Attendees:

|  |  |
| --- | --- |
| Heath Garrison - NREL | Peter McNutt- NREL |
| Jerald Kinz – Hanford | Mark Babb - INL |
| Mike Hicks – ID-DOE | Tom Bakes – INL |
| Dave Lipinski - Portsmouth | Katherine Johnson – LBNL |
| Richard Waters - INL | Mark Scott – LBNL |
| Greg Christensen - INL | Eva Clark - Sandia |
| William Briscoe - Hanford | Moriah Ferullo – DOE HQ |
| Vernon Phinney - INL | David Mertz - FNAL |
| David Inskeep - INL | Jim Watson - LLNL |
| Jackie McAlhaney – SRS (retired) |  |
| Jennifer Martin - Hanford |  |
| Andrew Olsen - Hanford |  |
| Lloyd Gordon - LANL |  |
| Kurt Ririe - INL |  |
| Jim Murphy - LBNL |  |
| John Whipple - INL |  |
| Mark Muir - SRS |  |
| Kyle Carr – LANL |  |
| Tommy Martinez - LANL |  |

**Agenda for January 30, 2017 EFCOG ESTG Winter Meeting**

1. **Welcome / Introductions – Heath Garrison / Richard Waters / Dave Mertz / Jennifer Martin**
2. **Review of ESTG products posted on EFCOG website (update, archive, cancel) Richard / Heath**
3. **ESTG – Summer workshop update / Presentation - Andrew Olsen / Jennifer Martin**
4. **Working Group Reports**
   * **DC Hazardous Energy – Gary Dreifuerst / Stan Berry**
   * **HEC – Stephanie Collins / Dave Lipinski**
   * **Subcontractor Electrical Safety Management – Jim Watson / Jeff Williams**
   * **DOE Electrical Safety Handbook (Update) – Lloyd Gordon / Mike Hicks**
   * **NFPA 70E Risk Assessment / Operation of OCPD’s – Tommy Martinez / Greg Christensen**
5. **Current deliverable commitments for working groups – Heath Garrison**
6. **Discussion and selection of workshop working groups and leaders and goals / commitments**
7. **Electrical Safety Metrics – Lloyd Gordon**

1. **Position Paper for use of calibrated M&TE for zero energy verifications – Bobby Gray**
2. **Roundtable**

**January 30, 2017 EFCOG ESTG Winter Meeting** **Tuscany Room 7**

Meeting was called to order at 8:02 AM PST

* + - 1. Richard Waters opened meeting with introductions of newly appointed officers, round room introductions and welcomed attendees and callers to the meeting.

1. A review of the Best Practices posted by the ESTG throughout the years has been requested by Richard Waters. Volunteers were selected for the review.

**ACTION: Greg Christiansen, Jackie McAlhaney, Mike Hicks, Kyle Carr & Heath Garrison to perform the review of Best Practices.**

