

Power Systems Experience Center — Pittsburgh

Powering industry through education

TRAINING



TESTING



DEMONSTRATING



EATON

Powering Business Worldwide

Eaton created first-of-its-kind Experience Centers around the world that offer global education solutions with the unique ability to enable customers with hands-on training in multiple application environments.



Pittsburgh, Pennsylvania, USA



Houston, Texas, USA



Peachtree City, Georgia, USA



Raleigh, North Carolina, USA



Dammam, Saudi Arabia



Mascot, Australia



Singapore



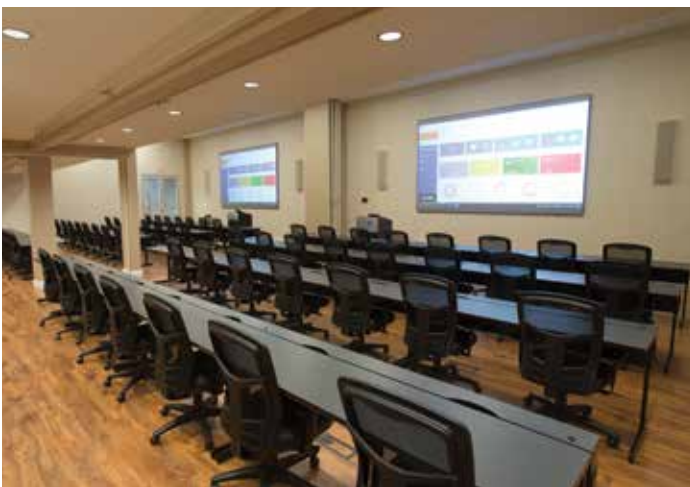
Seoul, South Korea



Seeing is believing

To provide a global education solution with the unique ability to enable customers with hands-on training in multiple application environments, Eaton created first-of-its-kind Experience Centers located across the globe.

Our market-specific demonstrations empower customers to experience products within a solution-based application. With applications that step customers through power management solutions from generation all the way down to the receptacle, Eaton Experience Centers focus on “pulling back the curtain” to give customers an opportunity to see the impact of their projects from a broad perspective and dive into operation of products, understanding the design, technology and installation practices of a product within that application.



At the Power Systems Experience Center (PSEC), Eaton’s testing, training and demonstration facility near Pittsburgh, visitors can see firsthand the latest advancements in electrical power quality, energy management and safety. In our controlled environment, you can observe product testing and performance, participate in live demonstrations and learn about power management technologies from Eaton experts. Whether you want to learn the basics or finer points of power system designs, the PSEC offers a dynamic lesson in power quality and energy management solutions.

Eaton Experience Centers are designed with you in mind. Our staff will provide you with a unique experience helping answer questions about your system design and electrical problems.

Visitors to the Power Systems Experience Center can:

- Observe typical power quality problems as they happen on a real system
- Learn about arc flash safety solutions
- Participate in hands-on product testing
- Earn CEU’s and PDH’s through certified training courses
- See real-time power quality waveforms during harmonic, transient and voltage variation demos
- Learn about options for power system grounding
- Consult with Eaton experts
- Evaluate technical and economic design considerations
- Watch side-by-side comparisons of equipment from Eaton and other manufacturers
- Analyze energy saving options and set realistic expectations

The PSEC experience

The **power quality lab** features main, commercial, and industrial power systems.

Main power system includes utility incoming service, alternate high impedance source, bypass isolation transfer switch with 150 kW generator, voltage sag generator, and low voltage distribution equipment with monitoring and control.

Commercial power system includes lighting, transformers, single-phase uninterruptible power supplies (UPS), surge protection equipment, voltage regulation, lighting control, and variable load banks for testing capabilities.

Industrial power system includes harmonic mitigation solutions, power factor correction, motor starting and control (soft starters and variable frequency drives), motor control centers, and busway.

The **microgrid** is sourced from a rooftop and canopy solar array, energy storage system and natural gas generator that is capable of interconnecting or islanding from the utility to sustain the active loads of the experience center.

The **utility substation and distribution** includes a substation, pole- and pad-mounted transformers, voltage regulators, reclosers, capacitor bank and racks, and fused cutouts.

The **data center** includes three-phase UPS, power distribution units, super capacitor, cable management, busway and Foreseer monitoring.

