**IEEE / PES ELECTRIC MACHINERY COMMITTEE MEETING**

**PES General Meeting in Denver - July 2015**

Date: Thursday, July 30, 2015

Time: 8:00 – 12:00 AM

Location: Sheraton Denver Downtown Hotel, room ‘Governor's Square 16’

Meeting Agenda

1. Introduction of Attendees
2. Committee Approvals
   1. 2014 Minutes
   2. 2015 Agenda
3. Election of new officers
4. Chairman’s Report Kevin Mayor
5. Vice Chairman’s Report Kiruba Haran
6. Tech Council Meeting Report Mike Sedlak
7. Standards Coordinator Innocent Kamwa
8. Reports
   1. Sub-committees
      1. Generators John Yagielski
      2. Motors Dan Ionel
      3. Materials Jim Yao
      4. Renewable energy machines and systems Istvan Erlich
   2. Liaisons
      1. IAS D. Ionel
      2. Power System Relaying N. Nilsson
      3. ISO K. Mayor
      4. IEMDC Steering Committee O. Mohammed
   3. Working groups
      1. WG1 Awards / Recognitions \* Nils Nilsson
      2. Fellows Coordinator Nils Nilsson
   4. Other
      1. Long Range Planning Kevin Mayor
9. Other business
   1. Working Group Procedures Manual
   2. ED&PGC, Excitation Systems and Controls Subcommittee
   3. Planned sessions and panels for 2016 PES-GM
   4. Sub-committee websites
10. Attendee’s Roundtable

\* 5 minutes allocation for the winners of the prize paper awards to present a brief synopsis of their paper

# Introduction of Attendees

The meeting began with a general introduction of all attending the meeting.

A total of 33 people attended this year’s meeting, and are listed in Attachment B.

# Committee Approvals

## 2014 minutes

A correction was noted that in the 2014 minutes, Rick Nilsson attended, but is not shown.

Rick Nilsson moved to accept the amended minutes; John Yagielski seconded the motion, and it was passed by unanimous agreement.

## 2015 Agenda

The original proposed agenda was modified to allow the awards winners to be recognized early due to travel arrangements. John Yagielski moved that the agenda is approved; Haran Karmaker seconded the motion, and it was passed by unanimous agreement.

The minutes below are written in the sequence of the original agenda.

# Election of new officers

Jim Lau volunteered to serve as secretary in 2016 and John Yagielski proposed to take over in 2017. This was due to the quick rotation of officers in the Generator Subcommittee in recent years – the current officers wished to stay in place for 2016.  
Since the current EMC secretary was absent this year due to work commitments, Jim Lau also offered to take the minutes of the meeting this year.

Rick Nilsson moved that nominations are closed and candidates are elected; Haran Kamaker seconded the motion.  
The motion that the proposals outlined above be approved by the EMC was unanimously approved.

# Chairman’s report – Kevin Mayor

This will be Kevin’s last session as chair as he will finish his term in December 2015. The important work we do is the standards, the panel sessions and tutorials. He believes that we do this well and thanked all of those who were involved in all of these activities.

Meeting scheduling will be addressed later by the Vice-Chair. However the high number of panel sessions requested by the sub-committees, together with the sub-committee meetings means that it is often difficult to schedule all the meetings to meet everyone’s expectations.

Moving the EMC meeting to Thursday morning is difficult for some, but helps to get more sessions scheduled.

The working group P&P is under some scrutiny, particularly for the groups which work on standards since the standards become part of commercial and legal agreements. It is important therefore that the working groups work in accordance with the formal procedures. There is not a lot of extra work needed to do this right, but we need to be more strict on certain aspects. The latest approved version of the P&P is on the EMC website and this was explained during an EMC officers meeting in July. An e-mail was sent to all subcommittee Chairs to communicate to their specific working group chairs. The IEEE PES may conduct random audits of working groups to check compliance.

