

YATRON® ENERGY GROUP

Energy Management System

SOFTWARE Ed. 1.0

 **KenerSys**
EnMS | Sustainability | ISO 50001



ITRI
Industrial Technology
Research Institute

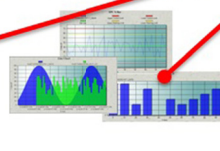


GE

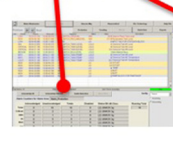
ISO 9001 Authorized P.B | Distributor | S.I



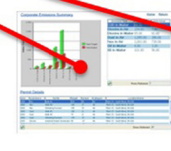
SCADA Control



Historical Analysis



Alarm



KPI Monitoring



Operation Report

COMPANY PROFILE

LOCATIONS



- **GROUP Headquarter:** China | Macau SAR
- **Factory:**
 - China | Zhuhai
 - Taiwan | Taipei
- **R&D center:** Taiwan
- **Branch:**
 - China | Hong Kong SAR
 - China | Zhuhai
 - Taiwan | Taipei
 - Malaysia | Kuala Lumpur (Headquarter of ASEAN)
- **REPRESENTATIVE:**
 - Singapore
 - Indonesia | Jakarta

COMPANY PROFILE

YATRON

YATRON was established in 2006. The Company is a diversified organization covering Energy Management and Lighting Solutions. From energy, data center, lighting, water, transportation and health.

YATRON's technology comes from GE (General Electric) and is GE's Authorized Switchgear Panel Builder, Distributor and System Integrator. We integrate all systems and make the dream come true by intelligence.

We provide to customers, across various industries and buildings, turnkey service solutions that ensure the reliability and protection of the electrical infrastructure; from the power plant, substation, to a facility's critical equipment, and all the power technologies in between. TUV SUD's ISO 9001, ISO 14001, ISO 50001 and ERP system are always executing.



The offers of our Businesses are twofold

■ Manufacture

- LV Switchgears and Controlgears
- Energy Management System - Components and Software
- Smart and Intelligence Air Compressor and System

■ Solutions and Trade

- Data Center
- UPS and solutions
- Lighting Solutions
- Electrical and Mechanical equipment
- Construction Material

■ Investment and Management

- Mega Complex building and Infrastructure
 - Mega Shopping Mall
 - Resort, Hotel, Service apartment
 - Commercial building
 - High-end residential building
 - Industrial plant, Intelligence Warehouse
 - Power plant
 - Power substation and Water plant
 - Highway, Railway and Port
 - BOT, BT
- Renewable Energy | Wind and Solar Energy
- Energy Investment Consulting Service

■ ENERGY

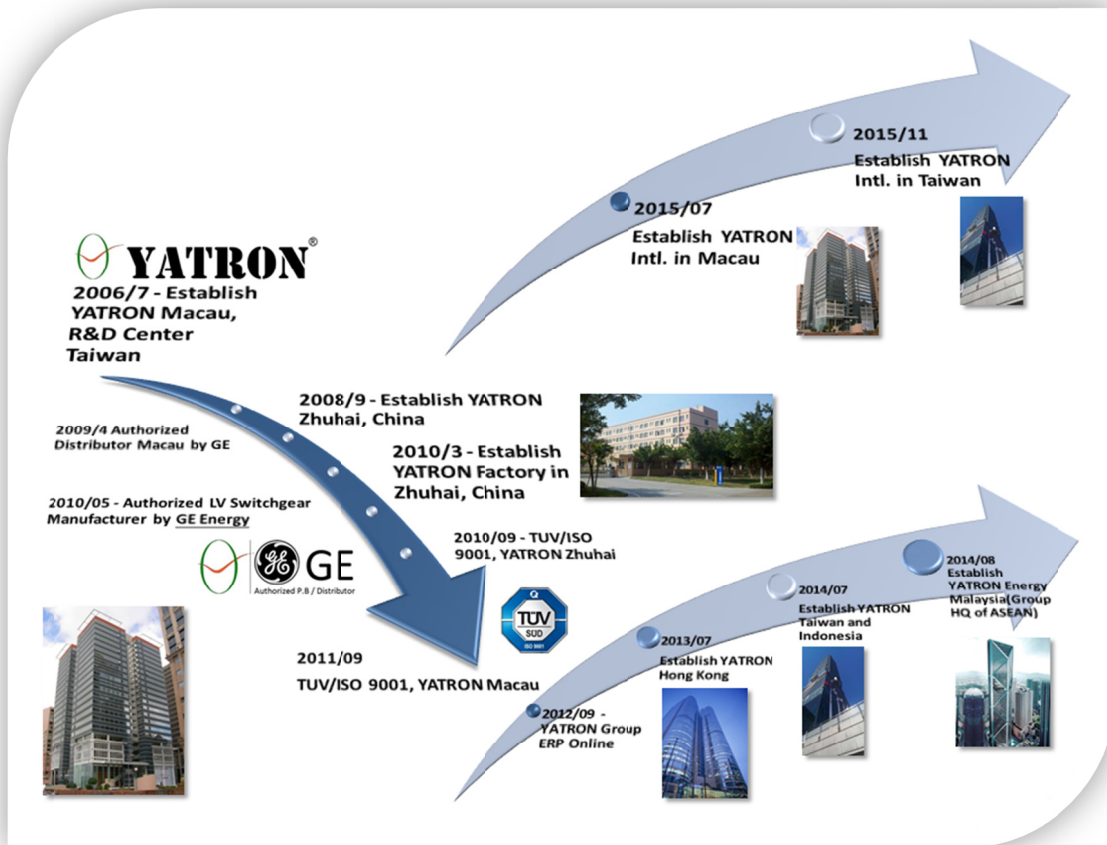
- Energy Consulting Service
- Energy Management System (EnMS)
- Renewable Energy
- Wind and Solar Energy System
- Electric Vehicle and Charger System
- Industrial and Building automation integration (BAS, SCADA, PLC)

