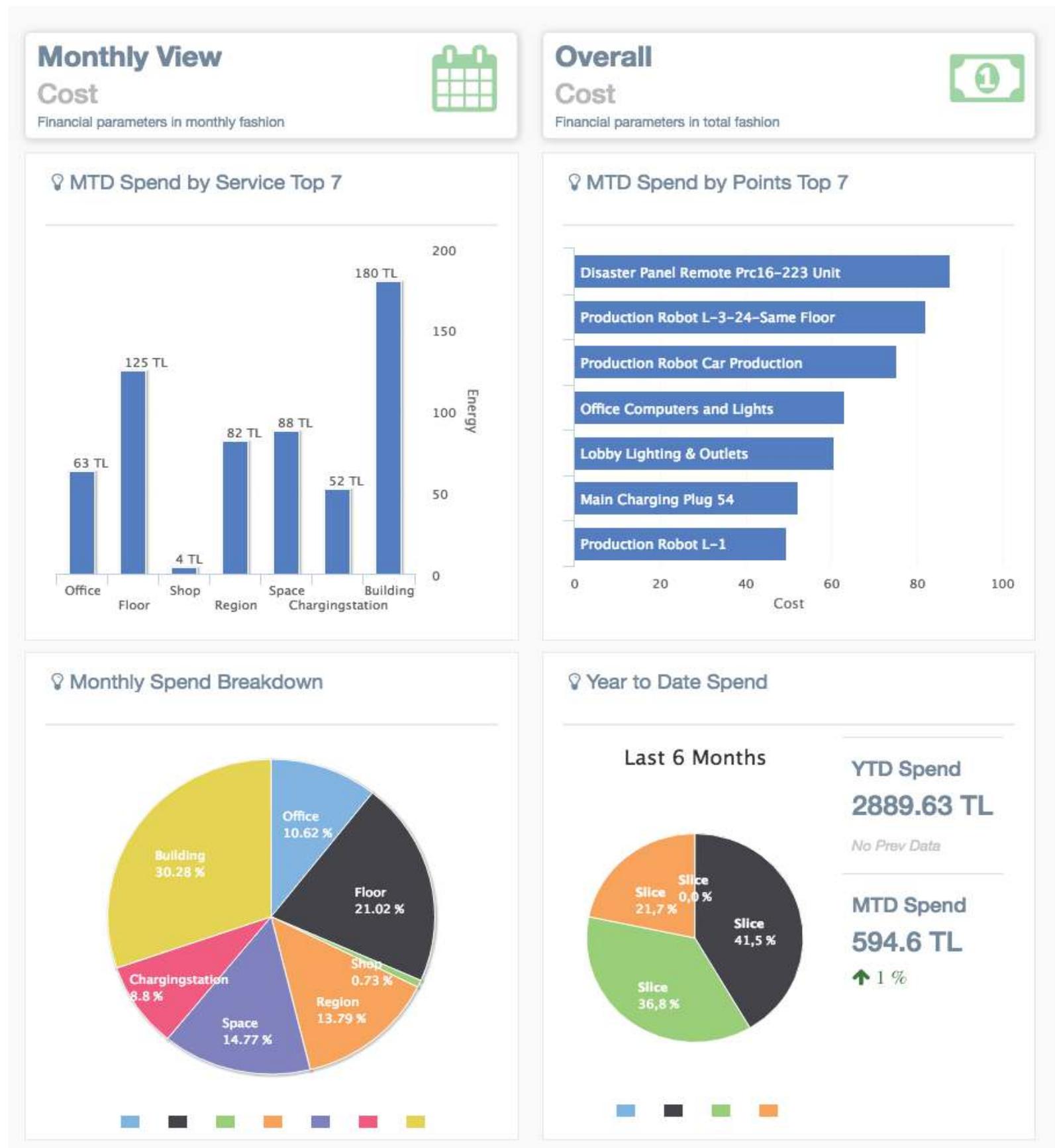
## Comparisons Total



# Features

# Finance

PowerHud® displays real time consumption and cost data analysis for single and multiple locations.



Energy data is collected in large volumes that increase with time. This vast amount of data is processed and analyzed to gain dramatic insight into financial performance and cost predictions. Historical data is compared with current data on a monthly and yearly basis in order to create financial ratios used to monitor changes over time.

# Features

# Reports

PowerHud's Advanced Reporting Studio allows users to create detailed reports within any range of dates. Reports can be saved in different industry standard formats (Excel, CSV, PDF, Print).

