

CATERPILLAR CONSULTING ENGINEER RESOURCES



**PUT THE EXPERTS
TO WORK FOR YOU**



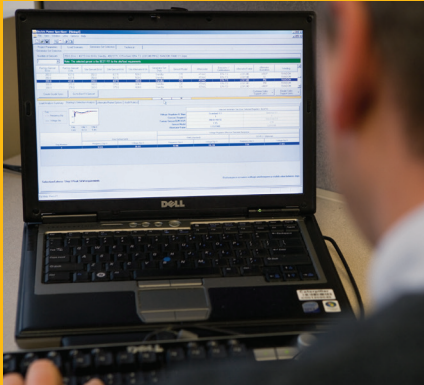
EXPAND YOUR EQUIPMENT KNOWLEDGE

Make the most of your equipment with the best training and support for the life of your products. Your Cat® dealer is your partner in meeting your needs with an extensive library of power systems technical training seminars. Factory and dealer experts will come to your office to help you increase efficiency and productivity.

FREE SEMINARS AVAILABLE:

SPECSIZER 101: GETTING STARTED

The Cat SpecSizer program can help you accurately size generator sets to a project's specific loads. This discussion gives an overview of the tool and will prepare a user to get started quickly.



RATING DEFINITIONS & LOAD FACTOR

Learn about the ISO8528 rating definitions and Caterpillar ratings, and how to properly apply these to projects. Also cover application specific considerations including data centers, uptime ratings, and the importance of load factor.

UNDERSTANDING GENERATOR SET NOISE

As the use of standby generator sets grows, noise becomes an increasingly important factor in projects. Learn the basics of noise, the sources of generator set noise, and what tools are available to help mitigate it.

ALTERNATIVE FUELS FOR ELECTRIC POWER

This is an introduction to some of the alternatives to the diesel and natural gas the industry traditionally uses and guides you through some of the characteristics of these alternatives fuels. Specifically: Heavy fuel oil (HFO), diesel from biological processes (biodiesel), propane gas, landfill gas, gas from biological processes, and coal bed methane.

APPLICATION & INSTALLATION OF DIESEL GENSETS

This is a general discussion of genset engine room design: air intake and systems, exhaust systems, fuel systems, engine room ventilation, and foundations and isolation.

PARALLELING STRATEGIES

Identify applications that are suitable for a specific paralleling strategy. This overview shows the value, key benefits, and differences of various specific paralleling solutions.



EMCP 4.4 – ON PACKAGE PARALLELING CONTROLS

Onboard paralleling can be a perfect option for many projects, but may not fit the requirements for all. Learn about Cat product EMCP 4.4 onboard paralleling features and functionality, and what applications it is best suited for.

GENSET CONTROLS TECHNOLOGY

Learn about Cat product generator set controls, their capabilities, and how to decide what requirements are needed for any project.

COMPARING GAS AND DIESEL GENERATOR SETS IN STANDBY APPLICATIONS

Both gas and diesel generator sets can be used in standby applications. Learn what benefits each can bring to choose the best platform for any project.

GENERATOR BASICS

This is an introduction to electrical generator basic theory, alternating electrical generator overview, and generator characteristics.



TIER 4 FINAL EMISSION STANDARDS FOR ELECTRIC POWER

An in-depth explanation of U.S. stationary diesel emissions standards. Learn about the different scenarios in which diesel generator sets can be used, and how it impacts their emissions requirements.

Earn CEU credits and build relationships while you make sure your customers get the best training and support for the life of their products.

Contact your local Cat dealer to schedule training near you. Visit https://www.cat.com/en_US/support/dealer-locator.html

IBC SEISMIC AND WIND LOAD COMPLIANCE FOR NON-STRUCTURAL BUILDING COMPONENT

Learn about special inspections, life safety systems, responsibilities, special seismic requirements, and OSHPD Certification.

ATS BASICS

This course is an introduction to the Automatic Transfer Switch (ATS), discussing definitions, functions, physical elements, basic transfer types, how we transfer loads, standards and certifications, and different modes of operations.

INTRODUCTION TO PARALLELING

This course is an introduction to paralleling concepts. This includes purpose of paralleling, synchronization and synchronization requirements, and load sharing basics and methodologies.