■ Construction and MEP Engineering

- EPC
- Turn-key

COMPANY PROFILE

YATRON has over TEN YEARS history in the Industrial, Commercial and Residential market



CERTIFICATES

Complies with	Certificates
ISO 9001	TUV (Germany)
IEC 62208	TUV (Germany)
IEC 60439, IEC 61439	KEMA, ASEFA, CEBC
	ASTA, TUV, IECEE
GB 7251	CCC (China)
IEC 60331	TICW
BS 6387	TICW
UL94	SGS

AWARDS

- ☐ CSR (Corporate Social Responsibility) By MIRROR POST HK 27th March, 2015
- ☐ BUSINESS AWARDS OF MACAU Environmental Performance 26th November, 2015

2006/7 - Establish YATRON Macau, R&D Center Taiwan

2008/10 - First Industrial Enclosure (WM Series) (Heavy Duty with EN 62208) and Exhibit in Automation Show in Guangzhou, China

2010/05 - First LV Switchgears (YATRON and GE)

2013/08 - First Energy Management System

2014/10 - First Intelligence Air Compressor

2015/01 - First MV-VCB

2008/10 - First Industrial Enclosure (WM Series) (Heavy Duty with EN 62208) and Exhibit in Automation Show in Guangzhou, China

2010/05 - First LV Switchgears (YATRON and GE)

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SCOPE OF BUSINESS



GE
Energy

YATRON® 日騰
LV Distribution System | Automation System

KenerSys

ENERGY MANAGEMENT

About Our Business



YATRON|GE Energy Management is **YATRON|GE's** electrification business. We make energy safer and more useful through our ability to transmit, distribute and convert electricity. We integrate leading products and technology to solve customer problems. Our electrical solutions allow utilities and energy-intensive industries such as commercial, healthcare, data center, oil & gas, marine, metals and mining to efficiently manage electricity from the point of generation to the point of consumption.

We offer a full range of electrical capabilities. Our global teams design industry leading technology to improve the transmission, distribution and conversion of electricity, and to help provide safe, efficient and reliable electrical power.

Global and Local

Serving the customer is our top priority. Around the globe we have established local and long-lasting relationships with customers to fulfill their needs.

Yes, our local teams can access our global operations to provide end-to-end electrical solutions to customers. Investment in people and a strong local presence helps our customers to view us as their business partner.



SCOPE OF BUSINESS

■ Explore & Interact

□ Energy Management Systems (EnMS)

Energy Management Systems

Allowing facility owners to shed some light on the unknowns of their power system, the fully integrated PMCS Energy Management System provides the tools to help control energy costs, minimize downtime and increase productivity.



The diagram shows a central computer monitor displaying a software interface. Below it, four icons represent key features: Monitoring (with a server rack), Power Quality (with a bar chart), Cost Allocation (with a stack of money), and Control & Automation (with a microscope). A double-headed arrow at the bottom indicates a spectrum from 'Basic' on the left to 'Advanced' on the right.

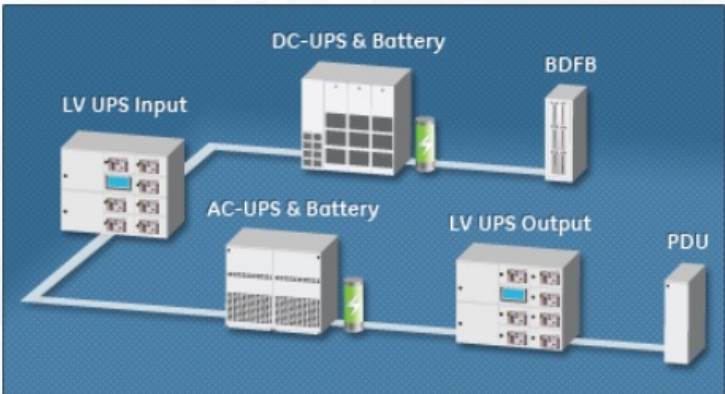
Featured Products

- Energy Management Systems**
Complete automation solution customized to your power management needs
[View Product Info](#)
- Advanced Power Quality Metering**
Revenue grade power quality capabilities and waveform recording
[View Product Info](#)
- Managed Ethernet Switches**
Industrial hardened networking solutions
[View Product Info](#)

□ Total Efficiency Architecture

Total Efficiency™ Architecture

Power Electronics Total Efficiency™ Architecture
The Total Efficiency architecture addresses issues end-to-end based on our proven experience and expertise in batteries, power distribution, DC energy systems, AC-DC power supplies, and DC-DC board mounted power to deliver a solution that is reliable and energy efficient.



