

IEEE Power and Energy Society Entity Annual Report 2024

Entity: Energy Storage and Stationary Battery Committee (ESSB)

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

Chair: Steve Vechy

Vice-Chair: Jason Wallis

Secretary: Rich Hutchins

Immediate Past Chair: Babu Chalamala

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, GridEdge, T&D and EESAT, development of new standards in emerging areas, and a greater outreach to membership across all areas of energy storage and battery technologies.

Significant accomplishments include:

- ESSB Committee Winter and Summer general meetings were held in person and augmented with virtual attendance options. The committee hosted the Winter General Meeting in San Diego, CA from 1/31-2/2 and was collocated with the 2024 EESAT Conference. The Summer General Meeting was hosted at PNNL in Richland, WA and included a safety codes and standards symposium.
- ESSB hosted 5 panel sessions at the PES General Meeting in Seattle.
- The 2024 EESAT conference was held in San Diego Jan 29/30, 2024, in conjunction with the winter ESSB committee meeting.
- We continued the development of collaborations through the recently established Energy Storage Collaborative Team (ESCT)
- Outreach via the Safety Codes & Standards working group continues to support the development of key codes for NFPA, IFC, UL, and CSA.

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 related to energy storage, stationary batteries and charging systems. The committee is also a great avenue for outreach and engagement with utilities, 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 and charging infrastructure for the electrification of transportation, emerging long duration energy storage (LDES) applications, and a growing range of applications for stationary batteries in traction, UPS, and backup power applications. 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 ESSB Winter and Summer meetings. Both the meeting have seminars and tutorials providing opportunities for continuing education for members. The meetings also provide opportunities for knowledge-sharing, learning, and networking.
- 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 battery energy storage systems market.

4. Subcommittee Reports

ESSB has three subcommittees: Energy Storage (ES), Stationary Batteries (SB), and DC & Related Systems (DCRS). The China Satellite Chapter of ESSB also has a growing membership and technical programming to support member needs in China.

All three subcommittees support IEEE led standards development and have a number of Working Groups (WG) that are involved in developing standards and related activities.

Important standards related updates include:

- Currently managing close to 40 standards and projects
 - 26 active standards (including 3 entity standards)
 - 10 inactive standards
 - 20 approved PAR's
 - 5 documents in ballot stage – 1115, 1187, 1188, 1679.3, 2962

5. Meetings Update

ESSB Winter and Summer Meetings

The ESSB Winter General Meeting was collocated with EESAT in San Diego, CA, January 29 - February 2, 2024. The ESSB meeting was supported by Hindle Power, a power electronics (charger) manufacturer that focuses on electric utility applications. Here is the agenda for the meeting:

IEEE EESAT / ESSB Winter Meeting San Diego, CA Jan 31st - Feb 2nd 2024



Rev-07 Nov 3rd

Date	Time	Hrs	Great Room I, II, III, IV (150)		
Wednesday Jan 31, 2024	12:00pm - 4:00pm	4.00	Registration South Foyer		
	1:00 - 2:45pm	1.75	ESSB General Meeting		
	2:45 - 3:15pm	0.50	Subcommittee Reports: ES, SB, DCRS		
	3:15-3:45pm	0.50	Break South Foyer		
	3:45- 6:00pm	2.25	ESSB ESS Safety Codes and Standards Working Group Symposium		
Date	Time	Hrs	Courtyard I (60)	Courtyard II (60)	Brickstones (60)
Thursday Feb 1, 2024	7:00am - 4:00pm	8.00	Registration Courtyard Foyer		
	8:00 - 9:45am	1.75	1679.1 Characterize Li-Ion	1491 Monitoring	New Par/SG: Batt Risk Assessment New Par/SG: Worker Safety
	9:45 - 10:15am	0.50	Break (The Deck)		
	10:15am-12:00pm	1.75	1679.4 Characterize Alkaline	946 DC Systems	1635 Ventillation
	12:00 - 1:30pm	1.50	Lunch		
	1:30 - 3:15pm	1.75	3163 Li-Ion Sizing	Nuclear WG	2685 Engine Start
	3:15 - 3:45PM	0.50	Break (The Deck)		
	3:45 - 4:45pm	1.00	2962 Li-Ion Installation	485 Sizing Pb	
	5:00 - 6:00pm	1.00	2962 Li-Ion Installation	1115 Sizing NiCd	
Friday Feb 2, 2024	7:00am - 11:00am	4.00	Registration Courtyard Foyer		
	8:00 - 9:45am	1.75	2688 ESMS	3189 Outdoor Enclosures	1561 Pb Remote Hybrid
			2688 ESMS	3189 Outdoor Enclosures	1361 Pb Selecting, testing in PV
	9:45 - 10:15am	0.50	Break (The Deck)		
	10:15am-12:00pm	1.75	2686 BMS	1187 VRLA Installation	1881 Glossary
	12:00 - 1:00pm	1.00	Wrap-Up meeting		

The Summer General Meeting of ESSB was held at PNNL in Richland WA from July 15-18, 2024. It was locally supported by PNNL.