## Energy Consumption Details

Show 25 rows

Previous 1 2 3 4 5 ... 12 Next

Search

Date	Active Consumption (kWh)	Inductive Consumption (kVAh)	Capacitive Consumption (kVAh)	Inductive (%)	Capacitive (%)
10/03/2018 00:00	0.499	0.144	0.083	0.029 %	0.017 %
10/03/2018 00:30	1.359	0.368	0.14	0.027 %	0.01 %
10/03/2018 01:00	1.114	0.363	0.183	0.033 %	0.016 %
10/03/2018 01:30	0.958	0.393	0.188	0.041 %	0.02 %
10/03/2018 02:00	1.045	0.359	0.132	0.034 %	0.013 %
10/03/2018 02:30	1.598	0.424	0.163	0.027 %	0.01 %
10/03/2018 03:00	0.997	0.392	0.18	0.039 %	0.018 %
10/03/2018 03:30	1.108	0.413	0.134	0.037 %	0.012 %
10/03/2018 04:00	1.506	0.305	0.236	0.02 %	0.016 %
10/03/2018 04:30	1.353	0.343	0.142	0.025 %	0.01 %

## Energy Consumption Details

Show 25 rows

Previous 1 2 3 4 5 ... 12 Next

Search

Tarih	Voltage (V)			Current Akım (A)			Cos Φ			Active (kW)			Inductive (kVAh)			Capacitive (kVAh)			(%) THDI			
	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	
10/03/2018 00:00	219.25	214.65	218.																			11.82 %
10/03/2018 00:30	219.3	214.54	218.																			9.67 %
10/03/2018 01:00	219.27	214.67	218.																			11.37 %
10/03/2018 01:30	219.36	214.89	218.																			10.74 %
10/03/2018 02:00	219.28	214.84	218.																			11.96 %
10/03/2018 02:30	219.21	214.43	218.																			10.4 %
10/03/2018 03:00	219.2	214.65	218.																			9.63 %
10/03/2018 03:30	218.88	213.95	217.																			11.83 %
10/03/2018 04:00	218.77	214.26	217.																			14.76 %
10/03/2018 04:30	219.32	214.59	218.																			10.43 %
10/03/2018 05:00	218.84	213.83	217.																			11.86 %

### Invoice Details

## Invoice

Date: 18 Oct 2018

To  
TRANSFER PANOSU  
ERSOY HASTANESI

Contract Demand: 750 kVA

Invoice Begin: 01-10-2018

Inductive Limit: 20 %

Tariff Type: Single

Capacitive Limit: 15 %

Device: TP ŞEBEKE

	Date	Active	Inductive	Capacitive
First Index	01-10-2018 (00:00:00)	1,817,079.00	9,879.00	9,879.00
Last Index	18-10-2018 (16:23:23)	1,834,453.00	9,998.00	9,998.00
Difference		17374	119.00	119.00
Device Multiplier		1	1	1
Consumption		17374.00 kWh	119.00 kVAh	119.00 kVAh
Reactive %			0.68 %	0.68 %
Unit Price		0.264733 ₺		

This is an informative invoice. Calculations may vary based on retailer's prices and subscription charges.

Payment Due 25-10-2018

Subtotal:	4,599.47 ₺
Dagıtım Bedeli	1,163.38 ₺

Enerji Fonu	1.00 %	45.99 ₺
Elektrik Tüketim Vergisi	5.00 %	229.97 ₺
TRT Payı	2.00 %	91.99 ₺
K.D.V.	18.00 %	1103.54 ₺
<b>Total:</b>		<b>7,234.34 ₺</b>

Generate PDF

# Features

# Live Monitor

Analyzers, generators, UPS and other types of sensors installed at multiple locations are monitored and managed in a single window. Alarms on each device help users take immediate action to prevent possible faults and reduce operational costs.

All Points Functioning Not Functioning Search

### Monitoring Points

All Types

#### GÜZELLİK MERKEZİ 1

P I	P III	CURRENT
VOLTAGE LM1	221.1 V	
VOLTAGE LN2	220.9 V	
VOLTAGE LN3	4.2 V	

Location: Güzellik Merkezi Converter: UDP UPS  
Modbus ID: 7 : Entes MPR-535E BASIC  
Last Seen: 18 Oct 2018 - 16:17:49

#### UPS-3 BESLEME

P I	P III	CURRENT
VOLTAGE L1L2	380.0 V	
VOLTAGE L2L3	382.0 V	
VOLTAGE L3L1	380.1 V	

Location: UPS3-BESLEME Converter: ADP ŞEBEKE  
Modbus ID: 8 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:14:31

#### UPS-2 BESLEME

P I	P III	CURRENT
VOLTAGE L1L2	378.7 V	
VOLTAGE L2L3	381.0 V	
VOLTAGE L3L1	379.1 V	

Location: UPS2-BESLEME Converter: ADP ŞEBEKE  
Modbus ID: 7 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:20:02