The diagram illustrates a power distribution path. It starts with 'LV UPS Input' on the left, which feeds into an 'AC-UPS & Battery' unit. This unit then connects to a 'DC-UPS & Battery' unit. From there, the power goes through a 'BDFB' (Board Mounted DC-DC Converter) to an 'LV UPS Output' unit, which finally feeds into a 'PDU' (Power Distribution Unit) on the right.

Featured Products

- Energy Systems**
DC energy systems designed for decades of reliable service.
[View Product Info](#)
- DC-DC Power Converters**
Designed to provide highly reliable DC-DC conversion solutions to a wide array of applications.
[View Product Info](#)
- AC-DC Power Supplies**
Custom, standard and modified standard AC-DC power supplies for the data center market.
[View Product Info](#)
- Total Efficiency™ Data Center**
Designed specifically to help you address the power, cooling and energy management challenges of datacenters. [Learn More](#)

SCOPE OF BUSINESS

■ Explore & Interact

□ Safety and Protection

Safety and Protection

Arc flashes are rare but extremely destructive events that can seriously injure employees and take your electrical system down for days.

GE offers an integrated strategy that reduces the possibility of their occurrence, contain their explosive energy, and protect your personnel and your electrical system.

U.S. statistic cited by CapSchell, Inc. in a study for the Electric Power Research Institute, 1999

Featured Products

Arc Vault™ Protection System
A new approach to arc flash containment. It extinguishes the arcing fault in less than eight milliseconds.

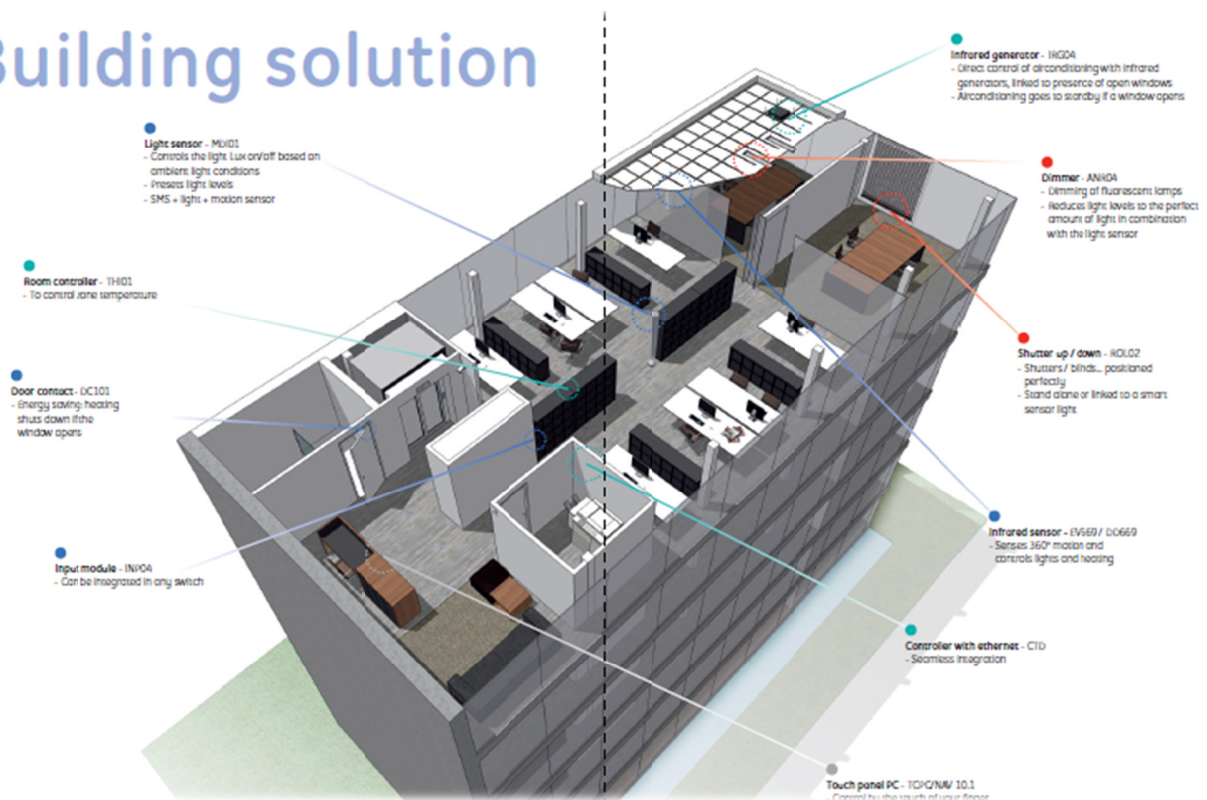
Arc Flash Hazard Study
The first line of defense for your employees against an electrical arc is knowledge.

