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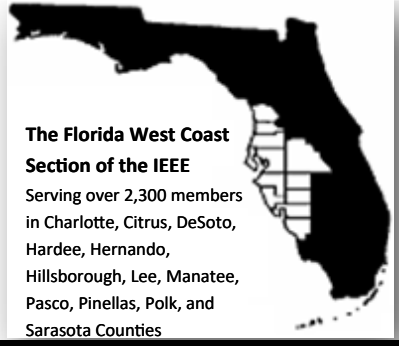

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IEEE

THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Volume 64—No. 6 June 2018

IN THIS SIGNAL:

Upcoming Meetings

EXCOM Meeting

Tuesday, June 5, 2018 5:30PM at TECO Plaza
Register online at http://time2meet.com/fwcs-excom/index.html
Open to all FWCS Members

Back to Basics: Distribution Line Design

Monday, June 11, 2018 7:30AM at Sand Pearl Resort
Register online at http://time2meet.com/fwcs-pes1/index.html

Laws & Rules and Ethics

Friday, June 29, 2018 9:30AM at FRCC Headquarters
Register online at http://time2meet.com/fwcs-pes-4/index.html

Solar Plant Tour

On Friday April 27, a group of FWCS members toured Florida's first-ever solar energy center, located in Arcadia. There, 90,500 solar panels move into position to catch the sun's rays. It was the largest facility of its kind in the nation when it opened in 2009. Today, this facility continues to serve customers using photovoltaic, or "PV," technology – a process for converting sunshine directly into electricity for FPL customers. In 2016, FPL completed Citrus – 74.5MW ground mounted installation and in 2017 FPL completed WildFlower also a 74.5MW ground mounted PV installation.

Solar works for you during the day, when the sun is not hiding behind clouds, generating megawatts of clean, zero-emissions energy. 25 megawatts is enough to power about 5,000 homes. The original emissions-free center is estimated to help us eliminate nearly 37,000 metric tons of greenhouse gases each year and thousands of barrels of oil, making it a clean and energy independent way to bring you electricity.

Students Gear Up for New School Year

The USF student branch has elected officers for the 2018-2019 academic year. Ilia Bautista and Cooper Neal will serve as chair and vice-chair, respectively. Emily Kelly and Jacob Macias will hold the secretary and treasurer positions. Another very active year is slated for the USF student branch, including the annual USF Engineering Expo in February and culminating with the SoutheastCon 2019 competitions in Huntsville, Alabama in April.

The USF PES/IAS joint student chapter also announced its new slate of officers. Roger Vassell and Benjamin Noel will assume the president and vice-president positions, respectively, with Joseph Ghisu and Javier Barcena serving as secretary and treasurer. Alica Choto will be the webmaster. Congratulations to all the new officers!

THE SUNCOAST SIGNAL is published monthly by the Florida West Coast Section (FWCS) of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). THE SUNCOAST SIGNAL is sent each month to members of the IEEE on Florida's West Coast. Annual subscription is included in the IEEE membership dues.

All material for THE SUNCOAST SIGNAL is due in electronic form by 1st Sunday after the 1st Tuesday of the month preceding the issue month.

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Useful links:

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PE Corner

Art Nordlinger, PE, Senior Member

Mentoring

(Parts of this article are excerpted from an article by Ken Todd, Chair of the FBPE, with permission)

The engineering education that students receive usually prepares them technically for the challenges to come as an engineering professional. However, many do not realize the full extent of what is involved in the practice of engineering. They often express concerns about being in a decision-making position for which they are not prepared due to a lack of practical experience. This lack of confidence is understandable for a young engineer who has very little practical experience. Those of us who have been around the block a time or two can help provide confidence to younger engineers through mentoring.

Many engineers would be happy to mentor a new engineer if asked, but don't actively seek out the opportunity. Understanding this, Ken Todd, Chair of the FBPE, has put forth a challenge to all engineers who are more experienced: He is asking that we take time to mentor those young engineers in your company who are recent graduates. They will appreciate it, and it will be quite rewarding for both you as a mentor and your company through increased productivity.

An experienced engineer, when faced with the challenge of not having previously done the engineering task at hand, can often fall back on past experiences to extrapolate and arrive at the correct answer. It should be recognized that many young engineers do not have the same level of practical experience needed to make good engineering decisions. Many of us experienced situations as a young engineer right out of college, where we had learned the theory of various engineering principles, but weren't sure how to best apply what I had learned to solve the problem. Rather than let us struggle to figure it out on our own, many of us had the opportunity to consult with engineers we worked with who took the time to explain the best and most efficient solutions, both technically and administratively, to solve various aspects of engineering projects. This is the type of mentoring where a more experienced engineer can have a positive influence on the career of a younger engineer.

