SBE Elects Wayne Pecena as President

The results of the 2019 SBE election for the national board of directors concluded on Aug. 28. Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE, was elected as the society’s president. Pecena is the assistant director of educational broadcast services at Texas A&M University, where he serves as director of engineering for public broadcast stations KAMU FM & TV. He is a member of SBE Chapter 99 in College Station, TX.

Regarding the election, President-elect Pecena said, “I look to continue the strategic planning implementation work that began under President Leifer while insuring that future certification, continuing education, and professional service needs of all SBE members are met as our industry and technology continues to change.”

Others serving one-year terms as officers, which begin on Oct. 16, are:
- Vice President: Andrea Cummis, CBT, CTO; Chapter 15 New York; Roseland, NJ
- Secretary: Kevin Trueblood, CBRE, CBNT; Chapter 90 Southwest FL; Ft. Myers, FL
- Treasurer: Ted Hand, CPBE, 8-VSB, AMD, DRB; Chapter 45 Charlotte; Charlotte, NC

Serving two-year terms on the board of directors, which also begin Oct. 16 are:
- Mark Fehlig, PE, CPBE, 8-VSB; Chapter 40 San Francisco; Walnut Creek, CA
- Charles “Ched” Keiler, CPBE, 8-VSB, CBNE; Chapter 53 South Florida; Ft. Lauderdale, FL
- Geary Morrill, CPBE, CBNE; Chapter 91 Central Michigan; Saginaw, MI
- Jason Ornellas, CBRE, CRO; Chapter 43 Sacramento; Sacramento, CA
- Chris Tarr, CSRE, AMD, DRB, CBNE; Chapter 28 Milwaukee; Milwaukee, WI
- Dan Whealy, CBTE; Chapter 96 Rockford; Waterloo, IA

The national board of directors of the SBE is responsible for the development of policy and determines the programs and services the society provides to its more than 5,000 members. Those elected will begin their terms on Oct. 16, 2019, during the SBE Annual Meeting in Madison, WI.

In addition, the SBE annual meeting is part of the Society of Broadcast Engineers National Meeting, held in conjunction with the Broadcasters Clinic, presented by the Wisconsin Broadcasters Association in cooperation with the four SBE chapters of Wisconsin.

The one-hour webcast will include updates and reports on the Society’s activities and programs and the induction of newly elected national officers and directors, including new SBE President Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE. The program will also include a special guest, RJ Russell, CPBE, in a one-on-one interview conducted by SBE President Jim Leifer. They will discuss Russell’s new role as SBE national frequency coordination manager and the work between the SBE and the Department of Defense to coordinate shared-use frequencies with broadcasters.
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As was noted in the August issue of The Signal, the day-long tutorial on ATSC 3.0 implementation, presented by the SBE in April at the 2019 PBS TechCon, was recorded and prepared for on-demand playback. All six videos are now complete and available through Webinars by SBE.

Fred Baumgartner organized the presenters for the program. The SBE also thanks the volunteer efforts of several people at Sinclair Broadcast Group for their work in editing and mastering the videos.

The presentations give attendees real insight into implementing and getting the most out of ATSC 3.0 at their stations. Topics ranged from regulations and the physical layer to how to convert a transmitter and proof it. Other practical topics were covered by showing receivers, dongles, displays and test and measurement tools that are available, and how to use them. The presenters list is a who’s who of NextGen Broadcast development.

SBE members can watch each installment for $59. Non-members can watch them for $89 each. SBE Member-Plus members have free access to them, plus all the Webinars by SBE in the library.

Paid registrants for SBE @ PBS TechCon received instructions by email on how to access the videos, which was included in the conference registration.

FCC rules require that an operator’s prime responsibility is to:
A. get programs on the air.
B. make station identifications.
C. operate the transmitter.
D. be up to station management because it is not specified in the FCC rules.

**Certification Question**

Answer on page 6

Offer Up to 12 Channels of Programming!
Transition of Leadership

It’s a wrap. I have completed my two years serving as your president. I would like to say a few things about the last two years.

First, the two boards of directors did a fantastic job keeping me straight and focused on the objectives. Without their expertise and friendship, this would have been a challenge. Let me talk about a few of the items we worked on. In 2018, the Society held a strategic planning meeting in Indianapolis and from that we had many action items to work on.

SBE MemberPlus was launched early in my tenure, and I am happy to report several things. First, we exceeded the upgraded membership by every metric that was estimated. Secondly, the amount of educational material used by our members has increased threefold. Our Publications and Education Committees have done a phenomenal job creating content and making it available to the membership.

We launched SBE WEBxtra, the SBE chapter of the web, for those who cannot attend a local meeting. It airs live on the GFQ Network and on Facebook, and it’s posted for replay on our YouTube Channel. This is held monthly with subject-matter experts, and future episodes will include subject-matter experts who may not be able to travel to local chapter meetings. SBE Member Communications Director Chriss Scherer and Director Kirk Harnack have hosted them, and I thank them both for their vision and execution of this.

We have several more strategic items to complete including a website makeover. Our next president, Wayne Pecena, will lead this effort. I encourage everyone to help us where you can.

I also want to thank our staff for making all of this happen. John, Megan, Debbie, Scott, Cathy, Chriss and Ann: I want to say thank you.

During the last two years we saw changes. Our membership has expanded. While our industry changes, our members change with that. We have added more than 1,000 members in the last two years. We also added two local chapters, and the future looks promising for the SBE.

I am happy to report that we completed an agreement with the Department of Defense for frequency coordination. I am also happy to report that RJ Russell is heading this effort. While we engage our frequency coordinators nationwide, I am pleased to say we are the preferred provider for this task.

I am also excited to say that our annual Leadership Development Course, held a few weeks ago, was the largest class ever.