Entellisys™ LV switchgear
Allows operators to stay out of the arc flash zone and lowers the incident energy of an arc flash.

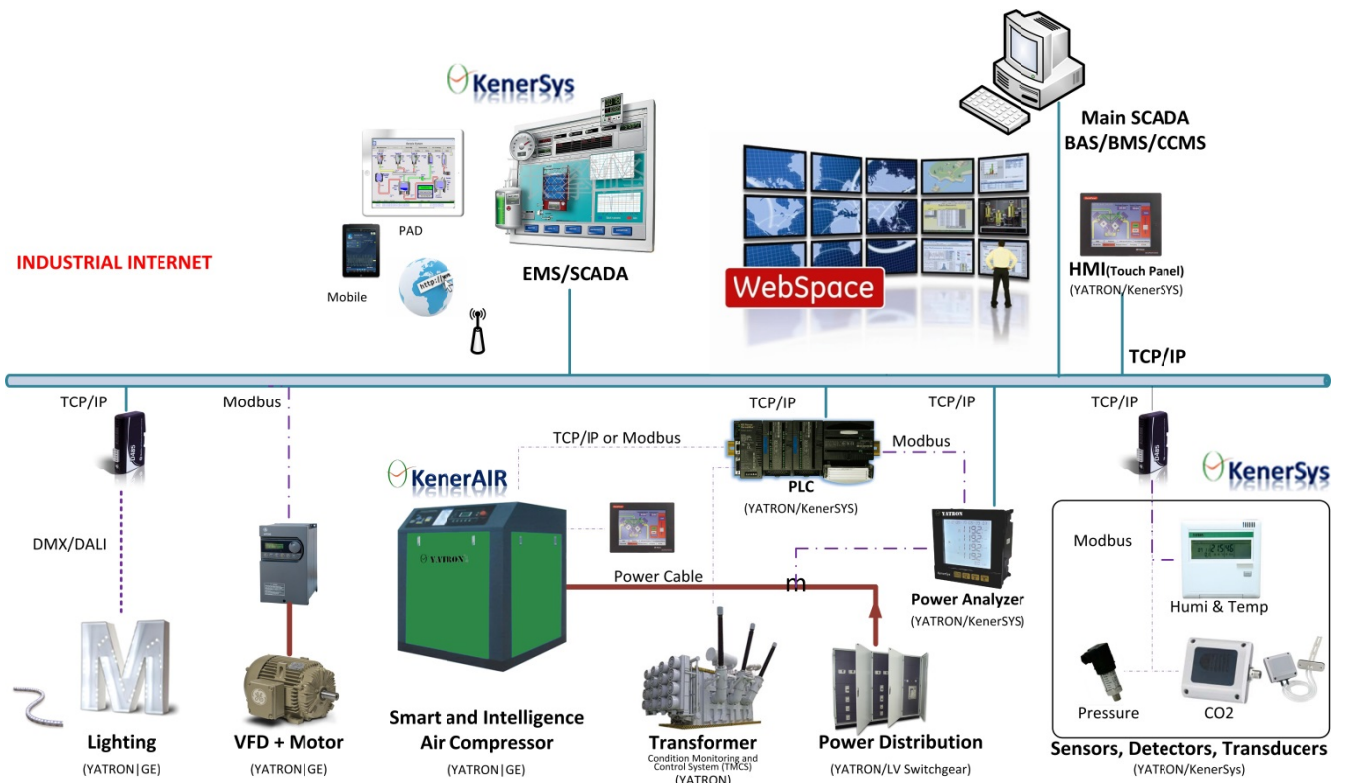
EntelliGuard™ TU Trip Unit
You never have to sacrifice selectivity for flash protection.

□ Factory and Building Automation

Building solution



SCHEMATIC OF SMART AND INTELLIGENCE CONTROL SYSTEM



Energy Consulting

driving the evolution of electric power systems with greater affordability, reliability, and efficiency

[About Us](#)

ISO 50001 - ENERGY MANAGEMENT SYSTEM (EnMS)

■ What is EnMS?

- Using energy efficiently helps organizations save money as well as helping to conserve resources and tackle climate change. ISO 50001 supports organizations in all sectors to use energy more efficiently, through the development of an energy management system (EnMS).
- ISO 50001, *Energy management systems – Requirements with guidance for use*, is a voluntary International Standard developed by ISO (International Organization for Standardization).
- ISO 50001 gives organizations the requirements for energy management systems (EnMS).
- ISO 50001 provides benefits for organizations large and small, in both public and private sectors, in manufacturing and service, in all regions of the world.
- ISO 50001 will establish a framework for industrial plants; commercial, institutional, and governmental facilities; and entire organizations to manage energy.
- Targeting broad applicability across national economic sectors, it is estimated that the standard could influence up to 60% of the world's energy use.
- Energy management is about managing your energy use with the goal to use less energy and use renewable energy. This might include reducing the amount of energy you use during peak hours, typically weekdays between 12PM-6PM, and it might mean shifting to clean energy sources such as solar power to supply your energy needs.