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| --- | --- | --- | --- |
| 46 | [Electrical Functional Area Qualifications](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP46-2DElectrical-2DFuntional-2DArea-2DQualifications.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=OdkTMvAcITU_cZV0Iyo_gK554p3Zz8iyt6mHWGDFWpo&e=" \t "_blank) | 2007-02-15 | Electrical Safety |
| 47 | [Controlling Energized Electrical Work Hazards](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP47-2DControlling-5FEnergized-5FElectrical-5FWork-5FHazards.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=iYrZUQAeNHrbRGIZyfWZUuQkjBPjJ4_FyuGXHawdsT8&e=" \t "_blank) | 2007-02-22 | Electrical Safety |
| 48 | [Electrical Severity Measurement Tool R3 Updated](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP48R3.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=tML80NJXdzhi16tXvHkmjEThG57g_u2X7hDT8SdA9uM&e=" \t "_blank) | 2013-06-24 | Electrical Safety |
| 66 | [Performance of Arc Flash Calculations and Labeling](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP66.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=dcEFw7Me4otkhjSQubafoqxwXK5xL9tClRrkVoV_NIg&e=" \t "_blank) | 2009-06-17 | Electrical Safety |
| 71 | [Adoption of NFPA 70E 2009 in place of NFPA 70E 2004](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP71.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=VY68NKtPXP_TUevDBnpuWyM_Z12AstzvHuqxeyvHmRg&e=" \t "_blank) | 2010-03-10 | Electrical Safety |
| 75 | [Jobsite Qualification Program for Subsurface Investigation Equipment Operators](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP75.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=YAUW1r1d4M5QGCpAYZZbjhqBBNAKNj-INFP5fsdVGec&e=" \t "_blank) | 2010-06-01 | Electrical Safety |
| 78 | Requesting Excavation/Penetration Permits, Data Management and Client Relations | 2010-05-28 | Electrical Safety |
| 84 | [Subsurface Investigations](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp-2D84-2DINL-5Fwith-5Fwhite-5Fpaper-5Fattachment.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=4kEX5L-yHr9jTRV1JGR12jxttgQZEgD6ooi8IjXbfLI&e=" \t "_blank) | 2010-09-01 | Electrical Safety |
| 110 | [Power Line Safety for Cranes/Derricks and High Profile Vehicular and Mechanical Equipment](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_BP110-2DPower-2DLine-2DSafety-2Dfor-2DEquipment-2DRev-2D1.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=nN7_P80YPqIcW3pWDtZaSywvM6hgV3nOrqyl-4wGPFE&e=" \t "_blank) | 2011-11-07 | Electrical Safety |
| 111 | [Adoption of NFPA 70E 2012 in place of NFPA 70E 2009](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp-2D111.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=JPCFwQxOMNdHN4T3yspLvgRjRbFve4QaSOEZodnNgTA&e=" \t "_blank) | 2011-10-20 | Electrical Safety |
| 112 | [Electrical Safety Position Paper Use of Automated External Defibrillators](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp112.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=IgWd9OQQbUIYAkdSdGd210u-UE7dfeAouQGejz-vPE0&e=" \t "_blank) | 2011-11-09 | Electrical Safety |
| 120 | [Definitions/Guidance for DOE O 232.2 Occurrence Reporting and Processing of Operations Information, Occurrence Reporting Criteria, Group 2, Subgroup E, Hazardous Electrical Energy Control](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp120.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=fNYOuz-M0al-KJ5awW2Y6YTw-kL_I_YGX5NtJxfcpg4&e=" \t "_blank) | 2012-02-25 | Electrical Safety |
| 121 | [Electrical Safety Assessment Criteria Document](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp121-5Fwith-5Fattachment.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=31oSv4hSNLLt-wbY1O69xdXvyx99VpZTU-QHgYwydII&e=" \t "_blank) | 2012-04-18 | Electrical Safety |
| 143 | [Lightning Protection and Grounding Systems Design, Installation, Testing, Maintenance and Inspection Safety](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp143-5Fwith-5Fattachment.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=VrrB-XcGmGUe9i8tNgI5TtqFgUrwz17lJyO5LfyO24E&e=" \t "_blank) | 2013-02-22 | Electrical Safety |
| 159 | [Adoption of NFPA 70 2008 in place of NFPA 70 2005](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp159.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=jlSJKMSCeKgl9CTZoNitryZrXuqA6rK3UmVrK2hiZJc&e=" \t "_blank) | 2014-02-28 | Electrical Safety |
| 163 | [Field Tool for Estimating Incident Energy at Distance Using the Inverse Square Law](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp163.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=KdrJeGyriBQqyz9DKcASrFDPCYM_wKKe188PeYXMg2c&e=" \t "_blank) | 2014-04-24 | Electrical Safety |
| 173 | [Compensatory Arc Flash Controls](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp173-5Fwith-5Fattachment.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=3Mq9LnDxQw0RimSAQrO0_viI9uO3Q7pljjR46LN_XTI&e=" \t "_blank) | 2014-10-01 | Electrical Safety |
| 177 | [Adoption of NFPA 70 2011 in place of NFPA 70 2008](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp177-2Dwith-2Darttachment-2Dand-2Damendment.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=1a3uENxzVDTTsEXzK2BYHATe_1IhVx6l7oi2FmHk9bE&e=" \t "_blank) | 2015-03-27 | Electrical Safety |
| 178 | [Adoption of NFPA 70 2014 in place of NFPA 70 2011](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_09_bp178-5Fwith-5Fattachment.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=dHPH6zfVno517VLBg6qER8xxRs5ArQo_62nDaxGcwho&e=" \t "_blank) | 2014-11-12 | Electrical Safety |
| 180 | [Lockout Tagout Applicability to Physical Separation](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_10_Physical-2DSeparation-2DBest-2DPractice-2DSubmittal-5Frev.11-2D2.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=FKmCieUu-35d31lO1qhje_vnDca4EwWi5hp5nXMQi9E&e=" \t "_blank) | 2015-08-19 | Electrical Safety |
| 184 | [Controlled Work Area](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2015_12_Work-2DControl-2DArea-2DFinal4.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=9nwxUX3v3FJ5nlqa1-3YuLzuLhap4ru7ZppjseHBRPU&e=" \t "_blank) | 2015-10-30 | Electrical Safety |
| 193 | [Adoption of NFPA 70E 2015 in Place of NFPA 70E 2012](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2016_11_EFCOG-2DBest-2DPractice-2D2015-2DNFPA-2D70E-2DImpact-2DAnalysis-2DFinal-2D161018.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=qaoM_03Kr4v726umxM11m07HsA5nsQD1D72DrwVsOoY&e=" \t "_blank) | 2016-10-18 | Electrical Safety |
| 194 | [Calculation Spreadsheet for DC Arc Flash Hazard](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2016_11_Best-2DPractice-2D194-2DDC-2DArc-2DHazard-2DSpreadsheet.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=pUXdj34VF-t--U87Wx3FD8ym99BqZ-Hdf1Mc49IxtQU&e=" \t "_blank) [DC Arc Flash Calculator](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2016_11_DC-2DArc-2DFlash-2DCalculator-2DEFCOG-2DESW-2DDC-2DSC.xlsx&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=onzk6xz47FzBTJPlQIWgrtC2ixG6j9L8R_70XpPgMHs&e=" \t "_blank) | 2016-10-18 | Electrical Safety |
| 192 | [Guide to Incorporating Risk Assessment into Integrated Safety Management for Electrical Safety](https://urldefense.proofpoint.com/v2/url?u=http-3A__efcog.org_wp-2Dcontent_uploads_2016_07_Risk-2DAssessment-2DBest-2DPractice192.pdf&d=DQMGaQ&c=54IZrppPQZKX9mLzcGdPfFD1hxrcB__aEkJFOKJFd00&r=rTBe2xZze2_CeE_VlKVzlHEkwIcsIMaaeUMvMX3Ny6Y&m=eJJkwKY9OU1OaJ8iGacPM0XelujfLSz65q_IRRgWr1Q&s=EUUVnJG7YcWvhVw2xRawCXlMvXCJVJcUj9_tEdMWY1k&e=" \t "_blank) | 2016-07-14 | Electrical Safety, Integrated Safety Management |