The SBE held its first PBS TechCon full-day tutorial in Las Vegas in April, and it was a resounding success. As so many PBS engineers who are SBE members attend TechCon, this was a great way to partner with and support them. We also held our NAB Show Ennes Workshop, which has been ongoing for decades. Our partnership with the NAB and our membership is strong.

I can also report to you that, financially, the SBE has no debt, and is in better financial shape than when I took office. This is all due to the people who worked with me to achieve these milestones. I am truly blessed to have been a part of these and other changes. But wait, there’s more. I will continue to serve as your immediate past president. I will continue to serve you over the next two years under Wayne’s leadership. I hope you continue to reach out to me and the other members of the Board of Directors to challenge and encourage us to push the SBE into the next decade.
Time Flies!

My August 2019 Signal column, titled What Time Is It?, provided a chuckle and brought a question to mind for SBE member Kyle P. regarding the 2038 issue with use of the UNIX time epoch in NTP and PTP. My column failed to mention this issue often described as the Y2K problem of 2038 and commonly noted as Y2K38. As Kyle stated, the underlying UNIX time stamp is a 32-bit integer number which will overflow at precisely 03:47:07 on Jan. 19, 2038. The time register overflow occurring at 03:47:08 will yield Dec. 13, 1901 as the signed integer register runs out of bits, flips the sign bit to negative, and continues counting upwards.

Whereas, NTP and PTP use the same Jan. 1, 1990 time epoch as UNIX, the protocols use different time stamp formats. In reality, a NTP rollover occurs in 2036. NTP utilizes a 64-bit timestamp with 32 bits allocated for seconds and 32 bits allocated for fractional seconds to achieve desired accuracy. PTP utilizes a 66-bit timestamp with 48 bits allocated to seconds, 32 bits to nanoseconds, and 16 bits to fractions of a nanosecond. In simple terms, the Y2K38 issue is resolved with current protocol versions NTPv4 and PTPv2.

Whereas Y2K38 would appear to be a distant problem, systems that deal with future dates, must have fixes in place today. Think about your 30-year mortgage you just signed the dotted line on. Fortunately, Y2K38 has been addressed in current operating and database systems. Embedded systems are a potential mortgage you just signed the dot today. Think about your 30-year networking. As a result, numerous IP networking focused webinars were created and presented by SBE member Dennis Baldridge. This introductory RF webinar series was followed by the Advanced RF series presented by a diverse cadre of industry RF experts such as Tom King and Tom Silliman. This webinar series continues today with two new webinars before year’s end. And technology never sits still with ATSC 3.0 on the horizon for many TV broadcast engineers. To prepare for this transition, the SBE offers yet another webinar series on ATSC 3.0 technology and implementation. Once again, industry experts such as Madeleine Noland and S. Merrill Weiss share their knowledge with SBE members and more in the series to come. IT topics have not been forgotten and go beyond just IP networking as cybersecurity has become a significant responsibility for many broadcast engineers.

While many things change, some stay the same, such as the SBE Leadership Development Course held each year in August. The past year saw the largest enrollment in the history of the program, which began in 1997. But webinars remain the mainstream content delivery platform for professional development content, with more than 70 topics available today in the on-demand library, which has seen more than 2,700 registrations so far this year. I should note that on-demand viewing leads the live broadcast viewing by more than a 3:1 ratio. Remember, these webinars are included free with your SBE MemberPlus membership option.

If you have followed the Education Update column in The Signal over the years, you likely noticed a change in the content a few years back. In 2015, Chriss Scherer came on-board as the SBE member communications director. As the editor of The Signal, Chriss suggested that the column become more educational in content rather than solely an educational announcement venue as it had been in the past. Based on the feedback since 2015, the editorial change was welcomed by members. In December 2019, you will notice another change in this column as the newly appointed Education Committee chair takes over leading the professional development effort of the SBE as I move on to a new role. I hope to remain engaged in creating and delivering professional development content to our members, but welcome the fresh perspective and leadership from your new Education Committee chair. Thank you for your support provided over the past seven years. One thing we can all count on, there is always more to learn!
The Art of Composing SBE Certification Exams

by Terrence M. Baun, CPBE, AMD, CBNE

While the SBE Program of Certification itself does not directly teach, it has the companion educational task of assessing the level of vocational accomplishment through creation and administration of testing. As part of that effort, the SBE has the implicit duty to adjust the scope and content of its examinations to reflect current broadcast technology. If certification examinations fail to reflect industry principles and practices, it not only dilutes the value of certification for all participants, but also threatens the credibility of the certification effort as a whole.

It is not surprising then, that one of the most important duties of the Certification Committee is regular examination of the relevance of every certification question, ascertaining whether some need to be rewritten to improve their clarity, and creating new questions as our industry evolves. If you’ve ever been curious about just how questions get into the Certification exams, you may find the following points of interest.

1. Question creation. Every question on every certification exam is authored by a member of the Certification Committee and reviewed by the Committee before it is incorporated into the question pool. Each question is based on the personal industry experience of one or more committee members. This committee authorship is one of the primary ways we insure that the questions are relevant to broadcast technology. But selecting the subject of a question is only the first step.

It is surprisingly difficult to frame a clear and unambiguous question—and even more difficult to compose and structure the possible responses in such a way as to present only one challenging, but absolutely correct, answer. We often find it far more difficult to create the incorrect answers than the correct one!

A question is framed so as to clearly pose a problem or state a question. The test-taker should be able to understand the question without reading it several times and without having to read any of the possible answers. We write the correct answer in such a way as to be unquestionably the only correct answer. We base the other possible answer choices on logical fallacies or common errors related to the question, so as to further challenge the test-taker’s understanding of the question.