From www.iso.org in www.youtube.com

■ Why is Energy management important?

Managing your energy better can save you money, and it can also have a bigger impact on helping the environment.

■ How can I better manage my ENERGY?

An important first step to energy management is to understand how much you use. Use our **KenerSys** Power analyzer with voltage, ampere, kWh, power factor, harmonic and metering functions, you can see your daily energy use by the minutes and hour to better understand when you are using the most energy each day, month, season and the pass historical data. This BIG DATA information can help you determine what steps you can take: upgrading equipment, adjust the production process, switching to a better rate plan, stopping air leaks, or other actions.

ISO 50001 - ENERGY MANAGEMENT SYSTEM (EnMS)

WHAT WILL KenerSys EnMS DO?

□ KenerSys EnMS will provide public and private sector organizations with management strategies to increase energy efficiency reduce costs and improve energy performance.

THE STANDARD IS INTENDED TO ACCOMPLISH THE FOLLOWING:

□ Assist organizations in making better use of their **existing energy consuming** assets.

- Create transparency and facilitate communication on the **Management of energy resources**.
- **Promote energy management** best practices and reinforce good energy management behaviors.
 - Assist facilities in evaluating and prioritizing the implementation of new energy efficient technologies.
 - Provide a framework for **promoting energy efficiency** throughout the supply chain.
 - **Facilitate energy management improvements** for greenhouse gas emission reduction projects.
 - Allow **integration** with other organizational management systems such as environmental, and health and safety (ISO 9001, ISO 18000, ISO 14000).

BENEFITS OF YATRON ENERGY

■ Sustainability

Real-Time Insight for Reducing Consumption

■ Benefits of KenerSys EnMS

- Recording the BIG DATA and analysis by our system and experts in the world.
- Improved operational efficiencies.
- Decreased energy consumption.
- Energy data for fact based decisions.
- Positioning for carbon accounting.

■ Who is GE?

General Electric

- Top 1st Largest Energy firm in the world
- Top 20th Largest firm in the world



■ Who is ITRI Taiwan?

Industrial Technology Research Institute from Taiwan Government

- A nonprofit R&D organization engaging in applied research and technical services.
- Founded in 1973, ITRI has been dedicated to helping industries stay competitive and sustainable.
- ITRI has cultivated more than 140 CEOs and incubated over 260 innovative companies, including well-known names such as UMC and TSMC. ITRI focuses on the fields of Smart Living, Quality Health, and Sustainable Environment.
- 6,000 R&D employees.
- 400 R&D employees in Green Energy** and Environment Research Laboratories.
- Top ONE** Technical and R&D Center in Taiwan.



■ What is the relationship between YATRON, GE and ITRI?

- Technical cooperation, **Technical Transfer** and support from **GE** and **ITRI**.
- Big data analysis and system improvement support.

■ Benefits of YATRON Energy

- Intelligence Professional System.
- Technical transfer and support of Energy Management System from GE and ITRI Taiwan globally.
- Technical transfer and support of Renewable Energy such as Wind and Solar from ITRI Taiwan.

BENEFITS OF YATRON ENERGY

- YATRON Energy's Technical and Service team in **Greater China** and **ASEAN**
 - **R&D Center in Taiwan:** High Quality R&D and production team.
 - **EnMS products are made in Taiwan:** High Quality with competitive cost.
 - **Key management** of Group in Taiwan, Macau, Hong Kong, Taiwan, China and Malaysia: **Best service for Greater China.**
 - Headquarter of ASEAN in Kuala Lumpur of Malaysia, middle of ASEAN: **Best service for ASEAN.**
 - Branch Company and Service Center cover each region: Fast response time.
 - **Complex background:** Strong team background and experience about Owner, Consultancy, Contractor, Manufacturer and System integrator (SI) in order that we are well known all parties' mindset and requirement.
- Reduced usage of utility inputs such as electricity, heat, gas or water.
- Better decision making, based on detailed, actionable insight into resource consumption.
- Faster response to unusual usage events or patterns.
- Ability to immediately measure the effectiveness of improvement initiatives.
- Simplified data consolidation – **one platform** for integrating manual and automatic data collection.
- Ease of use, with one source for objective resource consumption data – accessible to all stakeholders.

■ Features

- Base on ISO 50001 Energy Management System (EnMS)
- Easy browse and access by **laptop, mobile** and **PAD** anywhere through internet.
- One framework - for all types of sustainability measures, including electricity, water, energy, gas, steam, etc.
- Open architecture - Integrates with existing traditional metering, automation, smart meters and systems.
- Ease of adoption - Based on tools commonly used in line side systems and by engineering, maintenance and continuous improvement teams.
- Bottoms-up data collection - Drives insight at the machine or process level, while serving data for area, building, plant or enterprise views.
- Flexibility - install as an independent system and/or embed tools right inline side systems.
- Accessibility - Enable users to access over the web or from fixed terminals.

