expertpower

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 measured parameters
- Monitors trends to identify potential problems
- Endless data stored on the cloud-based MS Azure platform

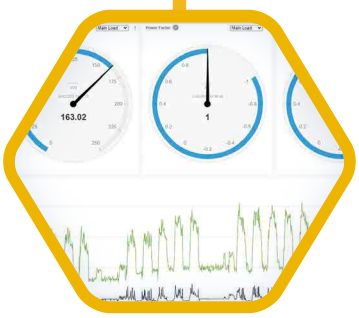
Cyber Security

- ISO 27001 & GDPR compliant
- Annual penetration testing by independent experts

ISO 27001

Energy Efficiency, BI & Analytics

- Data / Event Monitoring
- Business intelligence
- Power Quality

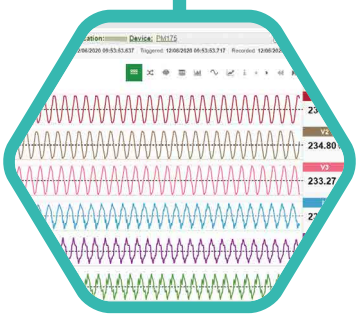


Billing & Submetering

- Cost Calculation & Monitoring
- Invoice Management
- Tenant Management

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 the ability to apply complex calculations and formulas to create virtual metering

Historical data, trends and detection for identifying energy consumption demands, anomalies, meter tampering, ROI calculations

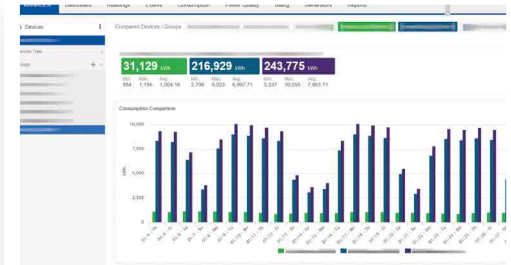
Advanced comparison wizard: select multiple devices, parameters and time periods to achieve deep insights related to energy consumption and energy consumers' behavior

Water, gas & steam monitoring: all on one platform

EXECUTIVE DASHBOARD

HEAT MAP

COMPARISON



1 Rich report suite and dashboards, providing actionable consumptions insights and Business Intelligence:

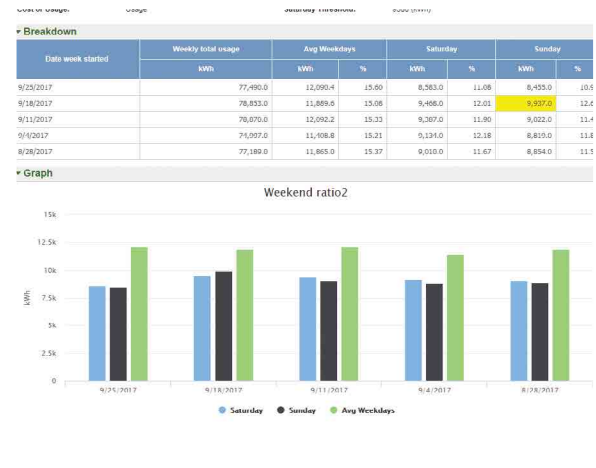
- Compares cumulative monthly consumption with previous years
- Highlights excessive weekend consumption
- Highlights consumption outliers outside working hours
- Tracks losses reflected in energy balance distribution