1. ESTG Summer Workshop Agenda preparation close to going live on the EFCOG ESTG Website. Registration process is being designed to streamline the process for future workshops. Utilizing the EFCOG website offers for a “one stop shopping” experience. All registrants will have the ability to select a desired working group, preferred tour, and have access to all travel accommodation information links, local eateries and attractions for after hour interests. IEEE EFCOG winter meeting piloted the registration process for user friendly feedback. The process will make future events less work, allowing for the time and efforts to be used in much more constructive areas. Andrew Olsen proposed an undecided box on the registration for participants that may be unsure where they may apply their efforts in a particular working group. Richard Waters was opposed to the check box due to the lack of commitment allowing for working group migration of which is not constructive. The consensus of the group agreed. Tommy Martinez suggested a hover over option for the individual working groups that provides a brief description of the direction and proposed deliverables for the FY17, future proposals & working group leaders. Mike Hicks suggested that the schedule be posted on the website for attendees. Richard Waters - Plenary session discussion and location has been split into Monday and Thursday sessions based on the availability of Hugh Hoagland, and a sensible approach having 2 full days dedicated to the working group products, and less travel between the PNNL auditorium and the HAMMER campus. Approved by the ESTG quorum. Dave Mertz – Vice Chair will introduce plenary session speakers. Richard Waters requested to keep the welcoming short.