The Chair generally thanked all the EMC members for their continuing good work over the past year within the various working groups, and in organizing the many successful panel sessions. Particular thanks to the officers for their support, including Malia Zaman and Maria Proetto for the admin support, Rick Nilsson for organizing the Awards, Innocent Kamwa for the coordination of standards, and finally to Mike Sedlak for representing the EMC at the Tech Council meetings.

The Chair wished Kiruba Haran (future Chair), Kay Chen (future Vice-Chair), and the future secretaries success in their upcoming roles.

# Vice chairman’s report - Kiruba Sivasubramaniam Haran

Close collaboration among the EMC officers and ex-officials helped me to ramp up on the vice-chair duties and take on more responsibility this year. Among these tasks was scheduling of GM sessions and meetings. Scheduling is always challenging, but we did okay with early planning initiated by the chair and regular communication among the EMC officers and subcommittee chairs through e-mail and periodic teleconferences. In future it will help to have some slack in the schedules within each subcommittee. It is very hard to coordinate when each subcommittee (and individual) has a full agenda for the GM – including technical sessions, committee meetings, tutorials etc., and expect the schedule to be perfectly aligned to meet this. Even the best thought out plan by subcommittees can be disrupted by changes from TCPC based on conflicts with plenaries and supersessions.

Electrical machines paper submissions for the GM meeting was again fairly light. 59 total submitted, with most being for the Panel sessions (8 altogether, including one co-sponsored with WSPCC). Excluding panel sessions and the 5 transactions papers, we had 13 submissions. We accepted 10 and rejected 3.

At this year’s IEMDC it looked like there is opportunity to improve EMC’s visibility and presence at this conference that we co-sponsor. We should consider also meeting at this conference, since there is a large electrical machines community that attends that conference with limited overlap with the attendance here. This may also help improve coordination with the IAS Electrical Machines Committee.

I would like to make a plug for the collaboration between IEEE PES and the Grainger Center for Electromechanics (which I belong to) in pulling together a Technology Roadmap for MW scale electrical machines. You are all invited to the kick-off scheduled for this afternoon – Thursday, 1:00-5:00 pm.

I would like to thank Kevin Mayor (current Chair) and Mike Sedlak (past Chair) and the many other senior colleagues for help and guidance provided through the year.

# Tech Council Meeting Report – Mike Sedlak

The Tech Council is the administrative board of the PES and governs the technical committees. The committee chair is the representative of the committee, or a representative can be elected.

The meeting yesterday was quite long due to the discussion on reorganization of the committees. The reorganization was called for last year as an attempt to make it more like other committees around the world. The EMC was not affected by the reorganization. Equipment committees were not affected. The Power systems committees (6) were the most affected. PSIM was given a one year reprieve.

We need to work harder at keeping our membership active and keep our numbers up. PSIM had only 8 members and 20 members on the roster.

There was a series of town hall meetings explaining the reorganization. The information is now available on a website in the IEEE. Those who were changed were told that there would be a change. There will be a public comment period until September 2015. The Tech Council makes a presentation to the governing board in December. The reorganization is intended to be completed by April of next year.

No nominations in the entire PES for the Tesla award. The past chair of the council was concerned about this since there is a lot of good work going on in the PES.

The IEEE PES is entering into an agreement with the DOE. This is to have more cooperative work on grid standards and other standards as well as educational materials and tutorials. This will be handled with MOU between Secretary of Energy and the PES.

Next year there will be a verification process that shows that none of the panel sessions conflict with the super sessions (in MIRA). Super Sessions will trump panels if the topic looks similar.

A nice presentation was given on CIGRE and there is a push to create a stronger liaison relationship. Their organization appears to be a good model for ours with respect to working groups.

IEEE Resource Center is online on the PES website. It is a good website with good material with white papers, tutorials, reports etc.

The PES website has a PES calendar. The Tech Council is trying to have the committees use this more. You can schedule working group meetings, committee meetings, etc.