■ High Efficiency and High Quality of EnMS

- Energy saving up to 50%.
- Money saving up to 50%.
- ROI (Return On Investment) from **1 to 3 years.**

■ Earlier you establish EnMS

- As early you save one more day...
- To earn more money \$\$\$.....



BENEFITS FOR END USERS

■ How Big Are Your Reduction Opportunities?

Energy saving up to **50%** of electricity, **50%** of water and gas. These are the kinds of reductions our customers achieve when they build a bottoms-up view of consumption and cost. Understanding and affecting the true drivers of energy and water usage takes a deep, detailed view of your operation.

YATRON KenerSys is a set of sustainability software solutions that unlocks data in existing automation and systems, as well as meters and sensors making it available to support both usage analysis and the process or equipment tuning that eliminates excessive usage.

□ Real-Time Insight Empowers Operators, Technicians, and Management

Reducing resource consumption is more than a matter of equipment troubleshooting and maintenance. Engaging operators to do their part to spot and correct problems requires giving them intuitive visibility into the areas they can directly control. Embedding that insight into their work environment makes a disciplined approach to managing energy and water usage a natural part of their responsibilities, and empowers them to drive savings as events occur.

□ A Foundation for Deeper Analytics Leveraging the Suite

As the savings from improved line side visibility and response take hold, the stage is set for additional stakeholders to drive further value recovery. Equipped with detailed, localized measurement data, as well as an understanding of the expected (or target) consumption for an area, asset or process, engineering and maintenance teams can quickly identify unusual events or patterns that indicate the need for asset or process troubleshooting.

When complex processes or equipment present analytical challenges, powerful software tools such as Troubleshooter can be applied to ensure an accurate understanding of the root causes of over consumption. Cause+ software can then leverage the results of analysis in Troubleshooter embedding preventative and or/corrective logic or guidance right into operator and supervisory consoles.

□ Easy Consolidation of Data From Disparate Sources and Systems

Consolidating all of your data sources into one central application, KenerSys enables easy data correlation for better and faster decision-making.

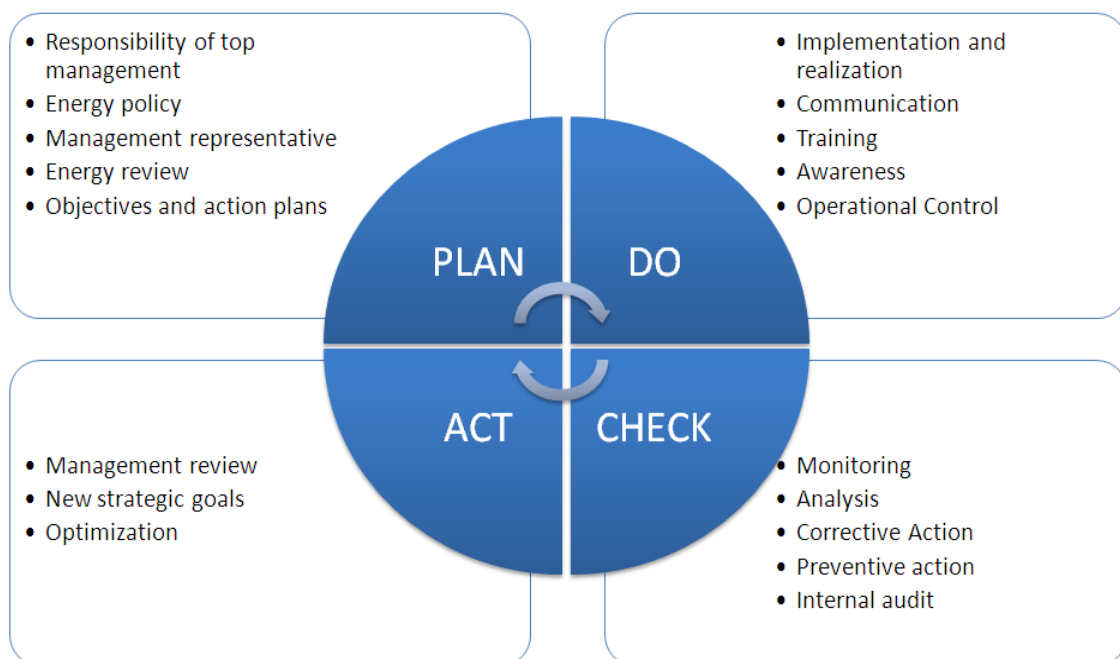
In addition, the user interface provides dynamic screens, interactive graphics, and powerful trending.

□ Identify opportunities to save energy, measure impact, and track ongoing progress

ACTIONS

■ What will YATRON Energy do?