#### UPS ANA PANO BESLEME

P I	P III	CURRENT
VOLTAGE LM1	215.8 V	
VOLTAGE LN2	219.2 V	
VOLTAGE LN3	218.7 V	

Location: UPS ANA PANO BESLEME Converter: ADP ŞEBEKE  
Modbus ID: 5 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:19:22

#### TP ŞEBEKE

P I	P III	CURRENT
CURRENT LM1	476.0 A	
CURRENT LN2	473.0 A	
CURRENT LN3	415.5 A	

Location: TRANSFER PANOSU Converter: ADP ŞEBEKE  
Modbus ID: 2 : Entes MPR63 BASIC  
Last Seen: 18 Oct 2018 - 16:18:47

#### UDP UPS TOPLAM

P I	P III	CURRENT
VOLTAGE LM1	222.8 V	
VOLTAGE LN2	224.9 V	
VOLTAGE LN3	223.7 V	

Location: UPS TOPLAM Converter: UDP UPS  
Modbus ID: 2 : Entes MPR63 BASIC  
Last Seen: 18 Oct 2018 - 16:19:04

#### MUTFAK PANOSU

P I	P III	CURRENT
VOLTAGE LM1	216.3 V	
VOLTAGE LN2	219.5 V	
VOLTAGE LN3	219.3 V	

Location: Mutfak Panosu Converter: ADP ŞEBEKE  
Modbus ID: 12 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:18:07

#### 3-B P3 UPS FİZİK

P I	P III	CURRENT
VOLTAGE L1L2	384.3 V	
VOLTAGE L2L3	383.6 V	
VOLTAGE L3L1	383.9 V	

Location: Fizik Tedavi UPS Converter: ADP ŞEBEKE  
Modbus ID: 16 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:14:51

#### 1-B TOMOGRAFİ

P I	P III	CURRENT
VOLTAGE LM1	220.8 V	
VOLTAGE LN2	221.0 V	
VOLTAGE LN3	221.3 V	

Location: 1-B Tomografi Converter: UDP UPS  
Modbus ID: 4 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:13:39

#### 1-B STERİLİZASYON

P I	P III	CURRENT
VOLTAGE LM1	215.7 V	
VOLTAGE LN2	219.3 V	
VOLTAGE LN3	219.8 V	

Location: 1-B Sterilizasyon Converter: ADP ŞEBEKE  
Modbus ID: 10 : Entes MPR-535S BASIC  
Last Seen: 18 Oct 2018 - 16:16:32

#### 1-B RÖNTGEN 2

P I	P III	CURRENT
VOLTAGE LM1	216.9 V	
VOLTAGE LN2	220.2 V	
VOLTAGE LN3	220.2 V	

Location: 1-B Röntgen Converter: ADP ŞEBEKE

#### BÜFE PANOSU

P I	P III	CURRENT
CURRENT LM1	1722 A	

#### 3-B P3 FİZİK ŞEBEKE

P I	P III	CURRENT
VOLTAGE LM1	219.0 V	

#### KOMPANZASYON RÖLESİ

P I	P III	CURRENT
VOLTAGE LM1	218.1 V	

#### 1-B RÖNTGEN 1

P I	P III	CURRENT
VOLTAGE LM1	217.0 V	

### Device Details

4588.91 \$ Cost  
17334.10 kWh Consumption  
9.53 Ton CO2 CO Emission  
6.19 kWh/m2 Per Sqm

Device: KOMPANZASYON RÖLESİ  
Parameters: TotalharmonicdistorsionV1.3, TotalharmonicdistorsionV1.2, TotalharmonicdistorsionV1.1, ActivepowerSum, QuadrantTotalreactiveenergy, Current.3, Current.2, Current.1, Measuredfrequency, TotalharmonicdistorsionI.3, TotalharmonicdistorsionI.2, TotalharmonicdistorsionI.1, QuadrantTotalreactiveenergy, Cosphi.3, Cosphi.2, Cosphi.1, Totalconsumedactiveenergy, Reactivepower.3, Reactivepower.2, Reactivepower.1, VoltageL3n, VoltageL2n, VoltageL1n

