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Vol. 107 No. 11

NOVEMBER 18, 2016

CHRISTMAS MIXER

Over 500 reservations so far!

THURSDAY, December 1, 2016

Chase Park Plaza

Extended Hospitality Period
11:00 a.m. to 12:15 p.m.

Lunch and Program
12:15 pm to 2:00 p.m.

\$62.50 per person

Tables of 8, 9 or 10 or individual tickets **available**

Mixer FUNMASTER

KYLE McCLELLAN

Former Cardinals Pitcher and now analyst

Eric Ripp – Meglio & Associates– Chair

Ray Voigt – Martin Electrical Sales– Assistant Chair

- **Eric and Ray encourage you to invite your associates and customers to attend this year's Mixer. If you have not ordered your tickets yet, call the EBMI office before Wednesday, November 23rd to order your tickets. Our food guarantee is due to Chase by that date. Tickets already reserved will be mail 11-22.**
- **Attendance Prizes will once again be handed out during lunch.** Anyone wishing to donate an attendance prize should contact the EBMI office – 636-305-6434 before November 23rd, if you have not yet done so.
- **Enjoy the Holiday “spirit” with industry associates. We will also be collecting funds for the Salvation Army's Tree of Lights Campaign and “TWO HANDS – TWO CANS” for “Feed My Peeps”. (Details inside newsletter) Please let your guest know about these.**

Please complete the form below to reserve a place at the luncheon ONLY if you have NOT yet confirmed your reservations or to donate an attendance prize. Email annie@electricalboard.org, or call the EBMI office prior to November 23rd.

NAME _____ **COMPANY** _____

PHONE _____ **e-mail** _____

_____ # of Tickets @ \$62.50 = \$ _____

- ☐ Sorry, we cannot attend the Mixer, but wish to donate:
☐ \$25 for attendance prize ☐ Will bring gift to EBMI Office or ☐ Will bring gift to Mixer

(Please check appropriate box for payment.)

- ☐ Invoice ☐ Will send check ☐ Mastercard, AMEX or Visa (Call the office)

CALENDAR OF EVENTS

See calendar on www.electricalboard.org

Nov. 24th **HAPPY THANKSGIVING**
Nov. 24th & 25th (EBMI Office Closed)

Nov. 28th **EBMI Night at the Blues Games**

Dec 1st **CHISTMAS MIXER**
Chase Park Plaza Hotel
(550 + attend annually)
"TWO HANDS – TWO CANS"
Benefits "FEED MY PEEPS"
Also collecting \$\$\$ for Salvation Army

Dec 8th **Board of Directors meeting**
Forest Park Golf Course

Dec. 25th **Merry Christmas**
Dec. 23rd , 26th , 30th (EBMI Office Closed)

2017 - HAPPY NEW YEAR

MARCH 21-22 ELECTRICAL EXPO
St. Charles Convention Center

Call EBMI at 636-305-6434 for more information or to register for any of these events and seminars or visit our website at www.electricalboard.org -

THANK YOU

There are many companies that provide support for the Electrical Expo as sponsor, distributor partners, Step forward participants, placing an ad in the Expo pre-show brochure and/or exhibiting in the show. Their contribution in any form is greatly appreciated.

Distributor partners

Anixter
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Pre-show Brochure Ads

COVERS

Eaton Corporation
Electrical Connection
French Gerleman

FULL PAGE

Ameren
Butler Supply
Vertiv / Electronic Support Systems

HALF PAGE

Centrex Electrical Supply Corp.
Electrical Representatives Organization (ERO)
Electro Savings Credit Union
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Graybar Electric
Holt Electrical Supplies
IEC of Greater St. Louis

QUARTER PAGE

Guarantee Electrical

2017 EXPO EXHIBITORS as of 11-16-16... 172 booths thus far!

We want to keep everyone updated as far as exhibitors for this Manufacturers Show. (We also listed their manufacturer's representative also.) If your company is NOT listed, you may want to send in your contract as soon as possible. Please go to (show expo link below) and continue checking as we will post weekly updates on new exhibitors. ONLY those with contracts received will be listed on website!