The EMC website is located here: <http://www.ewh.ieee.org/soc/pes/emc/>

# Standards Coordinator Report (Innocent Kamwa)

We have received the state of standards from Malia Zaman. There are some red flags in the Motor Committee - four are due to expire in 2018. The Material Subcommittee is good. Generator Subcommittee is also good.

Innocent will submit a report with all the red flags.

Innocent notes that P112 is due to expire. There is work on IEEE 11. IEEE 252 needs attention. IEEE 620 needs a PAR. These need further discussion in the EMC.

# Reports

**(a) Subcommittee Reports**

## Generator Subcommittee – John Yagielski

The Generator Subcommittee report can be found in Attachment, A brief synopsis was presented at the EMC meeting by John Yagielski.

52 members attended the meeting on Monday.

Raul Rico secretary; Vice-chair Gayland Bloethe

One guide and one standard were completed last past year. A number of new working groups were started.

NEW – WG7 IEEE 1110 on Generator Modelling with Innocent K as the chair. The electrical power systems folks are having a lot of trouble with the standard as written.

WG3 – 1665 Rewind of Synchronous Generators – Izzy Kerszenbaum.

WG115 – IEEE 115 by Haran Kamaker

The Grid Code Task force would like to have a time for a Panel session at the 2016 GM to report on the findings. Additionally:

* Plan for a 2 hour time slot for the GMC
* Plan a 4 hour slot for IEEE 115
* Plan a 4 hour on IEEE 1665

All help is welcome. WG have sometimes met on Sunday. Projectors are quite handy; however; the IEEE do not provide projectors for working group meetings.

Audience Discussion:

It was suggested that you start with a subcommittee meeting for 2 hours and then tack on the WG sessions; however, the projector may be taken away after 2 hours.

Combo sessions might be brought back. We can ask the PES to put projectors in every room, alternatively we should ask during Webex’s if we can get a volunteer to bring one.

## Motors Subcommittee – Dan Ionel

Four panel sessions were held this year, and there was a request for 7 panels next year.

The IEMDC is the anniversary session in 2017. Osama Mohammed will be the honorary chair. The conference will be held in Miami. A call for papers was passed around. They are looking for track chairs, session chairs, etc.

The Motor Subcommittee has a website and an active membership.

Dan thanked the subcommittee for their good work.

**Standards:**

IEEE 1812 - Congratulations to Haran for the standard and the personal initiative of Haran and the group members.

Not all standards seem to have a person who will take this type of initiative.

112 – Induction Motor Testing - Nick Stranges is the chair – We are told that he will have this ready by October.

1415 – “Induction Machinery Maintenance, Testing and Failure Analysis” – Kevin was called in due to the lack of progress. John Reddy started the standard modification in 2011. There was some controversy on the proposed changes, the WG membership was broadened to 100+, but due to continued conflict John Ready Stepped down. A new chair was appointed but also subsequently steeped down, and Howard Penrose is the current chair. Due to lack of progress over the last 2 years, the proposal was made to withdraw the current par, then go back to the WG and ask how they wish to move forward. The PAR will anyway expire in December 2016, and the standard will expire in 2018.

One possibility was submit a PAR to withdraw the standard completely, although it was decide that this should option be put to the existing 100+ WG members.

A new PAR would be needed by the 16th of October for review by the end 2015. Howard Penrose and John Reddy have approved the plan to withdraw the current PAR.

Motion was proposed by Dan Ionel, seconded: Manoj Shah; approved with no dissenters.

IEEE 11 – Rotating Machines for Traction Application – The leadership for this standard finally came from the Industrial Applications Society. The IAS has a rotating machines committee. Tim Duress of the Oakridge Lab has an interest. The automotive groups in Michigan do not send people to the IAS.

The question was raised whether the sponsorship of the standard be transferred the IAS, however the MSC preferred to keep ownership of the standard, but will allow the IAS to lead the WG at this time.

The circulation list and names of members who are in industry who use the standard is a subject of concern. Dan proposed to refresh the roadmap list of standards, and if necessary refer any change of ownership to the Tech Council.

