

# AI Driven Energy Management for Universities

Reduce **Costs** and Improve **Power System Reliability**

## Application Guide



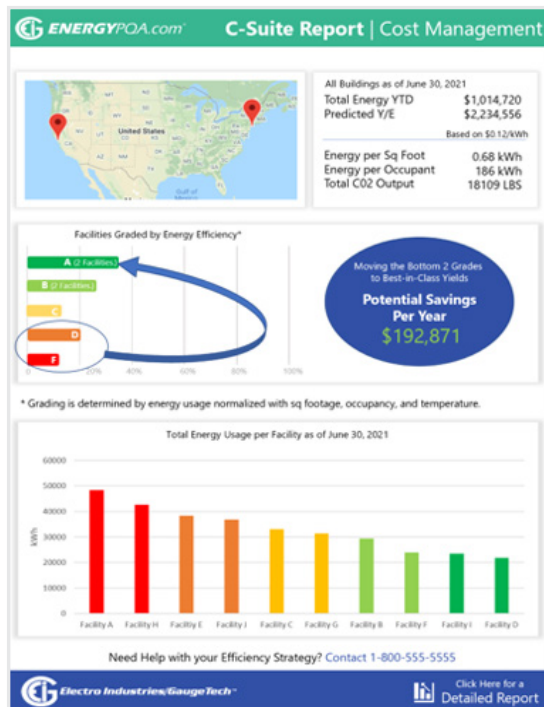
- Identify the Most Energy Wasteful Facilities and Circuits to Maximize Energy Efficiency Improvements
- Reduce Costs with AI-based Predictions
- Automatically Grade Facilities Using Deep Power Quality Insights to Improve Electrical Reliability
- Use Predictive Analytics to Benchmark Campus Sustainability Initiatives
- Manage All Commodity Usage

## Identify Wasteful Facilities and Circuits to Improve Energy Efficiency

According to ENERGY STAR® (a U.S. government-backed program), educational facilities in the United States spend over \$14 billion on energy each year but close to 30% of that energy is used inefficiently. Use the EnergyPQA.com® cloud-based energy management system and EIG's energy and power quality meters to submeter and quantify the energy used in all parts of the university. Studies show that submetering results in an 18-30% reduction in energy usage. When aware of their actual energy use, individual departments and university facilities can take ownership of their energy consumption and participate in university energy conservation efforts. The subsequent energy reduction results in both a return on investment and an improvement in the university's carbon footprint.

The EnergyPQA.com® energy management system transforms traditional energy management by identifying the most energy wasteful facilities and circuits to maximize energy efficiency improvements.

- Automatically grade campus facilities and circuits for energy efficiency using smart analytics.
- Identify least efficient facilities and the potential savings from improving them.
- Focus on facility circuits most in need of improvement.



View Campus Facility Energy Efficiency

## Reduce Costs with AI-based Predictions

The EnergyPQA.com® energy management system's AI-based energy predictions provide insights into building energy trends into the future. By looking at future predictions, a campus facility manager can then be proactive to make sure that energy reduction programs are successful. The system uses historical energy readings and future weather forecasts to provide usage and demand before they occur, at all metered points.

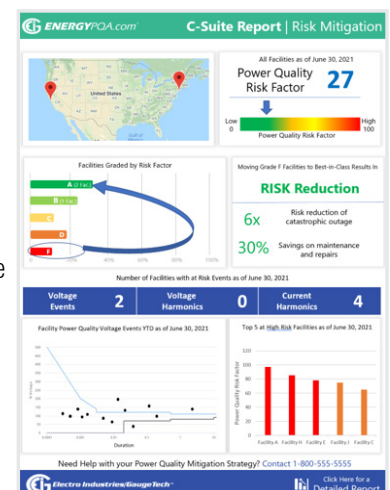
- Accurately predict demand and energy usage into the future with advanced AI and machine learning.
- Take action on peak demand predictions in advance of penalty.
- View energy dashboards that detail energy usage and demand across facility areas and provide insightful predictive analysis.

The system emails notifications of new predicted peak demand up to three days in advance. Since demand charges can be as high as 50% of a facility's actual energy bill, this information can yield significant savings. Use the EnergyPQA.com® energy management system's predictive energy usage dashboards to judge the success of demand mitigation efforts.

## Grade Facilities and Circuits to Improve Electrical Reliability

Power quality problems can result in damage to university equipment and cause major interruptions of the university's work. Non-linear loads from computers, LED lighting, and other campus equipment can cause harmonics, inter-harmonics, and flicker, all of which have a detrimental effect on power quality. The EnergyPQA.com® energy management system gives deep insights into the power quality in all metered areas of the university.