<http://www.electricalboard.org/2017-expo-exhibitors-list/>

[3M Electrical Markets Division](#) - (Meglio & Associates)
[Acuity Brands Lighting](#) - (St. Louis Lighting Group)
[Aeros USA](#) - (EMS Partners, Inc.)
[AKSA Power Generation](#) - (Gateway Industrial Power)
[Alan Wire](#)
[Ameren Illinois Energy Efficiency Programs](#)
[Ameren Missouri Bizsavers Program](#)
[American Lighting](#) - (Ketzner Enterprises, Inc.)
[American Midwest Power](#) - (Schaeffer Marketing Group)
[APC/MGE UPS by Schneider Electric](#) - (RG Computer Power)
[Appleton Group](#) - (FISHCO Group)
[Arlington Industries](#) - (Meglio & Associates)
[Armorcast Products Company](#) - (Schaeffer Marketing Group)
[ASCO Power Technologies](#)
[Atkore International](#) - (Meglio & Associates)

[Basler Electric Company](#) - (Weisler and Associates)
[BK Lighting/Teka Illumination](#) - (SSLtg.)
[Bridgeport Fittings, Inc.](#) - (Schaeffer Marketing Group)
[BRK Brands, Inc.](#) - (Vector Electrical Sales)
[Burndy LLC](#)
[Caddy Division of Pentair Engineered & Electrical Solutions](#) - (Martin Electrical Sales)
[Cadweld/Erico, Division of Pentair Engineered & Electrical Solutions](#) - (Martin Electrical Sales)
[Calpipe Industries](#) - (FISHCO Group)
[Caterpillar](#) - (Fabick Cat)
[Cementex](#) - (Martin Electrical Sales)
[Champion Fiberglass](#) - (FISHCO Group)
[Craftmade International](#) - (Ketzner Enterprises, Inc.)
[CREE](#) - (Schaeffer Marketing Group)
[Cummins Sales and Service](#)
[Deco Lighting](#) - (Schaeffer Marketing Group)
[Dialight](#) - (Meglio & Associates)
[L. H. Dottie](#) - (FISHCO Group)
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[Eaton's B-Line Business](#)
[Eaton Bussmann division](#) - (Archway Electrical Sales)
[Eaton's Crouse-Hinds Division](#) - (Archway Electrical Sales)
[Eaton Lighting solutions](#) - (Lighting Associates, Inc.)
[Eaton Power Systems Division](#)
[Eaton Wiring Devices](#) - (Archway Electrical Sales)
[Eiko Global](#) - (Schaeffer Marketing Group)
 Electrical Board of Missouri & Illinois
[Electriflex](#) - (FISHCO GROUP)
[Elite Lighting](#) - (LEC)
[Encore Wire](#) - (FISHCO Group)
[Integrity Energy](#)
[Ericson](#) - (Martin Electrical Sales)
[Eriflex, Division of Pentair Engineered & Electrical Solutions](#) - (Martin Electrical Sales)
[Eспен Technology](#) - (SSLtg.)
[Etcon Corp.](#) - (Cooper Electrical Sales)
[Federal Signal](#) - (Martin Electrical Sales)
[FLIR Systems](#)
[Fluke Corporation](#) - Martin Electrical Sales
[Fulham Inc.](#) - (LTG Partners)
[Gary Norland Safety Presentations](#)
[GE Lighting](#)
[Generac](#) - (Clifford Power Systems)
[General Cable Corporation](#) - (Archway Electrical Sales)
[Global Tech LED](#) - (SSLtg.)
[GM Lighting](#) - (Stolzberg/Rozycki)
[Greenlee](#) - (Meglio & Associates)
[Gripple](#) - (Lighting Associates, Inc.)
[H.E. Williams, Inc.](#) - (Rafferty Lighting Group)
[Harger Lightning & Grounding](#) - (Archway Electrical Sales)
[Hipower Systems](#) - (Mikes Inc.)
[Hoffman Enclosures, Division of Pentair Equipment Protection](#) - (Martin Electrical Sales)
[Honeywell E-Mon](#) - (Meglio & Associates)
[Howard Lighting Products](#) - (LTG Partners)
[Hubbell Commercial Construction](#) - (Vector Electrical Sales)
[Hubbell - Killark](#) - (Vector Electrical Sales)
[Hubbell Lighting](#) - (LEC & Co.)
[Hubbell Power Systems, Inc.](#) - (LTG Partners)
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[ILSCO](#) - (Meglio & Associates)
[Innovative Facilities Solutions](#)
[Intense Lighting](#) - (SSLtg.)
[Intermatic](#) - (Martin Electrical Sales)
[Jefferson Electric](#) - (Schaeffer Marketing Group)

