



MDM & ENERGY MANAGEMENT

The Ultimate All-in-One EMS

Expertpower is a SaaS cloud based software solution, providing comprehensive energy management capabilities for a wide variety of purposes such as: sub-metering, billing, meter data management, energy efficiency, demand monitoring, power quality analysis, and business intelligence.

Today's markets have increased awareness for conservation, aiming for reduction of carbon footprint and global warming. Expertpower's tools enable users to do so by setting goals and monitoring performance in the most accurate and comprehensive way possible.

Expertpower's platform offers information and analytics to improve the efficiency, reliability, security and profitability of our customers' energy system.

Data Collection

- ❑ Automatic data collection from meters (electricity, water, gas etc.), connected by electrical pulse, serial, Ethernet or cellular communication
- ❑ Third-party system API (AMI, AMR, SCADA, CRM, ERP, OMS, Billing)
- ❑ Virtual Device: output of complex calculations of several devices
- ❑ Easy configuration of new devices, communication server and register mapping
- ❑ Import from data files

Visualization

- ❑ View all data in your browser—no software installation, or employee training needed
- ❑ User-friendly dashboards and reporting tools
- ❑ Role & permissions based user access
- ❑ Geo-location

Data History

- ❑ Years of consumption available as live data or archive
- ❑ Charts most of measured parameters
- ❑ Monitors trends to identify potential problems
- ❑ Endless data stored on the cloud-based MS Azure platform

Cyber Security

- ❑ ISO 27001 & GDPR compliance
- ❑ Annual penetration testing by independent experts

Energy Efficiency, BI & Analytics

- Data / Event Monitoring
- Business intelligence
- Power Quality



Billing & Submetering

- Cost Calculation & Monitoring
- Invoice Management
- Tenant Management

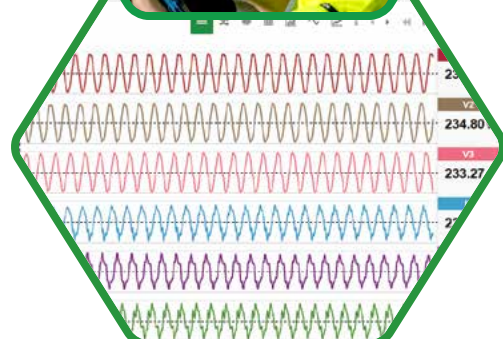


חשבונית	חשבונית	חשבונית	חשבונית	חשבונית	חשבונית
141 511	8,809.01	114,705.56	01/07/2023	01/08/2023	01/09/2023
8501	0.00	48,304.80	01/07/2023	01/08/2023	01/09/2023
41 151	11,552.00	130,714.20	01/07/2023	01/08/2023	01/09/2023
	16,431.81		01/07/2023	01/08/2023	01/09/2023
	44.51		01/07/2023	01/08/2023	01/09/2023
	0.00		01/07/2023	01/08/2023	01/09/2023
24 411	28.19	86.00	01/07/2023	01/08/2023	01/09/2023
170,996			01/07/2023	01/08/2023	01/09/2023
10,489.49			01/07/2023	01/08/2023	01/09/2023



Meter Data Management

- VEE
- Meter readings
- Event & tampering reporting



Energy Management & Efficiency

Expertpower enables the monitoring and analysis of power and energy consumption in complex sites.

- Visualizing the collected data in user friendly dashboards and providing the techno-commercial analytics layers
- Virtual devices — provides an ability to apply complex calculations and formulas in order to create virtual metering
- Historical data, trends and detection for identifying energy consumption demands, anomalies, meter tampering, ROI calculations
- Advanced comparison wizard— select multiple devices, parameters and time periods in order to achieve deep insights related to energy consumption and energy consumers behavior
- Water, gas & steam monitoring, all on one platform