2 CO_2 emission reporting

3 HVAC efficiency monitoring

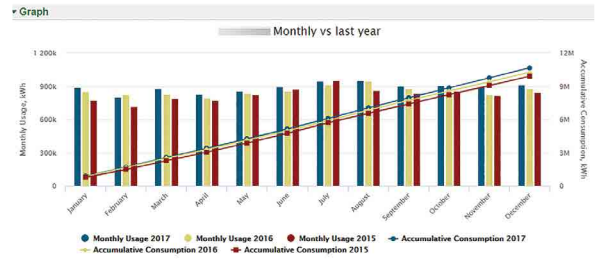
4 Visual energy balance

WEEKEND RATIO



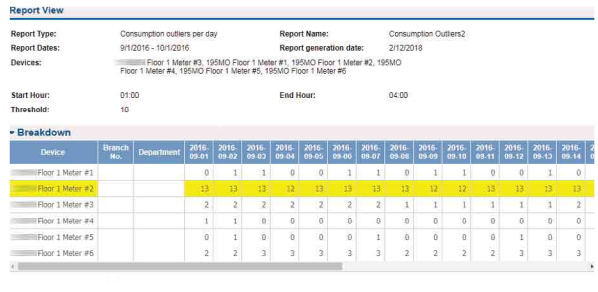
Date week started	Weekly total usage	Avg Weekdays		Saturday		Sunday	
	kWh	kWh	%	kWh	%	kWh	%
9/25/2017	77,490.0	12,090.4	15.60	8,583.0	11.08	8,455.0	10.9
9/18/2017	78,833.0	11,869.6	15.06	9,468.0	12.01	9,937.0	12.6
9/11/2017	78,670.0	12,092.2	15.33	9,367.0	11.90	9,022.0	11.4
9/4/2017	74,097.0	11,408.8	15.21	9,134.0	12.18	8,819.0	11.8
8/28/2017	77,189.0	11,865.0	15.37	9,010.0	11.67	8,854.0	11.5

CUMULATIVE - LAST YEAR



HOURLY OUTLIERS

Configurable consumption alerts via email, SMS



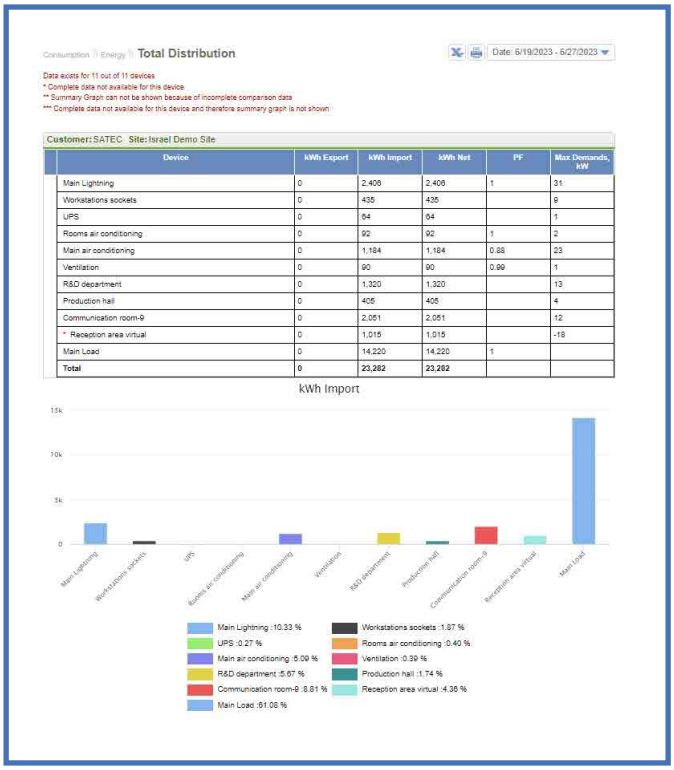
Device	Branch No.	Department	2016-09-01	2016-09-02	2016-09-03	2016-09-04	2016-09-05	2016-09-06	2016-09-07	2016-09-08	2016-09-09	2016-09-10	2016-09-11	2016-09-12	2016-09-13	2016-09-14
[redacted] Floor 1 Meter #1			0	1	1	0	0	1	1	0	1	1	0	0	1	0
[redacted] Floor 1 Meter #2			13	13	13	12	13	13	13	13	12	12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

BILLING & SUBMETERING

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
- Supports complex formulas and calculations
- Billing data available by reports and API

ENERGY BALANCE - TOTAL DISTRIBUTION



Consumption | Energy | Total Distribution

Date: 6/19/2023 - 6/27/2023

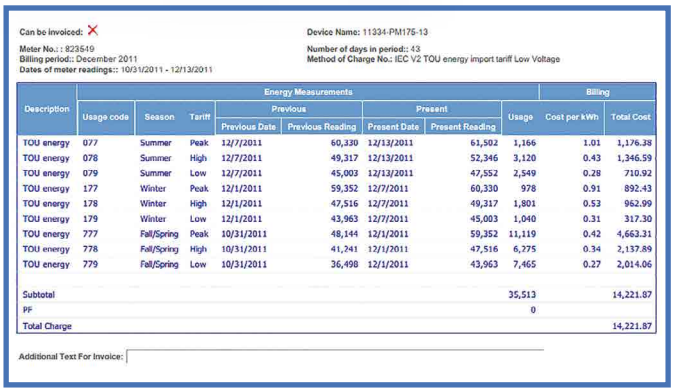
Data exists for 11 out of 11 devices
* Complete data not available for this device
** Summary Graph can not be shown because of incomplete comparison data
*** Complete data not available for this device and therefore summary graph is not shown