[Jesco Lighting Group](#) - (LTG Partners)
[Kichler](#) - (Robert Sales Inc.)
[Kidde Safety / Edwards Signaling](#) (FISHCO Group)
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[Klein Tools, Inc.](#)
[Kohler Power Systems](#) - (CK Power)
[LEDVANCE Sylvania](#)
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[Lutze](#) - (EMS Partners, Inc.)
[MacLean Highline Div. of MacLean Power Systems, Inc.](#) - (LTG Partners)
[Madison Electric Products](#) - (LTG Partners)
[Marley Engineered Products](#) - (Meglio & Associates)
[MaxLite Inc.](#) - (LEC)
[Meltic Corporation](#) - (Martin Electrical Sales)
[Mersen](#) - (Martin Electrical Sales)
[Milwaukee Tool](#)
[Modern Lighting](#) - (TLV Sales)
[MTU Onsite Energy](#) - (Central Power Systems & Services)
[NSi Industries](#) - (Schaeffer Marketing Group)
[The Okonite Co.](#)
[Omni Cable](#)
[Panasonic Eco Products](#) - FISHCO Group)
[Panduit](#) - (Archway Electrical Sales)
[Philips Lighting](#) - (Meglio & Associates) and (Ward & Burton)
[Priority Wire & Cable](#) - (Fulsom Co.)
[Pryotex](#) - (Schaeffer Marketing Group)
[Quazite](#) - (Vector Electrical Sales)
[Prysmian](#) - (EMS Partners, Inc.)
[RAB Lighting](#) - (FISHCO Group)
[Remke Industries, Inc.](#) - (LTG Partners)
[Rize Enterprises, LLC](#) - (LTG Partners)
[ROHN Products Inc.](#)
[Ronk Electrical Industries, Inc.](#)
[Royal Pacific](#) - (LTG Partners)
[SATCO](#) - (Vector Electrical Sales)
[Service Wire Company](#) - (Meglio & Associates)
[Siemens Industry, Inc. - Building Technologies Division](#)
[Siemens Industry, Inc. - Energy Management Division](#)
[Siemens Industry Inc. - Medium Voltage Systems](#)
[Sola/HD, Emerson Industrial Automation](#) - (Martin Electrical Sales)
[Southwire, LLC](#) - (Vector Electrical Sales)
[SP Products](#) - (Cooper Electrical Sales)
[Square D by Schneider Electric](#)
[Superior Essex Energy](#) - (Schaeffer Marketing Group)
[TCP Inc.](#) - (TLV Sales)
[Taylor Power Systems](#) - (Gateway Industrial Power)
[Thomas & Betts, A Member of the ABB Group](#)
[Thomas & Betts - Carlon & Hazlux](#) - (Schaeffer Marketing Group)
[Thomson Power Systems](#) - (Gunthrett Power LLC)
[TPI](#) - (FISHCO GROUP)
[Underground Devices](#) - (Vector Electrical Sales)
[Universal Lighting Technologies](#) - (Schaeffer Marketing Group)
[Vertiv](#) - (Electronic Support Systems)
[WAGO](#) - (Schaeffer Marketing Group)
[Wattstopper](#) - (Lighting Associates, Inc.)
[Wheatland Tube](#) - (FISHCO GROUP)

SEMINARS TO BE HELD ON TUESDAY, MARCH 21st

NOTE: You can register ONLINE after 1-15-17
No phone registrations taken.

Seminar #1 – Room ABC

8:00 – 9:45 a.m.

