

## PSCC Subcommittee S0 Meeting Minutes

Designation: S0		Name: Cybersecurity			
Meeting Location: Teleconference		Meeting Time: 09:00 AM	Meeting Date: 2021/09/24	Minutes Revised:	Minutes Approved: 2022/01/12
PAR Output: N/A	PAR Output: N/A	PAR Approval Date: N/A	PAR Expiration Date: N/A	Target Sponsor Ballot Date: N/A	Target Completion Date: N/A
Presiding Officer: Scott Mix (Chair), Theo Laughner (Vice-Chair)			Recorded by: Theo Laughner	Draft Number: N/A	
Attendance:					
Name		Affiliation		Attending via Phone (P) / Web (W) or Local (L) M/CM/G	
Scott Mix		PNNL		W	M
Theo Laughner		Lifescala Analytics		W	M
Jay Anderson		ComEd - Exelon Corp		W	M
James Bougie		GPT		W	M
Eugenio Carvalheira		Omicron		W	M
TW Cease		Consultant		W	M
Mike Dood		SEL		W	M
James Formea		Eaton		W	M
Didier Giarratano		Schnieder		W	M
Shane Haveron		Ametek		W	M
Dennis Holstein		Opus Consulting Group		W	M
Chris Huntley		SEL		W	M
Anthony Johnson		SCE		W	M
R. Benjamin Kazimier		Bender Inc.		W	M
Steve Kunsman		Hitachi ABB Power Grids		W	M
Marc Lacroix		EMCREY Canada		W	M
Ryan Newell		TRC		W	M
Jeff Pack		Power Engineers		W	M
Craig Preuss		B&V		W	M
Shashi Sastry		Hitachi ABB Power Grids		W	M
Eric Thibodeau		Hydro Quebec		W	M
Nathan Wallace		Ampirical		W	M
Laurel Brandt				W	G
Jeff Dagle				W	G
Samir Darbali				W	G
David Dolezilek				W	G
Kevin Donahoe				W	G
Jalal Gohari				W	G
Colin Gordon				W	G
Jay Herman				W	G
Priyanka Nadkar				W	G

Gayle Nelms		W	G
Dan Nordell	Xcel Energy	W	G
Madhab Paudel		W	G
Jose Ruiz		W	G
Andre Smit		W	G
Deryk Yuill		W	G
M: Member CM: Corresponding Member G: Guest			

Item no.	Notes	Action by
<b>CALL TO ORDER</b>	Called to order at 9:04 ET.	Scott Mix
<b>INTRODUCTIONS AND QUORUM</b>	Quorum was established by Theo Laughner via Webex Participant List. Introductions were not conducted in the interest of time. A total of 39 present with 22/28 members and 17 guests.	Scott Mix/Theo Laughner
<b>CALL FOR PATENTS</b>	N/A.	Scott Mix
<b>CHAIR'S REMARKS</b>		Scott Mix
<b>AGENDA APPROVAL</b>	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Roll Call/Quorum</li> <li>3. Approval of Agenda</li> <li>4. Approval of Previous Minutes</li> <li>5. S0 SC Working Group/Study Group/Task Force Summary &amp; Status</li> <li>6. Old Business</li> <li>7. New Business</li> <li>8. Announcements</li> <li>9. Adjournment</li> </ol>	Scott Mix Motion: Tony Johnson Second: Eric Thibodeau. <b>Motion Passes</b>
<b>APPROVAL OF PREVIOUS MINUTES</b>	Approval of May 2021 Minutes of Meeting (Included with agenda package)	Scott Mix Motion: Jay Anderson Second: Tony Johnson <b>Motion Passes</b>