We minimize use of “all of the above” or “both A&B” as distractors, since they make it possible to guess the correct answer with only partial knowledge. We use “none of the above” infrequently, as it is only appropriate for situations in which there are only absolutely correct answers, such as mathematics problems.

The entire selection of questions in each certification exam is reviewed to prevent inadvertently providing answers to previous or subsequent questions through question wording or choice of distractors. Writing effective and fair multiple choice questions demands not only careful selection of topic and achievement level, but also development of a clearly defined answer accompanied by plausible distractors.

2. Question review. Every question in the test pool is periodically reviewed by the Certification Committee members.

• Is this question still relevant to the industry? A majority no from the panel will remove the question from the question pool.

• Is this question framed accurately and is the correct answer the unambiguous correct choice? Often, a Committee member will bring a fresh viewpoint to the question, resulting in revision of one or more of the distractors or changes in the language used for the correct answer.

• What is the level of technical competency reflected by this question? Is a question suitable for more than one certification level? Should its level be adjusted upward or downward because of changes in the industry? Can this question be used for more than one certification area?

3. Question/answer review. When a question is missed consistently by a significant number of test-takers, or is the subject of specific comment by an individual test-taker, that question is brought to the Committee for consideration. Is the question clear and unambiguous? Are the distractors appropriate? Is there a cultural bias or false assumption in the question that has gone undetected? Is the question appropriate for this particular level and area of certification? Upon further discussion, the offending question is either rewritten or removed from the exam pool.

4. Generating the tests. Questions are contained in a database and tagged with the level of difficulty and appropriate certification specialty. About one month prior to every exam period, questions for each level and certification specialty are randomly selected and forwarded to a group of Committee members for review. This double-check is designed to catch any typographic, grammar, or coding errors, and to verify again that the questions are relevant for the particular levels and certification specialties to which they are assigned. It is not unusual at this stage for several questions out of several hundred to be flagged and either replaced or corrected prior to the printing and distribution of the examinations. After this review, it is from this group of questions that the actual session examinations are selected.

5. Essay Questions. At the senior, specialist and networking engineer level, an essay question allows the applicant to express more completely an understanding of a particular segment of broadcast engineering technology. Committee members, who also write the essay questions, select appropriate questions for each applicant based upon that applicant’s past knowledge and experience as detailed in the examination application. The question(s) are selected in this manner and are presented to the test-taker.

Certification Committee members grade essays. Each independently assigns a numerical value to the essay answer, which are added and averaged to become the final score.
### SBE Certification Achievements

### CONGRATULATIONS

#### LIFE CERTIFICATION

<table>
<thead>
<tr>
<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified Professional Broadcast Engineer (CPBE)</td>
<td>Paul Easter, Rosenberg, TX</td>
<td>- Chapter 105</td>
<td></td>
</tr>
<tr>
<td>Certified Senior Radio Operator (CSRO)</td>
<td>Frederick Morton, Oklahoma City, OK</td>
<td>- Chapter 85</td>
<td></td>
</tr>
<tr>
<td>Certified Video Engineer (CVE)</td>
<td>Philip Dubis, Boca Raton, FL</td>
<td>- Chapter 53</td>
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Applicants must have 20 years of professional broadcast engineering or related technologies experience in radio and/or television. The candidate must be currently certified on the Certified Senior Broadcast Engineer level.

#### CERTIFIED PROFESSIONAL BROADCAST ENGINEER (CPBE)

<table>
<thead>
<tr>
<th>Certification</th>
<th>Name</th>
<th>Location</th>
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<tbody>
<tr>
<td>Certified Broadcast Networking Engineer (CBNE)</td>
<td>Mike Hanna, Rush, NY</td>
<td>- Chapter 57</td>
<td></td>
</tr>
<tr>
<td>Certified Radio Operator (CRO)</td>
<td>Graham King, Cambridge, MA</td>
<td>- Chapter 11</td>
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</table>

#### JUNE EXAMS

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<th>Name</th>
<th>Location</th>
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<tbody>
<tr>
<td>Certified Senior Television Engineer (CSTE)</td>
<td>Bobby Allen, Memphis, TN</td>
<td>- Chapter 113</td>
<td></td>
</tr>
<tr>
<td>Certified Broadband Technician (CBT)</td>
<td>Kevin Potter, Walland, TN</td>
<td>- Chapter 113</td>
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</table>

#### AUGUST EXAMS

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<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>Certified Senior Television Engineer (CSTE)</td>
<td>James Bunch, Greenville, TN</td>
<td>- Chapter 113</td>
<td></td>
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<tr>
<td>Certified Broadband Technician (CBT)</td>
<td>Todd Stenger, Columbus, MN</td>
<td>- Chapter 17</td>
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#### SPECIAL PROCTORED EXAMS

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<tr>
<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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</thead>
<tbody>
<tr>
<td>Certified Broadband Technician (CBT)</td>
<td>Albert Brown, Zanesville, OH</td>
<td>- Chapter</td>
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#### SBE CERTIFIED SCHOOL COMPLETION

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<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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</thead>
<tbody>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Robert Provost, Keeseville, NY</td>
<td>- Chapter 73</td>
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#### CERTIFIED BY LICENSE

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<tr>
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<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Nick Church, Rhinelander, WI</td>
<td>- Chapter</td>
<td></td>
</tr>
<tr>
<td>Certified Broadband Technician (CBT)</td>
<td>Levi Rocke, Black Creek, WI</td>
<td>- Chapter</td>
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#### CERTIFIED RADIO OPERATOR (CRO)

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<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Christopher Cauville, Fuquay Varina, NC</td>
<td>- Chapter</td>
<td></td>
</tr>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Michael Shuman, West Valley City, UT</td>
<td>- Chapter</td>
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#### CERTIFIED TELEVISION OPERATOR (CTO)

<table>
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<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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</thead>
<tbody>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Mark Voris, Omaha, NE</td>
<td>- Chapter 74</td>
<td></td>
</tr>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Keith O'Malley, Chesapeake, VA</td>
<td>- Chapter 54</td>
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#### RECERTIFICATION

Applicants completed the recertification process either by re-examination, point verification through the local chapters and national Certification Committee approval and/or met the service requirement.