LU/PDH: 1.5 PEU: .725 Code

NFPA 70E Shared Responsibilities and Arc Flash Awareness

Speaker: Wesley L. Wheeler
**National Electrical Contractors
Association (NECA)**

Understanding the responsibilities of the contractor, owner and electrician is key to maintaining a safe work environment. Determining when energized electrical work is justified is often misinterpreted and requires a "Qualified Person" to decide if it meets the criteria. Regulations and Standards provide requirements and consensus guidance in keeping electrical work safe and personnel out of harm's way. These are the issues that will be discussed in this presentation, "The Shared Responsibilities" of all parties involved.

Seminar #2 – Room ABC

10:15 – 11:30 a.m.

LU/PDH: 1.25 PEU: .5 Elective

Life after 12,500 Volts! The impact of an injury **"What are you risking?"**

Speakers: Gary & Jeanne Norland

Gary along with his wife, Jeanne, present their individual and shared experiences following Gary's accident. A rollercoaster ride of the ups and downs, twist and turning following a severe injury which impacts family, co-workers, company and community. Gary will share real life safety experiences about being electrocuted by 200 amps, 12,500 volts. He will explain how his choice to avoid the use of proper safety equipment and rushing the clock cost him his independence. His photos leave nothing to the imagination of the reality of an injury. You will leave impacted by his story and will make intentional changes to your safety awareness. Gary always says "THIS IS A REALITY! IT CAN HAPPEN TO YOU!!!"

Seminar #3 – Room D

9:30 – 11:30 a.m.

LU/PDH: 2 No PEUs

2030: A Preview of Energy Sources, Management and Consumption

Trends in the utility industry - Overview of current trends Ameren is seeing in the marketplace and how they are impacting our view of the future. Some of these trends could affect your business and also provide some partnership opportunities with Ameren.

Microgrids – Overview of Ameren's experience with microgrids, lessons learned, technical roadblocks and future deployments. Hear what technology trends are impacting microgrid design.

Integrated Grid of the Future – Ameren will provide its view on the future of the grid in 2030, how technology and customer behavior will impact the way we approach our business.

These presentations will provide you with the knowledge to start planning for future business opportunities.

Seminar #4 – Room A,B,C

12:00 p.m. – 2:00 p.m.

LU/PDH: 2 PEU: 1 Code

Grounding of Electrical Systems

Speaker: Keith Cooper – McClure Engineering Associates

National Electrical Code, Article 250 – Grounding and Bonding continues to be cited as the most confusing or difficult to understand article in the Code. We will review the purposes for and the basic tenets of grounding and bonding. Then we will examine various topics that have raised the most questions and confusion in the twenty years that Keith has been teaching Grounding.

Seminar #5 – Room D

12:00 p.m. – 2:00 p.m.

LU/PDH: 2 PEU: 1 Code

Electrical Equipment Preventive Maintenance, a Program to Keep You Going

Speakers: Andy Schadt –
Mallinckrodt Pharmaceuticals;
Jay Ellington & Pat McEvoy – CDG Engineers

Electrical equipment maintenance is often the most neglected and first victim of budget cutting until the power goes out. Suddenly it becomes very important. There are new NFPA standards for 2016 and recommendations for good maintenance practice. We will look at a successful case study at a local industrial facility that has a robust program.

Seminar #6 – Room A,B,C

3:00 p.m. – 4:00 p.m.

LU/PDH: 1 PEU: .5 Elective

Plant Cyber Security - The Rise of Security Analysis

Speaker: David Moye; President Forensic IT, Inc.

Focus on balancing production needs with security concerns, and how funds are better spent on detection and not on prevention.

Seminar #7 – Room D

3:00 p.m. – 4:30 p.m.

LU/PDH: 1.5 PEU: .75 Elective

Impact of BAS Technology and Standards on Building Electrical Design

Speaker: Chris Pelton, Siemens Industry

This seminar will provide an overview of current electrical design considerations for Building Automation Systems (BAS), related to energy and life safety codes, integration and communication methods, and IT convergence with facility infrastructure.

Special THANKS to EBMI Foundation Donors for 2016-17

Donations received from organizations, member companies and individuals. We appreciate their contributions to the EBMI Scholarship Foundation.