Customer: SATEC Site: Israel Demo Site

Device	kWh Export	kWh Import	kWh Net	PF	Max Demands, kW
Main Lightning	0	2,406	2,406	1	31
Workstations sockets	0	435	435		9
UPS	0	64	64		1
Rooms air conditioning	0	92	92	1	2
Main air conditioning	0	1,184	1,184	0.88	23
Ventilation	0	90	90	0.99	1
R&D department	0	1,320	1,320		13
Production hall	0	405	405		4
Communication room-9	0	2,051	2,051		12
* Reception area virtual	0	1,015	1,015		-18
Main Load	0	14,220	14,220	1	
Total	**0**	**23,282**	**23,282**		

kWh Import

DETAILED CONSUMPTION REPORT



Can be invoiced: ✗

Meter No.: : 823549
Billing period:: December 2011
Dates of meter readings:: 10/31/2011 - 12/13/2011

Device Name: 11334-PM175-13
Number of days in period:: 43
Method of Charge No.: IEC V2 TOU energy import tariff Low Voltage

Description	Energy Measurements							Billing	
	Usage code	Season	Tariff	Previous		Present		Usage	Cost per kWh	Total Cost
				Previous Date	Previous Reading	Present Date	Present Reading			
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	0.28	710.92
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:

ELECTRICITY BILL

SATEC

Computation No.

Electricity usage bill

To

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

-(לשרוזה נכבדה רצו מתכבדים להגיש חישוב בגין צריכת חשמל) 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**		**24,698.06**
PF		General	General	7/1/2023		8/1/2023		0.987		
0.92 פס נדרש										
VAT				**7/1/2023**		**8/1/2023**			**17.00%**	**4,198.67**
תשלום קיבולת ל-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™

