



Committee Meeting Minutes

Codes & Standards

Committee Meeting Objective: Report, discuss, and learn about the latest updates in national codes and standards affecting the EGSA members.

Date and Time: Monday, September 24, 2018
Location: Nashville, TN – Room: Ryman MNO
Time: 1:00 - 5:00p.m.
Chairperson: Robert Simmons

Preparation

Following may be helpful in preparation:

- Read spring meeting minutes
- Read article “Generator Set Compliance with IEEE Standard 1547”, by Marcelo Algrain, Phd, in the Q3 Powerline Journal.
- Read latest NFPA 110, 8.3.7 and see proposed revision to NFPA 110, section 8.3.7 in Attachment A at the end of this agenda
- Attachment B Herb’s report on NFPA 99 meeting

Schedule

Item	Description	Conclusion
<i>Welcome -Meet your 2018 Leadership Team</i>	Robert Simmons	Complete
<i>Review Committee Initiatives</i>	Robert Simmons	Complete
<i>Review Mission statement, and initiatives of the C&SS committee</i>	Robert Simmons	Complete
<i>Review and update of membership</i>	Jeff Jonas Request any information relative to changes in personnel data from attendees	Complete
<i>Meeting minutes from the Spring conference in Albuquerque, NM</i>	Jeff Jonas Request any amendment to minutes previously distributed and move to accept as appropriate	Presented. Motion made to accept and seconded. Passed unanimously.

<p><i>Presentation from Diesel fuel working group. (NFPA 110)</i></p>	<p>Michelle Hilger See proposal made to NFPA110 regarding fuel testing (below Attachment A). There will be report/discussion on the status of latest proposal.</p>	<p>Michelle and Jeff P. presented the TIA that was submitted to the NFPA. Currently at the Correlating committee. Currently only requires 1 fuel sample per year. Committee said it is failing but does not mean it will fail.</p> <p>ASHE has determined that this is not necessary. Extra work. ASHE members have been asked to register a negative e-mail. Current requirements are adequate. Changing fuel to a part of the generating system not just a commodity. The goal is proper fuel management as it leads to proper maintenance of power generation. Michelle attended ASTM conference. Thanked EGSA for their support.</p> <p>Fuels institute is another organization out there. They do more work with truck fuels. Contaminated fuel can affect the engine warranty. Nothing for members to do at this time with NFPA directly but speak to hospital operators.</p>
<p><i>IEEE 1547- Presentation on Generator compliance with latest IEEE1547</i></p>	<p>Marcelo Algrain, Phd to present on IEEE1547 important revisions in 2018 version</p>	<p>2018 version is out but not being enforced. 2003 version r2014 is being used still. Working on 1547.1 testing standard. H1 2019' refer to article in Powerline Q3 version or on EGSA website. Need to influence codes to exempt standby units. IEEE 1547 is a part of the federal energy act. International front is complete. Does not apply to 100ms connection systems (CTTS). Does not apply to DER that is only operated in parallel to grid for testing purposes, no more than 30 times per year or load transfers not to exceed 5 minutes.</p> <p>Written to be not equipment specific. Discussed category I, II or III.</p> <p>Some development for engine generator controls may be required. Nothing difficult but some not available now.</p> <p>Utility will dictate generator operation over a communication link. DER interface protocols (3). Islanding detection is required many options available.</p>
<p><i>IEEE 1547/UL 1741/ UL 2200 - Discussion Panel</i></p>	<p>Jeff Jonas- Moderator: Experts from NRTLs and manufactures discuss important effects of the 2018 changes to IEEE 1547.</p>	<p>Dean Weigand, Tim Zgonena, Marcelo Algrain, Rick George.</p>