Item no.	Notes	Action by
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status</b></p>	<p>WG S1: Revision of IEEE 1686 IED Cyber Security Capabilities                      Chair: Marc Lacroix Vice-chair: Éric Thibodeau Secretary:                      Scope: The standard defines the functions and features to be provided in intelligent electronic devices (IEDs) to accommodate cybersecurity programs. The standard addresses security regarding the access, operation, configuration, firmware revision and data retrieval from an IED. Confidentiality, integrity and availability of external interfaces of the IED is also addressed.                      Status:                      •S1 met on Monday at 10:20 AM CST with 11 members out of 15, 2 corresponding members and 22 guests. Quorum was met.                      •First ballot round was closed at the beginning of August with 103 members on the pool. Return rate was of 84% and approval rate of 85% among returns. 12 disapprove votes with comments were received.                      •The Working group constituted a Ballot Resolution Group composed of 7 members of the committee. They will answer the comments and review the draft.                      •In parallel, the working group wants to present a motion to S0 to create a new task force to investigate the ways software and hardware traceability could be improved for utilities.</p> <p>Next Meeting Requirements: [Room Size=35]                      [Projector=Yes][Telecom=Yes][Conflicts= all S]</p>	<p>Marc Lacroix</p>
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>WG S2: P1711.1 Serial SCADA Protection Protocol (SSPP)                      Chair: Ed Cenzone Vice-chair: VACANT Secretary:                      Scope: This standard defines the Substation Serial Protection Protocol (SSPP), a cryptographic protocol to provide integrity, and optional confidentiality, for cyber security of substation serial links. It does not address specific applications or hardware implementations, and is independent of the underlying communications protocol.                      Status:                      •Meeting held Tuesday 9/21 2:20PM – 3:20PM                      •6 in attendance: 4 members (out of 10) and 2 guests, so quorum was not met. Still looking for VC and Sec.                      •Discussed possibility of extending PAR for 1711.1 which expires this year. Members present decided to hold a meeting in 2 weeks to discuss and vote. If approved, will send request to S0 in time for RevCom 10/25 meeting.                      •P1711.1 draft revised during the meeting. Updates will be uploaded to iMeet Central.                      •One new Member was added during the meeting.</p> <p>Next Meeting Requirements: [Room Size=25]                      [Projector=Yes][Telecom=Yes][Conflicts=]</p>	<p>Scott Mix</p>

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<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>WG S5: Revision of IEEE C37.240 Cybersecurity Requirements for Power System Automation, Protection and Control Systems                      Chair: Steve Kunsman Vice-chair: TW Cease Secretary:                      Scope: Revision of IEEE C37.240 to included new technical requirements for power system cyber security. Based on sound engineering practices, requirements can be applied to achieve high levels of cyber security of automation, protection and control systems independent of voltage level or criticality of cyber assets.                      Status:                      •WG S5 met on Tuesday September 21, 2021 @16:40 CST not achieving a quorum with 29 participants (14 of 28 members and 15 guests)                      •The group continued the meeting as an informational sharing session                      •Reviewed the document structure and requirements numbering schema presented by Craig Preuss                      •Document numbering schema target availability by end of October 2021                      •Reviewed document writing assignments with section owners and contributing authors as well solicited group for additional volunteers                      •Discussed the Section 11 on Recover requirements and whether the controls need to be fully restored after a cyber incident before the energizing the system                      •After the dialog, it was recommended concluded that for the electric grid, Availability is the priority and service restoration should be allowed as cyber security controls are restored                      •The WG plans to meet at the end of October 2021 to review the finalized document numbering schema and discuss the initial section writing assignments                      •Briefly discussed Dept of Energy’s Securing Energy Infrastructure activity and their development of Reference Architectures with electric utility use cases that will enter discussion with ISA for potential Profiles supporting IEC 62443-3-3                      •The Securing Energy Infrastructure output plans to be ready for socialization in the January timeframe. This could be a special interest topic for the PSCCC Main Committee meeting</p> <p>Next Meeting Requirements: [Room Size=40]                      [Projector=Yes][Telecom=Yes][Conflicts= ]</p>	<p>Steve Kunsman</p>
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>WG S7: P2808 Function Designations used in Electrical Power Systems for Cyber Services and Cybersecurity                      Chair: Nathan Wallace Vice-chair: Mike Dood Secretary: Deepak Maragal                      Scope: This standard applies to the definition of function designations for cyber related services, and cybersecurity controls and measures used to detect, identify, protect from, respond to, and recover from, security threats to electric power systems. These designations apply to the design, procurement, and operation of electric power systems. This standard also provides examples of how to represent systems using these designations.                      Status:                      •Attendance: 17 Total, 8 Members, 9 Guests; Quorum achieved                      •Summary: Continuing to work on draft. WG decided to normatively define Drawing Sets that offer implementation examples of how cyber services and designations can be used and the minimum content of the drawings that would be in those sets.                      •Future Meetings: Doodle poll will be going out to setup series of fall meetings, JTCM</p> <p>Next Meeting Requirements: [Room Size=40]                      [Projector=Yes][Telecom=Yes][Conflicts= all S]</p>	<p>Nathan Wallace</p>