Here is the agenda for the meeting:

Date			PNNL Discovery Hall		
	Time	Hrs	Horizon A, B	Horizon C	Horizon D, E
Tuesday Jul 16, 2024	7:30am - 4:00pm	7.50	Registration - Lobby		
	8:00 - 9:45am	1.75	ESSB General Meeting		
			Subcommittee Reports: ES, SB, DCRS		
	9:45 - 10:15am	0.50	Break - Lobby		
	10:15am - 1:00pm	2.75	ESSB ESS Safety Codes and Standards Working Group Symposium		
	1:00 - 2:00pm	1.00	Lunch - Lobby (provided)		
	2:00 - 3:15pm	1.25	Codes	1679.3 Flow Batteries	1635 Ventillation/Thermal Management
	3:15 - 3:45PM	0.50	Break - Lobby		
Wednesday Jul 17, 2024	3:45 - 5:00pm	1.25	Codes	1679.3 Flow Batteries	1657 Personnel Qualification for Maint
	6:00 - 9:00pm	3.00	Dinner Cruise		
	7:30am - 4:00pm	7.50	Registration - Lobby		
	8:00 - 9:45am	1.75	1881 Glossary	946 DC Systems	1189 Battery Selection
	9:45 - 10:15am	0.50	Break - Lobby		
	10:15am - 12:00pm	1.75	1679.4 Characterization of Alkaline	946 DC Systems	450 Maintenance/Testing of VLA
	12:00 - 1:00pm	1.00	Lunch - Lobby (provided)		
	1:00 - 2:45pm	1.75	1561 Resources in Hybrid Power	2686 Battery Management Systems	Nuclear WG
Thursday Jul 18, 2024	2:45 - 3:15PM	0.50	Break - Lobby		
	3:15 - 5:00pm	1.75		2688 ES Management Systems	1188 Maintenance/Testing of VRLA
	7:30 - 11:00am	3.50	Registration - Lobby		
	8:00 - 9:45am	1.75	3163 Sizing Lithium Batteries	1361 Chrg/Test Lead Batt for PV	2685 Engine Start
	9:45 - 10:15am	0.50	Break - Lobby		
	10:15am - 12:00pm	1.75	1115 Sizing Nickel-Cadmium	3434 IOM for Grid Connected ES	1491 Battery Monitoring
	12:00 - 1:00pm	1.00	Lunch - Lobby (provided)		
	1:00 - 2:00pm	1.00	Wrap-Up meeting		

The agenda also included two, 2-hour technical symposia on Advanced Lead Acid Battery Developments and Monitoring and Diagnostics of Energy Storage Systems

7. 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.

The joint IEEE-SA SC(C) 21 and ESSB collaboration called the ESCT liaised with other SDO committees on energy storage, including IEEE PES's RSICC, the IEEE IAS DataCenter Energy Storage committee, IEC TC120, EPRI, MESA SunSpec, and the ASME ESS committee.

8. 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:

- Long duration energy storage is an emerging area of interest
- Fast charging and the role of energy storage in charging infrastructure
- Data standards for ESS: Work has begun with EPRI to start work on a PAR to issue portions of their joint EPRI/Sandia data guide as an IEEE standard. This will hopefully be the first of many such collaborations between EPRI and ESSB.

9. **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.

10. **Problems and Concerns:**

ESSB WG leadership is primarily led by members in US. We anticipate significant growth in new standards activities from the ESSB Satellite Committee – China. We also see opportunity to bring new members from other regions outside the US. Finding additional volunteer leaders to support the expected growth is challenging.

11. **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 PES GM, T&D, ISGT, GridEdge and other venues.
- Continue to grow the Electrical Energy Storage Applications and Technology (ESSAT) as the preeminent technical conference on energy storage.
- Continue to grow the engagement with the ESSB Satellite Technical Committee – China.
- Continuing our excellent outreach work with Safety Codes & Standards working group



Submitted by:
Steve Vechy, ESSB Chair
Jason Wallis, ESSB Vice Chair
Rich Hutchins, ESSB Secretary

Date: Feb 11, 2025