<p>IEEE 1547 1547.1a <i>Standard Test Procedures for Distributed Resources</i> IEEE 1547.3 – “Draft Guide for Monitoring Information Exchange and Control of DR Interconnected with EPS” IEEE 1547.4 – <i>Standard for Design, Operation, and Integration of Distributed Resource Island System with Electric Power Systems.</i>” 1547.5 IEEE 1547.6– “Draft Recommended Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks.” IEEE 1547.7 IEEE 1547.8 – <i>Extended Use of IEEE 1547 Voltage and Frequency Ride through Requirements</i></p>	<p>Herb Daugherty: Open discussion on any changes to the 1547 series</p>	<p>No action. Information was covered by the IEEE 1547 discussion above.</p>
<p>ISO Tech Committee TC 70: <i>Internal Combustion Engines</i> ISO 8528-1(2018): <i>Reciprocating internal combustion engine driven alternating current generating sets - Part 1: Application, ratings and performance</i> ISO 8528-2: <i>Part 2 Engines (2018)</i> ISO 8528-3: <i>Part 3 Alternating Current generators (2005)</i> ISO 8528-4: <i>Part 4 Control gear and switchgear(2005)</i> ISO 8528-5: <i>Part 5 Generator Sets (2013).</i> ISO 8528-6 to -13 ISO 15619(2013): <i>Reciprocating Internal combustion engines – Measurement procedure for exhaust silencers – Sound power level of exhaust noise and insertion loss using sound pressure level and power loss ratio</i></p>	<p>Brian Ponstein will give brief presentation on 2018 version of ISO 8528-1.</p> <p>General report and discussion of any updates to Standards under TC70</p>	<p>ISO 8528-1 update this last summer. Work with TOC committee to come up with best practices. 4 ratings now 6. data center rating and maximum power for low-power generating sets. Updated to prime rating-added 10% overload. Discussed with group. Best practices sound discussion. Gathered data from member organizations. Next step; CS&S-create document “industry recommendation” and possibly update ISO 8528-10. CS&S working group proposed. B&S group willing to make a presentation at a future meeting and support working group. Robert made a motion to establish a working group and Dean W. seconded, motion carried. EGSA board will need to approve.</p>

<p><i>Working Group update-Steve Sappington, UL 2200</i></p>	<p>Jeff Jonas</p>	<p>ULC2200, good for north America (Canada, US and Mexico) likely be put out to vote in the next 4-6 weeks. Tim Z., Tim E. and George Langton of UL attended. Good to have them there.</p>
<p><i>IBC, ASCE, BSSC, Seismic certification Working Group</i></p>	<p>Leader: Robert Simmons Report on update in the ASCE 7-16. What can EGSA members do to affect the process. Progress on update and conversion to code language of EGSA best practice for seismic certification.</p>	<p>Robert Simmons attended the first meeting of ASCE TS8 2022 cycle representing EGSA. ASCE TS8 writes the ASCE -7 Standard which provides wind and seismic requirements for Gensets and components. IBC 2018 is the current edition of International Building Code. Check local jurisdictions for adoption. Most are still on the 2012 or 2015 edition. But jurisdictions will begin to adopt the latest. IBC references the ASCE -7 for the Wind and Seismic requirements. ASCE is on a 6 year cycle (2005, 2010, 2016, 2022). The IBC 2012 and 2015 both reference ASCE 7-10. The seismic requirements are essentially the same in ASCE 7-05 and ASCE 7-10. Thus the seismic requirements for EGSA member products are the same. The ASCE 7-16 made some changes that affect the applied load and anchorage requirements. The IBC 2018 adopted ASCE 7-16. So if your project is in a jurisdiction that has adopted IBC 2018, make sure you use ASCE 7-16. The ASCE 7-22 cycle will have major changes to the formula used to calculate the seismic load. No effect for now, but we will keep members posted. Note, now is the time to make any changes to the ASCE. Please feel free to submit any comments or proposals on the current ASCE 7-16 to Robert Simmons, "res@seismic-source.com" for submittal in the 2022 cycle.</p>
<p><i>UL2201 (Portable Generators)</i></p>	<p>Jeff Jonas</p>	<p>Nothing new.</p>
<p><i>UL1008</i></p>	<p>Herb Daugherty, Jeff Jonas</p>	<p>Nothing new.</p>
<p><i>UL 6200</i></p>	<p>Jeff Jonas</p>	<p>1st revision of standard is out for vote. Due on 10/28. Likely will become a standard after the comments are addressed.</p>
<p><i>UL 1778 Uninterruptable Power Systems 2nd Edition</i></p>	<p>Robert Simmons Call for EGSA liaison, Open discussion</p>	<p>No volunteers for liaison position. Group felt it was useful to keep it on our list of supported standards.</p>

