

## IEEE Power and Energy Society Entity Annual Report

2020

**Entity:** Energy Storage Stationary Battery Committee (MSCC)

**Website:** <https://ewh.ieee.org/cmte/pes/essb/>

**Chair:** Babu Chalamala

**Vice-Chair:** Steve Vechy

**Secretary:** Jason Wallis

**Immediate Past Chair:** Curtis Ashton

### 1. **Significant Accomplishments:**

*(Please explain why these are significant and include details and examples)*

We continued the expansion of the technical activities of ESSB to include extensive engagement with other PES technical committees, IEEE coordinating committees, growing the technical programming at the PES General Meeting and T&D, development of new standards in emerging areas, and a greater reach out to membership across all areas of energy storage and battery technologies.

Significant accomplishments include:

- Two white papers on Energy Storage: We worked closely with ILT SC and developed two white papers on energy storage, namely: Energy Storage Primer (published in April 2020), Energy Storage Opportunities and Research Needs (published in June 202). These documents have seen significant downloads from the PES Resource Center.
- ESSB presented a comprehensive three part tutorial session at the 2021 PES General Meeting and a tutorial session to FERC. These multi-presenter tutorials covered the basics of electrical energy storage, energy storage applications, present and potential future battery energy storage technologies, commissioning of energy storage systems, engineering of energy storage systems, interconnection with the grid, energy management systems, system safety and reliability, and code compliance.
- We continued the development of collaborations through the newly established Energy Storage Collaborative Team (ESCT)
- ESSB is developing a cooperative engagement with ESSB China Satellite Committee to serve the needs for growing membership in the China Satellite committee.
- We established the Energy Storage Subcommittee as a new subcommittee. This subcommittee is rapidly expanding standards work in new and emerging areas in energy storage.
- ESSB actively participated in supporting new Entity Standards
- The first batch of ESSB Presentations and white papers were uploaded to the PES Resource Center
- Continued growth of energy storage related technical sessions and panels at IEEE PES General Meeting and T&D

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

*(Provide specific examples and explain what the benefits are)*

ESSB provides an excellent opportunity for the industry and PES members with continuing education, outreach, and the opportunity to develop IEEE led global standards. The committee is also a great avenue for outreach and engagement with regulatory bodies at the state and federal levels.

### **3. Benefits to Volunteer Participants from the Committee Work:**

*(Provide specific examples and explain what the benefits are)*

The EESB committee is in a technical domain with a rapidly growing interest across many cross-cutting areas including grid modernization, firming of renewables with energy storage, batteries for electrification of transportation, and a growing range of applications for stationary batteries. Participation in the committee work provides a range of opportunities for members and volunteers. Benefits include:

- Continuing education through seminars and tutorials offered by ESSB and content on the PES Resource Center
- Networking opportunities through participation in the two semi-annual meetings of the ESSB. Increased knowledge-sharing, learning, and networking opportunities with the growing membership of the committee.
- Leadership roles in standards development through contribution to standards activity through various working groups.
- Opportunity to participate in a range of technical activities in PES conferences on topics related to energy storage, stationary batteries, electrification, and grid modernization.
- Expanded horizons of many seasoned volunteer members to the possibilities and opportunities in the BESS market

### **4. Recognition of Outstanding Performance:**

EESB continues to expand in membership and the range of technical activities the committee support. With a large number of working groups and growing collaborative work, the committee has a number of dedicated volunteers who provide tremendous service to IEEE PES and the industry through standards development and other technical activities. There are not that many opportunities to recognize the outstanding service of our members. Here we would like to highlight recognize the following:

- ESSB nominated IEEE Std 1679-2020 Working Group for recognition with the Technical Committee Working Group Award. This is recognition of outstanding work the working group has done in developing IEEE Std 1679-2020: Recommended Practice for the Characterization and Evaluation of Energy Storage Technologies in Stationary Applications
- Curtis Ashton in his leadership as vice chair and chair of ESSB has done an outstanding job in growing ESSB into a strong technical committee. He was recognized with the IEEE PES Technical Committee Distinguished Individual Service Award in recognition of leadership and service to the Energy Storage and Stationary Battery Committee
- 1526 Working Group – Rob Rallo, Jim McDowall, Tom Basso, Mark Siira, Dan Seidel, and Jim Midolo were presented with Working Group Awards for their contributions to the recent revision of this standard.

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

ESSB has a range of collaborations with ILTSC, SCC21, IAS, the Energy Storage Committee of ASME, and NFPA.

A number of external collaborations such as ASME and IAS are coordinated through ESCT. An outreach effort by ESSB and SCC 21 to attempt to not duplicate efforts within the ESS standards arena, and to share knowledge.