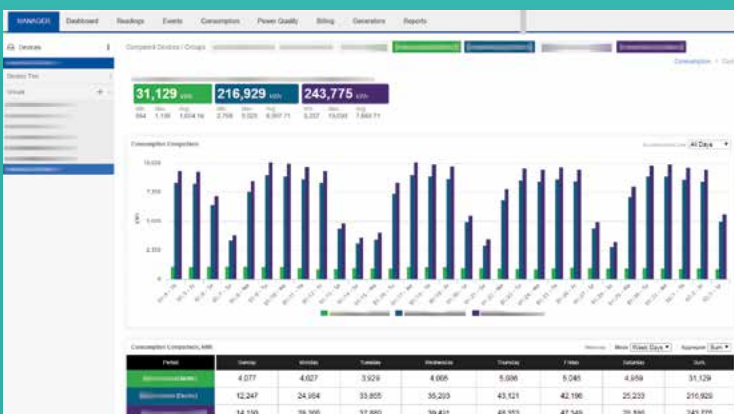
EXECUTIVE DASHBOARD



HEAT MAP

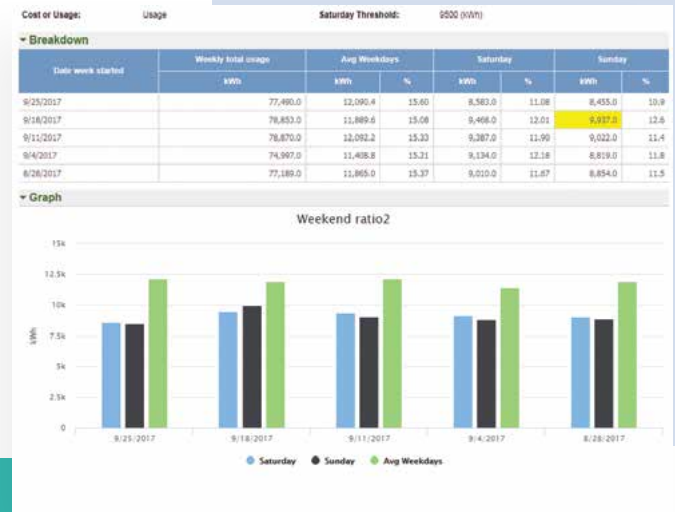


COMPARISON

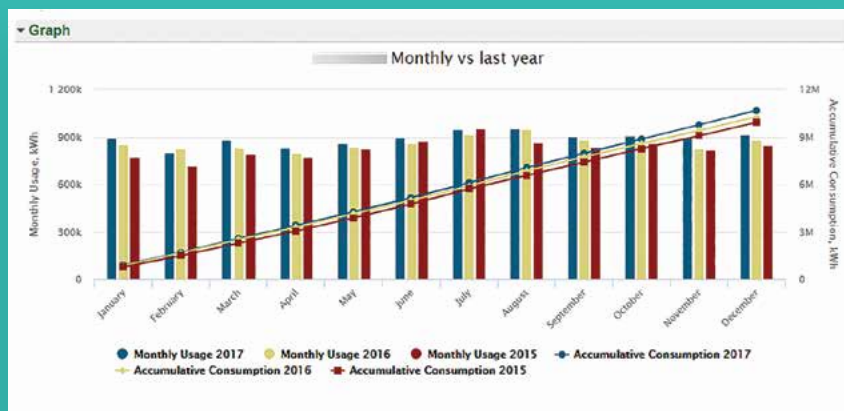


- Rich report suite and dashboards, providing actionable insights consumption and Business Intelligence:
 - Compares cumulative monthly consumption with previous years
 - Highlights excessive weekend consumption
 - Highlights consumption outliers outside working hours
 - Tracks losses reflected in energy balance distribution
- Co2 emission reporting
- Waste distribution, waste water & sewage as well as HVAC efficiency monitoring
- Energy balance

WEEKEND RATIO



CUMULATIVE—LAST YEAR



HOURLY OUTLIERS

Configurable consumption alerts via email, SMS

Report View

Report Type: Consumption outliers per day Report Name: Consumption Outliers2

Report Dates: 9/1/2016 - 10/1/2016 Report generation date: 2/12/2018

Devices: Floor 1 Meter #3, 195MO Floor 1 Meter #1, 195MO Floor 1 Meter #2, 195MO Floor 1 Meter #4, 195MO Floor 1 Meter #5, 195MO Floor 1 Meter #6

