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Publisher & Editorial:
The Electrical and Electronics Association of Malaysia
No. 5-B, Jalan Gelugor, Off Jalan Kenanga, 55200 Kuala Lumpur, Malaysia.
Tel: +603 - 9221 4417, 9224 6243
E-mail: teeam@teeam.org.my or teeam52@gmail.com

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PEW...PI 16A-32A 63A-125A

Couplers - Watertight IP66/IP67


16A-32A

Wall-mounting plugs - Watertight IP67


PEW...SM 63A

Plugs – Watertight IP66/IP67


PEW...SV 16A – 32A

Interlocked switched socket-outlets with screw type fuse carrier aluminium enclosure – splashproof IP55


(PK...PB5 125A)

Interlocked Switched Socket-Outlets


TM...SP

Plugs - Low voltage from 50V to 690V

IP44


PE...PP 16A-32A


PE...PQ 16A-32A


PE...SV 16A-32A

IP67


Couplers 16A-32A


SIPW...SV


PEW...PP 16A-32A

Multipole Connectors for Industrial Purposes

C-Type

IP Enclosure C-Type


Hoods with 2 levels


Hoods with 1 level

CNE-CSE 16 Poles


Inserts, Screw terminal connection

MIXO modular units


4 poles 40A-830V

CT – CTS 64 Poles


Terminal blocks inserts screw terminal connection

CP 6 Poles 35A-400/690V


Inserts, screw terminal connection

CKS 3 and 4 Poles


Inserts, 3 poles + connection with spring terminal


Inserts, 4 poles + connection with spring terminal

CMCE 3+2 (aux) polest


Inserts, Crimp Connections

MIXO modular units 2 poles 100A


Crimp connections

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sales@chitakelectrical.com.my

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TEEAM Secretariat Tel: +603-9224 6243

Contribution of Articles

Caleb Masuda Koh
E-mail: cmaskoh@gmail.com

Ir. Chew Shee Fuee KMN
E-mail: chrisfchew@gmail.com

Choo Wei Seng
E-mail: wschoo@conway.com.my

Department of Statistics, Malaysia
Website: http://www.dosm.gov.my

Ir. Lee Kok Chong
E-mail: amptechh@gmail.com

Artwork & Printer

United Mission Press Sdn Bhd
No. 15 & 17, Jalan BS 9/10, Perindustrian BS 9,
Taman Perindustrian Bukit Serdang,
43300 Sri Kembangan, Selangor Darul Ehsan.
Tel: +603-8953 8836

From The Editor's Desk

Malaysia remains on a positive growth trajectory, with the nation projected to achieve 4.8% GDP growth in 2025. This encouraging outlook reflects continued resilience in the economy and bodes well for key industries, including the electrical and electronics sector.

One of the most notable developments is the unprecedented demand for data centres across the country, driven by rapid digitalisation, cloud computing, and artificial intelligence. This trend continues to create significant opportunities for the electrical industry and its supporting ecosystem.

Following our Annual General Meeting, TEEAM welcomes a new set of Council Members. We extend our heartfelt congratulations to Mr. Albert Tan, who has been elected as the new President of TEEAM. We look forward to his leadership in guiding the Association forward.

During the year, a delegation of Council Members also represented TEEAM at the AFEEC–FAPECA Conference & Meeting in Bali. Discussions reaffirmed that the energy transition remains firmly on track, presenting long-term prospects and growth opportunities for the electrical industry as a whole.

In this issue, we feature an article on Battery Energy Storage Systems (BESS), a rapidly emerging solution that is gaining increasing relevance in supporting grid stability, renewable energy integration, and sustainable power management.

In addition to our technical coverage, we hope our lifestyle and health articles will provide a refreshing balance, offering readers well-rounded and engaging content beyond industry developments.

We trust you will find this issue both informative and enjoyable.

Regards,

Ir. Chew Shee Fuee, KMN
Editor
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Talk on Managing Energy Efficiency as per EECA 2024 Requirements

TEEAM organised a Talk titled “Managing Energy Efficiency as per EECA 2024 Requirements” on 30 April 2025 at the TEEAM Seminar Hall. It focused on the Energy Efficiency and Conservation Act (EECA) 2024, which came into effect on 1 January 2025. The session provided participants with a comprehensive overview of the Act, including key guidelines and compliance requirements issued by Suruhanjaya Tenaga (Energy Commission).

The distinguished Speaker, Ir. T. Prabakaran Rajah, a Professional Engineer with over 30 years of international and local experience—having served in the UK, Kenya, Laos, Cambodia, Fiji, the Philippines, and throughout Malaysia including Sabah and Sarawak—delivered an insightful presentation. He is a Director of Energycomms Engineering Sdn Bhd, a member of TEEAM, and the Managing Director at Afrima Consulting Engineers Sdn Bhd.

Snapshots of Talk on Managing Energy Efficiency as per EECA 2024 Requirements

Key topics covered by Ir. Praba included:

- An overview of EECA 2024 and its implementation roadmap.
- Managers (REMs), including classifications of REMs.
- Penalties and enforcement actions for non-compliance, applicable to both energy consumers and buildings.
- The Building Energy Industry Label (BEIL): its significance and application.
- Best practices for compliance and preparing organisations for the new regulatory landscape.
- The role of energy audits, energy-saving projects, and available grants and incentives to support energy efficiency initiatives.

The second Speaker, Ms. Neelum Rani, the Marketing Director of Energycomms Engineering Sdn Bhd spoke on the Integration of Environmental, Social and Governance (ESG) practices and alignment with relevant Sustainable Development Goals (SDGs) to support the National Sustainable Development Agenda.

The Talk provided a valuable platform for industry players to gain clarity on regulatory expectations and practical strategies to enhance energy efficiency within their operations. Participants left with actionable insights to align their practices with the EECA 2024 requirements while contributing towards Malaysia’s sustainability goals. Snapshots of Talk on Managing Energy Efficiency as per EECA 2024 Requirements.

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AFEEC & FAPECA Conference & Meetings 2025 in Bali

The Conference & Meetings of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) and the Federation of Asian-Pacific Electrical Contractors Associations (FAPECA) were successfully held from 23 to 26 September 2025 at the Ayodya Bali Resort in Nusa Dua, Bali, Indonesia. The events were proudly hosted by the Association of Indonesia Electrical and Mechanical Contractors (AKLI). There was overwhelming participation from members of AFEEC and FAPECA, namely, the National Associations including the Association of Indonesia Electrical and Mechanical Contractors (AKLI), Korea Electrical Contractors Association (KECA), Singapore Electrical Contractors & Licensed Electrical Workers Association (SECA), The Society of Philippines Electro-Technical Constructors and Suppliers (SPECS) Inc., Taiwan Electrical Contractors Association (TECA), The Electrical and Electronics Association of Malaysia (TEEAM) and Thai Electrical & Mechanical Contractors Association (TEMCA). Over 300 delegates and accompanying persons from these National Associations attended the events.