Template branding for working group presentations. EFCOG Logo & Power Point templates have been revised and are available for use at this time. Using our templates and logos send a message of unity. Media will be provided to working group leads at summer workshop.

Plenary speakers for the summer workshop were narrowed down and committed for a session. Priest Rapids Event, Grant County PUD. PNNL Grid Storage, Gary Dreifuerst would like to be involved in conversation. Lloyd Gordon will share E-Cigarettes Lithium Ion lessons learned, battery safety discussion.

Newly committed speakers were Hugh Hoagland for NRTL Standards for PPE; Counterfeit clothing has hit the market. Bobby Gray will share NFPA 70E 2018 Changes .Richard Waters appointed Jennifer Martin to share details from the IEEE EFCOG Winter meeting along with highlights from the event. Lloyd Gordon and Kyle Carr preview of IEEE 2018, request 90 minutes.

Standby topics: Dennis Neitzel/Electrical Maintenance Practices. Heath Garrison proposed Jim Phillips/IEEE 1584 & NFPA 70E sub committee coordination efforts.

Andrew Olsen reviewed the modified schedule for website launch with ESTG. Website expected to go live by the end February. Attached with meeting minutes.

**Monday, July 24th**

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| **Time** | **Topic** | **Presenter(s)** |
| 7:00 am  (30 min) | Arrival @ Battelle Auditorium, PNNL | |
| 7:30 am  (60 min) | Welcome/Working Meeting Kickoff   * HAMMER Director (5-10 min) * Richland Laboratories (RL) Rep (5-10 min) * DNFSB (5-10 min) * DOE HQ (5-10 min) * ESTG Chair (10-15 min) * Agenda Overview (5-10 min) | Karen McGinnis  Ashley Morris/Joe Franco  Peter /Ajit Gwal  Moriah Ferullo / Terry Meisinger  Richard Waters  Dave Mertz/Andrew Olsen |
| 8:30 am  (30 min) | Winter Meeting Report | EFCOG Leaders |
| 9:00am  (15 min) | Break | |
| 9:15 am  (90 min) | Priest Rapids Dam Arc Flash Event | GPUD |
| 10:45 am  (45 min) | DOE Training Institute (DTI) Overview | Ted Giltz (DTI) |
| 11:30 am  (60 min) | Lunch | |
| 12:30 pm  (60 min) | ESTG Collaborations in the Industry | Lloyd Gordon  Heath Garrison  Jennifer Martin  Andrew Olsen  Tommy Martinez |
| 1:30 pm  (45 min) | NFPA 70E 2018 Update | Bobby Gray (Hanford) |
| 2:15 pm  (15 min) | Break | |
| 2:30 pm  (30 min) | Naval Safety | Stan Berry (US Navy) |
| 3:00 pm  (60 min) | Working Groups Review / Overview   * Hazardous Energy Controls * Risk Assessment * DC * Subcontractor Flow down * Electrical Training | Working Group Chairs:   * Stephanie Collins * Greg Christiansen * Gary Dreifuerst * Jim Watson * Lloyd Gordon |