POWER QUALITY

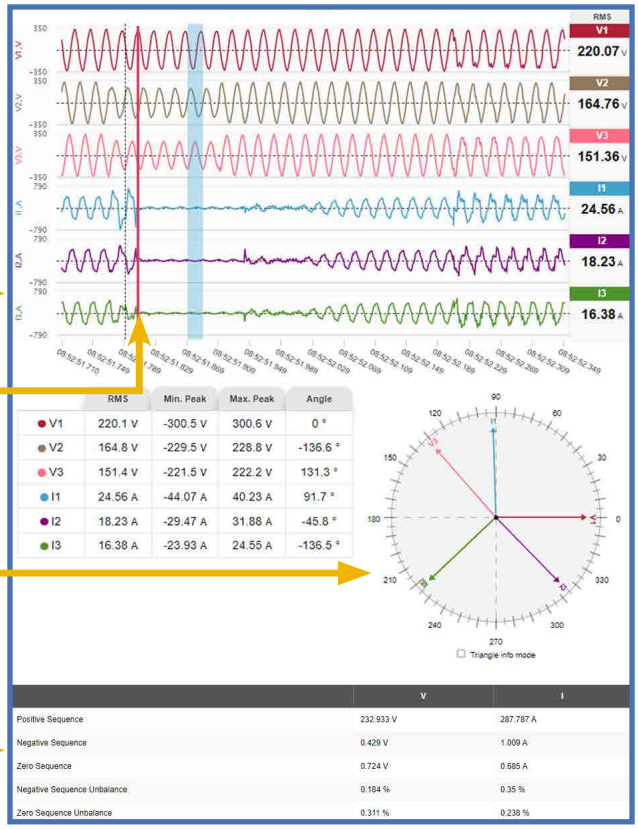
DETAILED EVENT ANALYSIS

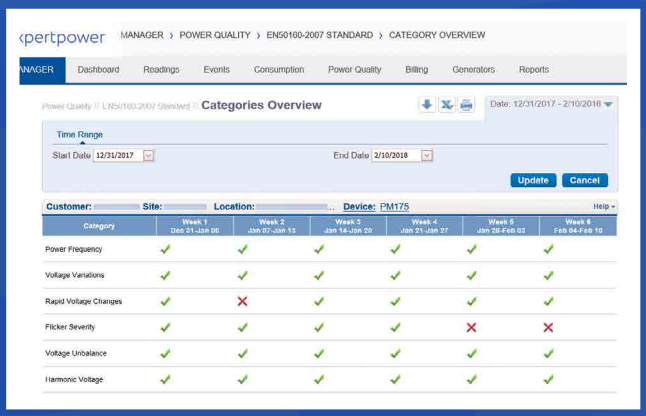
Continuous waveform display

Trigger indicator

Phasor diagram

Symmetrical components for fault direction analysis