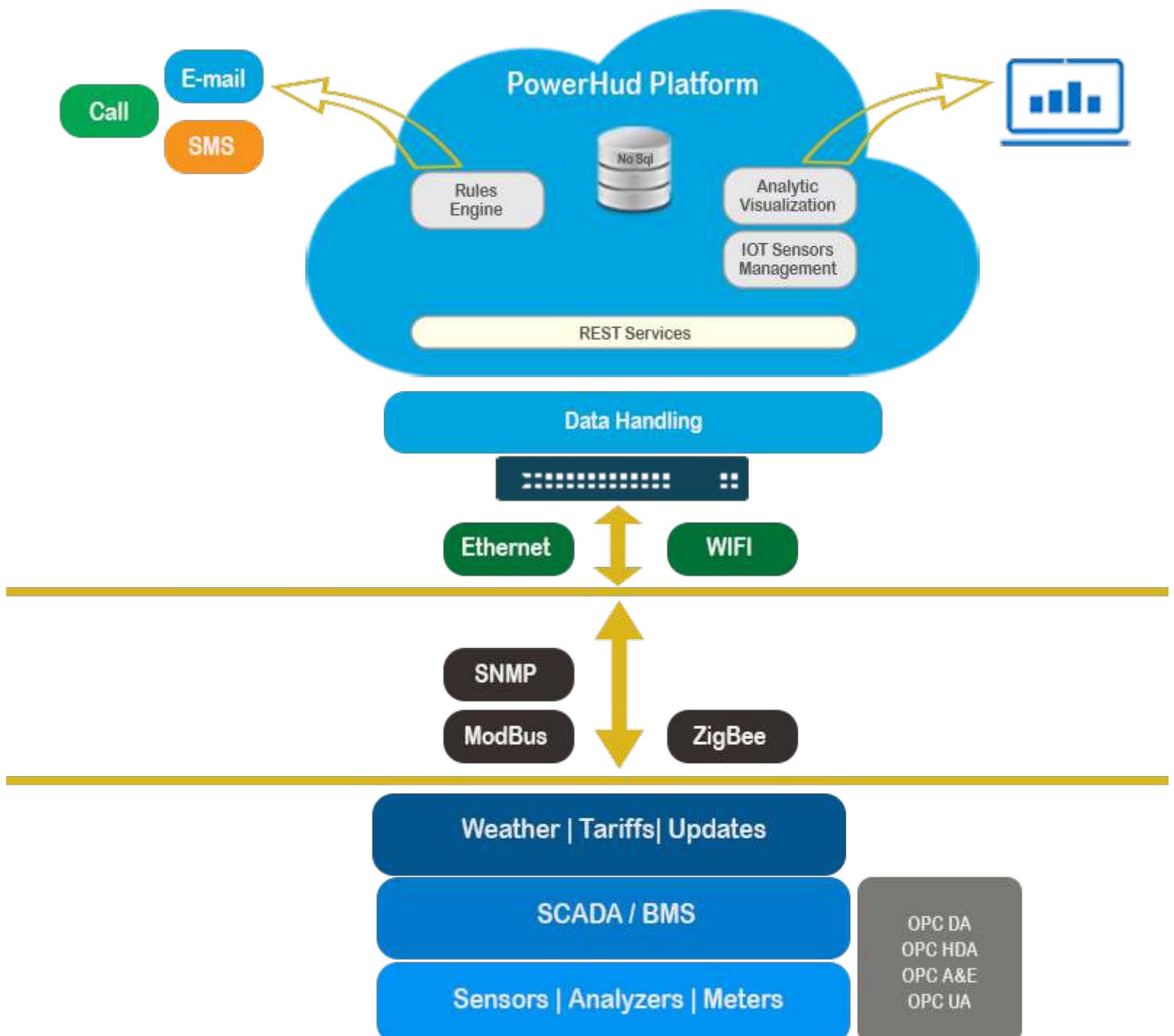
Reactive Energy: Inductive = 1.9 %  
Energy Quality: Phase 1, Phase 2, Phase 3

# System

# How it Works

PowerHud® has a flexible structural design that enables it to work on the cloud or local virtual machines. It uses noSql (MongoDB) as its database server. Here are the main steps:

- Data is collected from analyzers and sensors by PowerHud's collection agent. This data is sent to a data aggregation service, which automatically classifies the data and saves it into a database.
- The data is analytically processed, as per the rules defined, and if any match is found, user(s) will be notified.
- All IoT devices can be monitored by PowerHud®. Any device that is reporting an error or appears inaccessible by PowerHud® will be reported to the user(s).



# Contact

# Reach Us

PowerHud® team is here to provide you with more information, answer any questions you may have and create an effective solution for your industry needs. We are incredibly responsive to your requests and value your questions.

[www.powerhud.com](http://www.powerhud.com)

## INSTALLATION IN FOUR STEPS

### 01

#### ANALYSIS

Survey is conducted at your location to design the software platform.

### 02

#### DESIGN

As per result of the survey, project plan is created for next steps.



### 03

#### INSTALLATION

After procurement of the sensors, installation and commissioning is complete.

### 04

#### PLATFORM

Relationships are created between the software platform and peripheral units and go live.

## CONTACT DETAILS

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