**Tuesday, July 25th**

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| **Time** | **Topic** | **Presenter(s)** |
| 7:00 am  (60 min) | Arrival @ HAMMER Federal Training Facility | |
| 8:00 am  (4 hrs) | Working Group Breakouts   * Hazardous Energy Controls * Risk Assessment * DC * Subcontractor Flow down * Electrical Training | Working Group Chairs:   * Stephanie Collins * Greg Christiansen * Gary Dreifuerst * Jim Watson * Lloyd Gordon |
| 11:00 am  (60 min) | Lunch | |
| 12:00 pm  (4 hrs) | Working Group Breakouts (continued)   * Hazardous Energy Controls * Risk Assessment * DC * Subcontractor Flow down * Electrical Training | Working Group Chairs:   * Stephanie Collins * Greg Christiansen * Gary Dreifuerst * Jim Watson * Lloyd Gordon |

**Wednesday, July 26th**

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| **Time** | **Topic** | **Presenter(s)** |
| 7:00 am  (60 min) | Arrival @ HAMMER Federal Training Facility | |
| 8:00 am  (4 hrs) | Working Group Breakouts (continued)   * Hazardous Energy Controls * Risk Assessment * DC * Subcontractor Flow down * Electrical Training | Working Group Chairs:   * Stephanie Collins * Greg Christiansen * Gary Dreifuerst * Jim Watson * Lloyd Gordon |
| 11:00 am  (60 min) | Lunch | |
| 12:00 pm  (4 hrs) | Working Group Breakouts (continued)   * Hazardous Energy Controls * Risk Assessment * DC * Subcontractor Flow down * Electrical Training | Working Group Chairs:   * Stephanie Collins * Greg Christiansen * Gary Dreifuerst * Jim Watson * Lloyd Gordon |

**Thursday, July 27th**

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| **Time** | **Topic** | **Presenter(s)** |
| 7:00 am  (30 min) | Arrival @ Battelle Auditorium, PNNL | |
| 7:30 am  (30 min) | 2016 DOE Electrical Safety Review | Heath Garrison (NREL) |
| 8:00 am  (60 min) | Fuel Cells / Battery Storage | Vincent Sprenkle (PNNL) |
| 9:00am  (15 min) | Break | |
| 9:15 am  (60 min) | Listing Requirements of Arc Rated PPE | Hough Hoagland (E-Hazard) |
| 10:15 am  (45 min) | Maintenance Requirements | Dennis Neitzel (AVO Training) |
| 11:30 am  (60 min) | Lunch | |
| 12:30 pm  (45 min) | Impacts of 10CFR851 Technical Amendment  (Li Ion Battery Safety – Alternative Topic) | ? |
| 1:15 pm  (30 min) | Hazardous Energy Controls Working Group Report | Stephanie Collins (LBNL) |
| 1:45 pm  (30 min) | Risk Assessment Working Group Report | Greg Christiansen (INL) |
| 2:15 pm  (15 min) | Break | |
| 2:30 pm  (30 min) | DC Energy Working Group Report | Gary Dreifuerst (Retired LLNL) |
| 3:00 pm  (30 min) | Subcontractor Flow down Working Group Report | Jim Watson (LLNL) |
| 3:30 pm  (30 min) | Electrical Training Working Group Report | Lloyd Gordon (LANL) |

**Friday, July 28th**

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| --- | --- | --- |
| **Time** | **Topic** | **Presenter(s)** |
| 7:00 am  (5 hrs) | Tours (Schedule to follow):   * B Reactor Tour * HAMMER Tour * LIGO Tour * Electricity Infrastructure Operation Center Tour | |

**ACTION: Heath Garrison contact Jim Phillips about summer workshop availability.**

**ACTION: Richard Waters or Greg Christiansen request attendance and participation from Dennis Neitzel regarding electrical maintenance practices.**

**ACTION: Andrew Olsen - Gary Dreifuerst requested information regarding the PNNL presentation Topic for discussion? Please include Gary on email correspondence with PNNL event coordination for incorporation into the DC working group discussions.** [**gdreifuerst@gmail.com**](mailto:gdreifuerst@gmail.com)