Start Hour: 01:00 End Hour: 04:00

Threshold: 10

Breakdown

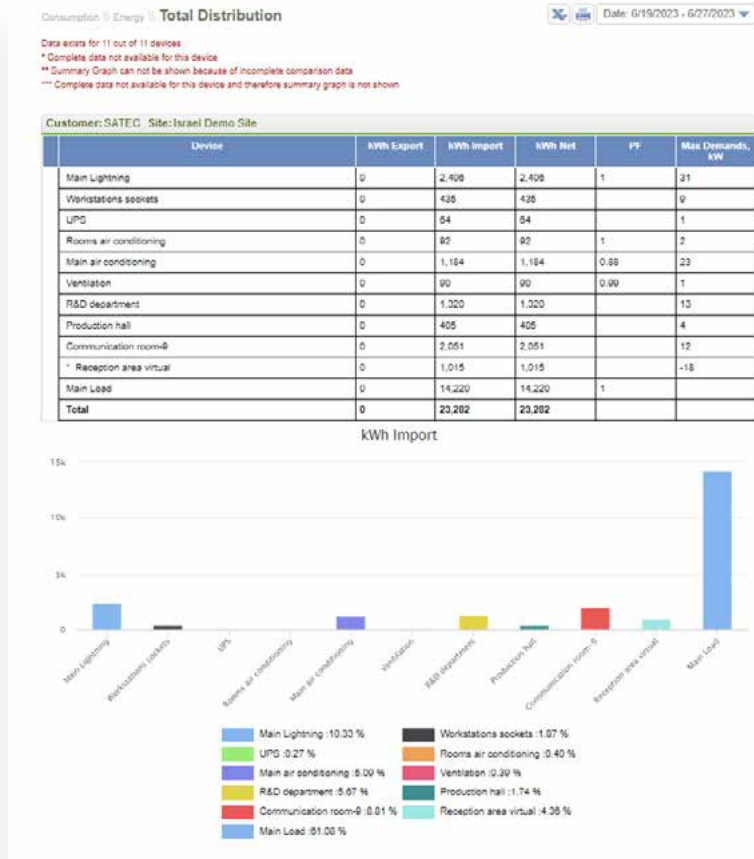
Device	Branch No.	Department	2016-09-01	2016-09-02	2016-09-03	2016-09-04	2016-09-05	2016-09-06	2016-09-07	2016-09-08	2016-09-09	2016-09-10	2016-09-11	2016-09-12	2016-09-13	2016-09-14	2016-09-15
Floor 1 Meter #1			0	1	1	0	0	1	1	0	1	1	0	0	1	0	
Floor 1 Meter #2			13	13	13	12	13	13	13	13	12	12	13	13	13	13	
Floor 1 Meter #3			2	2	2	2	2	2	1	1	1	1	1	1	1	2	
Floor 1 Meter #4			1	1	0	0	0	0	0	0	0	0	0	0	0	0	
Floor 1 Meter #5			0	1	0	0	0	0	1	0	0	0	0	1	0	0	
Floor 1 Meter #6			2	2	3	3	3	3	3	2	2	2	2	3	3	3	

Billing & Submetering

ENERGY BALANCE - TOTAL DISTRIBUTION

Enables the monitoring of tenant consumption and managing the billing process for electricity, water, sewage, gas and steam, all under the same billing module

- Dynamic tariff settings, including prices, usage and seasons
- Accurate cost calculation
- Complete submetering solution
- Tenant management portal
- Flexible invoicing options
- Invoice comparison
- Billing based on virtual meters
- Supporting complex formulas and calculations
- Billing data available by reports and API



DETAILED CONSUMPTION REPORT

Can be Invoiced: ✗

Device Name: 11331-PM175-13

Meter No.: 823549

Billing period: December 2011

Dates of meter readings: 10/31/2011 - 12/13/2011

Number of days in period: 43

Method of Charge No.: IEC V2 TOU energy import tariff Low Voltage

Description	Usage code	Season	Tariff	Energy Measurements				Usage	Billing	
				Previous Date	Previous Reading	Present Date	Present Reading		Cost per kWh	Total Cost
TOU energy	077	Summer	Peak	12/7/2011	60,330	12/13/2011	61,502	1,166	1.01	1,176.38
TOU energy	078	Summer	High	12/7/2011	49,317	12/13/2011	52,346	3,120	0.43	1,346.59
TOU energy	079	Summer	Low	12/7/2011	45,003	12/13/2011	47,552	2,549	0.38	716.92
TOU energy	177	Winter	Peak	12/1/2011	59,352	12/7/2011	60,330	978	0.91	892.43
TOU energy	178	Winter	High	12/1/2011	47,516	12/7/2011	49,317	1,801	0.53	962.99
TOU energy	179	Winter	Low	12/1/2011	43,963	12/7/2011	45,003	1,040	0.31	317.30
TOU energy	777	Fall/Spring	Peak	10/31/2011	48,144	12/1/2011	59,352	11,119	0.42	4,663.31
TOU energy	778	Fall/Spring	High	10/31/2011	41,241	12/1/2011	47,516	6,275	0.34	2,137.89
TOU energy	779	Fall/Spring	Low	10/31/2011	36,498	12/1/2011	43,963	7,465	0.27	2,014.06
Subtotal								35,513		14,221.87
PF								0		
Total Charge										14,221.87

Additional Text For Invoice:

ENERGY BILL



Computation No. _____

Electricity usage bill

To _____

Meter No. _____
 Billing month _____
 Number of days in period _____
 Metering period _____
 Invoice date _____
 Method of Charge _____

(לקבלה נכבדה והגן מתחבבים לחיוב וחיוב בין ערים השמאל לא כולל מע"מ)

Description	Energy Measurements								Billing	
	Usage code	Season	Tariff	Previous		Present		Usage (kWh)	Cost per kWh (agorot)	Total cost (NIS)
				Previous Date	Previous Reading	Present Date	Present Reading			
TOU Energy	077	Summer	Peak	7/1/2023	1,943,686	8/1/2023	1,951,475	7,789.00	141.31	11,006.64
TOU Energy	078	Summer	High	7/1/2023	585,484	8/1/2023	585,484	0.00	0.00	0.00
TOU Energy	079	Summer	Low	7/1/2023	1,755,448	8/1/2023	1,788,720	33,272.00	41.15	13,691.43
Subtotal				7/1/2023		8/1/2023		41,061.00		24,898.08
PF		General	General	7/1/2023		8/1/2023		0.987		
סף נדרש 0.92										
VAT				7/1/2023		8/1/2023			17.00%	4,198.67
תשלום קיבולת KVA				7/1/2023		8/1/2023		0.00	29.13	0.00
Total Charge				7/1/2023		8/1/2023				28,896.75