<i>NFPA 110, 111</i>	Herb Daugherty, James Hunt, Michelle Hilger	Nothing to add. (See diesel fuel TIA discussion above).
<i>NFPA 99</i>	Herb Daugherty, Brad Affeldt	Herb gave the highlights of his report. (See attachment B)
<i>NFPA Correlating Committee</i>	Ron Schroeder	Next meeting is December 5 th .
<i>NFPA 70 (NEC) Panel 13</i>	Herb Daugherty, Jeff Jonas	Herb felt no representation. Steve will take to board. Herb D. is to be principal. Jeff Jonas is alternate and will attend 2 nd draft meeting in October.
<i>NFPA 37</i>	Keith Page, Herb Daugherty	Nothing new.
<i>IEEE 3000 Series (Color Books)</i>	Herb Daugherty	Nothing new.
<i>NECA: National Electrical Contractors Association</i>	New Standard out – any volunteers for liaison?	None. Will continue to monitor.
<i>PGMA</i>	Jeff Jonas	PGMA G300 standard was revised and put out for vote in the spring of this year. Vote passed and standard was released. CO monitoring and shutdown requirements are now a part of the standard.
<i>Gulf Region/Middle East Activity</i>	Brad Affeldt	No report in Brad's absence.
<i>Any Important News on Major EGSA Initiatives from other Committees</i>	Robert Simmons	None other the ones mentioned above.

<p><i>Any New Business: Member feedback - What questions are most pressing, needed training or presentations.</i></p>	<p>Robert Simmons</p>	<ol style="list-style-type: none"> 1. State of Massachusetts gas appliance registration process. Presentation from them at a future meeting? 2. California Energy Commission-CEC. Battery charger requirements are real. Discussed briefly. Lead to a discussion of how to get these regional codes distributed make people aware of it. Robert started a spreadsheet. Steve S. would like to see it on Discussed briefly. Possibly on the EGSA website, in the members only section. Possibly a FAQ format. URL link to the actual code. 3. Add IAEL member liaison. Ron Schroeder volunteered to represent EGSA. 4. Questionnaire on UL2200 then a panel discussion. NRTL, manufacturers, AHJ, and enclosure manufacturers. 5. Suggestion for next meeting. Invite the Chief electrical inspector from Austin, TX to present on electrical inspections in general. Communication center, and hospitals. What codes and standards are being referenced? Panel discussion (Manufacturer, enclosure manufacturers, engineers, or?? or just questions? 6. Steve Sappington mentioned that the P1019 FEMA document is worth reviewing
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Adjourn	Robert Simmons Receive motion and vote on adjournment	Adjourned at 4:40pm
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Action Items *(additional space on back)*

Item	Person Responsible	Deadline
Working group request (sound measurement for enclosures) to EGSA board	Steve Sappington	TBD
Spreadsheet of regional codes and registrations	Robert Simmons	TBD

Codes and Standards Surveillance Committee Mission Statement:

Represents EGSA and its members' interests on select national and international industry codes and standards committees and reports back to the membership through *Powerline* magazine, Committee meetings, Action Alerts, and e-mail blasts. The Committee also:

- Develops recommendations and provides action regarding industry codes and standards development and review by request and as needed
- Surveys the membership and other industry professionals to determine the applicable standards it should monitor
- Provides the Association with a platform from which it may develop Recommended Practices for the proper application of codes and standards within the industry
- Educates EGSA members on standards, their application and interpretation

