

IEEE Power and Energy Society Entity Annual Report

2018

Entity: Energy Storage and Stationary Battery (ESSB) Committee

Chair: Chris Searles

Vice-Chair: Curtis Ashton

Secretary: Babu Chalamala

1. Significant Accomplishments:

- Established a Tutorial Core Group (Working Group)
 - Conducted three (3) Major tutorials
 - Full day tutorial to NERC engineering and technical staff.
 - Full day tutorial at IEEE T&D Conference for benefit of IEEE Conference attendees.
 - Full day tutorial in Coordination w/ ISTF and PES HQ at Next Era which resulted in a video and broadcast capture now posted on the IEEE Resource Center website.
 - Named Ralph Masiello, distinguished principal at Quanta Technologies to Chair this Core Group.
 - Plan 2-3 Tutorials for 2019 to major energy organizations (see “Significant Plans for the Next Period” - #8 below).
- Added several new members to the ESSB AdCom to assist with expanded Committee activities.
 - Tutorial and Seminars Chair (Ralph Masiello)
 - ESTF Co-Chair (Charlie Vartanian, now key member of ESSB as well as SCC 21).
 - New Subcommittee Officers (Dave Franklin and Dan Martin) to enter the progression.
- Continued development of a concerted effort to effectively bridge SCC 21 and ESSB common interests.
- Brought in over 25 new actual members to grow ESSB in the areas of energy storage and standby power applications, especially standards development. Attendance at the General Meetings and Working Groups has consistently doubled to over 100 persons per meeting.
- Chair served as Guest Editor for the complete September issue of IEEE *Electrification* magazine. The issue featured “Bringing Energy Storage Out of the Box,” and several IEEE members from ESSB, PES Tech Council, and IEEE academics contributed articles. From all accounts the issue was extremely well received and spawned interest in the ESSB Committee from several parts of the world.
- Placed a greater emphasis on recognizing Committee members who contributed significantly to ESSB and/or IEEE related activities.
- Built a responsible financial reserve through our 123 Sign-Up program to allow ESSB to engage in future efforts requiring a financial commitment.

2. Benefits to Industry and PES Members from the Committee Work:

- Conducted major presentations and participation at conferences including CETIA, ESA, EESAT, DoE.
- Key members joined NFPA to represent stationary battery interests, especially as it relates to NFPA 855, NFPA 1 and other safety codes.
- Subcommittee Highlights
 - SBEE –
 - Updated and published a revision of IEEE 1660 – Guide on Lead-Acid batteries for cycling applications.
 - Published a new standard (Guide) on Sodium alloyed energy storage batteries.
 - Formed a new Working Group which is now in the process of developing a new standard (Guide) on Flow Batteries (IEEE P1679.3) for energy storage applications.
 - Formed a new Working Group which is now in the process of developing a new Guide or Best Practice for Engine Start batteries, especially for energy storage applications.
 - DCRS –
 - Updated and published a revision of IEEE 1578 which serves as a Guide and Best Practice for Spill Containment protection for lead-acid batteries.
 - Updated and published a revision of IEEE 1635, a joint standard with ASHRE that deals with ventilation and thermal management issues with lead-acid batteries.

3. Benefits to Volunteer Participants from the Committee Work:

- Expanded horizons of many volunteer members to the possibilities and opportunities for ESSB growth in both standards creation and IEEE participation.

4. Recognition of Outstanding Performance:

- Fellow Nomination and Development
 - The ESSB Chair nominated Jim McDowall for IEEE Fellow consideration. He has long been considered as a viable candidate for a Fellow award, but this was the first time that the Committee engaged in the process of a formal nomination.
 - The ESSB Committee was fortunate in attracting into membership a senior member who serves on the IEEE Fellow Board (but who cannot actively vote for Jim). But his expertise in understanding the IEEE Fellow process has been extremely helpful.
 - The ESSB Committee was also fortunate to attract a principal scientist from the Sandia Labs/Department of Energy who became a Fellow at the General Meeting in 2018. As a result, the ESSB Committee now has two distinguished Fellows it counts a members with the hope that Jim McDowall's induction will happen in the next cycle.

