

**IEEE TAB Committee
on Standards (TCOS)**

Technical Activities Board Committee on Standards (TAB CoS) Smart Cities Standards Activities

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Reporting on Two Successful TCoS Projects

01

“Activities for IEEE P2814 Standard and Smart City Project Authorization Request”

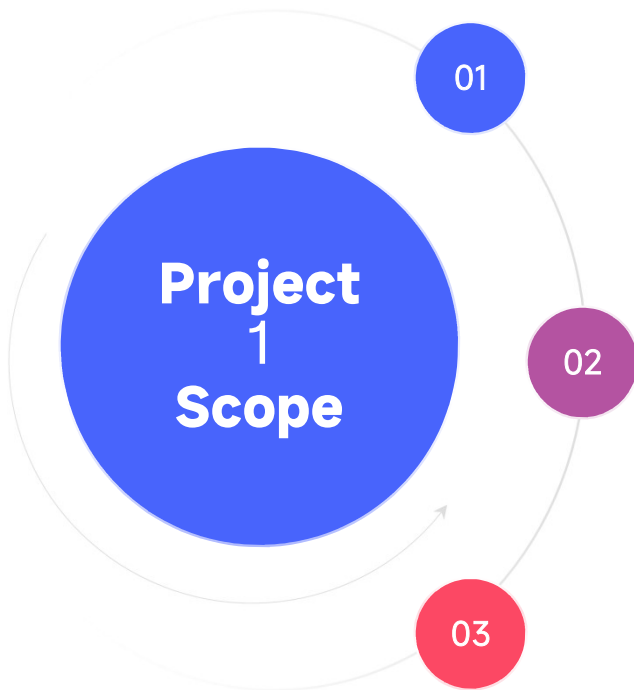
R7P1, Standards Association Discretionary Fund, Technical Activities Board Committee on Standards (TAB CoS), IEEE, 1st April 2022- 31st Dec 2022. (Scored A)

02

“Activities for new standards and PARs in active safety online monitoring and fire early warning of lithium-ion battery for smart cities”

R11P7 and R12P16 (roll-over), Standards Association Discretionary Fund, Technical Activities Board Committee on Standards (TAB CoS), IEEE, 1st May 2023- 31st May 2024.

Project 1 Scope and SMART Objectives



Scope

This standard defines techno-economic terminologies used in the development, construction, and operation of renewable energy and electrical energy storage systems, including smart city concepts across different infrastructure and systems components used across various services at city-scale.

Specific

To develop a new PAR for smart city terminology: IEEE P3166 is created with IEEE SMC as sponsoring society. Study group mentor, Hermann Koch, IEEE Fellow and previously worked as a principal expert with Siemens, chair and secretary have been in place and various tasks have been identified. Various IEEE Societies (even without standards Committee) have representatives attended the Working Group meeting.

Measurable

To increase student participation in IEEE Standard development: There are student volunteers taking part in the Group, for example, the newly appointed secretary is a PhD candidate working in smart health from the University of Oxford, UK. For the workshop, student volunteers were recruited to help with organizing the event. In doing so, we provide an opportunity for students to aware about standards activities in an early stage.

Project 1 SMART Objectives

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Achievable: To attract smart city experts to develop a new PAR on smart city terminology. Created a study group and turned into a working group with at least 25 persons attended the meeting from various countries worldwide. More than 35 persons are in the Group.



Relevant: To promote IEEE SA and P2814 to external organizations (outside of IEEE common area of interest) and expand IEEE's influence on non-technical sectors, e.g., finance. IEEE Smart Cities is now under TC2.0 and has an interest to start its Standards Committee as from Jan 2023. It is expected that through this exercise we can help the establishment. Also, TEMS has an interest to have a Standards Committee too.



Time-oriented: Within eight months since the start of the project: 1st April 2022- 31st Dec 2022 with clear milestones.