Supervisors of younger licensed engineers should also take care to not place them in a position of making engineering decisions they are not qualified to make. This could lead not only to a problem with the project, but could possibly lead to a disciplinary case against the licensed supervising engineer and the licensed younger engineer. Additionally, the mentoring you do today could help eliminate some bad habits the younger engineer might otherwise carry with them for the rest of their career.

If you aren't already doing so, I encourage those of you who are the more experienced engineers to seriously consider being a mentor to a younger engineer. In the end, I believe you will end up with better projects and you will have an employee who will be an engineer ready to lead our profession in the future

Whether you are a PE looking to attain required CEHs, or an engineer looking to learn something new or keep current with the latest trends in the profession, IEEE has seminars that will meet your needs. With renewal only 8 months away demand for our seminars is high. Sign up now!

Leader's Center

Organizational Change—Seven Challenging Situations*

Paul Schnitzler, Ph.D—Life Senior Member

As said in previous articles, introducing change into an organization is often difficult. This month, I will tell you seven situations where the manager may fail when introducing change. You will learn some details about the first of these. The first three parts of Schnitzler's YES I AM acronym will be applied to this case.

Here are the seven problem situations:

- When the manager is anxious
- When the manager is *very* confident (!)
- When the change is urgent
- When the manager doesn't actually know how to use the change methods
- When the manager doesn't trust the employees or the change methods
- When the wrong change is being introduced And
- When the manager doesn't even realize that a change is being introduced!

Now to the first: The manager who is anxious when introducing a change.

Consider a company that is having production quality problems. Yields are low and customers have been complaining or returning products. This is so serious that the president is concerned that the company might fail if production is not improved significantly…and soon. He knows the business and believes that certain changes in the production processes can correct the problem. But he also knows that the changes needed are likely to make his employees nervous, anxious, and perhaps even fearful.

This improvement is very important; the life of the company is at stake.

He has read much about introducing change. The books tell how to help the employees deal with change so that they will contribute to its success. You are told to show the employees that they are valued: get their help, get their ideas, and give them some control over what happens to them. That is, give them some power over their fate. To do this, the president must give some of *his power* to his employees.

However, the president is also worried; he is fearful, that he won't get the change right—and then what will happen to him?

The last thing a fearful person will do is give up control!

The fix is for the president to "bite the bullet" and take the risk; use the employees to make it work and find ways to manage his own anxiety.

The president must accept that there is a good chance of failure if these methods are *not* used.

Now for the acronym, **YES: Your Passion; Everyone Benefits; Seek Their Ideas**.

You must care very strongly about the ***need*** for this change, the desired *benefits* (not the change itself). This president certainly seems passionate about the need; his company is at stake. But is he focusing on the desired benefit?

Everyone will benefit from the results of the change because they will keep their jobs (or I hope they will).

Seek what they know about what needs to be included in the change, that is, what additional, or different, benefits are possible. Managers are often surprised at what their employees know about the situation. Their ideas can be crucial to your success.

You still must do something to help your anxiety. What I just described may only increase it! More on that next month.

The other six cases will be discussed in the future.

Don't want to wait? Then go to http://leadchangewithoutfear.com/ and check the tab "Successful Real Change."

* Adapted from ***Lead Change without Fear*** by Paul Schnitzler

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Free e-Book through June 15

The ***IEEE-USA Employment Survey Report--2015 Edition*** offers IEEE members a reference, as well as a better understanding of U.S. IEEE members' employment trends in 2014. In this free e-book, 3,411 U.S. IEEE members who reported being unemployed during 2014 were surveyed, using a self-administered, online questionnaire. You can have this useful resource for free, a savings of $7.99 off the member price.

From 1 May through 15 June, IEEE members can get their free E-Book by going to:https://ieeeusa.org/shop/careers/ebook-ieee-usa-employment-survey-report-2015-edition/

Log in with your IEEE Web Account, add the book to your cart, and use promo code **MAYFREE18** at checkout.

Back to Basics: Distribution Line Design

Date: Monday, June 11, 2018 **Time:** Registration 7:30AM
Seminar: 8:00AM – 5:00PM (lunch not provided)

Speaker: Kevin Mara, P.E., Principal Engineer and Vice President, Hi-Line Engineering

Location: Sand Pearl Resort
500 Mandalay Avenue—Clearwater Beach, FL 33767 http://www.sandpearl.com

Cost: $125 Members, $175 Non-Members

CEH Credits: 8 continuing education hours will be awarded. Be sure to enter your name and PE number on the signup website as it appears on your license. IEEE Florida exempt provider 3849.