SCC21 - All the PV-Related IEEE Battery Standards used to be owned by SCC21. These standards (937-2019 (PV Lead-Acid Installation & Maintenance); 1013-2019 (Standalone PV Lead-Acid Sizing); 1144-1996 (NiCd PV Sizing – Inactive); 1145-1999 (PV NiCd Installation & Maintenance – Inactive); 1361-2014 (Lead-Acid Selection for Standalone PV – SCC21); 1526-2003 (Testing Standalone PV); 1561-2019 (Optimizing Lead-Acid Life in Hybrid Systems); 1562-2007 (Standalone PV Array Sizing); 1661-2019 (Testing Lead-Acid in Hybrid Systems); 1144-1996 (NiCd PV Sizing – Inactive); 1145-1999 (PV NiCd Installation & Maintenance – Inactive); 1361-2014 (Lead-Acid Selection for Standalone PV – SCC21); 1526-2020 (Testing Standalone PV) have been transferred to ESSB. The ES Subcommittee has taken ownership of the standards and work is underway to set up active working groups to update these standards as needed.

When P1547.9 was conceived, it was agreed that SCC 21 and ESSB would jointly co-Chair it (Michael Ropp & Jim McDowall), but that SCC 21 would be the submitting entity (Primary Sponsor). An outreach effort by ESSB and SCC 21 to attempt to not duplicate efforts within the ESS standards arena , and to share knowledge has been established.

ESCT provides coordination work with the ASME Energy Storage Systems Committee. This committee does not do standards work, but they are heavily involved in mechanical energy storage (e.g., gravity-based, flywheels, etc.).

ESSB is collaborating with the IAS Data Center Committee on the development of standards to Energy Storage for data centers. This activity is just beginning and a working group is being put together.

We coordinated with ILTSC in developing two white papers on energy storage (Energy Storage Primer, April 2020; Energy Storage Opportunities and Research Needs, June 202) and delivered a comprehensive tutorial program to FERC. The tutorial for FERC was under the IEEE-DOE MoU.

## **6. New Technologies of Interest to the Committee:**

There are a range of new topics of interest to the committee. These include the development and applications of energy storage for a range of new applications. We currently have new Working Groups coming up to address the following:

- Energy Storage Management Systems: We have initiated a PAR and WG development for Energy Storage Management System (ESMS) Draft Standard, P2688 - Recommended Practice for Energy Storage Management Systems in Grid Applications - This document provides a recommended practice for the development and deployment of Energy Storage Management Systems (ESMS) in grid applications. It includes a set of core functions of ESMS software and

core capabilities of ESMS hardware, addressing the fundamental requirements for operating energy storage systems (ESSs) in grid applications.

- Engine Start Batteries/ESS – Working Group is working on a new document for engine starting energy storage systems (batteries, supercaps, etc.) that will combine knowledge from several disparate documents and entities into one document.
- A study group for a new PAR for Stationary DC System/Battery Enclosures is being established.
- A new study group for a PAR for asymmetrical supercapacitors is being established.

## **7. Global Involvement**

PES is looking to increase involvement with members from Regions 8, 9 and 10 (Africa, Europe, Middle East, Latin America, Asia and Pacific). Please provide the following information.

Total Number of committee members	Officers from regions 8,9 and 10	Subcommittee officers from regions 8, 9 and 10	Subcommittee members from regions 8,9, and 10
86	2	2	4

EESB Satellite Committee – China has over 200 PES members. We are working on developing a framework to coordinate activities with the China Satellite Committee.

## **8. Problems and Concerns:**

We have a growing of proposals for entity standards and requests for developing new standards related to energy storage and stationary batteries. ESSB WG leadership is primarily led by members in US. We anticipate significant growth in new standards activities from the ESSB Satellite Committee – China. Finding additional volunteer leaders to support the expected growth is challenging.

## **9. Significant Plans for the Next Period:**

- Continue recruiting new members
- Set the framework of collaboration with other entities via MoUs
- Keep building ESSB related technical program at the PEG GM, T&D, ISGT and other venues.
- Develop the former Electrical Energy Storage Applications and Technology (ESSAT) into a standalone technical conference led by ESSB. This was a twenty year old conference that was supported by the US DOE and the ESA. We have set up an ad hoc committee to further explore the opportunity to take over this meeting and develop it as an ESSB-led annual event in 2022.
- Continue to grow the engagement with the ESSB Satellite Technical Committee – China.
- Continuing our excellent outreach work with tutorials

**Submitted by:**

**Babu Chalamala, ESSB Chair**  
**Steve Vechy, ESSB Vice Chair**  
**Jason Wallis, ESSB Secretary**

**Date: Jan 29, 2021**