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<tr>
<th>Certification</th>
<th>Name</th>
<th>Location</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Susan Smith, McAllen, TX</td>
<td>- Chapter</td>
<td></td>
</tr>
<tr>
<td>Certified Broadcast Technician (CBT)</td>
<td>Brandon McKinney, Saint Peters, MO</td>
<td>- Chapter</td>
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### SBE.org/pins

Got your SBE Certification pin?

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October 2019
The SBE National Awards Dinner features the presentation of the society’s major awards, including the Robert L. Flanders SBE Engineer of the Year to Charles Wooten of Panama City, FL, and the James C. Wulliman SBE Educator of the Year to William Hubbard, CPBE, of Green Bay, WI. The SBE will present the SBE Technology Award to Blackmagic Design for its 8K workflow technology.

The award for the Best Chapter Regional Educational Event will be awarded to the 2018 Broadcasters Clinic, held in Madison, WI. Doug Irwin, CPBE, AMD, DBB, will receive the award for Best Technical Article, Book or Program by an SBE member for his three-part Radio World series on repack, and Chapter 16 Seattle will be recognized for Best Chapter Communication. Jim Dalke, CPBE, 8-VSB, AMD, CBNT, is the webmaster.

A number of chapters will be recognized for their accomplishments in member growth, attendance and certification. These categories recognize chapters in two divisions. Class A, with membership less than the national median and Class B, for chapters with membership greater than the national median.

Greatest percentage growth in new members:
- Class A: Chapter 115, Southern Idaho; Chapter Chair Thomas Kettwig, CBT
- Class B: Chapter 85, Central & Western Oklahoma; Chapter Chair Brian Ryel, CBTE

Highest percentage of SBE certified members:
- Class A: Chapter 7, Jacksonville, FL; Chapter Chair Craig Butler, CSRTE, and Certification Chair Alan Alsbrook, CSRE, AMD, CBNT
- Class B: Chapter 24, Madison, WI; Chapter Chair Britny Williams, CBT, CBNT, and Certification Chair James Hermanson, CPBE, CBNT

Highest average percentage of member attendance at chapter meetings:
- Class A: Chapter 112, Western Wisconsin, Chapter Chair Todd Zschernitz, CBTE
- Class B: Chapter 79, Austin, TX Chapter Chair Ed Rupp, CBTE, CBNT

The dinner program concludes with the presentation of the SBE Fellow membership rank to John Collinson, CPBE, 8-VSB, AMD, CBNE, of New Port Richey, FL, and a member of Chapter 39, Tampa Bay.

The Broadcasters Clinic includes an exhibition that features many of the industry’s top manufacturers and service providers and three days of media and broadcast technical sessions presented by experts from across North America. All Broadcasters Clinic activities and the SBE National Meeting events will take place at the newly renovated Madison Marriott West Hotel in Middleton, WI, a western suburb of Madison. Guest room reservations, subject to availability, may be made by calling the hotel at 608-831-2000. Ask for the SBE room block. If sold out, the Comfort Suites (608-820-2370) and Baymont by Wyndham (608-831-7711) are nearby.

Register for the Broadcasters Clinic at wi-broadcasters.org. Register separately to attend the SBE National Awards Reception and Dinner ($16) through the SBE National website (sbe.org) or by telephone, Monday - Friday from 8:30 a.m. to 4:30 p.m. ET, at 317-846-9000. There is no cost to attend the SBE Annual Membership Meeting.
The Ennes Educational Foundation Trust has awarded four scholarships for 2019. Winners were chosen from applications received by July 1, 2019, from the previous 12 months.

The Harold E. Ennes Scholarship, Robert D. Greenberg Scholarship and John H. Battison Founder’s Scholarship are awarded to individuals interested in continuing or beginning their education in broadcast engineering and technology. The Youth Scholarship is specifically for a graduating high school senior interested in broadcast engineering as a career. Each scholarship awarded this year is for $1,500.

This year the Harold E. Ennes Scholarship recipient is Nicholas Church of Rhinelander, WI. In May 2019, Nick began working as the director of operations and technology at WXPR-FM, the public radio station in Rhinelander, WI. He has a B.A. in music with a management studies concentration from St. Olaf College. After earning his SBE Certified Radio Operator, Nick began his broadcast education towards achieving the SBE Certified Broadcast Technologist and Certified Broadcast Networking Technologist certifications.

Receiving the Robert Greenberg Scholarship is Chris Gamelin of Middletown, CT. His interest in broadcasting began when he was 12. Since then, he built his own internet radio station, worked at WNHU-FM at the University of New Haven and WQUN-AM at Quinnipiac University. He is currently a student at the University of New Haven, and worked as an assistant engineer at Entercom, and is now a maintenance technician at WFSB-TV.

The John H. Battison SBE Founder’s Scholarship has been awarded to Sadie Levy of New York, NY. She recently graduated from Fiorello H. LaGuardia High School of Music & Art and Performing Arts, where she worked on various school productions as a Digital Media Department intern. Additionally, she was awarded scholarships to study digital electronics in pre-college programs at both The Cooper Union and New York University. This past summer, she pursued education for a career in recording and new media, majoring in electrical engineering, with an interest in media production, at Northeastern University in Boston.