Demo

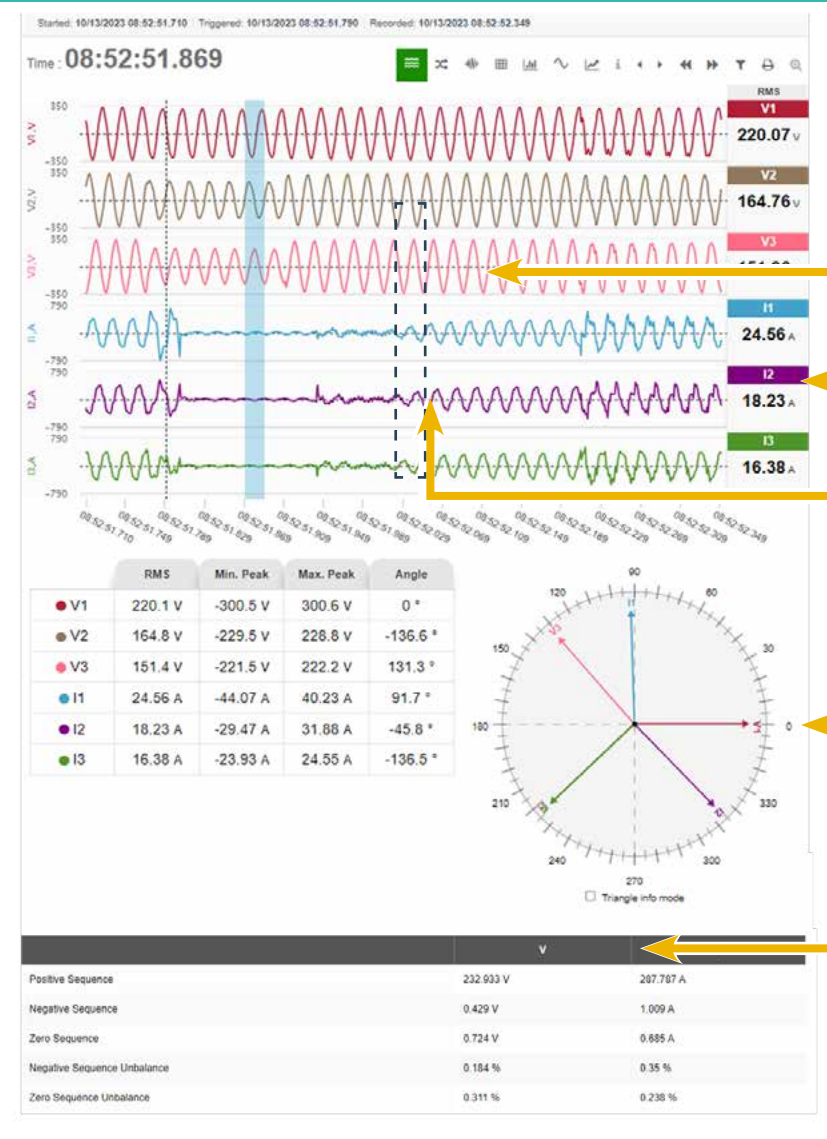
TOU Usage



Produced with Expertpower™

Power Quality

DETAILED EVENT ANALYSIS



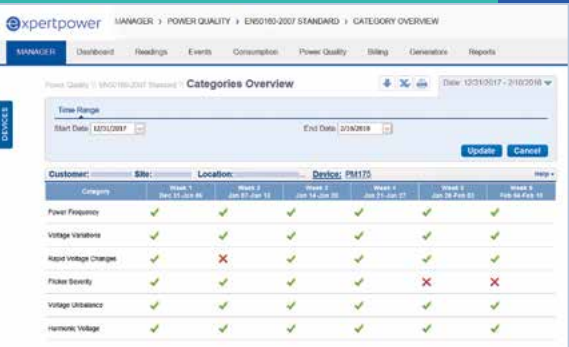
Display RMS Chart
Movable selection

Continuous waveform display

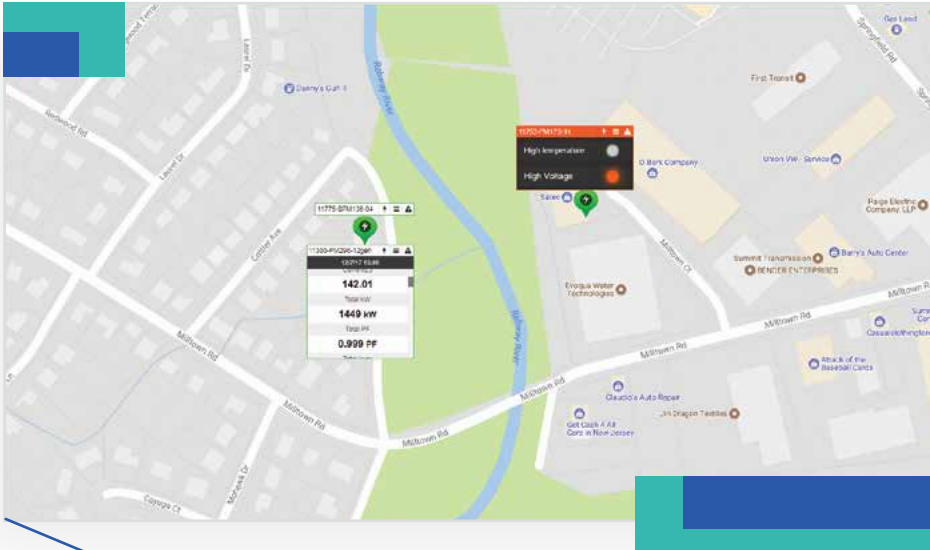
Trigger indicator

Phasor diagram