WP A) Chair a Workshop at IEEE SMC 2022 on new standards and PAR development for Smart Cities



Figure 1 a) Attendees at IEEE HONET 2022



Figure 1 b) Dr Lai presented research on P3166 standard

WP B) To present work on the new smart city PAR development at the IEEE International Smart Cities Conference 2022

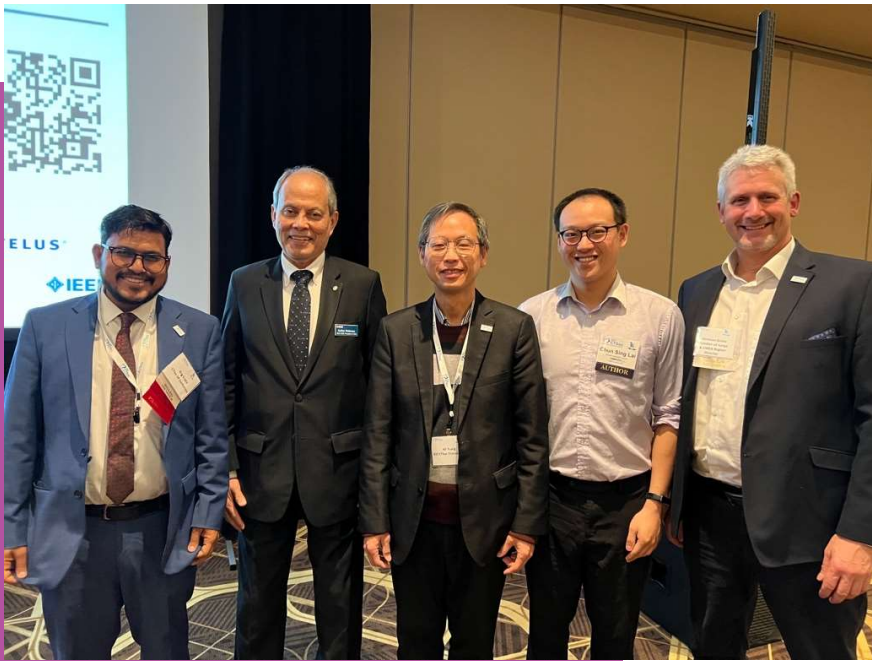


Figure 3 Group photo with Prof K F Tsang, IEEE CTSoc Standards Committee Chair (middle), Prof Saifur Rahman, 2023 IEEE President and keynote speaker (left 2).

Figure 2

Session on Consumer Technology Standards
“Standards make products cheaper and better”



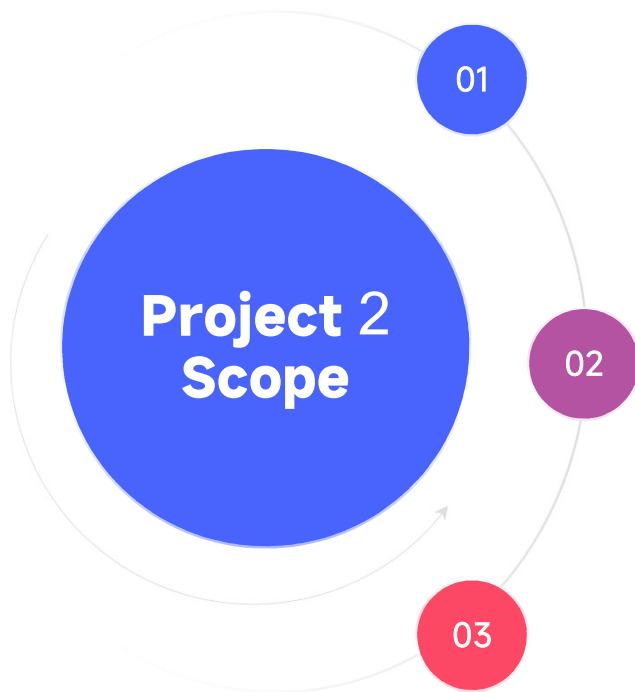
WP C) Organized a one-day “IEEE P2814 Workshop” in London, UK



Figure 4

Group photo with the speakers and participants (left); participants listening to a presentation (right).

Project 2 Scope and SMART Objectives



Scope

This recommended practice provides technical requirements, test methods, inspection rules, and other provisions for active safety online monitoring and early fire warning of lithium-ion battery energy storage stations.

Specific

Create a Working Group on active safety online monitoring and fire early warning of batteries for smart cities with at least 25 members from diverse background.

Measurable

The Working Group should have members from industry, academic, financial, and social sectors.

Project 2 SMART Objectives

Project 2 SMART Objectives



Achievable: The advisor should have relevant technical (education) background and familiar with IEEE standardization. We need an advisor from the economic sector to comment on energy storage viability if safety issues are addressed.