- YATRON is based on the Plan - Do - Check - Act (PDCA) of ISO 50001 continual improvement framework and incorporates energy management into everyday organizational practices, as illustrated in below Figure-EnMS Model, which is from ISO. The **STEP** as below...
 - **Energy consulting Service**
 - **Energy Management System(EnMS) – SETUP**
 - **Energy Management Improvement**
 - **Energy Renovation and review**
- In the context of energy management, the PDCA approach can be outlined as follows:
 - **Plan:** conduct the energy review and establish the baseline, energy performance indicators (EnPIs), objectives, targets and action plans necessary to deliver results that will improve energy performance in accordance with the organization's energy policy.
 - **Do:** implement the energy management action plans.
 - **Check:** monitor and measure processes and the key characteristics of operations that determine energy performance against the energy policy and objectives, and report the results.
 - **Act:** take actions to continually improve energy performance and the EnMS.



■ What is the step to execute EnMS?

- Establish and communicate its energy commitments and data processes.
- Ensure energy action plans are established, managed and achieved.
- Achieve energy objectives and targets.
- Provide energy awareness and training to organizational personnel.
- Use operational controls to ensure energy savings will be sustained.
- Actively monitor and measure significant energy uses, collect the BIG DATA.
- Effectively demonstrate performance improvement.
- Perform verification through audits.
- Ensure success through management review.

SOFTWARE AND INTERFACE

Software and interface

Single viewpoint for your Sustainability initiatives

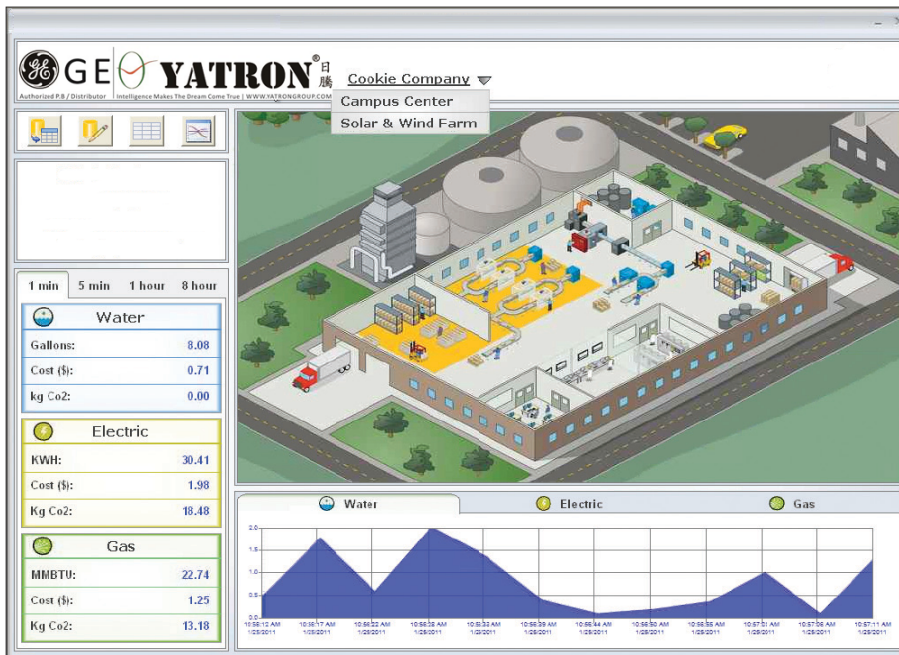
A complete view of energy, water and other utility consumption, at your fingertips.

Real-time vs. historical comparisons

Compare usage against targets for each critical input, so you can manage your usage in real time, instead of looking at utility bills after the fact.