Arrival

TEEAM Malaysia's 16-member delegation touched down in Bali on 23 September 2025, in our striking TEEAM T-shirts! Delegates received a warm and heartfelt welcome from the Organising Committee of AKLI. In true Balinese spirit, each delegate was presented with an Udeng -- the traditional Balinese headwear symbolising respect, unity, and cultural appreciation. The 15-member delegation comprised Mr. Albert Tan (President), Ir. Chang Yew Cheong (Immediate Past President), Ir. Chew Shee Fuee (Past President), Ir. Lee Kok Chong (Vice President), Ir. Dr. Ng Kok Chiang (Vice President), Mr. Rajasegaran Bungara (Vice President), Dato' Andy Tan (Honorary Treasurer), Ms. Joyce Phang (Assistant Honorary Secretary), Mr. Louis Loo (Council Member), Ms. Amanda Tan (Council Member) Ir. Roger Wong (Council Member), Tc. How Chee Seng (Council Member), Datuk Ganesh Muraj K. Rajamany (Committee Member), Ms. Winnie Khong (Executive Secretary), Ms. Thila Sevellinggam (Senior Executive) and Mrs. Lily Chew (Spouse). The delegates later checked-in to the beautiful resort of Ayodya Bali in Nusa Dua.

Welcome Gala Dinner

A warm Welcome Gala Dinner was hosted by AKLI in the evening. TEEAM delegates appeared in style, in striking blue Batik attires. It was a wonderful evening of fellowship, where TEEAM delegates connected with M&E contractors and suppliers from across ASEAN and the Asia-Pacific region – exploring collaborations and new business opportunities. The night was filled with laughter, delicious food, and joyful singing. One of the captivating highlights included TEEAM delegates belting out the famous "Madu dan Racun" (Honey and Poison) – a performance that brought loads of smiles and laughter all around! Our heartfelt thank you to AKLI for hosting such a warm and memorable dinner. It was indeed an unforgettable evening that strengthened bonds, created new friendships, and left us with cherished memories.

Conference on Energy Transition -- Path to Sustainable, New & Renewable Energy

Congratulations to AKLI for successfully hosting an impactful Conference, bringing together over 300 delegates from across ASEAN and the Asia-Pacific region on 24 September 2025. Distinguished Speakers shared their countries' strategies and initiatives on sustainable, new, and renewable energy as part of their energy transition journeys. Representing TEEAM Malaysia was Ir. Lee Kok Chong, Vice-President of TEEAM, who presented a Paper on "Battery Energy Storage System (BESS) Development in Malaysia" – highlighting this key technology as an enabler of Malaysia's transition towards a low-carbon future (see page 97).

The Conference saw active participation from seven associations, namely:

1) Association of Indonesia Electrical and Mechanical Contractors (AKLI)
2) Korea Electrical Contractors Association (KECA)
3) Singapore Electrical Contractors and Licensed Electrical Workers Association (SECA)
4) Society of Philippines Electrical Constructors & Suppliers (SPECS)
5) Taiwan Electrical Contractors Association (TECA)
6) Thai Electrical & Mechanical Contractors Association (TEMCA)
7) The Electrical and Electronics Association of Malaysia (TEEAM)

Unfortunately, our friends from Hong Kong Electrical Contractors Association (HKECA) were unable to join due to flight disruptions caused by Super Typhoon Ragasa. The inspiring Conference helped strengthened regional ties while charting the way forward towards a sustainable energy future. There were booths displays in the foyer to showcase AKLI members' products and services.

60th AFEEC Council Meeting

The 60th AFEEC Council Meeting was convened smoothly in the afternoon and was attended by National Associations from Indonesia, Singapore, Malaysia, Philippines and Thailand. The meeting agenda focused on key regional initiatives, including:

- Mobility of Labour & Skilled Workers
- ASEAN Engineering Installation Handbook Initiative
- Membership Drive
- Bench-marking Electrical Contracting across ASEAN Countries
- Sharing knowledge on Contractor Licensing & Cross-Border Regulations

There was an election of new Office-Bearers of AFEEC for the term 2025-2027. The new AFEEC President is Mr. John Tan of SECA Singapore.

New AFEEC Office-Bearers (2025–2027):

- President – Mr. John Tan (SECA, Singapore)
- Vice President – Mr. Puji Muhardi (AKLI, Indonesia)
- Secretary – Mr. Richard Tan (SECA, Singapore)
- Treasurer – Mr. Edward Kway (SECA, Singapore)
- Council Members – Mr. Albert Tan (TEEAM, Malaysia), Mr. Teerapod Pongpittayapa (TEMCA, Thailand) and Mr. Carmelo Jimson Uranza (SPECS, Philippines)
- Auditors – Dato' Andy Tan (TEEAM, Malaysia) and Engr. Ervin A. Fernandez (SPECS, Philippines)

Before the meeting concluded, a handover ceremony was held where Mr. Boonsak Kiatjaroonlert of TEMCA Thailand graciously handed over the baton of the AFEEC Presidency to Mr. John Tan of SECA Singapore portraying a symbolic moment of leadership transition and continuity for the Federation.

This milestone meeting strengthened win-win collaboration amongst ASEAN member Associations, fostering unity and progress for the electrical engineering contracting industry in the region.

36th FAPECA Board Meeting

Additionally, the 36th FAPECA Board Meeting was held immediately after the AFEEC Council Meeting. The meeting was attended by M&E Professionals and Electrical Contractors from across the Asia-Pacific and ASEAN region. It provided a valuable platform for win-win collaboration, sharing best practices, and strengthening partnerships to advance the electrical contracting industry across the region.

Exciting years ahead are in store for AFEEC-FAPECA events as we continue to build stronger connections and proactively drive the industry forward together! We eagerly look forward to the upcoming editions in:

- Pattaya, Thailand – August 2026
- Hong Kong – 2027
- Taiwan – 2028

Friendly Golf Tournament

The next day on 25 September 2025 was the much-awaited Friendly Golf Tournament held at the beautiful Pandawa Golf Resort. TEEAM had four golfers, namely, Mr. Albert Tan, Dato' Andy Tan, Mr. Louis Loo and Ms. Amanda Tan. A special shout-out goes to Ms. Amanda Tan for her outstanding performance and clinching victory in the B-Flight category! Bravo! It was more than just a game – a great day of camaraderie, sportsmanship, and valuable networking amongst industry peers!

Cultural Adventure

While the golfers hit the greens, the rest of TEEAM delegates embarked on a cultural adventure in beautiful Bali. The first stop was Uluwatu Temple, a sacred Hindu sea temple perched dramatically on a cliff, 70 meters above the Indian Ocean. Absolutely stunning and breath-taking views were for the taking! But beware, the real guardians of the temple are the cheeky monkeys who have a serious eye for sunglasses and phones! They were fast, sneaky, and definitely not shy. Delegates had to stand guard for each other while snapping those epic shots.