Symmetrical components for fault
direction analysis



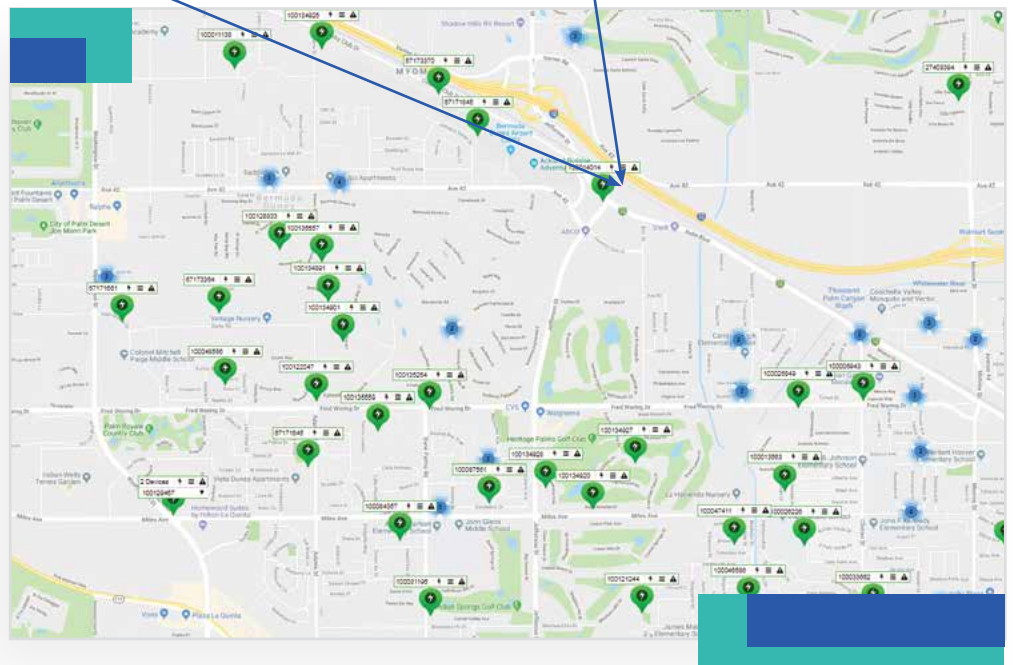
Geolocation



- Monitoring wide geographic location based metering systems
- Transformer/substation monitoring, generating critical alerts, such as overload, or transformer overheating or oil level
- Outage visualization and monitoring