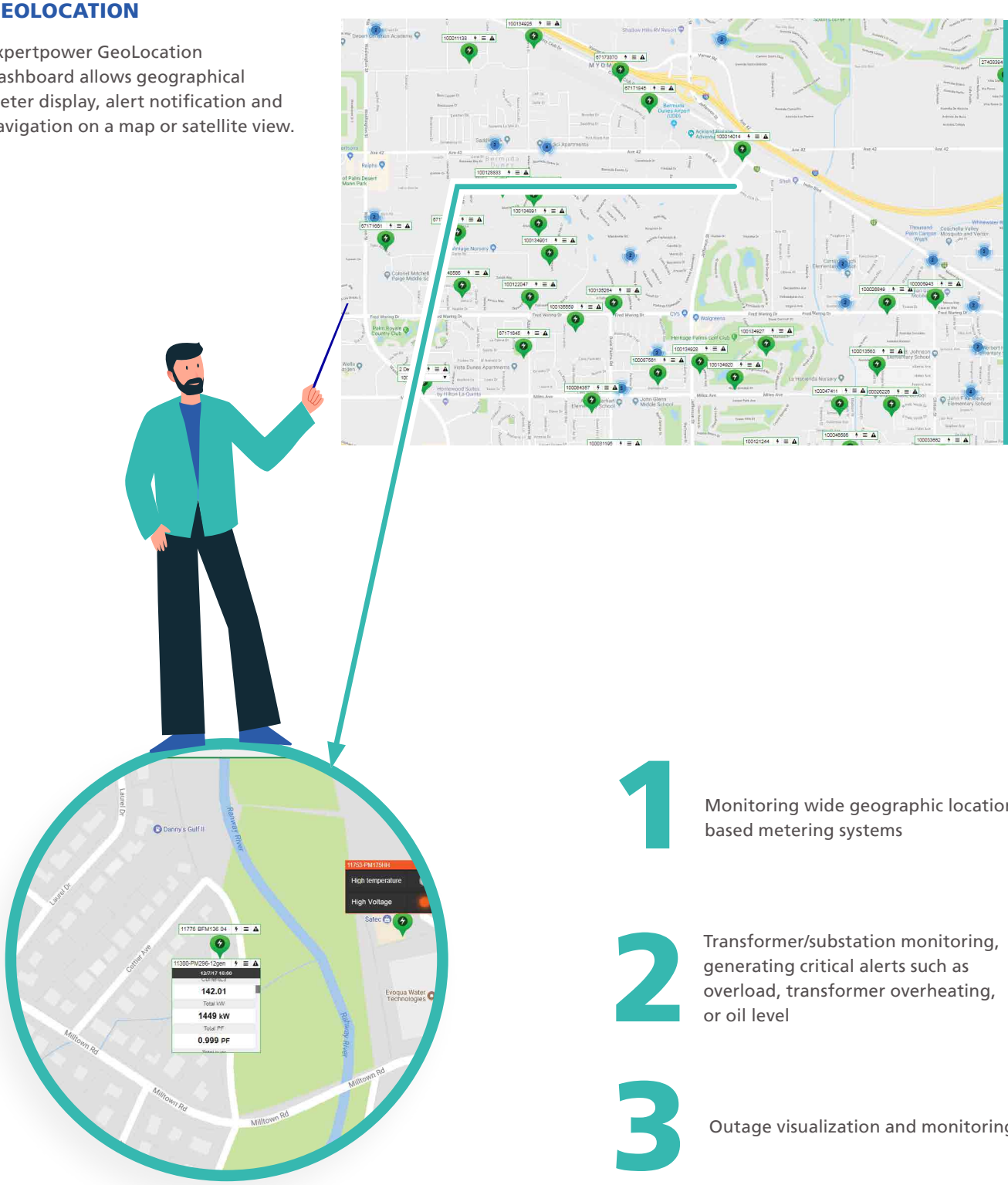




GEOLOCATION

GEOLOCATION

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



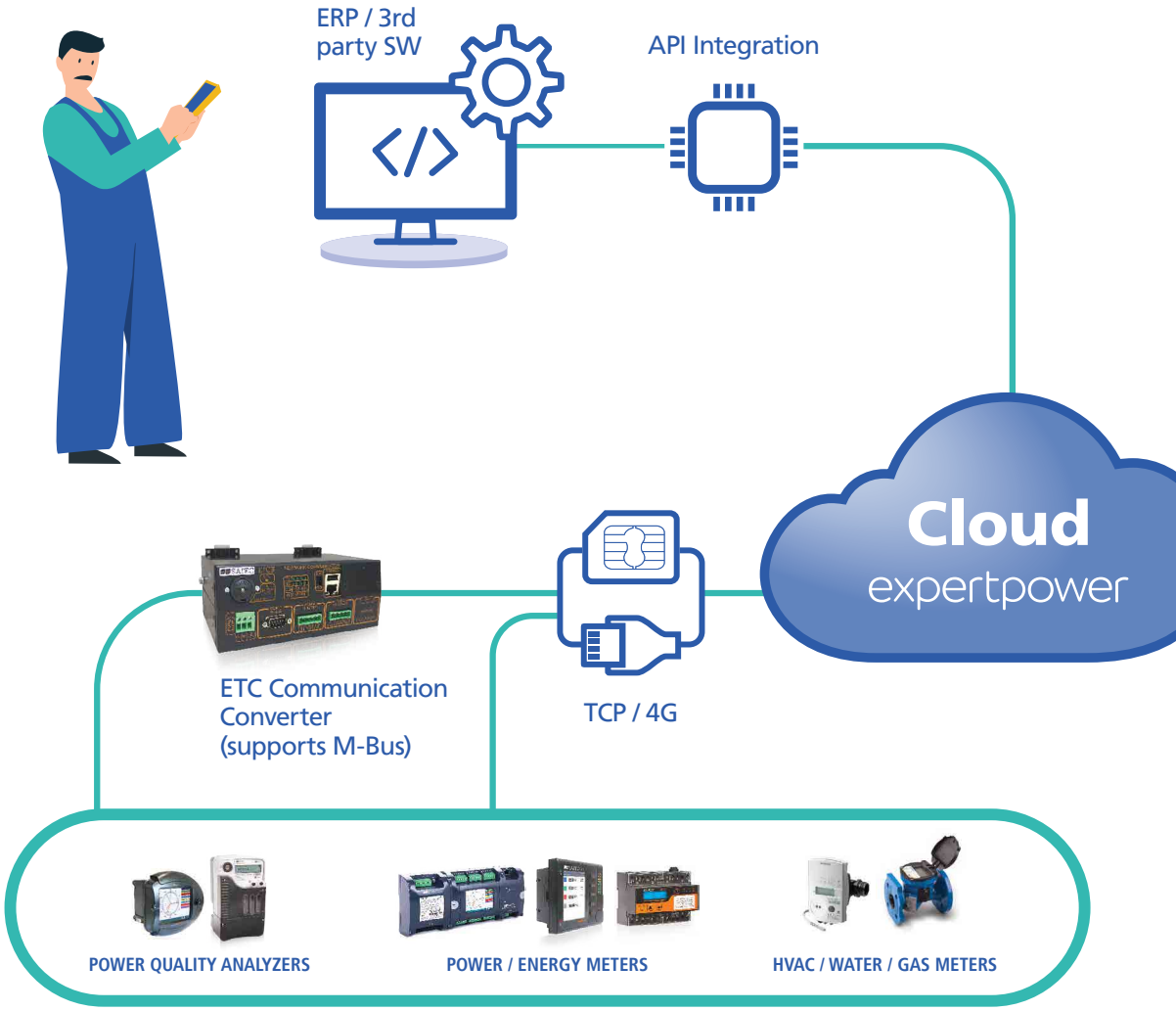
1 Monitoring wide geographic location based metering systems