Andrew Marcus Heller of Two Rivers, WI, received the Youth Scholarship. His father owns two AM radio stations today, and Andrew has been involved in his high school audio/video efforts as the director of the student daily announcements his senior year. Andrew was accepted to the Science and Engineering program at the University of Minnesota Twin Cities.

The Harold Ennes Scholarship Fund Trust was initiated by Indianapolis Chapter 25 in 1980 in memory of Harold E. Ennes, author of many textbooks for broadcast and broadcast-related communications training and a member of the Indianapolis chapter. Ennes was a member of the SBE’s national Certification Committee and made many contributions to the early development of the Certification Program. To encourage greater growth, the Scholarship Trust was transferred by Chapter 25 to the SBE national organization to administer in 1981. The name of the Trust was changed in 1995 to the “Harold Ennes Educational Foundation Trust” to fully embrace its expanded role.

**ELECTION** from p. 1

Membership Meeting. They will join the other six directors who have another year remaining in their terms: Stephen J. Brown, CPBE, CBNT, director of broadcast engineering, Woodward Radio Group, Appleton, WI; Roswell Clark, CPBE, CBNT, senior director of radio engineering, Cox Media Group, Clearwater, FL; Kirk Harnack, CBRE, CBNE, senior solutions consultant, Telos Alliance, Nashville, TN; Vinny Lopez, CEV, CBNT, chief engineer, WSTM/WTVH/WSTQ-TV, Syracuse, NY; Thomas McGinley, CPBE, AM, CBNT, president, McGinley Enterprizes, Missoula, MT; and Shane Toven, CBRE, CBNT, field engineer, Educational Media Foundation, Laramie, WY. Jim Leifer, CPBE, senior manager of broadcast operations at American Tower Corporation, Andover, MA, becomes the immediate past president.
Clearing the Air On Short Towers

There is a lot of inaccurate or misleading information being circulated, mostly within the land mobile radio community (but elsewhere as well), about your obligation to paint and light “short towers” (i.e. those between 50 feet and 200 feet in height) which are not located in close proximity to an airport or heliport, but which are located in rural or agricultural areas. Here is what broadcast engineers need to know: you may have to register your short broadcast tower in an FAA database depending on its location, but you do not have to paint or light it unless it is near an airport.

It all started back around 2013. States became concerned that low-flying agricultural aircraft were hitting meteorological evaluation towers (METs). There is no history of aircraft hitting short towers generally; the only problem was with respect to METs. These are temporary structures, often erected in rural areas on short notice, with very low visibility, and they are very hard for pilots to see. They are not on any maps, and for crop dusters and other low flying aircraft, they posed a real threat if not near other structures. States that have rural, agricultural areas became concerned that short towers which are not near airports did not have to be lighted or painted according to FAA regulations. Colorado, Washington State, Idaho and a few other western states enacted state statutes that regulated all short towers.

In the wake of agricultural aircraft collisions with METs, the National Transportation Safety Board (NTSB) recommended in 2013 that states enact laws (crop duster statutes) requiring marking and registration of METs. FAA Advisory Circular (70/7460-1L) concerning Obstruction Marking and Lighting, released Oct. 8, 2016, urged, on a voluntary basis, the marking of METs (only) less than 200 feet or 61 meters in height.

The basic premise for the crop duster statutes was that short towers are not regulated by the FAA. That was inaccurate. Towers less than 200 feet in height are regulated by the FAA (and notification to the FAA is called for by the FCC) if a tower shorter than 200 feet is to be located in an area that the FAA has determined constitutes a danger to air navigation: that is, where the towers are located with in the glide slope of an airport or heliport. (See FCC rules, Section 17.7). The glide slope is 100-to-1 for a horizontal distance of 6.10 kilometers from the nearest point of a runway of an airport or heliport, and less for towers closer to the airport or heliport. Unless such short radio towers were located within the glide slope of airports or heliports, they were not required to be painted or lit because they were not deemed to be an air hazard.

The Final Say

The FAA has preemptive federal jurisdiction to protect air traffic as necessary in a reasonable exercise of its discretion. The comprehensive regulation of tower height, marking and lighting by the FAA (in conjunction with the FCC) leaves no room for the states to supplement it. The Supreme Court has concluded that Congress intended to preempt states with respect to aviation safety. Perhaps because these state crop duster laws were subject to challenge, it enacted H.R. 636, the FAA Extension, Safety, and Security Act of 2016 (Reauthorization Act), in July 2016. Section 2110 of that Act instructed the FAA to enact rules by July of 2017, requiring painting and lighting of short radio towers that were located in rural areas. The 2016 Act defined towers that are covered as self-standing or guy wire-supported structures: (1) 10 feet or less in diameter at the above-ground base (excluding concrete footing); (2) more than 50 and less than 200 feet tall; and (3) with accessory facilities mounted with antennas, sensors, cameras, meteorological instruments, or other equipment. Covered towers were those located: (1) outside the boundaries of an incorporated city or town; (2) on undeveloped land; or (3) on land used for agricultural purposes. Undeveloped land was defined as a geographic area where the FAA determines low-flying aircraft are operated on a routine basis, such as low-lying forested areas with predominant tree cover less than 200 feet and pasture and range land. Exceptions to the covered tower definition include: (1) structures adjacent to a house, barn, electric utility station, or other building; (2) structures within the developed area of a farm immediately surrounding a house or other dwelling such as a yard; (3) structures that support electric utility transmission or distribution lines; (4) structures that are windpowered electrical generators with a rotor blade radius exceeding six feet; or (5) street lights erected or maintained by government entities.

This was a huge problem of course. Short broadcast towers, if they had to be painted and lit, would have to be removed from most locations due to local land use regulations, and the cost of painting and lighting short towers was prohibitive for most users of them.