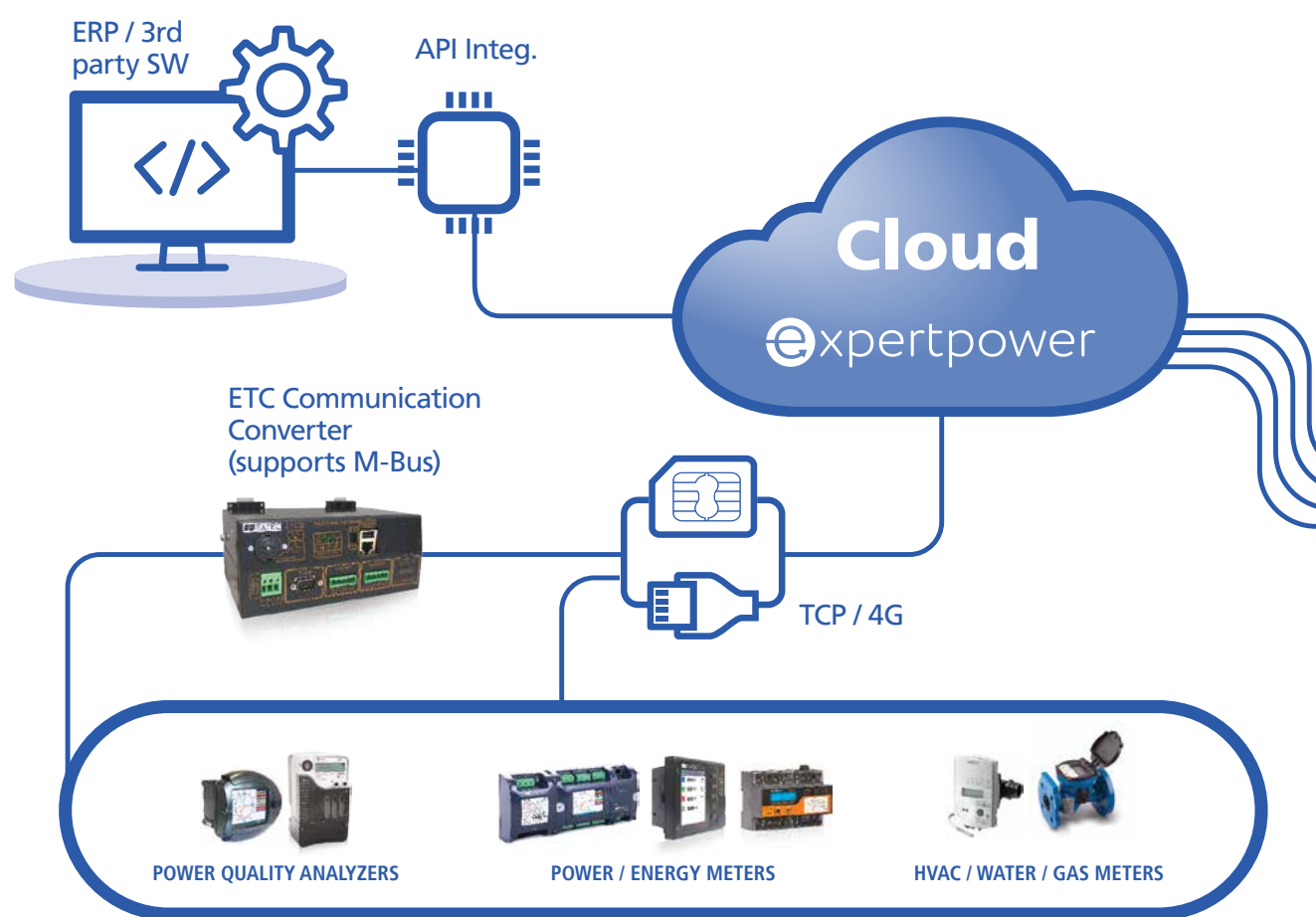
GEOLOCATION

Expertpower GeoLocation Dashboard allows for geographical meter display, alert notification and navigation on a map or satellite view.



System Architecture

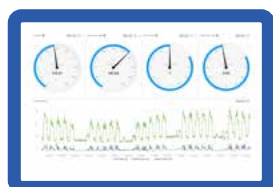
EXPERTPOWER ENERGY



ENERGY MANAGEMENT



Energy Management
& Efficiency



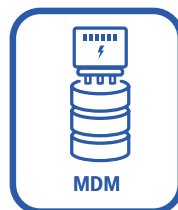
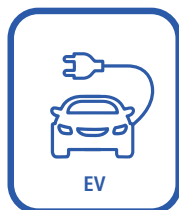
Billing &
Submetering