**Attachment A:
Report on NFPA 110 proposal:**

NFPA 110-Proposed 2019 Edition

Standard for Emergency and Standby Power Systems

TIA Log No.: 1388

Reference: 8.3.7(new)

Comment Closing Date: TBD

Submitters: Michelle Hilger, Arizona GEN TECH

www.nfpa.org/110

I. Revise 8.3.7 and associated Annex material to read as follows:

~~8.3.7 A fuel quality test shall be performed at least annually using appropriate ASTM standards or the manufacturer's recommendations.~~ **Diesel Fuel.**

8.3.7.1 Diesel fuel maintenance and testing shall begin the day of installation and first fill in order to establish a benchmark for future comparison.

8.3.7.1.1 Diesel fuel shall be tested for degradation no less than twice annually with a minimum of 6 months between testing.

8.3.7.1.2 All testing shall be performed using ASTM-approved test methods and meet engine manufacturer's requirements.

8.3.7.1.3 Fuel testing shall be performed on all diesel fuel sources of EPSS. **8.3.7.2***

Tests.

8.3.7.2.1 Tests shall include at a minimum Microbial Contamination per guidelines referenced under ASTM D6469, *Standard Guide for Microbial Contamination in Fuels and Fuel Systems*, Free Water and Sediment under ASTM D2709, *Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge*, and Biodiesel Concentration under ASTM D7371, *Standard Test Method for Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil Using Mid Infrared Spectroscopy (FTIR-ATR-PLS Method)*.

8.3.7.2.2 Similar, modified, and proven methods recognized under ASTM shall be accepted.

A.8.3.7.2 For acceptable values, consult with the engine manufacturer and the most current ASTM test documents, including Appendix X3.1.3 of ASTM D975, *Standard Specification for Diesel Fuel Oils*.

8.3.7.3* For diesel fuel stored consecutively for 12 months or longer, a diesel fuel stability test shall be performed annually.

A.8.3.7.3 PetroOxy under ASTM D7545, *Standard Test Method for Oxidation Stability of Middle Distillate Fuels — Rapid Small Scale Oxidation Test (RSSOT)*, is the accepted ASTM test method for S15 diesel fuels containing up to a biodiesel blend of 5 percent and less. Additional methods might be acceptable. Refer to the most current ASTM test documents, including Appendix X3.1.3 of ASTM D975, *Standard Specification for Diesel Fuel Oils*.

8.3.7.4* Any additional testing requirements shall be determined by equipment manufacturer, government regulations, recent test results, and geographical region.

A.8.3.7.4 Refer to the most current, ASTM D975, *Standard Specification for Diesel Fuel Oils*, Appendix, and the CRC Report No. 667, *Diesel Fuel Storage and Handling Guide*, for detailed testing and descriptions

8.3.7.5* If diesel fuel is found to be outside of the acceptable range in the testing listed in 8.3.7.2, the fuel shall be remediated to bring back to the required fuel quality for long-term storage specified under ASTM.

A.8.3.7.5 Remediation could be in the form of fuel additives, polishing, tank cleaning, or diesel fuel replacement and will be dependent on the test results received.

2. Add new section in Chapter 2 to read as follows:

2.3.2 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D2709, Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge, 2016.
ASTM D6469, Standard Guide for Microbial Contamination in Fuels and Fuel Systems, 2017. ASTM D7371, Standard Test Method for Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil Using Mid Infrared Spectroscopy (FTIR-ATF-PLS Method), 2014.

3. Update document references in existing section as follows:

C.1.2.2 ASTM Publications.

ASTM D975, Standard Specification for Diesel Fuel Oils, 2015e-2018.

ASTM D7545, Standard Test method for Oxidation Stability of Middle Distillate Fuels – Rapid Small Scale Oxidation Test (RSSOT), 2014.

4. Add new section to read as follows:

C.1.2.3CRC Publications. Coordinating Research Council, Inc., 5755 North Point Parkway, Suite 265, Alpharetta, GA 30022.

CRC Report No. 667, Diesel Fuel Storage and Handling Guide, 2014.