RSVP: Online at: http://time2meet.com/fwcs-pes1/index.html

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Outline:

1. Sag and Tension
   a. NESC Limits
   b. Defining Initial Sag and Final Sag
   c. Maximum Sag
   d. Maximum Tension
2. Wood Pole Design
   a. ANSI O5.1
   b. NESC Load Factors
   c. NESC Strength Factors
   d. Pole loading calculations
3. Designing Guys and Anchors
   a. Material strengths
   b. Dead-end guy loading calculations
   c. Angle guy loading calculations

Kevin Mara is the Principal Engineer and Vice President at Hi-Line Engineering. Hi-Line Engineering together with its parent company, GDS Associates, has 175 employees in eight offices including Orlando, Florida. Together they provide a full range of consulting services to electric cooperatives.

Kevin earned a BS in Electrical Engineering from Georgia Tech in 1982. He is a registered professional engineer in 22 states including Florida.

He has authored numerous manuals and papers on distribution line including three publications for NRECA;

Simplified Staking Manual for Overhead Distribution Lines

Distribution System - Arc-Flash Calculation Case Studies

Underground Distribution Operations Manual

He is a member of NRECA's Overhead Committee. He is a Senior IEEE Member.

Laws & Rules and Ethics for Professional Engineers

Date: Friday, June 29, 2018 **Time:** registration and light breakfast at 8:30AM
Presentation: 9:30AM—11:30AM

Speaker: Mr. Art Nordlinger, PE, IEEE Representative to the Florida Board of Professional Engineers

Presentations: The Rules and Laws That Govern the Practice of Engineering in Florida
Ethics and the Practice of Engineering in Florida

CEHs: One Rules & Laws CEH will be awarded, One Ethics CEH will be awarded, which will meet the current requirements for PE Renewals. Be sure to enter your name and PE number on the signup website as it appears on your license. IEEE Florida Provider Number is 0003849.

Location: FRCC Headquarters, 3000 Bayport Dr #600, Tampa, FL 33607

Parking: Use parking lot for Hyatt (North side only).

Cost: $30 for Members, $50 for Non-Members, $20 for Students.
Make checks payable to: IEEE FWCS Send checks to: Treasurer—IEEE PE/IA Chapter
3133 W. Paris Street
Tampa, FL 33614-5964

Cancellation must be submitted online 24 Hrs prior to the seminar at: http://time2meet.com/fwcs-pesx/index.html
No shows will be invoiced for the total cost of the seminar.

RSVP: Online at: http://time2meet.com/fwcs-pes4/index.html
Questions: Art Nordlinger at a.nordlinger@ieee.org or (813) 630-6203

The Rules and Laws That Govern the Practice of Engineering in Florida. This course is at a basic to intermediate level.

Florida Statute 471 – Engineering
FBPE and FEMC
Florida Administrative Code
Updates from NCEES and FBPE

Ethics and the Practice of Engineering in Florida. This course is at a basic to intermediate level

Basic Engineering Ethics Precepts
Florida Administrative Code 61G15
Recent Cases and Examples

Art Nordlinger is the Manager, Transmission Tariff and Contracts at Tampa Electric Company. Art earned a Bachelor of Science degree in Electrical Engineering from Northwestern University in 1979 and his Master of Engineering degree in Electric Power Engineering in 1988 from Rensselaer Polytechnic Institute. Art is a senior member of IEEE and a registered PE in Florida.

Advertising Section

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The Florida West Coast Section has 6 active technical societies:

- Computer / Aerospace & Electronic Systems (**COMP/AESS**) Joint Chapter
- Engineering in Medicine & Biology (**EMBS**) Chapter
- Microwave Theory & Techniques/Antennas & Propagation/ Electron Devices (**MTT/AP/ED**) Joint Chapter
- Power & Energy / Industry Applications (**PES/IAS**) Joint Chapter
- Robotics & Automation (**RAS**) Chapter
- Signal Processing / Communications (**SP/COMM**) Joint Chapter

Three student society chapters are active at the University of South Florida:

- USF Computer Society Chapter
- USF Microwave Theory & Techniques Chapter
- USF Power & Energy/Industry Applications Chapter

If one of these technical societies interests you, get involved by contacting a chapter representative, listed on Page 2 of this Signal.

Advertising Section

CE Power Custom Engineered Power Solutions

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Motor Starting MV Circuit Breaker Retrofill

Metal-Clad switchgear with air-magnetic medium voltage circuit breakers was typically used in the past for motor starting applications for station service equipment. Frequent operation of these circuit breakers led to excessive wear of the breaker contacts and operating mechanism, and premature failure of the air-magnetic circuit breakers. Over the years these breakers required extensive reconditioning and overhaul, using OEM and after-market parts and components. Increasing cost of maintenance and obsolescence by OEM's requires a new approach.

CE Power has developed a solution to extend the life of existing metal-clad switchgear. By performing a MV fused vacuum contactor retrofill, the most vulnerable components are replaced while the integrity of the switchgear is maintained. This significantly reduces maintenance costs and increases reliability of the system.