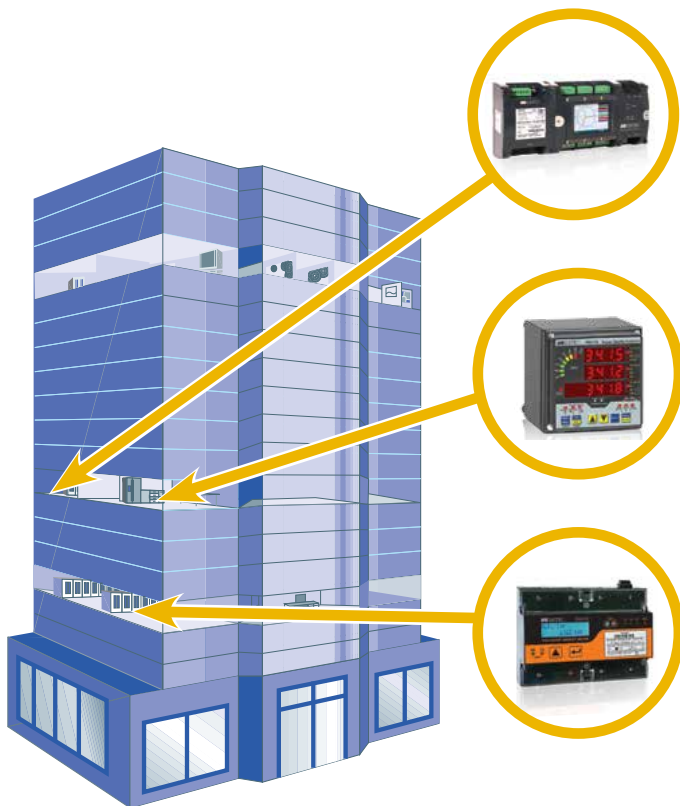
Power
Quality



BI / Data
Analytics



Applications



Commercial

Commercial Buildings | Shopping Centers

Universities | Hospitals | Residential

ENERGY EFFICIENCY & COSTS

- ❑ Reduce energy consumption
- ❑ Reduce surcharges and penalties (power factor, peak demand, etc.)
- ❑ Initiate corporate level saving plans

SUBMETERING & BILLING

- ❑ Comprehensive billing solution for energy retailing (electrical, water, gas and air condition) to sub-tenants
- ❑ Web access for tenants, to view their bills and on-line data

POWER RELIABILITY

- ❑ Proactive maintenance for maximum system availability
- ❑ Analyze demands to help utilize existing infrastructure
- ❑ EV consumption monitoring



Computation No. _____

Electricity usage bill

To _____

Meter No. _____

Billing month _____

Number of days in period _____

Metering period _____

Invoice date _____

Method of Charge _____

(לקבלה נכבדה ובעד מחשבים להגיש חישוב בין צריכת השמול לא כולל מע"מ)

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טף נדרש 0.92										
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תשלום קיבולת I-KVA				7/1/2023		8/1/2023		0.00	29.13	0.00
Total Charge				7/1/2023		8/1/2023				28,896.73

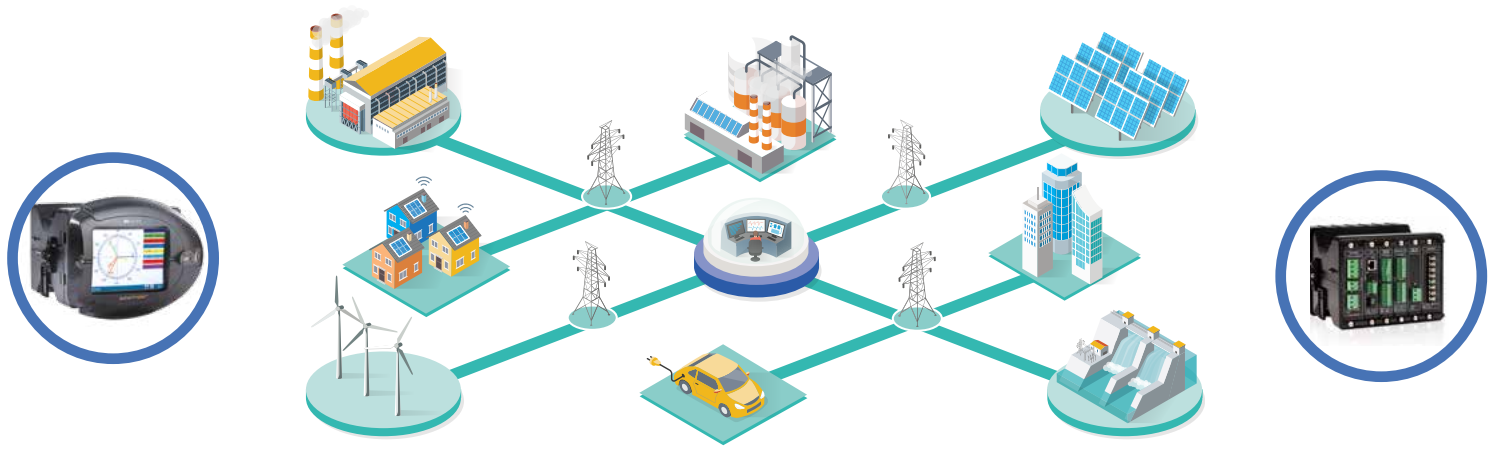


Demo

TOU Usage



Produced with Expertpower™



Utilities | Smart Grid | Renewable

Generation | Transmission | Distribution

Electricity / Water / Gas Utilities

SMART GRID

- ▣ MDM complete solution including billing
- ▣ Monitor and reduce energy losses

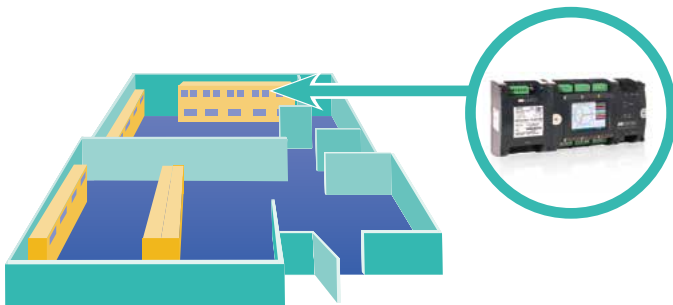
POWER QUALITY

- ▣ Analyze source of power quality issues to enable quick resolution

- ▣ Manage customers' power quality analysis

NETWORK SECURITY

- ▣ Proactive maintenance for maximum system availability
- ▣ Analyze demands to help utilize existing infrastructure and transformers monitoring