Substantiation: Diesel fuel is the power source of a generator. It is often the factor between life and death in a state of emergency. If the diesel fuel fails due to poor quality and maintenance, it doesn't matter how well the generator has been maintained as it will not get the power from the fuel source to run.

For several years, there has been uncertainty between end users, service companies, laboratories, manufacturers, and dealers when it comes to the proper fuel testing to provide to those adhering to NFPA 110 Chapter 8.3.7. The language has been too broad in only referencing an annual test, but not what to test for. In many cases, AHJ's and others refer back to the test standards of ASTM D975 which is the Diesel Fuel Oil Specification for **NEW** Fuel Oils at time of production.

The problem with this reference is emergency standby power, is just that, standby. The diesel fuel can sit in these tanks for 6 months, 1 year, and often several years. There needs to be testing done for the degradation of diesel fuel and a remediation process in place to be followed to ensure the diesel fuel does not fail in the event of any emergency.

NFPA 25 for the maintenance of Fire Pumps already has the language in place for remediation of the fuel in case of degradation, why does not the NFPA 110. However, just like NFPA 110, the NFPA 25 does lack the specific testing to be performed on the unit.

In July 2017, our first request to revise Chapter 8.3.7 was denied as it was not written in code language. Between the voting members there was no consensus within the marketplace to add specific testing to the code so instead "or the manufacturer's recommendation" was added to the 2019 revision. The problem is, manufacturers refer back to ASTM D975 which once again, is the specification for NEW diesel fuel oils, not long-term storage fuels.

Over the last year, within EGSA (Electrical Generating Systems Association) we compiled a collaborative working group between the Dealer & Distributor Committee and the Codes & Standards Committee to create a consensus for the minimum testing requirements and maintenance of diesel fuel for the safety and reliability of EPSS. The above TIA wording has been sponsored by (2) NFPA 110 TC Members, the EGSA Executive Board, and several collaborators across the industry. I have attached statements from those involved in a separate document.

Emergency Nature. The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation. The proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.

With the changes to the production of diesel fuel over the last several years, the importance of proper maintenance to diesel fuel has become a matter of a life and death. Diesel fuel has changed drastically with the reduction of sulfur to 15ppm and the addition of biodiesel blends. It is no longer a maintenance free product. Without the code dictating what testing needs to be done, and requiring maintenance and remediation, it is only a matter of time before "bad" fuel fails to start a generator. The fuel may have been tested per the annual requirement, but for the wrong tests. We need to equip the industry with the proper testing and remediation for diesel fuel before the consequence is a catastrophic loss of innocent human lives within a medical facility.

Attachment B:**Herb Daugherty Report on NFPA 99 meeting:**

Technical Committee Meeting of NFPA 99, the Health Care Facilities Code in Portland, OR on August 9 and 10, 2018. This meeting was the First Draft meeting of the Technical Committee on Electrical Systems.

At this meeting the committee reviews public input on this Code in preparation for the next cycle (2021).

We reviewed 66 Public Inputs. The input which are accepted by the committee are submitted to the public for comment, and the second review meeting will be held some time in June or July of 2019.

Inputs of interest include:

- Several of the Public Inputs (or PI's) dealt with clarification of terminology such as "type," "level," "category", "EPS", "EPSS" etc. and co-ordinating with NFPA 110, "Emergency and Standby Power Systems".
- A new section is added defining classification of Emergency Power Supply Systems (EPSS) to agree with NFPA 110 Chapter 4.
- A new section establishing required "Acceptance Testing" and "Electrical Preventative Maintenance".
- Sections for requirement for fuel cells.
- Section addressing Selective Coordination.
- Fire Pump added to the Life Safety Branch.
- Section to be added regarding "Microgrids" and their use in HealthCare Standby Systems. A task group was formed to work on this.
- Comments added on Information Technology and Communications.

Copies of all the public Inputs can be made available if requested.
Please let me know if you have any questions,

Herb Daugherty