FULL SCHOLARSHIPS

Electrical Representatives Organization (ERO)
IAEI-Eastern Missouri Chapter
in memory of Jerry Feagans
Friends of Michael Postiglione
Friends of Paul Friemel

HALF SCHOLARSHIP

Schaeffer Marketing Group
in memory of Ricky and Joe Schaeffer

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Archway Electrical Sales
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Rusty Gipson	George Sinovic
Bill Haley	Jonathan Wheeler

Other Donations...

Andrea Capra and Bob Roderique–
In memory of Paul Friemel
Charlie O'Connell – in memory of Michael Postiglione
Dean & Nedra Klohr – in memory of Esther Sanders
(Nedra's mom)
Jim Erlinger – in memory of Tom Gold
Harry Gardiner – in memory of Carl Weber

ECMC members

Michael Brown	Dennis O'Brien
Alan Lelic	Joe Obernuefeman
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WEB Member

Kathleen Pixley

HELPING OTHERS THIS HOLIDAY SEASON

2ND Annual Food Drive at Mixer **TWO HANDS - TWO CANS**

One of the suggestions from the Events subcommittee from our strategic planning session was to have a **FOOD DRIVE** at the Christmas Mixer. We have over 500 people attending this annual event and think of what could be contributed if everyone would bring just TWO (or more) cans in their TWO hands when attending this year's Mixer.

We have teamed up with "Feed My Peeps" once again to help us collect these cans at the Mixer. They will have their truck parked on the Lindell side of the Chase so as you enter from Lindell you will just drop off the cans at the truck before heading into the Chase. Those of you arriving from the Kingshighway entrance, please place your donations on table across from the EBMI Registration table. These cans will be transferred to the truck after the program starts. Info for guests can be found on website under events.

We hope to surpass the 645 cans collected at the 2015 Christmas Mixer.

So we ask all EBMI members inviting guests for the Mixer, to please mention to them – **TWO HANDS – TWO CANS** and/or forward the Mixer info sheet emailed to table sponsors. We will continue with our collection for the Salvation Army. **If donating \$10 or more, please do not place your donation in canisters on tables. Fill out drawing forms for new 2016 Toyota Highlander from Bommarito Auto placed on each Mixer table and bring to the stage area AFTER THE PROGRAM ENDS. This is the only way to get entered into Highlander drawing.**

DECEMBER 1ST DEADLINE
TO SUBMIT SCHOLARSHIP APPLICATIONS IS
FAST APPROACHING!!!

Most school offices are closed for the Thanksgiving Holiday. If you need transcripts to complete an application, please do so before this break.

Do you have a son or daughter who is a senior in high school this year or now in college? Why not have them apply for an EBMI Scholarship!

Please e-mail annie@electricalboard.org as soon as possible to request the application and criteria on the EBMI scholarships. She will e-mail information to you so you can forward to your son or daughter. Individuals must be an EBMI member for one year to apply for a scholarship for their sons or daughters.

EBMI has awarded 151 scholarships totaling \$131,900

POSITIONS WANTED

9A16 -Sales/Senior Account Manager/Management

I have 20+ years sales experience across multiple industries, products and services. Self-motivated, High energy result oriented with outstanding interpersonal, communication and technical skills. Ethical professional with strong values and cross-functional experience in account management, product management, and sales management roles. Skill sets include strategic sales and marketing, business development, product development and project management. I have a strong business acumen. Experience in leading teams and personnel. Always driven and budget conscious; drives company initiatives to completion using multidisciplinary resources. Please contact EBMI for resume.

POSITIONS AVAILABLE

10116 -Electrical Estimator/Project Manager

Job description: Examine proposals, blueprints and specifications to determine the scope & duration of work necessary for electrical construction projects. Confer/negotiate with subcontractors, vendors and suppliers using local expertise to estimate costs for bid proposals. Create a strategic project plan from estimates; define tasks, schedules and necessary personnel. Visit job sites to assess progress, maintain logs, trouble shoot problems and evaluate work. Prepare material orders and other documentation.

High School Diploma (or equivalent) plus continued education, or equivalent work experience. 3 to 5 years similar experience in a fast paced environment in an electrical, contracting or construction organization.

- Ability to identify and complete critical tasks
- Ability to handle multiple projects with multiple tasks.
- Ability to engage with a variety of personality types.
- Excellent written and oral communication skills.
- Proactive team player with ability to be flexible.
- Working knowledge of MS Office Applications and Web based systems.