With help especially from Senator Inhofe of Oklahoma (himself a pilot), the NAB, the SBE, the Association of American Railroads and others, the FAA Reauthorization Act of 2018 was enacted. It amended and clarified the 2016 Act by revising the requirements for covered towers, as long as the FAA administrator determines they pose no hazard to air navigation. The legislation requires covered tower operators or owners to either submit the tower’s location and height information into a database to be established by the FAA, or mark the tower consistent with the FAA’s 2015 advisory circular (AC 70/7460-IL). Only METs have to be painted and lit. FAA has not yet developed its database, which will contain only the location and height of each covered tower. Covered tower operators or owners who elect to submit tower information to the FAA database must do so within one year of the availability of the FAA database. The 2018 Act also excludes towers located within the right-of-way of a rail carrier and used for railroad purposes.
A Return to Madison and Welcoming Our New Leadership

The SBE National Meeting makes a return to Madison, WI, this month. We’ll hold our events in conjunction with the annual Broadcasters Clinic, presented by the Wisconsin Broadcasters Association (WBA). The Clinic has been a popular and successful regional event for many years, and we are pleased to be a part of it this year. Our thanks to the Board of the WBA, its president, Michelle Vetterkind, and vice president, Linda Baun. Also, to the Clinic Committee, chaired by SBE member Kent Aschenbrunner and to the four chapters of Wisconsin and their chairs, Britny Williams, Chapter 24 in Madison; Chris Tarr, Chapter 28, Milwaukee; Steve Brown, Chapter 80 in the Appleton/Green Bay area and Todd Zschernitz, of Chapter 112 in La Crosse for hosting us.

We will once again stream the one-hour SBE Annual Membership Meeting, one of the primary events of the National Meeting, to members everywhere, and I hope you will be able to carve out an hour to watch. This year’s membership meeting will feature special guest RJ Russell, CPBE, who through his consulting firm, Technical Broadcast Solutions, Inc., serves as the Society’s new national frequency coordination manager. SBE President Jim Leifer, who will chair the meeting before handing his president’s gavel to Wayne Pecena, will discuss with RJ his new role, and the new project that the SBE has undertaken with the Department of Defense to coordinate frequencies they now share with broadcasters.

The membership meeting will also include updates on the Society’s education and certification programs, membership and finances. This is also the occasion when the Society inducts officers and directors to the National Board of Directors who were elected this past August, marking a turning point where several of their two-year terms (see the election article on page 1). This summer and six others who return to serve the second year of their Board service while others join the Board.

The national SBE Board of Directors governs the Society, overseeing and determining programs and allocating resources that benefit SBE members. This past election the ballot fielded ten candidates, and though only six director seats were available, all ten would have made productive contributions. We thank all the candidates who ran for office and who were willing to serve if elected. The SBE is fortunate to have so many dedicated members who voluntarily serve at all levels of the organization.

A special welcome to incoming president, Wayne Pecena, CPBE, 8-VSB, AMD, DRB, CBNE, director of engineering at Cox Media Group in Charlotte, NC. He is active with Chapter 45 in Charlotte and stays connected to his previous chapter in Norfolk, VA.

Entering the vice president’s chair is Andrea Cummis, CBT, CTO, chief technology officer with WLVT-TV in the Allentown-Bethlehem, PA, area. “Andy” also is managing partner of her own company, AC Video Solutions. She has served the Society for a number of years as the chair of its Publications Committee and is the first woman to serve as SBE vice president.

Kevin Trueblood, CBRE, CBNT, begins his first full term as secretary, after filling the unexpired term of his predecessor, and previously as a director. Kevin is associate general manager, technology and operations at WGCU Public Media (Gulf Coast University) in Ft. Myers, and prior to moving to Florida, worked in engineering at Wisconsin Public Radio. He was active in Chapter 24 in Madison where he served as chapter chair and treasurer. He currently is chair of Chapter 90, Southwest Florida.

Ted Hand, CPBE, 8-VSB, AMD, DRB, returns as treasurer and previously served on the Board as secretary and as a director, as well as chair of the Frequency Coordination Committee. Ted is director of engineering/operations with Cox Media Group in Charlotte, NC. He is active with Chapter 45 in Charlotte and stays connected to his previous chapter in Norfolk, VA.

As you can see, our SBE officers have many years of experience in broadcast engineering as well as in SBE leadership roles. They are joined by 12 directors, six of whom were elected this summer and six others who return to serve the second year of their two-year terms (see the election article on page 1).

Completing the Board will be Jim Leifer, CPBE, who will move to the role of immediate past president when his second term as president ends on Oct. 16. Jim has led the SBE through a very productive two years, including the development of a new strategic plan that will serve the society for several years beyond Jim’s time at the helm.

When new people come in, that means we are also saying goodbye to a couple who have contributed much to the SBE and whose Board service is coming to an end. Steve Lampen, CBRE, who is well-known in the industry through his years with Belden and the hundreds of educational and entertaining presentations he did under their banner, many of which were done for SBE audiences at both the chapter and national levels, ends his term on the SBE Board.

Immediate Past President Jerry Massey, CPBE, 8-VSB, AMD, DRB, CBNT; who served as the Society’s 29th president and served a total of 12 years on the Board, ends his Board service this month. His dedication to the Society and to broadcasting is an example to all. We will miss his wisdom and steady hand.