MICROGRID OVERVIEW

This course introduces renewable energy microgrids: common components and comparison of industry technologies, designing and specifying microgrid systems, and an off-grid facility case study.

DISASTER PREPAREDNESS & MAINTENANCE CONSIDERATIONS

Learn how to make sure that your standby power system functions when it is needed most with preventive maintenance practices.

REMOTE ELECTRIC POWER MANAGEMENT

- What is remote monitoring? Why should I connect an asset, especially for standby when it doesn't run often?
- What is the difference between remote monitoring and SCADA systems?
- Data privacy & security: what you should be asking or thinking about when engaging in remote monitoring.
- Where do we see the distributed energy of the future going with new technology as it relates to remote monitoring?

PROTECTING YOUR EMERGENCY GENSET – RELAYS & COORDINATION

- Overview single-line and graph
- Review protective devices
- Define system coordination
- Impact on generator set investment
- Setting relay curves
- Circuit breaker
- Coordination with circuit breakers
- Analysis tool and software

GAS GENSETS IN UTILITY APPLICATIONS

Gain a better understanding of the Utility industry and market, and how gas generator sets can be used to reduce the cost of power.

MICROGRIDS: SOLAR RADIATION AND SUNLIGHT

This course is an introduction to the relationship between the Earth and the Sun and the factors that affect the energy we receive on a solar array.



COOLING GENSETS

This course is an application-level look at diesel engine cooling systems and radiators. It describes and explains methods of managing engine heat for various engine applications.

CHP APPLICATIONS

Combined Heat and Power (CHP)/cogeneration systems do much more than produce hot water and steam. In the webinar, you'll find out how modern systems can:

- Produce hot air for drying processes
- Cool your facilities
- Support your disaster preparedness
- Support crop fertilization needs in greenhouses
- Reduce your emissions and improve your efficiency by replacing aging equipment

GAS GENSETS IN STANDBY APPLICATIONS

This seminar focuses on the use and benefit of using gas generator sets in standby applications.

CATERPILLAR CONSULTING ENGINEER RESOURCES

Electric Power Information Library:

https://www.cat.com/en_US/articles/electric-power/ep-information-library.html

The best place to start for information. Access to product brochures, white papers, customer stories, industry information, and upcoming events. The Caterpillar source for the Electric Power industry.

Cat Spec Sheets:

http://www.cat.com/en_US/products/new/power-systems/electric-power-generation.html

Any size or shape. In any regulatory environment. When you need power, Caterpillar is equal to the challenge.

Our generators are used in a variety of applications.

Cat White Papers:

https://www.cat.com/en_US/by-industry/electric-power/electric-power-industries/white-papers.html

Caterpillar has over 30 white papers dedicated to the electric power industry. From generator sets, to paralleling, to microgrid technologies, these resources can help to simplify and inform engineers on a variety of topics.

Cat Brochures:

https://www.cat.com/en_US/by-industry/electric-power/electric-power-industries/brochures.html

Cat Electric Power supports a variety of markets. Learn about our capabilities and products built to support them.

SpecSizer:

http://www.cat.com/en_US/articles/solutions/power-systems/electric-power-specsizer.html

Caterpillar Electric Power is excited to introduce you to our latest generator set sizing software, Cat Electric Power SpecSizer.

Considering factors such as site conditions, load characteristics and required performance, SpecSizer provides accurate and timely technical data, robust load models and optimized algorithms to assist in specifying a properly sized generator set to best meet your power needs.

Several new features set SpecSizer apart as a revolutionary tool in generator set sizing, including its ability to evaluate load types such as air conditioners, elevators, ultraviolet lights, single-phase NEMA, and single-phase IEC motors.

SpecSizer offers a unique Application Wizard that collects data on the user's loads, then organizes the loads into steps, considering voltage dip and load demands, to assist in selecting the best generator set size in terms of both rating and footprint.

Find your Cat Dealer:

https://www.cat.com/en_US/support/dealer-locator.html

Cat dealers are not only experts on our products, but can also help understand local requirements and considerations. Find your local Cat dealer for assistance on any project.



CUSTOMER, CAT DEALER, CATERPILLAR

This partnership is a commitment to you to get the best product, service, and support for your investment. Your Cat dealer is committed to maximizing your success, helping you get the most out of your operations. Take advantage of these training opportunities to build your business and your relationships.

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