Haran will lead a Task Force to review the standards and revise the list of which standards belong to which society.

IEEE 252 and 620 – The EMC was not aware of these standards; therefore, there was no progress. They will be allowed to expire unless a PAR is submitted. SA can advertise for participation and has had a good response to this. In principle anyone can submit a PAR. WG members theoretically don’t have to be an IEEE member; however, there may be a policy that they are supposed to be PES members for voting. Officers of a WG must be IEEE and SA members.

Jim Michalec will try to reballot Std. 620 without any revision.

Other standards:

1110 – “Modelling Generators” needs a PAR

112 – Needs to be a recirculated

252 – No PAR until 2018 – Recirculate in the new template – Needs a sponsor

## Materials Subcommittee – Jim Lau (for Aleksandra Jeremic)

Std. 1553 – Voltage Endurance Testing needs a PAR

Std. 1776 – Needs a PAR

Std. 117 – WG will be led by Nancy Frost

Nancy needs to be informed about the dates on Std. 1776.

## Renewable energy machines and systems – Nick Miller

The subcommittee has no standards so far – Focus on machines.

The S/C Meeting was held on Tuesday after the tutorial. There were 12 attendees.

Renewables System Performance – Four panels were made this year:

* Marine - 40 attendees
* Interconnection – 45 attendees
* V-Grid was split into two parts. 65 attendees in each. 6 papers in each session were planned but 5 in each were given.

Panels planned for next year:

* 100% Inverter based systems
* Steady state representation of reactive power capability of wind turbines
* Marine hydrokinetics continued
* Storage and field application
* Tutorial for 2017 – Design of machines for wind turbine applications

It will be considered whether this S/C should be formulating standards in this area.

**(b) Liaisons**

## IAS (Industry Applications Society)

D.Ionel had represented the IAS and talked about the main functions of IAS. The main object of EMC within IAS is to support papers being presented in the IAS conference in various machinery topics. The society is also responsible for all the transaction papers. The upcoming activity is collaboration with the motor subcommittee to form a WG on rotating electric machine on road and rail topic.

## Power System Relaying – N. Nilsson

Nils Nilsson had previously sent his report which is given in Attachment I.

## ISO Liaison – Liaison contact required

No ISO liaison. Kevin asked if there is a liaison needed. Lon Montgomery suggested yes on shaft vibration topics for ISO. Therefore Kevin would look into finding a liaison.

## IEMDC – O. Mohammed

The upcoming conference for May 2017 will be in Miami Florida hosted by PES.

**(c) Working Groups**

## Awards - Recognitions – N. Nilsson

Nil presented the award for 2014.

Nilsson suggested checking the up to date award information in the IEEE website.

The importance of nominating EMC members for these awards was emphasized.

* **The Distinguished Service Award** for 2014 goes to Michael Sedlak, “*In Recognition for Outstanding Service to the Electric Machinery Committee of the IEEE PES Including Leadership as the Immediate Past Chair.”* Mr. Sedlak took the award from Mr.Nillson.
* **The Standards Recognition Award** for 2014 goes to the IEEE Std. 1799 Working Group chaired by Remi Tremblay of the Materials Subcommittee for completion and issuance of a needed and completely new standard entitled, “*IEEE Recommended Practice for Quality Control Testing of External Discharges on Stator Coils, Bars and Windings.”* Jim Lau had taken the award on Tremblay’s behalf due to Tremblay’s absence.
* The EMC is recognizing three (3) outstanding technical papers in 2014. They are as follows:

1. Alberto Tessarolo, author of, “*Accurate Computation of Multiphase Synchronous Machine Inductances Based on Winding Function Theory,”* in Transactions on Energy Conversion, Vol. 27, No. 4, December 2012, pp. 895-904. Mr. Tessarolo was absent during the meeting.
2. W. V. Nuwantha Fernando and Mike Barnes, authors of, “*Electromagnet Energy Conversion Efficiency Enhancement of Switched Reluctance Motors with Zero-Voltage Loop Current Commutation,”* in Transactions on Energy Conversion, Vol. 28, No. 3, September 2013, pp. 482-292. Mr. Barnes took the award from Mr. Nillson.
3. Mladen Sasic, Blake Lloyd and Ante Elez, authors of, “*Finite Element Analysis of Turbine Generator Rotor Winding Shorted Turns,”* in Transactions on Energy Conversion, Vol. 27, No. 4, December 2012, pp. 930-937. D. Ionel took the award from Mr. Nillson at the absent of the authors.

* Nilsson also presented the outstanding technical papers in 2013 due to his absence in 2013.

A concern is raised from D. Ionel about lots of award recipients are not presented in this meeting. Mr. Nilsson said he had tried best effort to inform the recipients. Nevertheless he would look into it for some solution.

Kiruba had a question with regard to the EMC best paper award. Nils Nilsson clarified the transaction paper award had replaced the EMC best paper award

Jim Edmonds, the winner of Cyril Veinott Award, gave a speech on Nils Nilsson’s request.

## Fellows Coordinator – N. Nilsson

The Fellows Coordinator’s report is included in the minutes as Attachment J.  
This year 2 members of the EMC were appointed as IEEE Fellows:

* William Bartley
* Kiruba Haran

# (d) Other

## Long Range Planning – Kevin Mayor

The Long Range Planning meeting was held on the Sunday afternoon 26 July 2015. There were 11 attendees. Normally the SC chairs are expected to attend. The following topics were discussed during the EMC meeting and some actions agreed:

* **Training for new WG & Committee members:**  
  This will be used as a base to prepare similar training material for the EMC.
* **Technical Tutorials and attracting new members:**  
  Lon Montgomery explained an idea for a kind of Wikipedia for Electric Machinery for given specific topics as a help to younger members, new starters or industry managers with limited technical background. It was reported that the EPRI Generator Users Group had carried out a similar task some years ago but aimed at plant operators.The possibilities to issue these items of information from the EMC Committee need to be explored further. Kay Chen has prepared and presented a list of topics and some examples for consideration. Questions are raised if such information can be added to the website. Geoff Klempner commented that he did not think it would be any concern. Kevin Mayor suggested we could start creating it and show it to the IEEE for approval***.***

Mohamad suggested the possibility of webinars.

Andy Knight suggested there is already a lot of information available in public domain and whether if it is needed to be recreated.

John Yagielski suggested materials could be added to the website in simple formats.

At the end of the discussion, John Yagielski proposed to start a task force to promote the increase in participation of EMC. Nils Nillsson seconds the proposal and everyone was in favour. The interested people are asked to put their name down on the attendee sheet.

Jennifer Ammentop suggested of participating the woman in IEEE session after the EMC meeting if we would like market for this committee.

* D.Ionel asked “how long” is defined for the long range meeting. Jim Michaelic answered that it depends on subject topics. Geoff Klempner also commented that it also depends on limitation of EMC’s activities. It is suggested by John Yagielski to change the name of the meeting. Kevin suggested to rename it as “ADSCOM” and to move the meeting to a more convenient time to allow participation by subcommittee chairs.

# Other business

## Working Group Procedures Manual

The draft of the WG P&P Manual (12 pages) will be completed this week and then would be uploaded to the website. It defines the roles and responsibilities of working group members, voting procedures etc. Once the document is finalized it would be submitted to IEEE. IEEE would need to approve the procedure in October.

John Yagielski commented he had reviewed the document and had replied with no major concerns.

## EMC Manuals

There will be three manuals used within the EMC:

* Policies and Procedures for Standards Development (P&P Manual)
* Organization and Procedure Manual (O&P Manual)
* Working Group Policies and Procedure Manual (WG P&P)

The P&P Manual has been updated recently in line with the latest IEEE guidelines and was approved on 14 June 2013 and is valid until 31 December 2018. This describes the process by which standards are created, revised and approved.