Next up was the awe-inspiring Garuda Wisnu Kencana (GWK) Statue – towering at 121 meters, it is the tallest statue in Indonesia and a true architectural masterpiece. Dedicated to the Hindu God Vishnu and his loyal companion Garuda, a mythical bird, this iconic landmark sits proudly in the GWK Cultural Park. What a day of stunning sights, spiritual vibes, and monkey mischief!

Farewell Dinner - A Memorable Finale in Bali

The AFEEC-FAPECA 2025 journey in Bali ended on a high note with an unforgettable Farewell Dinner. It was a night filled with joyous singing, toasting, and laughter as delegates celebrated the bonds of friendship and win-win collaboration built throughout the event. A heartfelt thank you to AKLI for their warm hospitality and thoughtful gesture – sponsoring a special polo T-shirt for every delegate. All delegates proudly wore it in unison, symbolising unity across nations. The evening sparkled with joyous entertainment as each member country took the stage with their favourite songs and TEEAM lit up the night with the famous "Shahlala"! Truly it was a fun-filled and heart-warming finale that left everyone with cherished memories.

See you next in Pattaya, Thailand in August 2026!

Snapshots of AFEEC & FAPECA Conference & Meetings 2025 in Bali


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EP Shanghai 2025

The 32nd Shanghai International Electric Power Equipment & Technology Exhibition (EP Shanghai 2025), held concurrently with the Shanghai International Energy Storage Technology Exhibition and the Hydrogen Energy Expo, was successfully conducted from 18 to 20 November 2025 at the Shanghai New International Expo Centre. Jointly organised by the China Electricity Council and Adsale Exhibition Services Ltd., the exhibition reaffirmed its standing as one of the most influential and established events in the global electric power industry.

Now in its 39th year, EP Shanghai continues to serve as a premier platform for showcasing innovation across the entire energy supply chain, bringing together industry leaders, technology providers, utilities, manufacturers, and professionals from around the world.

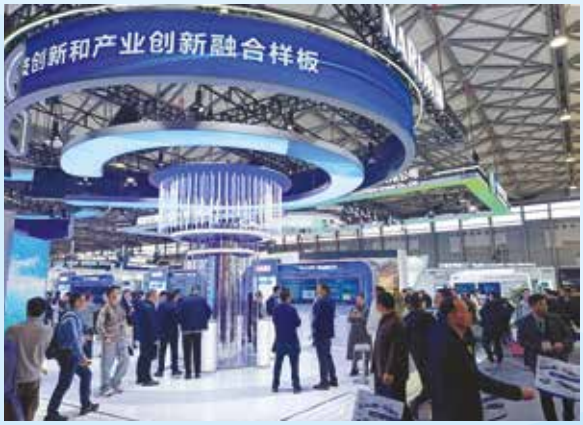
Under the theme “Digital Power for a Smart, Integrated Energy Future,” EP Shanghai 2025 placed strong emphasis on key developments shaping the power sector, particularly in support of China’s 15th Five-Year Plan. The Expo highlighted advancements in energy transition, grid modernisation, and digitalisation, with a focus on accelerating the integrated and low-carbon development of power generation, transmission and distribution networks, load management, energy storage systems, and hydrogen energy solutuions.

Spanning six exhibition halls and covering a total exhibition area of 75,000 square metres, the Expo featured more than 2,000 exhibiting brands and attracted over 70,000 professional visitors from China and abroad. The wide range of exhibits encompassed power generation technologies, transmission and distribution equipment, end-user applications, digital and smart grids, automation systems, energy storage technologies, hydrogen solutions, and intelligent manufacturing equipment.

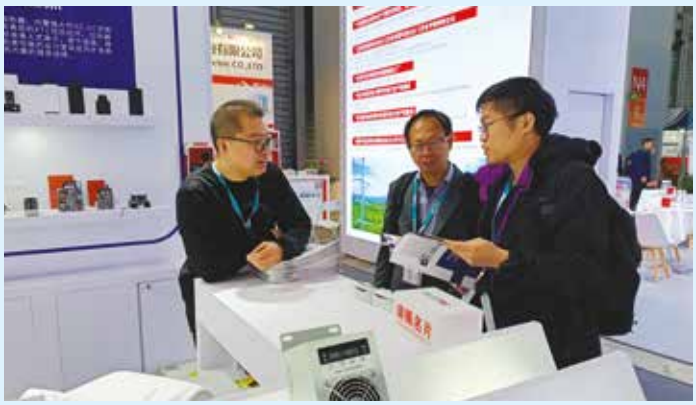
International participation reached new heights, with leading global brands unveiling their latest innovations alongside companies from more than ten countries and regions. The high professional standards and strong international presence underscored the Expo’s growing role as a catalyst for cross-border collaboration, knowledge exchange, and technological advancement within the global power and energy ecosystem.

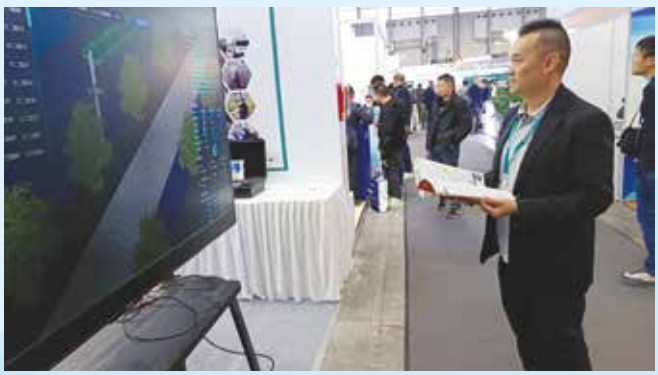
In line with its commitment to keeping members abreast of global industry trends and technological developments, TEEAM organised a delegation of 10 members, led by its President Mr. Albert Tan, to visit EP Shanghai 2025. The delegation benefited from first-hand exposure to cutting-edge technologies, emerging solutions, and best practices in the electric power and energy sectors. The visit also provided valuable opportunities for networking and engagement with international industry players, reinforcing TEEAM’s ongoing efforts to promote knowledge sharing and global industry collaboration.

The participation of the TEEAM delegation at EP Shanghai 2025 reflects the Association’s proactive approach in supporting its members to stay competitive, informed, and aligned with the rapidly evolving global energy landscape. TEEAM also expressed its sincere appreciation to Adsale Exhibition Services Ltd. for their warm hospitality and kind assistance in hosting the TEEAM delegation during the visit. Their support contributed significantly to the delegation’s smooth participation and enriching experience at EP Shanghai 2025. The next EP Shanghai 2026 is scheduled to be held from 3 to 5 December 2026, and it is anticipated to continue serving as a key platform for industry engagement, innovation exchange, and international collaboration within the global electric power and energy sectors. Mark your calendar for this not to be missed industry event!