Data Centers

ENERGY EFFICIENCY & COSTS

Optimize Power Usage Effectiveness (PUE) via:

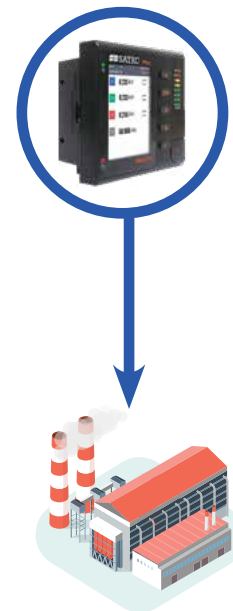
- ▣ Monitoring and enhancing HVAC performance
- ▣ Minimize downtime by flagging and preventing overload
- ▣ Proactive maintenance for maximum system availability
- ▣ Analyze demands to optimize existing infrastructure and prevent over-design

SUBMETERING AND BILLING

- ▣ Comprehensive, high-resolution billing solution for retailing energy to customers, down to an individual electric cabinet or even individual computer
- ▣ Web access for customers to view their bills and online data

Industrial

Semi-Conductors
Petrochemical
Mining | Automotive
Food & Beverage



ENERGY EFFICIENCY & COSTS

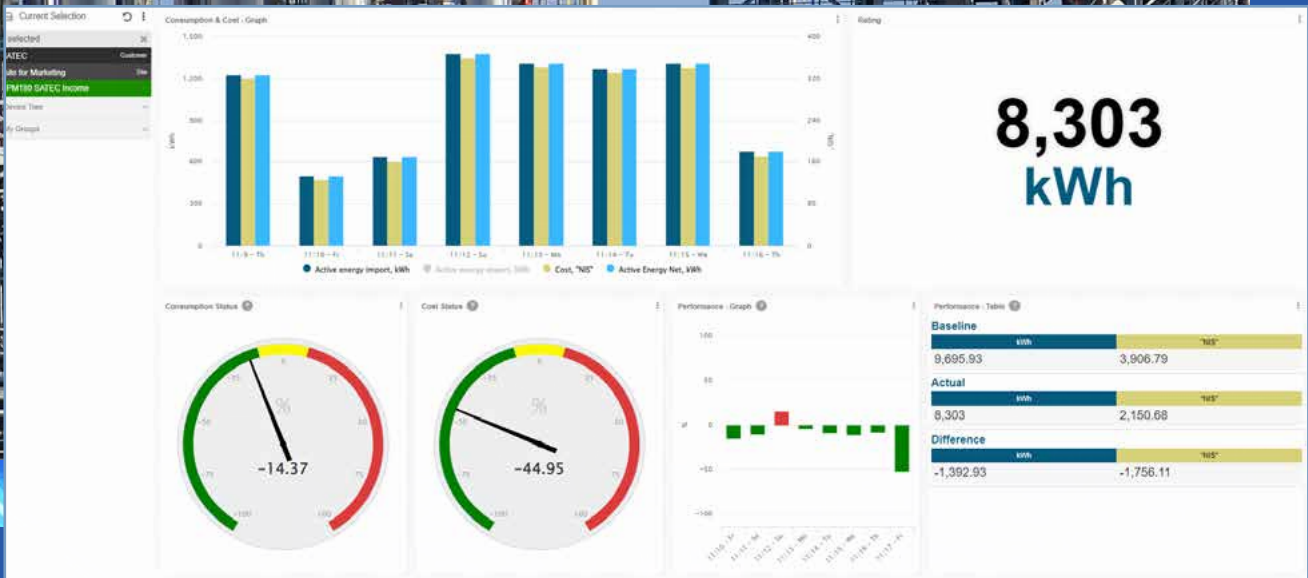
- ▣ Reduce energy consumption
- ▣ Reduce surcharges and penalties (power factor, peak demand etc.)
- ▣ Initiate corporate level saving plans

POWER RELIABILITY

- ▣ Proactive maintenance for maximum system availability
- ▣ Analyze demands to optimize existing infrastructure and prevent over-design

POWER QUALITY

- ▣ Monitor power quality to prevent failure
- ▣ Generate compliance reports in accordance with local regulation





info@expertpower.com

SATEC-GLOBAL.COM/EXPERTPOWER