## Planned sessions and panels for 2014 PES-GM

* The ‘Call for papers’ was already out for next GM. The deadline for submission is Nov’21.
* Panel sessions for 2015 also need to be requested by Nov’21. The request needs to state the title of the session, the chairman, and give a synopsis of the session including the duration.
* A reminder was also given to nominate prize papers when carrying out the conference paper reviews.

**The SCs made the following preliminary proposals for panel sessions in 2015:**

* Nothing is planned for the generator subcommittee.
* **Motor Sub-Committee**:  
  4 panel sessions are planned:  
  - Harsh environment motor   
  - Advanced Motor and Drive Technology for Electric Vehicle  
  - Advanced topics in electrical machines   
  - Condition monitoring of electrical machines
* **Renewable Energy Systems Committee:**  
  4 panel sessions are planned

a. Protection of and due to Renewable machinery

b. Weak grid issues with renewable machinery

c. Off-shore: HVDC and Low-Frequency transmission

d. Marine Hydrokinetic Machinery

1 tutorial was also planned for 2015.

* D. Ionel suggested for the prize paper to present their paper in EMC transaction session.

## Sub-committee websites

Dionysis Aliprantis has had performed a good job on the website maintenance. This would be worked on further in the newly created task force.

# Attendee’s roundtable

* Nils Nillsson asking the status of inviting people from the power delivery area (a subcommittee within EDPG) into this committee. Their committee is having a meeting at the same time and may come up with a proposal for them to join our committee.
* Haran Karmaker proposed to adjourn the meeting and John Yagielski second to end the meeting. Everyone is in favour to end the meeting.

**ATTACHMENTS TO THE MINUTES**

A EMC Organization Chart

B Updated membership list and attendance Sheet\*

C Standards Coordinator Report

D Generator Subcommittee Report

E Motor Subcommittee Report

F Materials Subcommittee Report

G Renewables Subcommittee Report

H Long Range Planning

I Power Systems Relay Committee Liaison Report

J Fellows Coordinator Report

Attachments A, B, I and J are given in this document. The other attachments will be uploaded on the EMC website as separate documents when available.

\*The full EMC membership list will be made available on the website.

**ATTACHMENT A: PES-EMC ORGANIZATIONAL CHART - 2015**

**Officers**

**Vice Chairman**

Kiruba HARAN

**Secretary**

Kay CHEN

**Chairman**

Chair: Kevin MAYOR

Past Chair: Mike SEDLAK

**Representatives and Coordinators**

**Rep. to TCPC**

Mike SEDLAK

**STDs Coordinator**

Innocent KAMWA

**Fellows Coordinator**

Nils NILSSON

**Webmaster**

Oleg Wasynczuk

**Webmaster**

Dionysios ALIPRANTIS

**Awards & Recognition**

Nils NILSSON

**Liaisons**

**PSRC**

Nils NILSSON

**IAS**

Dan IONEL

**Excitation EDPG**

Murray COULTES

**Subcommittees** (Subcommittee name / Chair / Vice Chair / Secretary)

**Materials**

- Nancy FROST

-.Aleksandra JEREMIC

- Paul GABERSON

**Motors**

- Akira CHIBA

- Dan IONEL

- Masahide OSHIMA

- Yao DUAN

**Generators**

John YAGIELSKI

Gayland BLOETHE

Raul RICO

**Renewable Energy Machines & Systems**

- Nick MILLER

- Istvan ERLICH

- Ed MULJADI

**Attachment B: EMC Main Meeting Attendance Sheet**



**Attachment C: Power Systems Relay Committee Liaison Report**



**Attachment D: Generator Subcommittee Report**



**Attachment E: Motor Subcommittee Report/ Minutes**

Report has not yet been received.

**Attachment F:Materials Subcommittee Report/Minutes**

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**Attachment G:Renewables Subcommittee Report/Minutes**

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**Attachment H:Fellows Coordinator Report**