Overview

- Vacuum contactors designed and tested for switchgear applications, up to 2,500,000 operation cycles
- Primary contacts sealed inside a vacuum bottle
- Operating mechanism consists of few moving parts and components
- Primary fuses sized to protect the motor and cable from short circuit condition
- Non-load break isolation switch provides a visible disconnect of the primary circuit
- Proper interlocking and controls design
- New microprocessor motor control relay provides improved protection, remote monitoring and communication

Advertising Section

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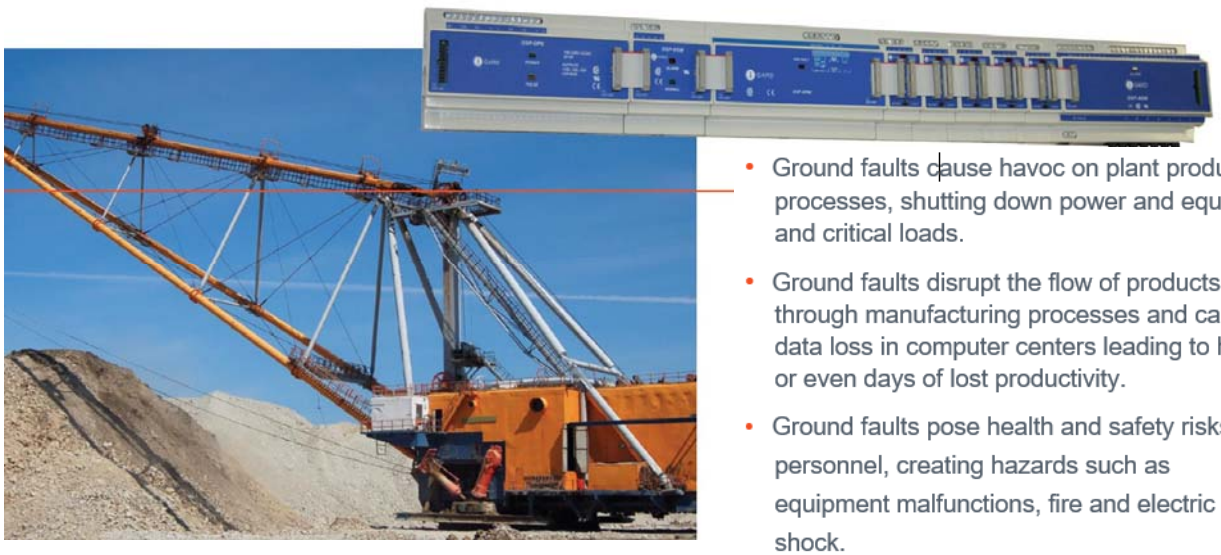
DSP-ADM

The new DSP-ADM provides total system protection from ground faults and arc flash. As a base model it is designed to detect the event of a single ground fault, signal an alarm, and provide pulsing capability so that maintenance personnel can locate the faulted circuit without interrupting the process. Maintenance can be immediately alerted to the problem and an operator dispatched to located the fault to isolate it promptly.

The DSP SYSTEM can assist in locating the fault with a pulsing fault location circuit. In the event of a second ground fault, the DSP acts quickly to prevent loss of two feeders by selectively tripping the lower priority feeder only.



- Ground faults cause havoc on plant production processes, shutting down power and equipment and critical loads.
- Ground faults disrupt the flow of products through manufacturing processes and cause data loss in computer centers leading to hours or even days of lost productivity.
- Ground faults pose health and safety risks to personnel, creating hazards such as equipment malfunctions, fire and electric shock.

TECHNICAL SPECIFICATIONS

Power Requirements	100-240V, 50/60 Hz or DC, 25 VA
Dielectric	Relay contacts to chassis1500 V rms for 1 minute alarm level Control terminals to chassis 1500 V rms for 1 minute alarm level IEC-60255-5
Trip Level Inhibit	25% of systems ground current
Contact Ratings	DSP-DFM: Trip Contacts- Form "C" SPDT 10 Amp., 240 V AC resistive DSP-DPS: Alarm Contacts- Form "C" SPDT 8 Amp., 240 V AC resistive IEC-60950
	DSP-DFM: Pickup Accuracy: ±10% of system let-through current
Temperature Range	0¤C to 50¤C

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Full Page	$140	$182	$670	$838	$1,175	$1,410
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June 2018 Calendar of Events (For more information see P. 1) *in this Signal…*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	**2**
3	**4**	**5** *EXCOM Meeting 5:30pm TECO Plaza*	**6**	**7**	**8**	**9**
10	**11** Distribution Line Design—P. 4	**12**	**13**	**14**	**15**	**16**
17	**18**	**19**	**20**	**21**	**22**	**23**
24	**25**	**26**	**27**	**28**	**29** Laws & Rules and Ethics—P. 5	**30**