We offer competitive compensation program consisting of base salary, medical/dental plans and retirement account options. We are an equal opportunity employer. Send resume to tlink@eccstl.com

10216 - ELECTRICAL ENGINEER - BUILDING DESIGN: (St. Louis)

Qualified ELECTRICAL ENGINEER candidates should be a registered PE with a Bachelor's Degree in Electrical Engineering or Architectural Engineering (Electrical Emphasis) and a good knowledge of AutoCAD. Candidates should have between 8 or more years of experience in the design and drafting of building systems, power distribution and lighting systems, adapting prototypical design into contract documents for retail clients throughout the United States. Must be able to circuit plans, enter actual loads in panel schedules (Excel), coordinate device and lighting layouts with other disciplines, complete Energy Calculation forms. An understanding of Visual lighting software for Site Photometric calculations is a plus. Candidates should have

an excellent knowledge of AutoCAD, Revit & Microsoft Excel. Client communication and occasional travel is required for all positions. Please visit our website at cascocorp.com to learn more.

10316 - Department Manager Opportunity in St. Louis!!!

Description: Ambitech – a diversified, single-source provider of engineering, design, procurement, and project, program, and construction management services – provides high-quality, high-value service to **the global process and heavy manufacturing industries**. For over 30 years, Ambitech has attracted and retained some of the most talented, creative, and dedicated engineers, designers, procurement specialists, and project and construction managers in the industry. Ambitech has been providing high-quality, high-value service to a variety of industries from Chemicals and Petrochemicals, Energy, Food and Beverage to Petroleum Refining, Pipeline and Terminals, and Renewables.

We are in search of a talented and ambitious E&I Department Manager to join our **St. Louis office**. This is a great opportunity for an individual to manage a talented team and put their stamp on their department.

Duties: Manage the Saint Louis office Electrical / Instrument Control Department personnel including balancing work-loads, setting group assignments and priorities, manage staffing as well as engineering design task.

Years of Experience: Minimum 10 years of experience in Electrical / Instrument / Controls. **Education:** Minimum BS in related Engineering from accredited university. **Certifications / Licenses:** PE is preferred.

If interested please submit an online application at <http://ambitech.iapplicants.com/searchjobs.php>

11116 -Electrical Engineer – Entry Level – Oil & Gas - St. Louis, MO

We have an immediate opening in our St. Louis, MO office for an Entry Level Electrical Engineer. Qualified candidates will work with our Oil & Gas / Industrial group to perform complete electrical design tasks relative to industrial and oil and gas facilities. You will be working under the mentorship of experienced Electrical Engineers and will be provided the opportunity to gain valuable experience and grow a long-term career.

Specific Requirements include:

- Bachelor's Degree in Electrical Engineering
- 0-3 years of related experience
- EIT / FE, strongly preferred
- Excellent communications skills
- Familiarity with AutoCAD

Please Apply Online by clicking on the link below

<http://newton.newtonsoftware.com/career/JobIntroduction.action?id=8a78824758430f8b015845a80b14710d&source=Engineersclub>

or visit the Farnsworth Group website at www.f-w.com and click on the careers link. Farnsworth Group, Inc. is proud to be an EEO/AA employer M/F/D/V.

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FROM

EBMI OFFICERS, BOARD OF DIRECTORS AND STAFF

We wish all of our members a safe Holiday Season and hope you continue to help the less fortunate during this joyous season. There are many people who need our help, so remember to drop a \$1 in the kettle, donate to one of the food pantries or you may even know a family that would appreciate a helping hand.

“From what we get, we can make a living; what we give, however, makes a life.” ~ Arthur Ashe

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With New Federal Nod the Highway of the Future Heads to Missouri



Alternative fuel corridor designations are making their way to Missouri highways. The Missouri Department of Economic Development Division of Energy's application for Missouri highways to be designated as part of the national alternative fuel corridors was recently approved by the U.S. Department of Transportation's Federal Highway Administration (FHWA). The proposed corridor will connect major metropolitan areas from across the country, traffic traveling between east-west directions, I-70 and I-44, and in north-south directions, I-29, I-35, I-49, and I-55.