- Automatically grade facilities on best to worst power quality risk.
- Identify specific circuits in worst facilities to provide simple meaningful actions to improve reliability and safety of the power system.
- Gain deep insights into all aspects of the facility's voltage reliability and power quality with extensive dashboards and customizable reporting.
- Easily view power quality waveforms, voltage sags and swells, current faults, THD, power factor, and limit alarms.



View Campus Facilities Graded for Power Quality

## Use Predictive Analytics to Benchmark Sustainability Initiatives

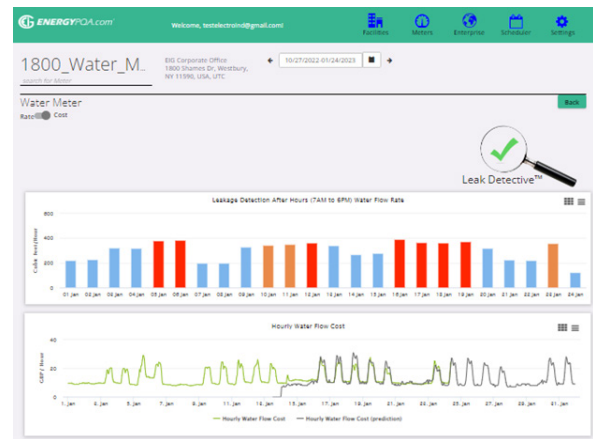
Many universities are at the forefront of energy sustainability. Measuring the success of sustainability initiatives as early in the process as possible saves time and resources. It also leads to greater success. Since the EnergyPQA.com® energy management system's AI driven machine learning predicts energy usage and demand into the future, implement energy saving programs and then use the system's prediction data and graphs to ascertain if sustainability plans are going to be successful. Make changes as needed and reassess the predicted outcomes. Additionally, use the EnergyPQA.com® energy management system to evaluate the university's carbon footprint with predictions to the end of the month and year.