2 Transformer/substation monitoring, generating critical alerts such as overload, transformer overheating, or oil level

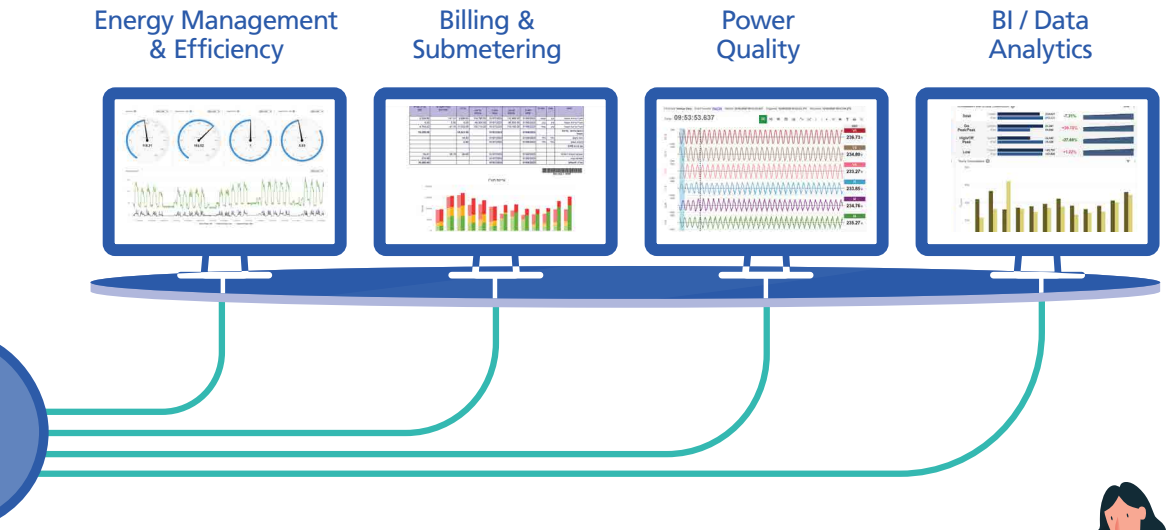
3 Outage visualization and monitoring

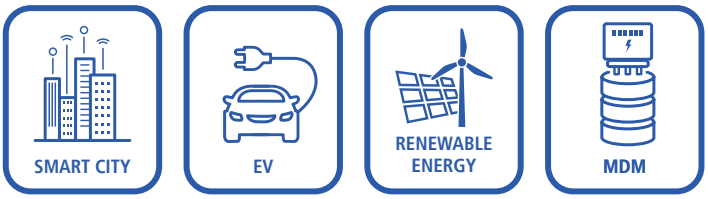
SYSTEM ARCHITECTURE

Expertpower Energy Management



ISO 27001

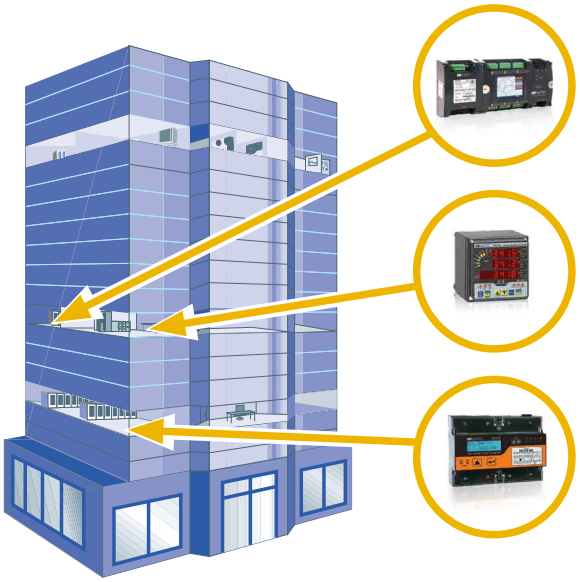

Energy Management & Efficiency
Billing & Submetering
Power Quality
BI / Data Analytics