An immediate benefit of an alternative fuel corridor designation is the ability to use uniform signage development by FHWA that would be recognized by all travelers around the United States. Other potential benefits include priority funding to help build infrastructures along highways that receive this designation. The new infrastructures could include electric vehicle charging stations, compressed natural gas refueling stations, liquid propane recharging stations, and hydrogen refueling stations. By improving infrastructures it could relieve stress from EV owners and possibly open opportunities for freight transportation to utilize alternative fuels.

The designated alternative fuel corridors directly impacts 45 counties in Missouri, the majority of which are considered rural. The corridor designations are expected to result in job creation and economic growth which are in line with the Missouri Comprehensive State Energy Plan set forth in 2015 by Governor Nixon.

For more Missouri energy information visit energy.mo.gov.



Chicago company builds out — and shows off — smart grid and energy storage

WRITTEN BY [Kari Lydersen](#) 11/08/2016

PHOTO BY

Kari Lydersen / Midwest Energy News

Neighbors of the [S&C Electric Company](#) in the Rogers Park neighborhood of Chicago might not even know the 47-acre factory and research facility is there. It is recessed below street level on the site of a former tire yard, designed to meld into its

surroundings and bedecked with a green roof.

But this inconspicuous institution has played a significant role in the innovation and build-out of the country's grid over the past century, including the development of the smart grid in the Chicago area and across the continent today.

S&C's founding was sparked by a 1909 fire at the Fisk coal-fired power plant in Chicago's Pilsen neighborhood, the first commercial-scale coal plant in the country. S&C's founders Edmund Schweitzer and Nicholas Conrad [developed a fire-proof liquid fuse](#) that could contain high-voltage short circuits and avoid such disasters.

Since then the company has often been on the [cutting edge of grid technology](#), including the smart switches and energy storage equipment crucial to the smart grid and the spread of distributed renewable generation.

Smarter switches

In S&C's Product Demonstration Center, elevated switching equipment rises like tubular metal trees, at first glance all appearing identical to each other. But some are old-fashioned models where an electricity line can only be deactivated by physically turning a big switch. A newer version, launched in the 1990s, automatically switches off when the line is compromised — by a fallen tree or other obstacle.

Then there's the latest smart version, which will shut off automatically when there is an obstacle or risk, but can also turn itself back on when appropriate. For example if a tree limb blows against the line but then recedes...or if a squirrel jumps between wires and causes a temporary short circuit.

Michael Kilpatrick, S&C's director of Asset Management and Field Services, explained that in the old days the utility company wouldn't even know electricity was out until they got phone calls from frustrated customers. And then they'd have to send out a truck looking for the problem street by street.

The 1990s model told the utility exactly where the problem was. The new version, dubbed the [IntelliRupter PulseCloser](#) Fault Interrupter, launched in 2006, not only relays information about the problem, but automatically remedies it. It instantaneously reconfigures the whole system to isolate the problem area and send backup sources of electricity to surrounding areas that otherwise would have been cut off; and when it's safe to turn the electricity back on, it does so automatically.

“Right now all these devices are talking to each other – ‘How much line current do you have, how much capacity do you have, if there's a fault – do you see that?’” explained Kilpatrick. “If lights go out and are not back on in 5 seconds, they're

probably going to be out a while. That means the tree is near you, and it will be there until someone removes it.”

Kilpatrick noted that the more smart switches there are between fewer customers, the more resilient the system, and the fewer customers will be out of electricity when there is a problem on the lines. Typically there might be a smart switch for every 250 to 1,000 customers, he said.

He noted that Chattanooga, Tennessee invested in an especially resilient grid, with 1,200 S&C IntelliRupter smart switches, meaning a switch for every 167 customers. Data centers and other high-tech companies that need reliable energy were attracted to the town as a result, and the smart grid [reportedly saved](#) Chattanooga \$1.4 million during one severe windstorm in 2013.

Smart switches are a huge benefit for maintaining a grid even without distributed and renewable generation. Then when increasing numbers of solar panels, wind turbines, batteries, combined heat and power units or other types of distributed and renewable generation are installed, smart technology becomes crucial to keeping the grid running smoothly.