Relevant: This project addresses the root challenges of sustainability by deploying energy storage to increase penetration of renewables. This project also provides opportunities for early career researchers, research students, and external organizations to contribute.



Time-oriented: Within one year since the start of the project: 1st May 2023 – 30th April 2024 with clear milestones.

WP A) Reporting on Panel Session on Standards on Smart Cities Terminology, IEEE Power and Energy Society General Meeting 2023



Fig. 1. Dr Chun Sing Lai (Panel Chair) introducing the panellist Prof Xiao-Ping Zhang



Fig. 2. Dr Yan Xu presenting at the panel.

WP B) PAR Development Workshop on Active Safety Online Monitoring and Fire Early Warning of Lithium-ion Battery, Changsha China, 23 Sept 2023



Fig. 1. In-person participants from the workshop.



Fig. 2. Workshop in progress.

WP C) Reporting on Standard Gap Analysis of Battery Safety Online Monitoring and new P3449 WG activities at 2024 IEEE Conference on Technologies for Sustainability (SusTech), Portland USA, 16 April 2024



Fig. 1. Dr Lai's presentation of a conference paper about the new working group.



Fig. 2. Dr Maïke Luiken provided an opening keynote talk and provided key initiatives to drive sustainable development.

WP D) Standards Forum on Sustainable Development in Smart Cities IEEE International Conference on Consumer Electronics (ICCE) 2024

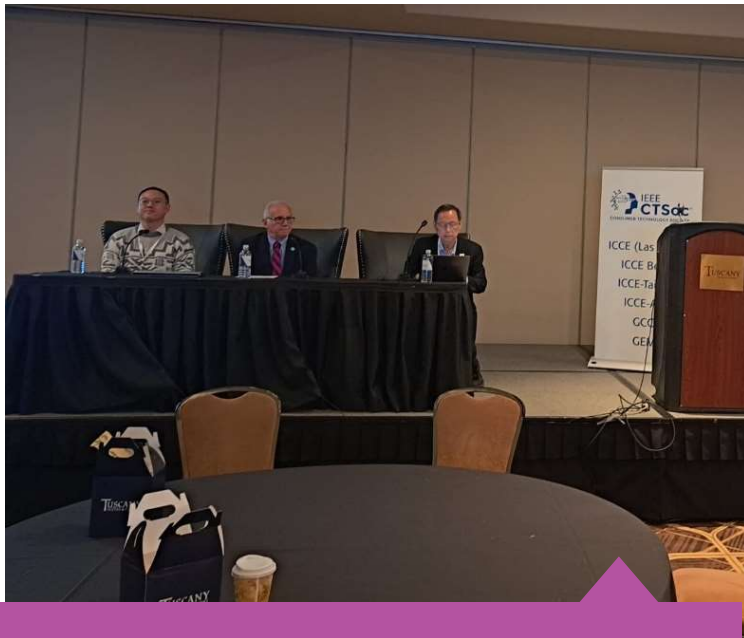


Fig. 1. Standards Forum in progress.

Fig. 2. Dr Lai's presentation and key highlight of P3449 Working Group activities.

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TABCoS Seed Funding Projects Working Groups on Sustainability in Smart Cities

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IEEE ICCE 2024, 6th Jan 2024

P3449 Recommended Practice for Active Safety Online Monitoring and Fire Early Warning of Lithium-ion Battery

- **Scope:** It provides the technical requirements, test methods, inspection rules, and other provisions for active safety online monitoring and fire early warning of lithium-ion battery energy storage stations.
- **Purpose:** Applicable to the operation, maintenance, inspection, and safety management of lithium-ion battery energy storage stations in various application scenarios, including small-scale modular energy storage containers, large-scale centralized prefabricated energy storage systems, and distributed energy storage cabinet-type stations

PAR approval date: TBC

<https://sagroups.ieee.org/smart-cities-energy/>

Project Summary

01

Established two active working groups:

- P3166 website: <https://standards.ieee.org/ieee/3166/10938/>
- P3449 website: <https://standards.ieee.org/ieee/3449/11549/>

02

Attended presentations and meetings:

- presentations and meetings at more than 7 venues globally

03

Attracted over:

- 70 Working Group Members
- 50 industrial and academic institutions
- 5 IEEE endorsing societies



THANK YOU !



Chun Sing Lai