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<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>WG S8: P2658 Guide for Cybersecurity Testing in Electric Power Systems                      Chair: Nathan Wallace Vice-chair: Deepak Maragal Secretary:                      Scope: This document provides test guidance for cybersecurity controls used in electric power systems. The guide encompasses testing and verification of cybersecurity services, applications, and controls, including end-to-end testing.                      Status:                      •Attendance: 15 Total, 6 Members, 9 Guests; Quorum not achieved                      •Summary: Continuing to work on draft. WG is taking a Framework approach following assets across the entire lifecycle and outlining what cyber tests are performed. WG will be deciding at the JTCM the need to possibly submit a PAR extension.                      •Future Meetings: Dec 3rd 2021, JTCM                      Next Meeting Requirements: [Room Size=40]                      [Projector=Yes][Telecom=Yes][Conflicts= all S]</p>	<p>Nathan Wallace</p>
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>TF S9: Task Force on Utility IT-OT Cybersecurity challenges in roles and terminology                      Chair: Theo Laughner Vice-chair: Brian Smith Secretary:                      Scope: Assess the IT-OT challenge in Utility Cybersecurity roles. Determine if a Task Force is required to create a report to assist in building organizational understanding and collaboration                      Status: The chair presented slides covering the progress and status of the S9 Task Force report                      •5 Members were present with a total of 27 attendees                      •Reviewed all Chapter content documented in the IT/OT Convergence Report                      •Report is in in the final stages with a plan to complete by the end of the year Executive Summary                      •Jeff Shiles (SCE) provided comments as the Executive Sponsor and insured alignment with SCE’s path forward                      Next Steps                      •Migrate document to Working Group format                      •Next document instance due in 4-6 weeks                      •Working Group members to sign-off and submit to S0 Subcommittee for publishing/review                      •Continue outreach with other Working Group Committees                      •CIGRE                      •IEEE Cyber groups                      •IET DPSP working groups                      •Construct a presentation for socialization and instructional use of final report material                      •Schedule separate follow-up meeting with all members on Nov 9th @ 2:00 PM ET to review/finalize document                      Next Meeting Requirements: [Room Size=40]                      [Projector=Yes][Telecom=Yes][Conflicts= all S, H40]</p>	<p>Theo Laughner</p>

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<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>TF S10: Utility &amp; Municipality Challenges on Analyzing and Implementing Cybersecurity Standards and Best Practices                      Chair: Jeff Pack Vice-chair: Steve Mark Secretary:                      Scope: Assess the challenge in utilities &amp; municipalities with limited resources on the applicability and relevance of the cybersecurity standards and create a report to assist summarizing the relevant cybersecurity standards.                      Status:                      •Meeting started on time at 2:10 P.M. CDT with 23 attendees from the WebEx report.                      •Five members were in attendance, so quorum was achieved.                      •May 2021 minutes were reviewed and approved via vote.                      •Discussion focused on finishing the sections of the report. The chair noted the lack of progress made by him and offered praise to Dennis Holstein for adding content on his sections.                      •There are two sections that are unassigned, but the chair will take those on to get the draft completed by the January meeting.                      •Holstein mentioned using IEEE Draft Standard 7005 to address privacy issues if it is available for reference. Need to check with standards liaison.                      •Additional 7005 discussing included ICS and EU GDPR, state and local regulation                      •Holstein asked about IEC 61850 adoption.                      •Anthony Johnson discussed SCE’s approach and the chair mentioned his interaction with clients – overall, it is being adopted, but not as rapidly as one would expect.                      •The chair stated that he would try and schedule a working session before the holiday season. Mix mentioned that many other subcommittees were planning the same thing, so it should be scheduled now.                      •Meeting was adjourned at 3:03 P.M. CDT</p> <p>Next Meeting Requirements: [Room Size=40]                      [Projector=Yes][Telecom=No][Conflicts= all S]</p>	<p>Jeff Pack</p>
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>WG S13: Review 1547.3 Guide for Cybersecurity of DERs Interface with Electric Power Systems                      Chair: Tony Johnson Vice-chair: R. Benjamin Kazimier Secretary:                      Scope: To jointly develop 1547.3 with SCC21.                      Status:                      •Met: Tuesday 9:30 AM with 19 people                      •October 13 &amp; 14 IEEE 1547.3 Dedicated meeting                      •The plan is to go to ballot from this meeting                      •Please use either link to register                      • <a href="#">Registration Link 1</a>                      • <a href="#">Registration Link 2</a></p> <p>Next Meeting Requirements: [Room Size=25]                      [Projector=Yes][Telecom=Yes][Conflicts=]</p>	<p>Tony Johnson</p>

