IEEE P2814 Working Group Meeting
Minutes
23 Apr 2020 / 1:00 PM –2:00 PM (GMT)
Teleconference
https://ieeesa.webex.com/ieeesa/j.php?MTID=mf22b76d1779af7d0044021b81c7ae83b

Minutes Recorded by Michael Sanders, WG Secretary

1. **Call to Order**
   The meeting was called to order at 1:05 PM (GMT) by the Working Group Chair, C. S. Lai.
   M. Sanders determined there was a proper quorum of voting members (9 out of the 15 members were present).

2. **Roll Call of Individuals & Declaration of Affiliation**
   Affiliation FAQs: http://standards.ieee.org/faqs/affiliation.html

3. **Approval of Agenda**
   C. S. Lai asked for approval of the agenda, and it was affirmed**.**

4. **IEEE Patent Policy**
   a. Call for Patents
   https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.pdf
   The call for patents was raised. There were no questions or concerns.

5. **Approval of the minutes of the last meeting**
   J. Camillieri requested that the minutes from the last meeting be approved.
   S. Browning seconded that, and there were no objections.

6. **Comments on Presentation**
   Slide 1 – Slide 6 Introduction/Agenda/ etc.
   No comments
   Slide 7 – Scope Statement
   S. Browning asked if there are any overlaps with other standards. C. S. Lai responded that to best of knowledge, there are no overlaps.
   Slide 8 – Recent Activities
   C. S. Lai commented that all articles have to go through the IEEE Risk Management for review. The 2 articles are not part of the standard but just a work output.
   Slides 9, 10, 11 – Paper from Imperial College London (ICL)
   https://www.imperial.ac.uk/media/imperial-college/energy-futures-lab/research/Strategic-Assessment-of-the-Role-and-Value-of-Energy-Storage-in-the-UK.pdf
   While has some good points to consider, limitations (see slide 11).
   S. Browning commends there is also a 2016 paper by ICL. He provided the URL of https://www.theccc.org.uk/wpcontent/uploads/2015/10/CCC_Externalities_report_Imperial_Final_21Oct20151.pdf

Slides 12, 13, 14, 15 – Paper from International Renewable Energy Agency (url: https://www.irena.org/publicatoins/2020/Mar/Electricity-Storage-Valuation-Framework-2020
C. S. Lai commented on this paper, noting strengths and some weaknesses especially around the framework. It contains limited storage options; i.e it talks about battery storage, but not other types (kinetic, thermal, etc.). His overall point is to consider the broader scope of ESS. Additionally, the financial option doesn't seem complete, so this Standard (P2814) needs to talk about more than just cost, but also lifecycle issues, retirement, etc.

S. Browning had several comments during this section. He noted another paper regarding cyro battery's (URL: https://www.highviewpower.com/). Also, he stated that EV batteries have had a jump in capacity -75kWh with 3.5 miles/kWh (KEA Small Saloon). Allows a State of Charge range Daily for V2G G2V as average Daily journey less than 40 miles
Also, the IRENA is just an Electricity System Optimisation model alone. This needs various VRE profiles across a 1 year period say plus Interfaced Time Series Heat/Cool and Transport models (EV involvement), probably by iteration

Slide 16 – Time Scale and Energy System
S. Browning –commented about the lack of inertia for small plants, and that the timescale needs to be shorter. Batteries are going in for Operator Ancillary Services - Damping through the reserve. But do we need to keep the scope to the major requirement to provide storage in the longer Dispatch and Commitment Timescales - out to Market timescales?
The value of thermal storage depends on what you can use it for... And that partly depends on what temperature you can achieve, not just the Energy. GB is already having to curtail high Wind at low demand periods to permit part loaded CCGTs on to provide Inertia. Slides are available online from their COVID site. Steve then sent this note: https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials
Detailed breakdown of Operator actions on the 8/4, 15/4 and 22/4 Meeting slides

Loi Lei Lai – commented this was an interesting discussion and that the use of storage will be the way out of some issues. ToS. Browning's comment, we should try and have the scope include his requests.

J. Camillieri had a question on slide 16: Do we need to consider economic benefits for devices that are in a faster time rate (i.e hourly or by the minute), or is that out of scope?
C. S. Lai responded that if we just use existing metrics, the then standard won't be relevant to new technologies, so must consider hourly or even more granular terms of time.
J. Camillieri appreciated the comments by C. S. Lai

Slide 17 – TEA Framework for P2814
C. S. Lai went through how this framework could work for this working group. There will be further discussion on this in the next meeting.

Slide 18 – Financial Model Technical Inputs Usually Seen in BESS (provided by Simon Valdivia)
S. Validivia's comments – A list of technical inputs they get for financial models, with a specific focus on BESS.
S. Browning commented that there are a lot of Time Series Electricity system studies out there using Mixed Integer Linear Scheduling packages. Imperial have WeSIm which does combined Operational+Investment modelling. They may now have improved on it.

Slide 19 – Lifecycle Assessment

C.S. noted that this needs to include (minimally)

- assess for potential environmental issues
- take into account where the life of a device is much shorter than traditional power plants

He also noted, the WG will need to identify experts to assist in this area.

Slide 20 – Structure of the Standard

C. S. started to go through this slide, getting through the Definitions. At that point, the technical problems with the WebEx started to manifest.

As a side, S. Browning also noted an article containing abstracts of 47 Peer-Reviewed Published Journal Articles From 13 Independent Research Groups With 91 Different Authors Supporting the Result That Energy for Electricity, Transportation, Building Heating/Cooling, and/or Industry can be Supplied Reliably with 100% or Near-100% Renewable Energy at Difference Locations Worldwide.

https://web.stanford.edu/group/efmh/jacobson/Articles/I/CombiningRenew/100PercentPaperAbstracts.pdf

7. Adjournment:

Unfortunately, there were technical problems with the Webex, and this caused C. S. Lai to drop out of the meeting (and taking the Webex room with him). After about a 7-minute wait, and some discussion with those who could still communicate, M. Sanders recommended that the meeting be adjourned, and S. Browning seconded. The meeting officially ends at 2:15 PM GMT.

8. Appointment of Officers

a. Vice-Chair

The Working Group Chair shall appoint a Vice-Chair.

The appointment of officers shall be for a term of one year, but an officer may serve until a successor is appointed.

The officers (and any person designated to manage the Sponsor ballot) shall each be IEEE members of any grade, or IEEE Society affiliates, and also be members of IEEE-SA.

If you are interested in the Vice-Chair position please contact Chun Sing Lai.

9. AOB

Due to technical issues, there was no around the board.

10. Future Meetings

Again, due to the technical issues, no immediate future meeting dates were discussed. C. S. Lai will send out a notice of the next meeting.

Attendees

Last Name	First Name	Affiliation
Lai	Chun Sing	Brunel University London
Sanders	Michael	Salt River Project
Lai	Loi Lei	Guangdong University of Technology
Wang	Dongxiao	Australia Energy Market Operator (AEMO)
Valdivia	Simon	John Wood Group, PLC
Pimm	Andrew	University of Leeds
Camilleri	John S.	PSC North America
Browning	Steve	CEGB/National Grid Electricity System Operations Generation Modeling (Retired)
Tao	YingShan	Guangdong University of Technology