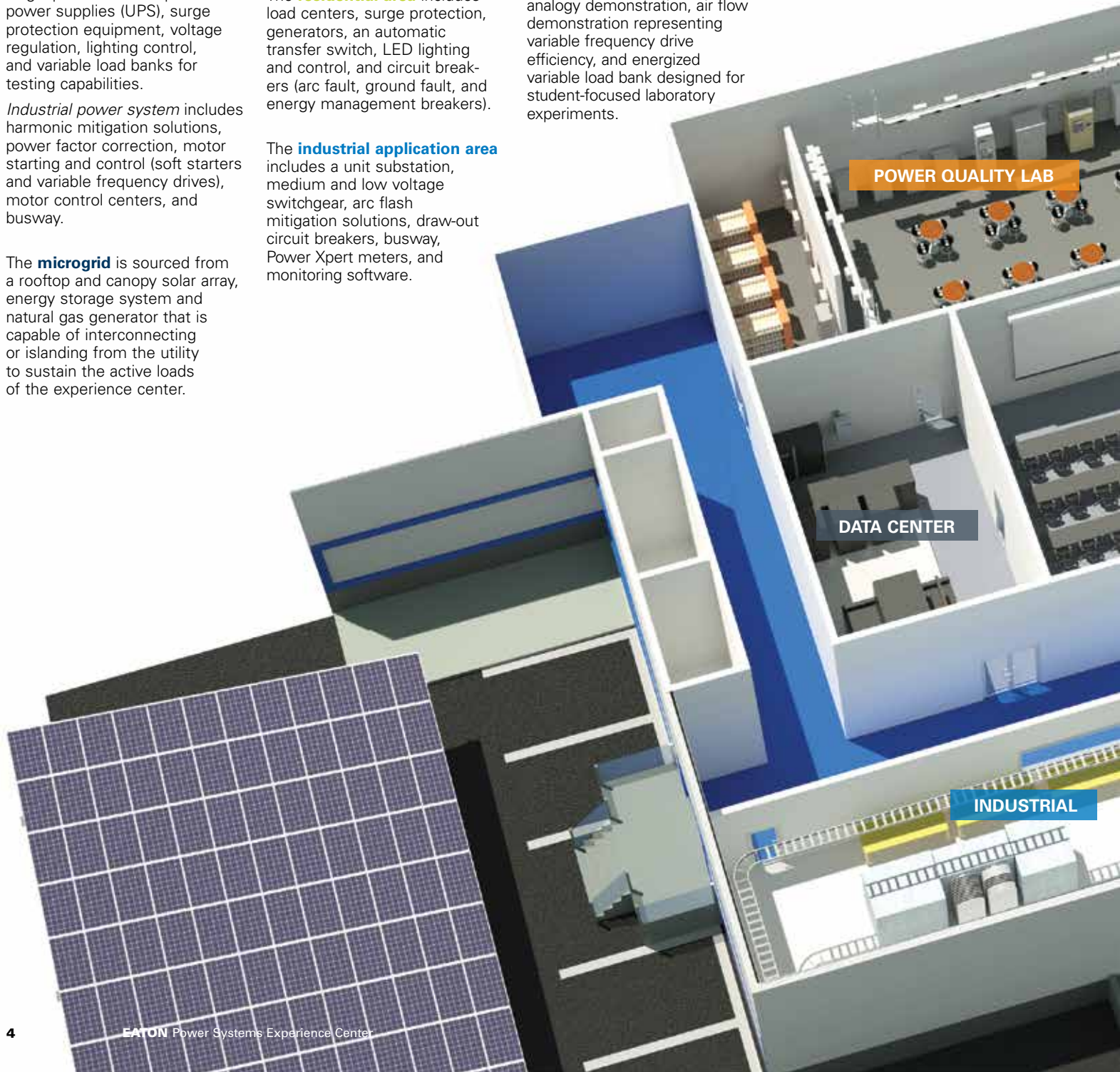
The **residential area** includes load centers, surge protection, generators, an automatic transfer switch, LED lighting and control, and circuit breakers (arc fault, ground fault, and energy management breakers).

The **industrial application area** includes a unit substation, medium and low voltage switchgear, arc flash mitigation solutions, draw-out circuit breakers, busway, Power Xpert meters, and monitoring software.

The **Energy Automation System (EAS)/control room** houses control and displays of an active Yukon Automation System, CYME distribution software, LumaWatt Pro Wireless Sensing and Control System, and Forseer building management system. This area also includes Eaton's Wrightline command and control consoles.

The **trade school** includes a water to electrical systems analogy demonstration, air flow demonstration representing variable frequency drive efficiency, and energized variable load bank designed for student-focused laboratory experiments.

The **equipment life extension and modernization (ELEM)** area includes medium voltage vacuum replacements (MVVR), low and medium voltage vacuum starter replacements (LV and MV-VSR), low voltage air replacements (LVAR), VR+ series factory-authorized mechanism enhancement (FAME), custom panel shop, and the Power Breaker Reconditioning Center (PBRc).



The Power Systems Experience Center provides a global education solution with the unique ability to give visitors hands-on training in real application environments.



From live demonstrations...



Power quality lab

Uniquely designed application environment

The lab is a full-scale commercial and industrial environment designed to create and mitigate power quality problems while illustrating a range of solutions with technical or economic benefits.

Customized testing

Dynamic source and loading capabilities, high speed power quality instrumentation and local Eaton experts make the power quality lab the ideal location for testing new and retrofit products and solutions.