Snapshots of EP Shanghai 2025





TEEAM 73rd Anniversary Dinner 2025

TEEAM Celebrated 73 Years of Excellence at a Momentous Anniversary Dinner

TEEAM commemorated a remarkable milestone with its 73rd Anniversary Dinner, held on Saturday, 26 April 2025, at the Imperial Ballroom, One World Hotel, Petaling Jaya. The prestigious evening brought together distinguished guests from Government ministries, foreign embassies, industry leaders, association partners, sponsors, and TEEAM members, to celebrate more than seven decades of high impact contribution to Malaysia's Electrical and Electronics (E&E) industry.

The evening commenced with a Cocktail Reception at 6.30 pm, providing an opportunity for fellowship and networking amongst members and guests. At 7.45 pm, the grand entrance of the Very Important Persons (VIPs) and the Guest of Honour marked the official start of the celebration, setting a dignified and festive tone for the night.

"Growing Together, Better Tomorrow"

In his Welcoming Remarks, Ts. Lim Sai Seong, Deputy President of TEEAM and Organising Chairman of the 73rd Anniversary Dinner, warmly welcomed the members and guests and reflected on TEEAM's highly illustrious journey since its founding in 1952. He highlighted the dinner's theme, "Growing Together, Better Tomorrow", describing it as a powerful reflection of TEEAM's collective progress and enduring unity.

With a touch of humour and pride, Ts. Lim traced the evolution of the E&E industry—from basic wiring and lighting to today's advanced technologies such as smart grids, renewable energy, electric vehicle infrastructure and artificial intelligence integration. He expressed heartfelt appreciation to the Sponsors, Organising Committee and the TEEAM Secretariat, acknowledging their dedication and hard work in making the celebration a grand success.

A key highlight of his address was the announcement of a historic achievement: TEEAM's recognition by the Malaysia Book of Records as the "Largest Electrical and Electronics Association in Malaysia", a moment that underscored the Association's stature and influence within the industry, and a historic achievement that reflected the collective strength and unity of the Association.

In his remarks, Ts. Lim also extended a special note of appreciation to the dinner sponsors, acknowledging their generous support as a key pillar of the evening's success. He expressed heartfelt thanks to the Diamond Sponsor, Smart Cable Sdn Bhd; Patron Sponsor, ENERtec Exhibition Partner, Informa Markets Malaysia; Platinum Sponsors, Alliance Bank Malaysia Berhad and Ocean's King Lighting; as well as all Gold, Silver and other Sponsors for their invaluable contributions. Ts. Lim emphasised that their continued support and confidence in TEEAM not only made the anniversary celebration possible but also reflected a shared commitment to strengthening the Electrical and Electronics (E&E) industry. He noted that such strong industry support serves as an important source of encouragement for TEEAM to continue delivering meaningful initiatives and creating greater value for its members and stakeholders.

President's Address: Charting the Way Forward

Delivering the Opening Speech, the then TEEAM President Ir. Chang Yew Cheong, warmly welcomed all guests and expressed deep appreciation to the Guest of Honour, YBhg Datuk Bahria Mohd Tamil, Deputy Secretary General of the Ministry of Investment, Trade and Industry (MITI), for gracing this auspicious occasion.

Ir. Chang reaffirmed TEEAM's strategic role as a pillar of innovation, resilience and unity in Malaysia's E&E industry. He addressed current global challenges, including trade and tariff pressures, while highlighting opportunities for Malaysia to strengthen its competitive position and successfully attract increasing foreign investments. He emphasised the importance of safeguarding local industries and encouraging the use of Malaysian products and services.

He also shared TEEAM's recent achievements, including its dynamic role as Co-host of ENERtec Asia, notably the successful hosting of the AFEEC & FAPECA Conference & Meeting 2024, and its ongoing initiatives in electrical safety advocacy, standards development, and member engagement through technical talks, visits and networking activities. He called on members and industry partners alike to continue working proactively together to build a stronger, and more sustainable future for the E&E industry.