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<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>WG S15: IEEE Guide for Securing Generic Object Oriented System Events (GOOSE) and Sampled Values (SV) Protocols of IEC 61850 using IEC 62351-6 and IEC 62351-9                      Chair: Jay Anderson Vice-chair: Shane Haveron Secretary: Dean Ouellette                      Scope: This guide provides information for suppliers and implementors on applying security from the most recently published versions of IEC 62351-6 and IEC 62351-9 to GOOSE (IEC 61850-8-1), R-GOOSE (IEC 61850-8-1), SV (IEC 61869-9), or R-SV (IEC 61850-9-2) protocols.                      Status:                      •16 Members, 5 Non-voting members, 17 Guests                      •Scope was reviewed; based on the PAR, a suggestion to include other non-62351-6 and -9 security models was deemed out-of-scope                      •Members need to familiarize themselves with IEC 62351-6 and -9                      •Discussed potential impact of 62351 authentication and encryption on GOOSE/SV performance (Latency and Jitter)                      •Introductory discussion on encryption methods (hardware/software)                      •Will try to reference performance bounds developed in IEEE 1646                      •Will hold a November meeting to try to start laying out an outline                       Next Meeting Requirements: [Room Size=45]                      [Projector=Yes][Telecom=Yes][Conflicts= P1, H50, and H44].</p>	<p>Jay Anderson</p>
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>TF S14: Task Force on using TLS in Power System Applications                      Chair: Shashi Sastry Vice-chair: Secretary:                      Scope: Develop a report on the implementation of TLS for usage in legacy (e.g. SCADA) and emerging (e.g. DER) power system applications                      Status:                      •Meeting started at 11.35 a.m. CT on Monday 9/20/2021 with 22 attendees                      •Reviewed the May 2021 meeting discussion with focus on moving SG S14 to a Task Force                      •Reviewed the goals of SG S14: Write a report on TLS with focus on Power Systems Applications                      •Reviewed topics to include in the report and developed the proposed Task Force assignment                      •SG approved the motion to request S0 SC approval to move S14 into a Task Force. The request has been made to S0 officer to discuss the below proposal under SC New Items.                       Next Meeting Requirements: [Room Size=30]                      [Projector=Yes][Telecom=Yes][Conflicts=]</p>	<p>Shashi Sastry</p>
<p><b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b></p>	<p>SG S16: Study Group on Application of IDS and IPS to Electric Power Systems                      Chair: Eugenio Carvalheira Vice-chair: Eric Thibodeau Secretary:                      Scope: tbd                      Status:                      •S16 met on Tuesday September 21 at 8:00 AM CDT with 15 attendees (all members for study group purposes).                      •The SG reviewed and approved meeting minutes for the May 04 and September 02 meetings. SG reached a consensus to propose the formation of a Task Force to produce a report and agreed on a title and scope to be submitted to the S0 SC.                      •The SG approved the motion to request S0 SC approval to move S16 into a Task Force.                       Next Meeting Requirements: [Room Size=25]                      [Projector=Yes][Telecom=Yes][Conflicts=??]</p>	<p>Eugenio Carvalheira</p>

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<b>S0 SC Working Group/Study Group/Task Force Summary &amp; Status (Continued)</b>	The following committees are currently inactive and there were no reports: S3, S4, S6, S11, S12	
<b>Old Business</b>	Award Committee Report	Scott Mix
<b>New Business Item A</b>	Announcement - Virtual Meeting of S0 to approve 1711.1 PAR extension October 8 at 2:00 PM EDT.	Scott Mix
<b>New Business Item B</b>	<p>Motion to create TF S17 upon recommendation of S1, Chair: Eric Thibodeau, Vice-Chair: Marc Lacroix, Secretary: TBD, Scope: TBD, Status: TBD.</p> <p>This task force would investigate the ways software and hardware traceability could be improved for utilities. The focus will be on provenance and software-Bill of Materials. Supply chain risk management. Task force output will be a report.</p> <p>Discussion regarding what exactly would be tracked and other industry groups (DOE/INL) doing this kind of work.</p> <p>Next meeting requirements: [Room Size=25][Projector=Yes][Telecom=Yes][Conflicts=??]</p>	<p>Tabled</p> <p>Eric/Marc need to revise scope, status, and output.</p>