- WG Chairs – Under the leadership of our Committee Technical Administrator (Vice Chair and TCPC representative Curtis Ashton), instituted for the first-time recognition of Committee Working Group Chairs and has or will present Committee Service Awards to:
 - Bill Cantor (Codes): Significant contributions to lessen the negative impacts of the forthcoming NFPA 855 standard. Chris Searles, 2018 Chair and now Immediate Past Chair also worked extensively with Bill and other members of the NFPA 855 Committee and has been invited to apply for membership on the IEEE SCC 18 Committee which represents all IEEE Society interests in NFPA Safety Codes development.
 - Ralph Masiello and Chris Searles (Tutorials): three (3) extremely well received tutorials on Energy Storage this year, building on the past Chattanooga tutorial, and involving different audiences each time.
 - Chris Searles and Charlie Vartanian (ESTF): significant progress in working with SCC 21 and other groups interested in Energy Storage
 - Art Salander (P2405): Nearing completion on a project serving as a model for how to take over a standard from another SDO and turn it into an IEEE showcase standard
 - Haissam Nasrat (946): Nearing completion on a document revision with a greatly expanded scope (2 huge industries added), including comment resolution of many hundreds of ballot comments
 - John Polenz (1578): Document revised and reissued in 2018
 - Steve Clark and Curtis Ashton (1635): 2nd edition of joint standard with ASHRAE (21) released with improvements in gassing calculations for various NiCd types, and high-rate VLA; along with a helpful “how to find relevant battery data” annex for HVAC engineers
 - Curtis Ashton (1657): Document revised and reissued in 2018
 - Chris Searles (1660): Document revised and reissued in 2018
 - Andrew Miraldi (1679.2): Brand new document released in 2018 that provides a guide on Sodium alloy batteries (the first IEEE standard on stationary Li-ion batteries (previous IEEE standards on Li-ion were on “portable” batteries) was published in 2017.

5. **Coordination with Other Entities (PES Committees, CIGRE, standards, etc.):**

- IAS – enlisted our Safety Codes WG Chair to present at the IAS Semi-Annual Safety Codes Conference on DC Arc Flash issues that affect IEEE 70E.
- SCC21 – liaison efforts are highlighted above.
- SCC18 – ESSB Safety Codes WG Chair (Bill Cantor) serves as the IEEE principal to NFPA 70B and IEEE 855. We are in the process of submitting applications to SCC 18 to add ESSB members to be the IEEE principal representative for NFPA 1 and as an alternate representative for NFPA 855.
- It is important that we recognize the support and assistance of Damir Novosel, Immediate Past President of IEEE PES. He provided significant help in arranging the tutorials given to NERC and Next-Era, as well as assisting us with the transition of IEEE ESTF to ESSB.

6. New Technologies of Interest to the Committee:

- Flow Batteries – have initiated a PAR and WG development for Flow Batteries as highlighted above. This is a new electrochemical battery coming out of the labs into commercial enterprise to address grid-scale energy storage applications.
- Battery Management Systems - have initiated a PAR and WG development for Battery Management Systems (BMS) for non-aqueous battery technologies (such as NiMH, Li-ion, etc.) as highlighted above.
- Engine Start Batteries/ESS – Working Group is fleshing out a new document for engine starting energy storage systems (batteries, supercaps, etc.) that will combine knowledge from several disparate documents and entities into one excellent document.

7. Significant Plans for the Next Period:

- Transition of Leadership as progression of Officers took place Jan 1, 2019.
- Fleshing out the efforts of the recently acquired Energy Storage Task Force (ESTF)
 - Moving forward on 2 standards in joint sponsorship with SCC 21
 - 1547.9
 - EMS
 - Conducting 2-3 major tutorials and other technical seminars/papers, etc. under the leadership of Ralph Masiello, new member from Quanta Technologies.
 - NREC
 - Other
 - Working closely w/ SCC 21 (Coordination Committee) to execute a survey among all IEEE Societies and Committees to determine who is doing what in the areas of energy storage w/ goal of holding a workshop during the ESSB meeting in Santa Fe in June 2019.

Submitted Jointly by: Chris Searles and Curtis Ashton

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