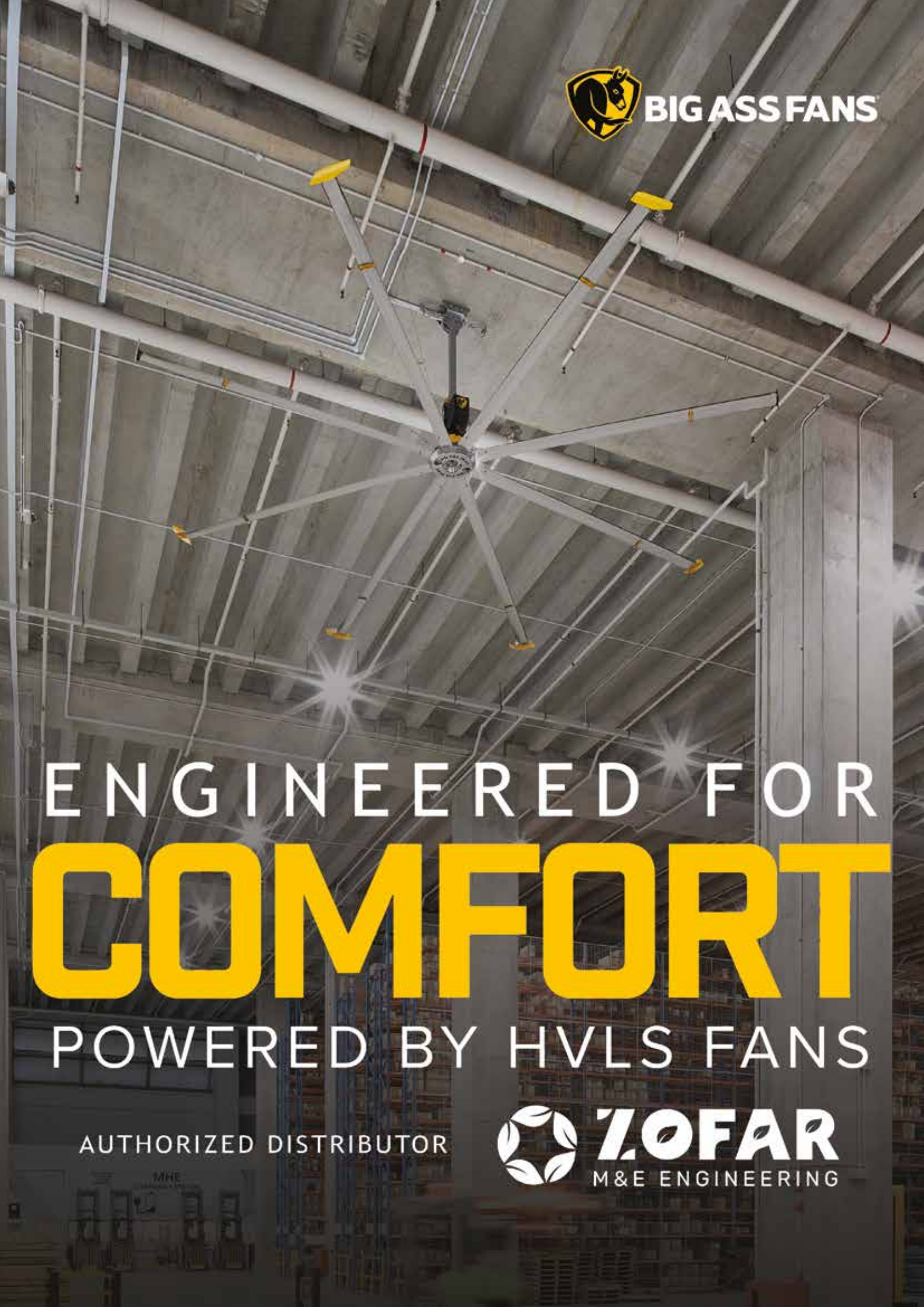
Government's Perspective and Support

The highlight of the evening was the Keynote Address by the Guest of Honour, Deputy Secretary General of Ministry of Investment, Trade & Industry (MITI) YBhg Datuk Bahria Mohd Tamil, who congratulated TEEAM on its 73 years of service and acknowledged the Association's significant contributions to national development. YBhg Datuk Bahria also underscored the strong collaboration between the Government and industry players, noting that organisations such as TEEAM indeed do play a very vital role in shaping policies, standards and industry capabilities. She reaffirmed MITI's commitment to supporting the E&E industry through strategic initiatives, incentives, export assistance and infrastructure development.

YBhg Datuk Bahria also emphasised the importance of electrical safety, high installation standards, and talent development, calling for continued proactive collaboration between Government agencies, industry associations and educational institutions to nurture a highly skilled and truly competent workforce for the future.

Malaysia Book of Records' Recognition

A defining highlight of the evening was the official Presentation of the Malaysia Book of Records (MBR) Certificate to TEEAM, marking a proud and historic milestone in the Association's illustrious 73-year journey. TEEAM was formally recognised as the Largest Electrical and Electronics Association in Malaysia, with a strong membership base of 1,868 members nationwide. This prestigious recognition is a testament to TEEAM's enduring relevance, credibility and dynamic leadership in uniting industry players across the E&E ecosystem. It reflects the collective strength, trust and commitment of its members, past and present, who have contributed to TEEAM's growth and influence over the decades. This prestigious honour not only celebrates TEEAM's remarkable legacy but also reinforces its pivotal role as the leading voice of the E&E industry, well-positioned to continue driving industry advancement, advocacy and excellence in the years ahead.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A Night of Celebration and Recognition

The evening programme was further enlivened by captivating performances, lucky draws and heartfelt moments of appreciation, creating a very vibrant and truly celebratory atmosphere throughout the night. One of the key highlights was the Presentation of Tokens of Appreciation to Sponsors, recognising their invaluable support and partnership in making the 73rd Anniversary Dinner a memorable and successful occasion. TEEAM expressed its sincere gratitude to all Sponsors for their continued confidence in TEEAM and their steadfast commitment to advancing the E&E industry. Their generous contributions and positive collaborations have played a vital role in much strengthening TEEAM's initiatives, programmes and outreach efforts over the years.

The celebration also honoured the dedication and service of the TEEAM Office Bearers (Session 2023–2025), acknowledging their stellar leadership, earnest commitment and tireless efforts in successfully steering the Association forward during their term of office. Their collective contributions have been highly instrumental in driving TEEAM's growth, strengthening industry engagement and enhancing member value.

The night concluded on a high note with the much-anticipated Grand Lucky Draw, filling the ballroom with excitement, laughter and joy. As the celebration drew to a close at 11.00 pm, guests departed with fond memories of a truly meaningful celebration—one that not only honoured TEEAM's rich legacy but also reaffirmed the strong partnerships and shared aspirations that will continue to propel the Association towards an even brighter future.

Looking Ahead

The TEEAM 73rd Anniversary Dinner was not only a celebration of past achievements but also a reaffirmation of the Association's strong commitment to advancing the E&E industry through win-win collaboration, innovation and a shared sense of purpose. As TEEAM moves forward towards greater success, the spirit of "Growing Together, Better Tomorrow" will continue to guide its illustrious and accolades winning journey towards an even brighter and more electrifying future!

Snapshots of TEEAM 73rd Anniversary Dinner 2025










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RM1,000
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TEEAM 73rd AGM & Election 2025 and Specialised Group General Meetings

TEEAM successfully convened its 73rd Annual General Meeting (AGM) & Election of New Office Bearers for the 2025–2027 term on Sunday, 1 June 2025, at 9:00 am at the Kuala Lumpur Golf & Country Club (KLGCC). The meeting reflected continued strong engagement and support from the membership.

President's Vote of Thanks

The AGM commenced with a Vote of Thanks by the outgoing President Ir. Chang Yew Cheong, who expressed his sincere gratitude to members for taking time to attend the 73rd AGM. He shared his appreciation for the confidence and trust bestowed upon him to lead the Association over the past two years and conveyed his heartfelt thanks to the EXCO, Council Members and various Committees for their steadfast support, dedication and invaluable contributions throughout his term of office.

Acceptance of Minutes, Annual Report and Accounts

The Minutes of the previous AGM were duly presented and approved by the members. The Annual Report for 2024 was then tabled by the outgoing Honorary Secretary Mr. Simon Leong, highlighting the Association's activities, achievements and key initiatives over the past year.

This was followed by the presentation of the Audited Accounts for the financial year ended 31 December 2024 by the outgoing Honorary Treasurer Dato' Andy Tan. Both the Annual Report and Audited Accounts were unanimously approved and adopted at the General Meeting.

Appointment of Trustees and Internal Auditors

The AGM unanimously re-appointed Mr. Liang Kok Boon, Mr. Suresh Kumar Gorasia, Dato' Yeoh Kim Wah and Datuk Ir. Yong Ah Huat as Trustees. Mr. Chong Chee Siong and Mr. Fong Mun Loong were also re-appointed as Internal Auditors for another term.

Election of New Office Bearers

As several positions were uncontested, no secret ballot was required for the posts of President, Deputy President, Honorary Treasurer and Assistant Honorary Secretary. The following positions were duly filled:

- President: Mr. Albert Tan
- Deputy President: Ts. Lim Sai Seong (re-elected)
- Honorary Treasurer: Dato' Andy Tan (re-elected)
- Assistant Honorary Secretary: Ms. Joyce Phang

A strong contest was recorded for the position of Assistant Honorary Treasurer. Following a secret ballot, Datuk Jacky Chen was elected.