4. Working Group Status

* DC Hazardous Energy – Gary Dreifuerst

Best Practice BP-194-DC Arc Flash Calculator is complete and posted on the website. The calculator offers a variety of methods. Simplifying calculations to be user friendly for site-specific documentation. Battery Risk Assessment flow chart has been well received and is available for use. Future products for this working group will focus on Ground Hook Safety, Pulse powered and Capacitor bank type tools. ASTM F711 (Live line tool). The PPE required for DC systems based on Bipolar, Unipolar, Grounded or Ungrounded Systems, Class 1 Goods definitely need to be considered for 1KVDC Systems. The increased usage of DC Systems has increased 20% since 2015. NFPA 70 2017 NEC added 4 new code articles specifically addressing DC in special systems. Mike Hicks suggested a Lithium Ion Batteries Electrical Safety Best Practice for FY18 either by HEC or the DC working group. Lloyd Gordon is currently working on the products for electrical safety month.

**Action: Lloyd Gordon / Mike Rossenau Electrical Safety Month materials (presentation & posters) for home & work Draft no later than Mid March, document to be finalized by April 1. Completed product due May 1, 2017.**

* Hazardous Energy Control - Stephanie Collins (Richard Waters spoke on her behalf)

The HEC group is looking for a new Co-lead for Stephanie; Eric Stromberg is currently not as available as need be to assist Stephanie in the leadership of this working group. Richard Waters is looking for volunteers to step up to the challenge. Dave Lipinski of Portsmouth offered his assistance to the group for the FY17 Summer workshop. Deliverables for the summer include Look a like equipment BP, Contact and Release BP. The HEC has begun developing a process that is duplicable complex wide. A “bare bones” or “simple” LOTO program was requested that can serve as a minimum requirement that can be built upon for site–specific applications. The HEC group had a large number of new attendees and the initial crosswalk and rework of initial document took a great deal of the time allotted. HEC expects to deliver the best practice for Look a like equipment at the summer workshop. HEC believes we should be identifying controls related to electrical energies, not for all other associated energies i.e. pressure, hydraulic, thermal, chemical, mechanical, etc. The discussion revealed an interest for an industrial HECG. An inter-disciplinary group to identify the thresholds for these types of systems then determines the process for controls.

**Action: Dave Lipinski please contact Stephanie Collins for any assistance she may need for the completion of HEC best practice.** [slcollins@lbl.gov](mailto:slcollins@lbl.gov)

* Subcontractor Electrical Safety Management – Jim Watson / Jeff Williams

Jim Watson suggests web-based tools for all subcontractor work based on Appendix D of DOE-HDBK-1092-2013. A Co-Chair for this group is also being sought. Heath Garrison has been given recent direction to clarify that a Fed cannot Chair a working group, however can Co-Chair. The ESTG expects active participation from the working group leads, and understand circumstances change throughout the year. Maintain communication so that the ESTG can reappoint a lead if necessary.

Subcontractor Electrical Safety Management can be difficult when distinguishing between Construction, R&D, and Vendors. All could be approached in many different ways. It would be ideal to have a best practice to the flow down of requirements regarding “qualified person”. The term “demonstrate ” to be incorporated throughout, currently is measured or unidentified, not providing a consistent approach. Training, Qualifications, Qual Cards, along with OJT, and OJE all relevant to the process.

Andrew Olsen has created and is currently utilizing this process to qualify DTI Electrical and HAMMER Instructors. This provides a consistent approach allowing the instructors to have the right tools and background to provide quality training in an adult learning environment.

* DOE Handbook DOE-HDBK-1092-2013 Working Group - Mike Hicks

The process has been identified as being too cumbersome to deliver as a workshop product and would be better suited as an ongoing effort preparing for the 5-year review. The Revision to the Handbook is due FY20. Moriah stated that initiating the process might not be faster however it would be a smoother transition. When developed by the ESTG SME’s we are ultimately the end users. Assisting in the development was agreed upon however will not account for a deliverable for the FY17 summer workshop. The incorporation of NFPA standards to a more recent version is a must. The discussion will be taken offline to revise the direction of the group.