I hope to see some of you at the National Meeting in Madison, but if you can’t be there, please tune in to the Annual Membership Meeting webcast at 4:00 p.m. EDT, Oct. 16.
Playing the Hero with Infrastructure Maintenance

As broadcast engineers, we have one inherent goal: Keep it on the air. While this is (of course) our primary responsibility, it doesn’t mean that we shouldn’t approach the situation with a healthy dose of reality as well. Infrastructure ages. Parts for equipment become difficult or impossible to come by. How do you respond? Find parts from sources such as eBay? Beg and borrow from colleagues with similar equipment for which they still have parts or may have been scrapped? Kludge something together with bubblegum and bailing twine just to keep it on the air? This becomes even more of a challenge when you’re putting multiple kludges in place on top of equipment that is no longer supported by the manufacturer, or worse, the manufacturer is out of business entirely. One-off equipment that was custom built poses an even bigger challenge.

Why do we do this? Because it satisfies our core mission as broadcast engineers to get it back on the air and keep it on the air, even if that means the equipment will still be subject to a similar failure (or worse) going forward. This is where we truly need to face reality. We know in our heart of hearts that the failing equipment needs to be replaced or updated. This causes no end of stress wondering when the next failure will come, but often we don’t bring these concerns to those who can make the decision to open the checkbook. Meanwhile, those same managers remain blissfully unaware of how tenuous their infrastructure really is, because we continue to keep it on the air despite the fact that things are hanging by a thread, and getting worse.

So why don’t we ask for what we know is truly needed, rather than letting the quick fixes become permanent? Is it a fear of being denied new purchases? Is it not wanting to spend money because you can fix it? Is it our ingrained nature as engineers to want to fix or create rather than buy? Or – as I titled this article – are you simply playing the hero?

If you honestly ask yourself this question and find you are always playing the hero because you can, nothing will change, and you will continue constantly putting out the same fires. You kept it on the air, but did not communicate the extraordinary measures it took to do so. The facility remains compromised in some way, but it’s not made known what it will take to fix the situation properly.

Ask and You Might Receive

In many cases we don’t have what we need as engineers (new equipment, tools, etc.) simply because we haven’t asked for it. Most managers are extremely receptive to this if you can make the case and demonstrate how it will improve your productivity, improve reliability, or otherwise improve the station and add value to the bottom line. Is it always easy to build this case? No, but it is well worth the effort to do so and have these conversations with management. Is the answer always yes, even with a solid case? Again, no, but if you never ask, the answer will always be no.

The relationship between management and engineering is critical, and needs to be a two-way street. Start the conversations early and have these conversations often. Make sure you have a seat at the table come budget time, and be prepared with a prioritized plan for addressing aging infrastructure (now, and into the future). This includes multiple options at multiple price points, each with its own set of tradeoffs. The “ideal world” option is the best place to start, but don’t hesitate to have the additional not perfect, but perfectly acceptable options available as well.

Managers: If your engineer isn’t initiating these conversations, please approach him or her and start asking questions in a way that opens the dialog about infrastructure needs and future planning. If you don’t have a good engineer to make these sorts of recommendations, find one. SBE JobsOnline is a great place to start.

There is one more important item to consider when planning for ongoing infrastructure maintenance going forward: The lifecycle of most equipment has shortened considerably. Even the most expensive equipment (i.e. automation systems, studio infrastructure, and yes, transmitters) have a much shorter lifespan than in the past. What was once a 20- to 30-year purchase may now need a planned replacement in 5 to 10 years. This takes some creative thinking and budgeting to address. Your facility is now as much an IT data center as it is broadcast studio. If you aren’t thinking of it this way and budgeting accordingly, you should be.

Being an engineering hero is admirable, but not if it means constant stress over failures. Plan ahead so you don’t need to play the hero.
Member Spotlight: Taylor Barker

Member Stats
SBE Member Since: 2015
Chapter: 17 Minneapolis
Employer: Pioneer Public Television
Position: Operations Technician/Traffic Assistant
Location: Appleton, MN
I’m Best Known For: Having an announcer’s voice

Q. What do you value most about your SBE involvement?
A. Being trusted as my chapter’s programs chair, and their interest in discussing broad issues.

Q. What got you started in broadcast engineering?
A. I started with the Cougar Sports Network, and then found myself being the first to respond when emergencies developed.

Q. Who do you consider to be a mentor?
A. I owe a lot to Dave Harvet, my supervisor when I worked for my school district’s IT and video production unit.

Q. What do you like most about your job?
A. Aside from the honor of representing my colleagues at events for the station, seeing videos I’ve had a hand in - no matter how small - go on air is the privilege of a lifetime.

Q. What’s something most people don’t know about you?
A. The greatest adrenaline rush I’ve ever felt was in high school, when I got to perform on the Orpheum Theatre as part of the Spotlight Showcase.

Q. What’s your favorite gadget?
A. It’s a close tie between the Comrex Access 2USB and Newtek Tricaster TC350. The latter was everything I needed for my job in one small package. The former was a massive upgrade over my campus radio station’s old setup: A homebrewed XLR cable wrapped around a garden hose reel cart.

AES Convention Includes Broadcast and Streaming Track

The 147th Audio Engineering Society Convention will be held in New York City Oct. 16-19 at the Jacob K. Javits Convention Center. Exhibits run Oct. 16-18, and sessions run Oct. 16-19. Alongside the AES Convention, the NAB Show New York will run Oct. 16-17 at the Javits Center.

The AES Convention covers all aspects of audio, including a dedicated Broadcast and Online Delivery Track of sessions running all four days. This group of sessions was organized by SBE member and Track Chair Dave Bialik, CBT.

Sessions cover a wide range of topics, including broadcast/streaming studio design, audio processing, audio for sports, object-based audio, audio for ATSC 3.0, streaming/broadcast convergence, podcast production, networked audio and more. Many presenters and panelists are SBE members.