For the Council Member positions, 20 nominations were received for the 10 available positions. The elected Council Members were Mr. Louis Loo, Mr. Choo Wei Seng, Mr. Andrew Lu, Tc. How Chee Seng, Ms. Ng Suan Lin, Mr. Derrick Wong, Ir. Ts. Roger Wong, Mr. Yeoh Jun Yong, Mr. Chow Wing Kah and Mr. Chong Yoon Koon.

In addition, one representative from each of the 10 State Association Members will be duly nominated to the Council, along with two representatives seconded from

each of the three Specialised Groups. The Chairman of the three respective Specialised Groups will automatically assume the role of Vice Presidents of TEEAM.

Closing Remarks

In his Closing Remarks, the newly elected President Mr. Albert Tan, expressed his sincere appreciation to the members for their confidence and trust in electing him to lead TEEAM for the 2025–2027 term. He paid tribute to the outgoing President Ir. Chang Yew Cheong, for his exemplary leadership and dedicated service, which had strengthened TEEAM's position and relevance within the Electrical and Electronics (E&E) industry.

Mr. Albert Tan reaffirmed his commitment to working closely with the EXCO, Council, State Associations and Specialised Groups to further enhance member engagement, promote industry collaboration and address emerging challenges faced by the E&E sector. He emphasised the importance of unity, innovation and proactive participation, and called upon members to continue supporting TEEAM's initiatives as TEEAM charts its way forward in a rapidly evolving industry landscape.

Specialised Groups' General Meetings

Following the conclusion of the 73rd AGM of TEEAM, proceedings continued with the General Meetings of TEEAM's three Specialised Groups, namely the Engineering Construction & Services Group, Trading Group, and Manufacturing Group. Each meeting reflected strong participation and demonstrated members' commitment to strengthening leadership, governance and collaboration within their respective sectors.

Engineering Construction & Services Group's General Meeting

The Engineering Construction & Services Group's General Meeting attendees unanimously confirmed the minutes of the previous General Meeting before proceeding with the election of Committee Members.

Presided over by Ir. Lee Kok Chong, the meeting reaffirmed continuity in leadership with the re-election of Ir. Lee as Chairman, ensuring stability as the Group continues its formal development within TEEAM's organisational framework. Mr. Louis Loo was elected as Vice Chairman, Ms. Ng Suan Lin as Secretary, while Mr. Chong Yoon Koon was re-elected as Treasurer.

A competitive and transparent voting process was conducted to second two representatives to the TEEAM Council. Following the ballot, Ir. Alex Looi and Dr. Ir. T. Prabakaran were elected to represent the Engineering Construction & Services Group at Council level.

In a landmark move underscoring the Group's commitment to inclusive governance, Ir. Lee announced that all members in attendance would be deemed elected as Committee Members for the upcoming term. This collective approach ensures broad representation and encourages active participation among members.

The meeting concluded on a positive note, with members expressing a renewed sense of purpose and strong commitment to advancing the objectives and initiatives of the Engineering Construction & Services sector.

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	MINIMUM		MAXIMUM		MINIMUM		MAXIMUM						MINIMUM		MAXIMUM	
in	mm	in	mm	in	mm	in	mm	in	kg/m	kg/ft	lb/ft	PER INCH	mm	in	mm	in
¾	18.76	0.7387	19.05	0.7500	1.52	0.060	1.63	0.064	0.713	0.217	0.479	16	12.70	0.5000	14.29	0.5625
1	25.11	0.9887	25.40	1.0000	1.52	0.060	1.63	0.064	0.972	0.296	0.653	16	15.88	0.6259	17.46	0.6875
1¼	31.46	1.2387	31.75	1.2500	1.52	0.060	1.63	0.064	1.240	0.376	0.830	16	17.46	0.6875	19.05	0.7500
1½	37.80	1.4880	38.10	1.5000	1.73	0.068	1.83	0.072	1.680	0.511	1.130	14	19.05	0.7500	20.64	0.8125
2	50.50	1.9880	50.80	2.0000	1.93	0.076	2.03	0.080	2.510	0.765	1.690	14	22.23	0.8750	23.81	0.9375

MS 275 / BS 4568 CLASS 3 (SCREWED) / MANUFACTURER'S STANDARD

NOMINAL SIZE	OUTSIDE DIAMETER		WALL THICKNESS	CALCULATED WEIGHT WITH COUPLER		PITCH	LENGTH OF THREADS	
	MINIMUM	MAXIMUM		MINIMUM	MAXIMUM		MINIMUM	MAXIMUM
mm	mm	mm	mm	kg/m	kg/m	mm	mm	mm
20	19.7	20.0	1.6 ± 0.15	0.643	0.783	1.5	13	15
25	24.6	25.0	1.6 ± 0.15	0.811	0.995	1.5	16	18
32	31.6	32.0	1.6 ± 0.15	1.069	1.301	1.5	18	20

MS IEC 61386-1 / MS 61386-21 CONDUIT SYSTEM FOR CABLE MANAGEMENT

NOMINAL SIZE	OUTSIDE DIAMETER		INSIDE DIAMETER	EXTERNAL THREAD LENGTHS
	MINIMUM	MAXIMUM	MINIMUM	MINIMUM
mm	mm	mm	mm	mm
20	19.7	20.0	1.6 ± 0.15	13
25	24.6	25.0	1.6 ± 0.15	16
32	31.6	32.0	1.6 ± 0.15	18

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Trading Group's General Meeting

The Trading Group's General Meeting commenced with Ir. Dr. Ng Kok Chiang, Chairman of the Trading Group, presenting the minutes of the previous General Meeting, which were unanimously confirmed. The motion was proposed by Mr. Chong Chee Siong and seconded by Mr. Derrick Wong.

The Group reaffirmed its leadership for the upcoming term. Ir. Dr. Ng Kok Chiang was re-elected as Chairman, with the motion proposed by Mr. David Chong and seconded by Mr. Charles Lee. Mr. David Chong was also re-elected as Vice Chairman, while Mr. Chris Yow was elected as Secretary. In addition, Mr. Charles Lee was re-elected as Assistant Secretary.

A key highlight of the meeting was the confirmation that all members present would be deemed elected as Committee Members of the Trading Group for the new term.

Furthermore, Ir. Dr. Ng announced that Mr. David Chong and Ms. Liow Lih Na were appointed as the Group's two representatives to the TEEAM Council.

The meeting concluded in a positive and enthusiastic atmosphere, with Committee Members reaffirming their commitment to advancing the objectives of the Trading Group and strengthening collaboration amongst its members.

Manufacturing Group's General Meeting

The Manufacturing Group's General Meeting was chaired by the outgoing Chairman Mr. Albert Tan. He presented the minutes of the previous meeting held on 28 May 2023, which were unanimously approved by the members.

The meeting proceeded with the election of key office bearers to guide the Group's continued growth. Mr. Rajasegaran Naidu was elected as Chairman, with his nomination proposed by Mr. Choo Wei Seng and seconded by Datuk Ir. Yong Ah Huat.