**Action: Mike Hicks, Lloyd Gordon, Moriah Ferrullo, Richard Waters and Heath Garrison to establish a time and date to discuss DOE- HDBK-1092-2013 Revision offline.**

* NFPA 70E Risk Assessment/Operation of OCPD’s – Greg Christiansen /Tommy Martinez

A query from the complex was used to benchmark current standard editions used in DOE. We range from 2004 – 2015. Another query was used asking the minimum level of PPE used during the operation of OCPD’s. This again raised the question are we willing to dress or not dress our operators based on the information provided by the definition of “Normal Operation”. The working group has developed information regarding the proper documentation that would be needed to take credit for: Properly Installed, Properly Maintained and a spreadsheet describing what signs of impending failure may be.

John Whipple asked the question “ How much risk are we willing to accept”?

The deliverable will a best practice prescribing a minimum level of daily wear for those who operate OCPD’s. The group maintains an understanding that the individuals operating such devices may not be exposed to an arc flash or failure; but agrees they should be wearing something that can provide a positive common sense approach to engaging with electrical equipment with the potential to surprise. Minimum levels for PPE and voltage levels of operation will be incorporated.

1. Current deliverable commitments for working groups – Heath Garrison

October 1, 2017 is the due date for all deliverables that have been shared with the Safety and Health sub group.

WSH/ES-16-05 Breaker Operations

WSH/ES-16-06 Electrical Contact and Release

WSH/ES-16-08 DC Arc Flash Calculator – Complete

WSH/ES-17-03 Review DOE-HDBK-1092-2013

WSH/ES-17-05 Look A Like Equipment

Heath also added that Jim Phillips would be elated to share the IEEE 1584 and 2018 NFPA 70E Collaboration at the summer workshop.

1. Discussion and selection of working groups, leaders, goals, and commitments

* Already incorporated in above working group summaries.

1. Electrical Safety Metrics – Lloyd Gordon

* Training demonstration of PPE use and instrumentation are areas of training that need improvement. When we are introducing the workers to multiple systems all of which operate differently DC, Capacitors, RF, Sub RF, and AC (VFD’s) supplemental training is warranted to protect the workers. A new break out-group has been identified. Lloyd also shared the LANL approach to using the Electrical Severity Tool or Electrical Significance Tool. The tools have some correlation but not always. ORPS and LANL tools are opposite in scale. 1-5 for ORPS 1 being the highest, LANL 1-5, 5 being the highest. All incidents are reported at LANL and NREL, taking Human Performance or Human Error into account.

**Action: Lloyd Gordon send out a condensed simplified version to the ESTG. Mike Hicks suggested fixing the scale so that the two scales are not opposing.**

1. Position Paper for use of Calibrated M&TE for zero energy verifications – Bobby Gray

The paper has essentially been complete for some time. Dave Mertz, Dave Lipinski, Bobby Gray and Heath Garrison to resolve the current issue regarding the lack of calibrated instrumentation during a zero energy check will develop a position paper.

1. Roundtable

Department of Energy Training Institute is available and offers curriculum specific to DOE facilities and a number of courses that can provide reciprocity to those who can benefit from the cost savings. Mobile training teams offer certified quality instruction or your training department could have DTI certify one of your own site instructors as an option. Website is available to peruse. [www.dti.doe.gov](http://www.dti.doe.gov) or contact DTI at [DTI\_Information@dti.doe.gov](mailto:DTI_Information@dti.doe.gov) .

**\* NEW \*  
Teleconference access info:   
  
 +1.408.740.7256 (US)**

**+1.888.240.2560 (US Toll Free)**

**+1.408.317.9253 (Alternate number)**

**Enter Meeting ID: 941314642**

**Press #**

Meeting Closed at 3:30pm