SMART CITY
EV
RENEWABLE ENERGY
MDM

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

SATEC
Electricity usage bill
TOU Usage
Produced with Expertpower™

Utilities ▪ Smart Grid ▪ Renewable

GENERATION | TRANSMISSION | DISTRIBUTION
ELECTRICITY / WATER / GAS UTILITIES

SMART GRID

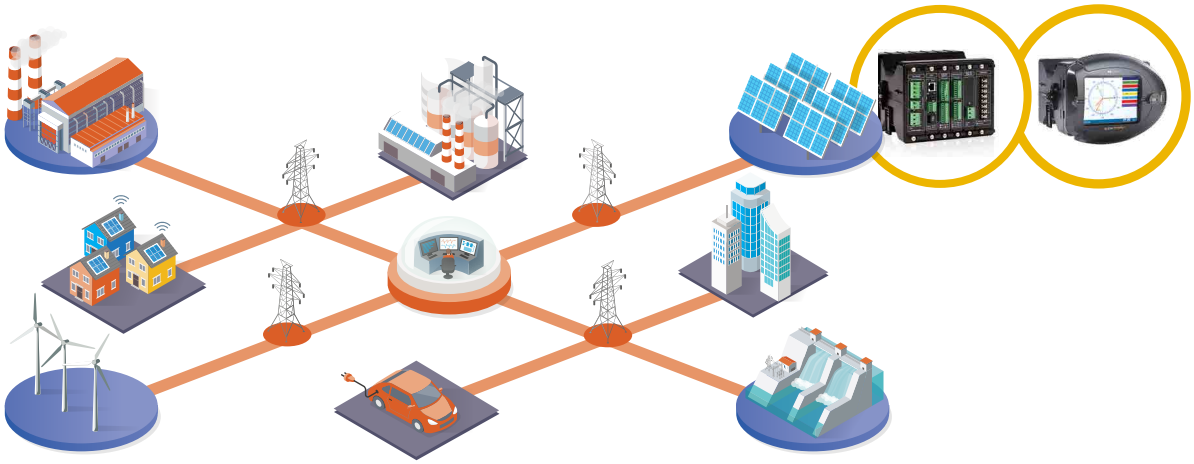
- MDM complete solution including billing
- Monitor and reduce energy losses

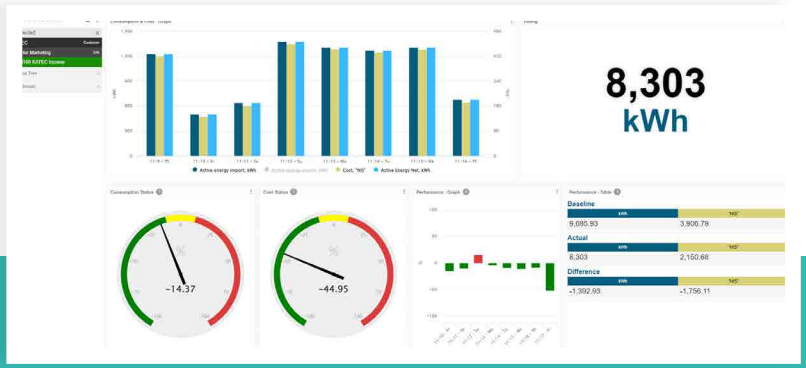
POWER QUALITY

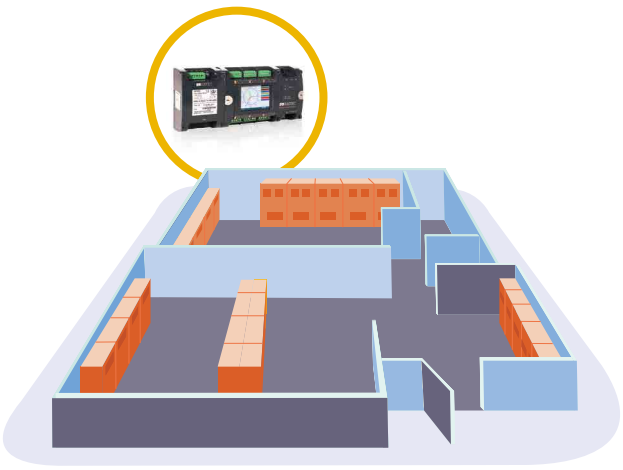
- Analyze source of power quality issues to enable quick resolution
- Manage customers' power quality analysis

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
- Minimizing downtime by flagging and preventing overload
- Proactive maintenance for maximum system availability
- Analyze demands to optimize existing infrastructure and prevent over-design

SUBMETERING & 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

SEMICONDUCTORS | PETROCHEMICAL MINING | AUTOMOTIVE | FOOD & BEVERAGE ENERGY EFFICIENCY & COSTS

- Reduce energy consumption
- Reduce surcharges and penalties (power factor, peak demand)
- 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 regulations

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