Ms. Amanda Tan was elected as Vice Chairman, following a proposal by Dato' Dr. Siew Choon Thye and seconded by Datuk Ir. Yong Ah Huat.

There was active participation for the position of Secretary. Following the election, Mr. Steven Lee was elected to serve in the role.

To ensure effective representation at Council level, the Manufacturing Group seconded Ms. Amanda Tan and Mr. Steven Lee as its representatives to the TEEAM Council.

There being no further matters to discuss, the meeting adjourned for lunch, bringing a well-organised and productive General Meeting to a successful close.

Snapshots of TEEAM 73rd AGM & Election 2025 and Specialised Group General Meetings











ELECTION 2025
CHOOSE YOUR COUNCIL


TEEAM OFFICE-BEARERS FOR THE YEAR 2025-2027

Council

Post	Company/Individual/State Association	Representative
President	Conway Terminals Manufacturer Sdn Bhd	Albert Tan Tin Yau
Deputy President	QAV Technologies Sdn Bhd	Ts. Lim Sai Seong
Immediate Past President	Abbaco Controls Sdn Bhd	Ir. Chang Yew Cheong
Past Presidents	Amalgamated Engineering & Commercial Co (KL) Sdn Bhd	Suresh Kumar Gorasia
	G. H. Liew Engineering (1990) Sdn Bhd	Ir. Chew Shee Fuee KMN
	Gruppe Lighting Solution Sdn Bhd	Dato' Dr. Siew Choon Thye
	Datuk Ir. Yong Ah Huat	-
Vice Presidents	Amptech M&E Sdn Bhd	Ir. Lee Kok Chong
	Syarikat Pembaiki Letrik Leong Hing	Ir. Dr. Ng Kok Chiang
	Areta Energy Services Sdn Bhd	Rajasegaran Bungara Naidu
Honorary Secretary	Sik Supply Sdn Bhd	Chris Yow Loo Sik
Honorary Treasurer	Paramount PES Engineering Sdn Bhd	Dato' Andy Tan Boon Hin
Assistant Honorary Secretary	Maxguard Switchgear Sdn Bhd	Joyce Phang Sze Mun
Assistant Honorary Treasurer	SB Elektrik & Elektronik Sdn Bhd	Datuk Jacky Chen Siang Long
Council Members	Cable Line Electrical & Engineering Sdn Bhd	Louis Loo Kok Leong
	CS Project & Engineering Services	Tc. How Chee Seng
	Eco Jaya Elektrik Sdn Bhd	Yeoh Jun Yong
	Energycomms Engineering Sdn Bhd	Ir. T. Prabakaran Rajah
	EPI Marketing Sdn Bhd	Derrick Wong Wai Sing
	Euro Electrical Sdn Bhd	David Chong Ah Nyap
	Laj Kejuruteraan Sdn Bhd	Ir. Alex Looi Tink Huey
	Malaysia CIE (MyCIE)	Ir. Ts. Dr. Narendren Rengasamy
	Megahock Pipes & Profile Manufacturing Sdn Bhd	Amanda Tan Cheng Fang
	Mun Hean (Malaysia) Sdn Bhd	Ir. Ts. Roger Wong Chin Weng
	Perniagaan Kejuruteraan Chongs	Chong Yoon Koon
	Powerpoint Electrical Sdn Bhd	Andrew Lu Zen Kai
	PTS Solutions Sdn Bhd	Liow Lih Na
	RZB Lighting Asia & Pacific Sdn Bhd	Steven Lee Wai Hock
	Swang Space Sdn Bhd	Ng Suan Lin
	Zofar Mechanical & Electrical Engineering Sdn Bhd	Chow Wing Kah
State Associations'	Electrical Association of Sarawak & Sabah	Hii Hua Chuon
Representatives	Johor Bahru Electrical & Electronics Association	Datuk Javy Kam Choon Wah
(Council Members)	Malacca Electrical Contractors & Traders Association	Gan Seng Chong
	Negeri Sembilan Electrical Engineering Association	Chew See Kheng
	Penang Electrical Merchants' Association	Neoh Boon Tong
	Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik Perak	Tony Leong Kwong How
	Sabah Electrical Association	Lawrence Yapp Kong Fen
	Sandakan Electrical Engineering Association, Sabah	Chin Ket Hiung
	Sarawak Electrical Association	Kapitan Francis Chew Joon Fah
	The Perak Electrical Association	Richard Wong Ngen Wah
Internal Auditors	Letrik PJ Union Sdn Bhd	Fong Mun Loon
	Wong Electrical & Teak Wood (Sel) Sdn Bhd	Chong Chee Siong
Trustees	Amalgamated Engineering & Commercial Co (KL) Sdn Bhd	Suresh Kumar Gorasia
	Chi-Tak Electrical (Selangor) Sdn Bhd	Liang Kok Boon
	Eco Jaya Elektrik Sdn Bhd	Dato' Yeoh Kim Wah
	Datuk Ir. Yong Ah Huat	-
Technical Advisors	Dato' Seri Dr. Ir. Andy Seo Kian Haw	-
	Ir. Yau Chau Fong	-
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E-Invoicing by LHDN

On 2 December 2025, TEEAM held an informative Workshop presented by 2 Speakers from LHDN (Lembaga Hasil Dalam Negeri - Inland Revenue Board, IRB) at its Seminar Hall. The Workshop detailed the newest venture initiative on e-invoicing introduced by the Government body, which is a new compliance requirement under the LHDN directive.

The two Speakers were Ms. Kartini Samynathan, Senior Assistant Director of the Inland Revenue Board, and Mr. Muhammad Alif Bin Amiruddin, Assistant Revenue Executive, also of the Inland Revenue Board. Together they presented their workshop talk on the subject of "Implementation of e-Invoice in Malaysia: Mechanism and Benefits to Taxpayers".

This timely event was organised by the Business & Events Sub-Committee of TEEAM and was powered by Alliance Bank, which provided food and beverages. Alliance Bank personnel were also present to answer any business banking enquiries at the close of the event.

On the agenda were light breakfast and registration from 9:30 am to 10:00 am followed by Welcome Remarks by Mr. Chris Yow Loo Sik, TEEAM Honorary Secretary, and soon after the Workshop proper.

The Workshop started at 10:05 am. In the presentation, topics covered in depth were key points of phased implementation, system components, MSME focus, interim relaxation period, technical requirements and industry-specific guidelines. Apart from providing details on compliance requirements and the technical capabilities and features of the LHDN e-invoicing system, specifically the MyInvois Portal, the talk also addressed user tools and workflow.