Utilize on-the-fly analytics at the device or group levels

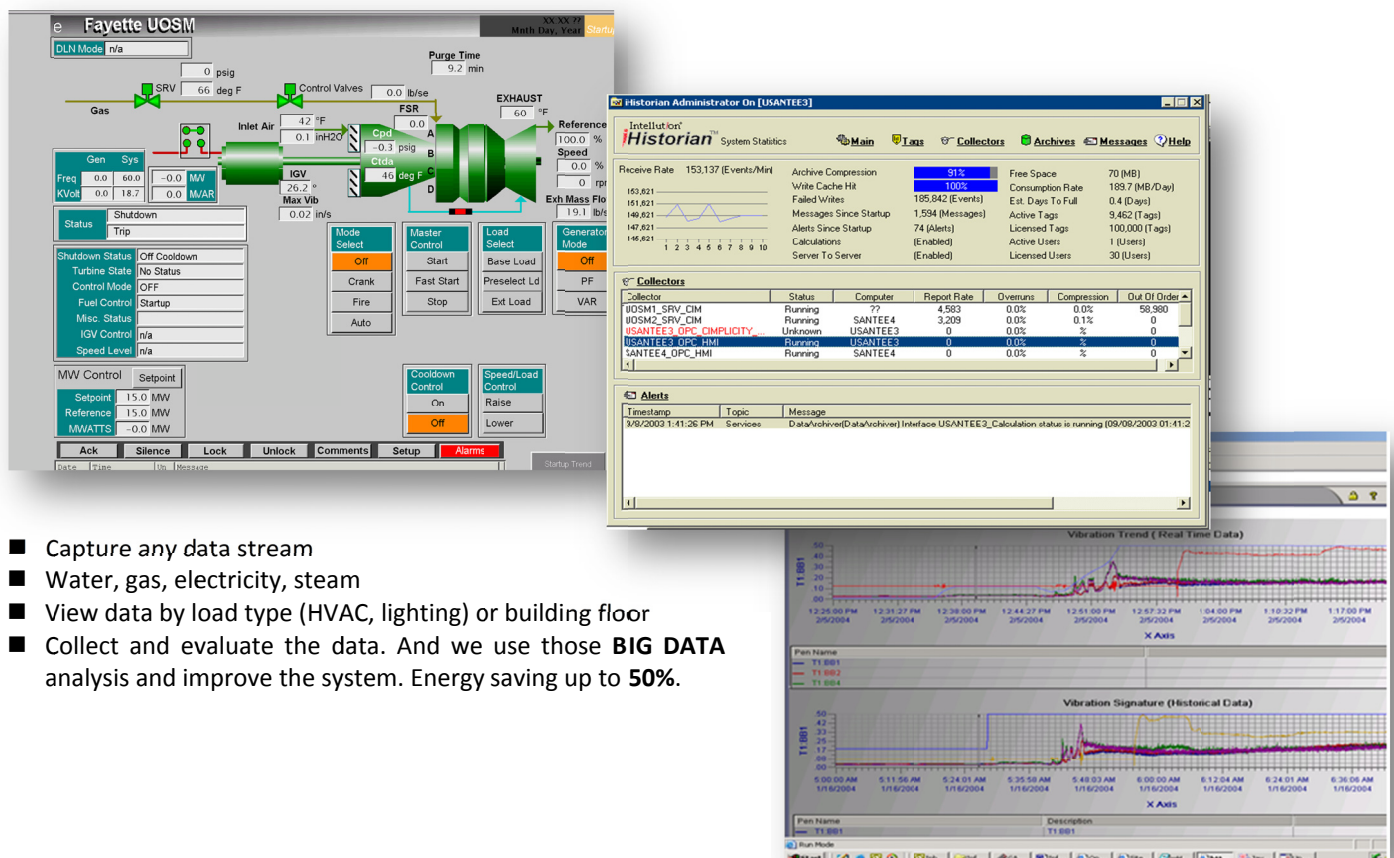
Easily "track back" through the data from a single area or meter to quickly spot unusual patterns that indicate needs to tune processes or equipment.



Leverage automatic and manual data collection methods

Contextualize raw data quickly
With a configuration wizard that includes CO2 conversion and/or cost conversion factors, you can immediately turn raw consumption figures into cost and emission figures that illustrate the value of reduction initiatives over time.

Use KenerSys out of the box or build application-specific solutions



- Capture any data stream
- Water, gas, electricity, steam
- View data by load type (HVAC, lighting) or building floor
- Collect and evaluate the data. And we use those **BIG DATA** analysis and improve the system. Energy saving up to 50%.

SOFTWARE AND INTERFACE

□ **Many Inputs, Many Stakeholders – One Platform**

□ **A Solution Based on Proven Technologies**

KenerSys is a cohesive solution that delivers focused capability in measuring and presenting data that is critical to understanding, then reducing your energy, water, and other resource usage. Our Open and Layered software approach means that you can take advantage of the core solution and easily extend and integrate its capabilities beyond the initial installation:

- Utilize an independent visualization server for web- and/or terminal services based clients
- Embed the graphical objects into live applications
- Add additional data points and calculations to screens to create additional key performance indicators or expose
 - related trends
- Take advantage of our unparalleled connectivity to gather data from otherwise isolated systems

□ **On-the-fly Historical Analysis**

Users have the flexibility to switch from real-time to historical analysis mode on the fly. This provides great insight into the and enables users to see instantly how the results compare to previous timeframes.

In addition, alarms, warnings and messages can be set up to monitor the incoming data for you and enunciate it to multiple users.

□ **A Familiar Framework**

Sustainability initiatives shouldn't depend on major investments in isolated systems that serve only a limited number of stakeholders.

KenerSys for Sustainability builds on the tools commonly used by engineering, maintenance and continuous improvement teams that turn reduction goals into realities. Our approach reduces the time and cost of adoption, and easily takes advantage of the data held in other systems your teams manage. Additionally, the KenerSys solution avoids unnecessary investment in redundant systems, while delivering deep and rich data for troubleshooting and tuning, as well as “rolled-up” views that serve management and sustainability program stakeholders.

□ **Maximize Your Access to Incentives**

Many governments and utilities around the globe offer fiscal incentives for companies that make greenhouse gas and overall energy reductions. With an increasing emphasis on proof of improvements, it's more critical than ever to be able to provide objective, trustworthy data to external stakeholders. KenerSys for Sustainability supports faster, deeper comparison of consumption patterns during different periods—simplifying the reporting needed to win, and hold, incentives.

HEADQUARTER

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Malaysia | ASEAN Headquarter

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Intelligence Makes the Dream Come True

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