“The utility is only used to one direction [flow of electricity], now it’s two-way,” said Kilpatrick.

Smart grid demo

S&C’s smart grid demonstration includes a miniature community with a gently spinning wind turbine, a row of picturesque Victorian flats, grassy lawns, green boxes holding switchgear and other equipment, a sleek manufacturing facility, and electric lines connecting them all.

Kirkpatrick presses some buttons on the console controlling the demonstration project, to simulate different scenarios. If the wind stops and the turbine stops generating, then the grid automatically starts drawing from alternate sources of power, like natural gas or nuclear plants. The demonstration “electric lines” change color to indicate this switch.

Then he pulls a lever adorned with a lightning bolt in the middle of the town to simulate an electric fault. With loud cracking sounds, nearby electric lines go dark. But almost as quickly new lines light up as the grid reconfigures itself.

A battery buried below ground under an energy storage system lights up, helping deliver power to the area cut off by the fault. So as opposed to the old days when the whole neighborhood would have been out of luck for potentially hours, now only the

small part of the grid right around the theoretical fallen tree goes off-line. And the utility knows exactly where that is and can fix it much more quickly than in the old days.

Selling frequency regulation

Next to S&C's smart grid demonstration sits a line of green metal boxes, housing energy storage systems, mounted on astroturf under which is buried big lithium ion batteries. The batteries and infrastructure inside the green boxes are the real thing, but displayed in a way that visitors can see what normally would be buried under ground.

And these energy storage units, manufactured at S&C's plant in Franklin, Wisconsin, are not just for show. They are participating in the [automated frequency regulation market](#) run by PJM.

Electricity on the wires needs to hover around 60 mHz in frequency in order to move efficiently and power the appliances of customers. When demand on the system spikes, for example when many people turn on air conditioners, the frequency on wires can rise. When demand drops and generation being fed onto the grid exceeds demand, then frequency drops. Either change can be a problem.

In PJM's auction, generators are paid to increase or decrease their input to the grid in order to keep frequency constant.

But it can take some time to ramp generation from a coal or gas plant up and down. Batteries are a different story. They can send electricity onto the grid or soak up electricity from the grid as needed to smooth out frequency, and they can switch between these states in just fractions of a second.

PJM is the first regional transmission organization to offer higher prices for such rapid response frequency regulation.

At S&C's headquarters, six batteries capable of storing 25 kilowatt-hours of electricity each are attached to the grid. Electronic message boards show how long it would take, based on current prices, for the investment in such a battery bank to pay off. For example, a one-megawatt-hour system that costs a million dollars would break even in between three and six years depending on its performance in the frequency regulation market and the fluctuating prices paid for frequency regulation.

Expanding energy storage

S&C has been selling energy storage equipment for the grid for about a decade, with

a total of about 170 MWh worth of hardware installed in the U.S., Canada, Australia, England and other countries. S&C recently provided the largest [grid-connected battery in Australia](#), the company says, a 2 MWh lithium ion battery along a rural electric line.

And in more recent years, S&C has been a leader in providing battery systems that are paired with solar panels to power sections of a town. (S&C does not manufacture batteries, but acquires them and provides customers with the batteries and necessary equipment to integrate with the grid.)

S&C supplied the batteries and integration equipment for a project that went online this spring [in Minster, Ohio](#), which is the largest solar-plus-storage project owned by a municipal utility. The developer Half Moon Ventures runs the 7 MW solar farm and 3 MWh storage bank, selling energy to the town and participating in PJM's frequency regulation market. The installation serves the town's 2,800 residents and commercial customers, including a major Dannon yogurt factory.

The frequency regulation market helped make the solar project viable after the state's freezing of renewable energy mandates gutted the ability to finance it through selling renewable energy credits, as [the Cleveland Plain Dealer](#) reported.

S&C officials, along with clean energy advocates, hope such local solar-plus-storage arrangements become increasingly common.

“As there is more and more distributed energy resources, whether solar panels on homes or commercial facilities or combined heat and power, they are generating power behind the meter that PJM can't control,” said S&C spokesman Spencer Zirkelbach. “Energy storage becomes the Swiss army knife tool to absorb energy from the grid acting as a load, and to put power back on the grid.”