One session, Emergency Preparedness, is a joint presentation of the AES and the SBE. It will be held Oct. 19 at 1:30 p.m. It’s moderated by Scott Fybush. The panelists are SBE President Jim Leifer, CPBE; Howard Price; and Tom Ray, CPBE, AMD, DRB. The many aspects of emergency preparedness will be covered, including working with local emergency management officials, preparing for the ongoing needs of station staff and their families, hardening facilities to better survive a disaster, and current best practices in designing and building backup and disaster recovery facilities for large and small stations.

The SBE will hold an SBE Certification exam session at the convention on Oct. 18. Previous exam registration was required.

aes.org/events/147

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sbe.org/store
On Aug. 7, the SBE and the Tennessee Association of Broadcasters presented an Ennes Workshop at the Embassy Suites Hotel and Conference Center. 23 people attended the event.

NEW MEMBERS

Kerrie E. Antonio - Window Rock, AZ  
Kevin C. Burke - Archbald, PA  
Lilian A. Chavez - San Antonio, TX  
Kenneth Chiocchio - Myrtle Beach, SC  
Summer M. Coff - Madison, WI  
Mark Coleman - El Segundo, CA  
William L. Cole - Gunnison, CO  
Sean Finn - Perryburg, OH  
Jenna Hill - Redmond, WA  
Jason R. Hook - Ashland, OR  
Aaron Hume - Shoreline, WA  
Thomas Johnson - Dothan, AL  
Kody Joiner - St. Petersburg, FL  
Jason D. Justman - Seattle, WA  
Peter Kalina - Piedmont, SC  
Brian D. Krieger - Gainesville, FL  
Ar Kar Kyaw Win - Rockville, MD  
David Liu - South San Francisco, CA  
Andrew A. McHaddad - La Grande, OR  
Olin D. Morris - Seattle, WA  
Tony J. Nakale - Abuja, FCT, Nigeria  
Jeff Ohnstad - Madison, WI  
Jordan M. Pena - San Antonio, TX  
Jadotte Pierre - Montgomery, AL  
Brett H. Pinyon - Kodak, TN  
Mike Portz - Blue Springs, MO  
Frank H. Roff - Kailua Kona, HI  
Steven Rossiter - Quincy, IL  
Rolf D. Seichter - Gifford, NH  
Tim Sharp - Bettendorf, IA  
Patrick Strois - Rimouski, QG, Canada  
Christopher Smelcer - Bountiful, UT  
Christine Sparlock - Milton, FL  
Todd B. Strenger - Columbus, MN  
Scott R. Sutter - Chicago, IL  
Jeff Wilson - Quincy, IL

NEW STUDENT MEMBERS

Erick O. Corporan - Bloomfield, NJ  
Andrew G. Sichling - Davenport, IA  
Shannon Williams - Denton, TX

NEW YOUTH MEMBERS

Melanie E. Freedman - SeaTac, WA

RETURNING MEMBERS

Robert M. Amoroso - Petaluma, CA  
Sergio Beristain - Mexico City, Mexico  
Keith L. Blasdel - Harrisburg, PA  
Andrew V. Bodker - Basalt, CO  
Tom Bray - San Antonio, TX  
Ken R. Brown - Edgewood, NM  
Matthew A. Chambers - Atlanta, MO  
Chuck J. Condron - Phoenix, AZ  
Benjamin R. Datin - Apopka, FL  
David A. Dumas - Pittsburgh, PA  
Robbie Green - Katy, TX  
Michael D. Holderfield - Dothan, AL  
James R. Mabrey - Columbia, SC  
William W. Martin - Arlington, TX  
Tom Matthews - Charlotte, NC  
Raymond H. Mayberry - Richmond, VA  
Michael A. McGuire - Mason, NH  
Stephen R. Quinn - North Haven, CT  
Gerald L. Weaver - Georgetown, TX  
Allen R. Yaden - Shoreline, WA

Ennes Workshop Murfreesboro, TN

Chapter 124 • North Oregon

On Aug. 3, Chapter 124 met for the chapter’s potluck barbecue. Gray Haertig hosted the event, which was sponsored by several broadcast manufacturers.

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Randy Hisle, CBTE, CBNE, is a broadcast technician at DynCon International, Williamsburg, VA.

Roswell Clark, CPBE, CBNT, is the chair of the 2020 NAB Show Broadcast Engineering and IT Conference Committee.

Have a new job? Received a promotion? Send your news to Chriss Scherer at cscherer@sbe.org.

**MARK YOUR CALENDAR**

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**SBE National Meeting**
Madison, WI
Oct. 15-16, 2019 [sbe.org](http://sbe.org)

**WBA Broadcasters Clinic**
Madison, WI
Oct. 15-17, 2019 [wi-broadcasters.org](http://wi-broadcasters.org)

**SBE Certification Exams**
AES Convention
Oct. 18, 2019 [sbe.org/certification](http://sbe.org/certification)

**Webinar: RF201, Module 8 - AM Multiplexed Antenna Systems**
online
Oct. 23, 2019 [sbe.org/webinars](http://sbe.org/webinars)

**SBE Certification Exams**
Local Chapters
Nov. 1-11, 2019 [sbe.org/certification](http://sbe.org/certification)

**Webinar: RF201, Module 9 - TV Combiners**
online
Nov. 6, 2019 [sbe.org/webinars](http://sbe.org/webinars)

**Webinar: SNMP - Part 2**
online
Nov. 14, 2019 [sbe.org/webinars](http://sbe.org/webinars)

**Midwest Broadcast & Multimedia Technology Summit**
Columbus, OH
Nov. 14, 2019 [mbmtc.oab.org](http://mbmtc.oab.org)

**Webinar: Workbench Tips**
online
Dec. 12, 2019 [sbe.org/webinars](http://sbe.org/webinars)

**SBE Certification Exams**
Local Chapters
Feb. 7-17, 2020 [sbe.org/certification](http://sbe.org/certification)
Application Dec. 31, 2019

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