Item no.	Notes	Action by
<p><b>New Business Item C</b></p>	<p>Motion to move S16 from SG to TF Eugenio described TF activities associated with the new TF.</p> <p>Title: Systems for Detecting and Preventing Network Intrusions in Electric Power Systems</p> <p>Scope: This task force will be investigating the current state of the art for network Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS) used in Electric Power Systems (EPS). The report from the task force will have to document the different existing methods to perform detections. These include, but are not limited to, monitoring the associations between transmitters and receivers on the network, detailing the types of protocols used, recognizing signatures inside data packets, comparison to a baseline of existing traffic, etc. For prevention purposes, the task force should focus on active systems that can shut down a network intrusion under way. This excludes already well covered countermeasures like IED hardening, firewalls, network diodes, etc.</p> <p>The report will cover typical setups used to put in place network IDS/IPS solutions. It will provide different examples of topologies in place in utilities. Typical setups could be placed within the substation, between substations, in distribution, at the control center. Network intrusion data could be reported to a defined interface to handle alarms.</p> <p>The challenges of handling alarms should also be covered. This is particularly important since false alarms could be triggered by legit but unusual events. For example, temporary access (e.g. firewall configuration change), maintenance activities or controls on seldom used equipment (e.g. transfer busbar) could raise alarms. Acting on false alarms could in turn lead to loss of service to customers.</p> <p>The report of the task group should clarify the OT needs regarding network intrusion. It should help IT understand the OT requirements for these technologies. It should also cover the implications those systems have on EPS.</p> <p>Expected Duration: 2 years.</p> <p>Proposed officers: Chair: Eugenio Carvalheira; Vice-chair: Eric Thibodeau</p>	<p>Motion: Tony Johnson Second: Nathan Wallace <b>Motion Carries.</b></p>

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<p><b>Comments Captured From Webex Chat</b></p>	<p>from Eric Thibodeau to everyone: 9:05 AM            Sorry for being late, had trouble connecting            from Nathan Wallace to everyone: 9:19 AM            IEC 62443-3-3:2013            Industrial communication networks - Network and system security - Part 3-3:            System security requirements and security levels            from Nathan Wallace to everyone: 9:19 AM  <a href="https://webstore.iec.ch/publication/7033">https://webstore.iec.ch/publication/7033</a>            to Scott Mix - PNNL (privately): 9:22 AM            We need to move forward on the agenda.            from Shashi Sastry to everyone: 9:35 AM            same problem as last time. Audio            from Benjamin Kazimier to everyone: 9:35 AM            you can click the three dots, change audio, and have it call your phone to be            directly connected to the meeting.            from Benjamin Kazimier to everyone: 9:36 AM            I have had weird issues with computer audio in the past and had to change to            call-me option quite a few times myself            from Jay Anderson - ComEd to everyone: 9:49 AM            Is there a way to pre-vote? May be out of town            from Jay Anderson - ComEd to everyone: 9:49 AM            I'll try to call in            to Scott Mix - PNNL (privately): 10:10 AM            We have 5 minutes left.            from James Formea to everyone: 10:13 AM            Sorry, I walked away for 2 minutes. Did I miss a vote on the new TF creation?            from Anthony Johnson SCE to everyone: 10:13 AM            Told them to come back in Jan            from Theo Laughner to everyone: 10:13 AM            @James, we tabled that vote.            from James Formea to everyone: 10:14 AM            Thanks.</p>	<p>All</p>

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<b>Announcements</b>	<p>a. PNNL RIVVR Webinar Follow-up PNNL is reviewing ways to make the recording of the webinar available to PSCCC members. Members can contact Seemita Pal at seemita.pal@pnnl.gov if they are interested in more information, are willing to test the tool, or wish to view the video.</p> <p>b. Roster Cleanup for non-participating members (notice must be provided to non-participating members well ahead of removing them).</p> <p>c. 123Signup Retirement and Replacement (??)</p> <p>d. Chairs must provide full meeting minutes within 2 weeks (by 10/08/2021).</p> <p>e. Meeting Minutes (draft .doc and approved .pdf) are to be uploaded to the PSCC Committee iMeet site in addition to individual SG/WG/TF sites.</p> <p>f. Meeting notice and WG/TF/SG agenda to be sent to sub-group members and SO Chair two weeks prior to any meeting.</p> <p>g. Newly formed WG and TF (i.e., those migrated from SG) should issue a call for participation and establish a roster by the conclusion of their next meeting.</p> <p>h. All sub-groups are expected to have Vice Chairs. Secretaries are optional (Vice Chair assumes role of Secretary if none).</p> <p>i. Working Group chairs (standards activity) are encouraged to take IEEE SA training for WG Officers.</p> <p>j. Reminder: Task Forces also need to manage membership and have quorum to approve minutes, and at the completion of their task to approve the reports out of the TF to go to the subcommittee.</p> <p>k. If anyone has published a paper in an IEEE Transactions journal, let the chair know so that it can be considered for an award.</p>	Scott Mix
<b>TIME OF FINAL ADJOURNMENT</b>	10:24 Eastern Time	Motion: Eric Thibodeau Second: Tony Johnson
<b>NEXT FACE TO FACE MEETINGS</b>	October 8 JTCM January	
<b>FUTURE MEETING ROOM REQUIREMENTS</b>	[Room Size][Projector][Conflicts]	