Compare Campus Facilities' Carbon Footprint

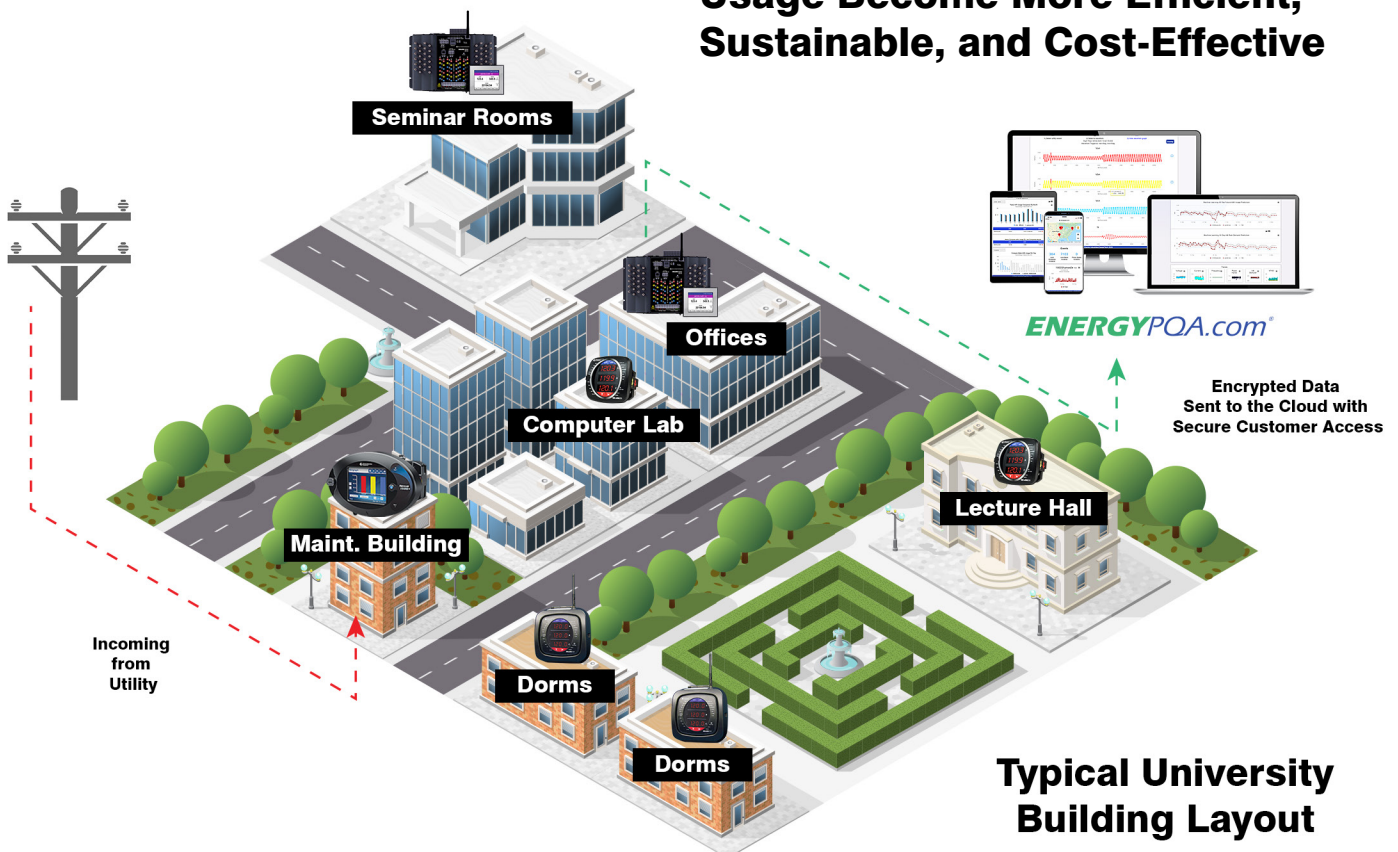
## Manage All Commodity Usage

The EnergyPQA.com® system allows you to track all commodity usage in one place, eliminating the need for discrete systems for water, air, gas, electric, and steam (W.A.G.E.S.) usage. View detailed usage and commodity cost dashboards. Trend commodity usage within a building and compare use between campus buildings. With the unique Leak Detective™ feature, be alerted to air and water leaks, allowing timely action to save resources and money. Generate reports for all W.A.G.E.S. commodity usage.



W.A.G.E.S. Dashboard

## Helping Universities' Energy Usage Become More Efficient, Sustainable, and Cost-Effective



Typical University Building Layout



# Typical Bill of Materials

## Cloud-Based Energy Management Solution

**EnergyPQA.com®** - AI Driven Energy Management System, providing energy analytics and predictions, reducing costs, and improving power system reliability

**Ordering Part #:** **ENERGYPQA-1Y**

**Learn More:** <https://www.electroind.com/products/energypqa-com-energy-management-system/>



## Critical Load Point

**Nexus® 1500+** - Advanced Power Quality Meter

Example Installation: Utility Entry Points, Critical Loads, High Power Sensitivity Points

**Ordering Part #:** **Nexus1500+-D2-60-20-V3-X-X-X-X**

**Learn More:**

<https://www.electroind.com/products/nexus-1500-power-quality-meter-with-phasor-measurement-unit/>



## Large Loads (400 A or more)

**Shark® 250** - Cyber Secure Power and Energy Meter

Example Installation: Typical Building Loads, Substations, Control Panels

**Ordering Part #:** **Shark250-60-10-V2-D2-INP100S-X-X**

**Learn More:** <https://www.electroind.com/products/shark-250-power-meter/>



## BACnet Capable Meter

**Shark® 100B** - Power and Energy Meter with Native BACnet/IP

Example Installation: To fit an existing BACnet application

**Ordering Part #:** **Shark100B-60-10-D2-X**

**Learn More:** <https://www.electroind.com/products/shark-100b-bacnet-ip-power-meter/>



## Economical WiFi Submeter

**Shark® 200S** - Advanced Data Logging WiFi Submeter

Example Installation: Administrative Offices, Dormitories

**Ordering Part #:** **Shark200S-60-10-V33-WIFI**

**Learn More:** <https://www.electroind.com/products/shark-200s-100s-multifunction-wifi-electric-submeter/>



## Smaller Loads (200 A or more)

**MP200™ Multipoint Metering System** - 8 Three Phase Input Meters

Example Installation: Smaller Panel Boards, High-density Circuits

**Ordering Part #:** **MP200-Y-60-10-V2-WIFI-MDSN**

**Learn More:** <https://www.electroind.com/products/shark-mp200-multi-point-energy-meter/>



## Engineering Services

Contact EIG's highly experienced engineers, with a variety of skills in the fields of electrical engineering, software engineering, and meter engineering, to assist in the design,

commissioning, start-up verification, and certification of installations. Our team will help you get your project up and running, and ensure its success.



### Contact EIG at:

Email: [sales@electroind.com](mailto:sales@electroind.com)

Telephone: 516-334-0870

Website: [www.electroind.com](http://www.electroind.com)

### Application page link:

[www.electroind.com/energy-management-for-universities/](http://www.electroind.com/energy-management-for-universities/)