Metering and monitoring

With high-speed waveform capture and revenue accurate monitoring systems, we can capture and show you exactly what is going on in real time.



Industrial and commercial applications

Arc flash mitigation and safety

From medium voltage arc resistant switchgear to our Arc Flash Reduction Maintenance Switch (ARMS), our industrial application area provides a safe environment to interact and train with Eaton's arc flash mitigation equipment and solutions.

Power distribution and circuit protection

With medium- and low-voltage switchgear, switchboards, panelboards and motor control centers, visitors see a variety of commercial construction and industrial electrical designs.

Customized prepackaged solutions

Solutions include integrated power assemblies (IPA/e-house), customized switchboards (IFS), generator "quick connect" switchboards and modular integrated transportable substations (MITS).



Data center

UPS systems

The data center highlights small, medium and large UPS systems illustrating standard and high efficiency modes of operation. Visitors can make side-by-side comparisons of actual measurements during transitions in and out of high efficiency modes proving energy savings and reliability.

Energy storage solutions

VRLA and lithium ion batteries, supercapacitors and battery monitoring systems connected to a UPS highlight options designers have to backup and monitor data center power systems.

Power monitoring and energy management

Hot aisle containment, Foreseer monitoring, ePDUs and Power Xpert meters demonstrate Eaton's solutions for monitoring and managing your data center.

to product testing...



The Power Systems Experience Center was designed as a real working lab with full-scale power system components and loads.

The power quality lab gives us the unique opportunity to test and demonstrate electrical issues like voltage sags, harmonics, and transients — exposing equipment to issues in a safe, controlled environment. We can create countless dramatic scenarios to uncover risk and design flaws in any power system or electrical component.

In addition to power quality testing, we test many products and solutions related to energy savings to see how much, if any, energy they really save you.

Testing capabilities include:

- Excessive harmonic voltage and current distortion
- Voltage sag, under/over-voltage, and interruption
- Transient/surge protection
- Energy savings for retrofit energy saving devices (RES-D)
- Data center applications
- Utility protection schemes
- Microgrid components
- Utility vs. generator source
- Motor starting and drive
- Electrical stress (high voltage or high current)
- High resistance ground

to real-world applications



Residential area

Power distribution and circuit protection

Demonstrations include load centers, retrofit interiors, arc fault (AFCI) and ground fault (GFCI) circuit interrupters, and surge protection.

Residential scale microgrid

Portions of the environment are powered by a microgrid demonstration, interconnecting solar, battery and utility power sources.

New product development

Active loads in this area provide a realistic environment used for new product development and testing, showcasing the latest residential products before industry release.

Backup generation and control

Interactive demonstrations, including the green automatic transfer switch, illustrate modern protection and backup systems for residential applications.



Utility substation and distribution

Power distribution See pole-top overhead and pad mounted utility power distribution equipment starting at the substation and continuing through industrial, commercial, retail, residential and remote industrial loads. The network vault completes the system, highlighting network protectors and other protective devices used in vault applications where high reliability is a necessity.

Lightning storm demonstration

A recloser demonstration highlights feeder automation software and control solutions. From the energy automation system room (EAS), you can get a birds eye view of the demonstration as a tree falls on the power line and watch the results live on the interactive SCADA system.

Volt/VAR solutions With many options illustrating voltage regulation and reactive compensation, including regulators and capacitor banks, the utility power system offers a good-better-best approach for visitors trying to optimize their power systems.



Microgrid

Full-scale live application A full-scale microgrid application interconnects multiple onsite sources—including solar, energy storage, generation and utility supply—to provide a “live” platform for testing control advancements while powering active lighting, HVAC, and house loads.

Intelligent control Eaton’s Power Xpert Energy Optimizer™ controller ensures system power continuity during short- and long-term utility interruptions while effectively deploying resources in the most efficient manner. The flexibility of the control system with standard communication enables easy system configuration and future adaptability of assets.

Key features and demonstrations The application features peak shaving, photovoltaic (PV) smoothing and shifting, demand management and response, seamless islanding and reconnecting to grid, long-term islanding illustrating optimal use of resources, black start from generator or energy storage, grid-connected power factor and voltage regulation.

Who should visit?

Eaton’s Power Systems Experience Center welcomes visitors from around the world from all industries.

Facility managers

Consultants

Owners

Executives

Distributors

Contractors

Operators

Engineers

Students

- Commercial
- Data center
- Education
- Electric utility
- Government and military
- Healthcare
- Industrial
- Mining and minerals
- OEM
- Nuclear
- Oil and gas
- Residential
- Solar

VISIT TODAY!

Contact us about visiting Eaton's
Power Systems Experience Center in Pittsburgh.

Email: PSEC@eaton.com

Online: www.eaton.com/psec



We look forward to seeing you soon.

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Eaton.com/experience