The e-invoicing implementation is in line with the 12th Malaysia Plan, whose focus is to strengthen the digital services infrastructure and digitalise the tax administration (amongst others). Such intentions were already announced by the Government of Malaysia in its 2023 Pre-Budget Statement on 3 June 2022. This implementation aligns with several key objectives of the 13th Malaysia Plan, otherwise known as RMK-13.
Those objectives are to:

- Accelerate digital transformation and development of a digital Government and economy
- Enhance the efficiency of financial management and increase revenue collection
- Promote strategies to improve business productivity and competitiveness

The 5 key phases starting on 1 August 2024 and ending on 1 July 2026 detail the terms and conditions of the mandatory implementation for taxpayers with annual turnover or revenue exceeding a determined amount of money.

Phase 1 applies to taxpayers whose annual turnover or revenue is more than RM100 million. Taxpayers with annual turnover or revenue more than RM25m up to RM100m are addressed in Phase 2. Phase 3 applies to taxpayers whose annual turnover or revenue is more than RM5m up to RM25m. The subsequent Phase 4 covers the mandatory implementation for taxpayers with annual turnover or revenue of more than RM1m up to RM5m. This final phase on the first day of July 2026, concludes the four phases of implementation, that is, for taxpayers whose annual turnover or revenue is more than RM1m up to RM5m.

With the latest announcement from LHDN, taxpayers earning below RM1m annually are exempted from implementing e-Invoice with certain stipulations.
LHDN's digital solutions make filing taxes easier and more convenient by:

- Reducing manual efforts and human errors
- Facilitating tax return filing
- Enabling streamlining of operations
- Digitalising financial reporting

E-Invoice also helps increase efficiency and enhance documentation by virtue of its 7 benefits pertaining to Format, Process, Storage, Delivery Time, Cost, Security, Compliance and Environmental Impact. It covers typical types of transactions and applies to all taxpayers undertaking commercial activities in Malaysia, whether B2B (Business-to-Business), B2C (Business-to-Consumers), or B2G (Business-to-Government). There are also 4 types of e-invoice transactions that one can perform, namely, Invoice, Credit Note, Debit Note and Refund Note.

Other than detailing the benefits of e-invoice and what the 4 phases of e-invoice implementation are and its stipulations as well as explaining which taxpayers are affected by and exempt from the e-invoicing requirement, the presenters also talked at length about Malaysia's MyInvois System. This comprehensive and full-featured platform facilitates the implementation of electronic invoicing (e-Invoice) in the country and aims to support the growth of the digital economy and enhance the efficiency of Malaysia's tax administration management.
MyInvois system has two transmission mechanisms: the MyInvois Portal and the Application Programming Interface (API). The MyInvois Portal gives all taxpayers access to maintain their accounts, and it's hosted free of charge by LHDN. The API (which is a set of programming code that is essentially a collection of predefined rules and protocols that facilitate communication between

Introduction

Mesla Wire & Cable Sdn. Bhd. established in 2014 and rebranded in 2022, is a leading cable manufacturing company based in Melaka, Malaysia. Over the past decade, it has built a strong presence in the market by specializing in the production of high-quality cables that serve a variety of industrial and commercial needs. With state-of-the-art facilities and a skilled team of professionals, the company consistently maintains a commitment to excellence in manufacturing, innovation, and customer satisfaction, ensuring that all products meet rigorous quality standards.

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general@meslacable.com

different applications) allows direct transmission between the taxpayers' system and the MyInvois System and is ideal for large taxpayers or businesses with substantial transaction volume. The primary purpose of both the Portal and API is the comprehensive e-Invoice processing, which allows taxpayers to submit invoices for validation.

MyInvois incorporates unique identity usage (i.e., digital signatures), data encryption, and cybersecurity standards to prioritise security. There are several layers of security, including the Transport Layer Security (TLS) encryption protocol for API communication, AES algorithm for critical data storage, and compliance with ISO/IEC standards for information security and business continuity management. The system also undergoes regular security audits, including penetration testing (or pentesting for short, as it is commonly known in the field of cybersecurity).

First-time users need to accept the Terms and Conditions and follow guided steps to confirm and update their Taxpayer Profile. They can also register their ERP (Enterprise Resource Planning) systems and add an intermediary if invoices are submitted through a third-party service provider.

Suppliers can create and submit an e-Invoice for validation either individually or in batches via the MyInvois portal. They can also create an e-Invoice through the API. Upon validation, the supplier receives a validated e-Invoice and a visual representation of the validated e-Invoice.

Users can select specific documents to cancel or reject. For rejections, users must also provide a reason. As for storing and reporting features, all validated e-Invoices submitted are stored in LHDNM's database. User-friendly Reporting and Dashboard services are also available for taxpayers to retrieve essential invoice details and other relevant information. The data is readily available in formats such as XML, JSON, PDF, and on-screen grids. For more in-depth information on how to use all the features and functionalities of the MyInvois Portal, MyTax has a user guide, which can be accessed within the "User Manual". The user guide provides step-by-step guidance on how to use the Portal. Additionally, there is a QR code functionality available in the MyInvois Portal User Guide video.

MyInvois offers an SDK (Software Development Kit) that provides a set of functionalities, APIs, and development guidelines to aid in integrating businesses' existing systems with its System. Two types of APIs stipulated within the e-Invoice SDK are the Platform API and the e-Invoice API.

LHDN also provides TIN (Tax Identification Number) search function for the purposes provided under the Income Tax Act 1967, which includes taxation and e-Invoice activities.

There is even a mobile app for MyInvois which makes it very much easier to manage and access your account on the go!

Thankfully, multiple channels and guidelines are available for taxpayer assistance. Those afore-mentioned four key avenues of the e-Invoice microsite, e-Invoice General Guideline, e-Invoice Specific Guideline and e-Invoice Software Development Kit (SDK), provide support to taxpayers in successfully adopting e-Invoicing. A six-month interim relaxation period is also provided for smoother transitions to e-invoicing.

For further information regarding e-Invoice implementation, businesses can contact LHDN/IRB (or HASiL as it is also known) via its telephone, chat, e-mail and counter channels and services.

In summary, digital platforms (like the MyInvois Portal) or integrated solutions (e.g., via API) can streamline invoice handling, track submission status, and successfully generate necessary records for tax purposes. The value-added Workshop gave businesses an overview of the regulatory background for e-Invoicing in Malaysia and helped them learn both the technical and practical aspects of meeting LHDN's compliance requirements.

The presentation ended at 12:30pm, after which TEEAM immediately held a Q&A session. Participants adjourned for lunch and networking opportunities half an hour later. They left with a clearer picture and understanding of how to conduct e-invoicing and operate its mechanisms to be more efficient and effective in recording their transactions to help them comply with LHDN's taxation regulations and requirements.

Snapshots of E-Invoicing by LHDN

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TEEAM's Courtesy Visits to Sibu & Kota Kinabalu

TEEAM Visits EASS to Explore Collaboration Opportunities

TEEAM paid a Courtesy Visit to its State Association Member in Sibu — the Electrical Association of Sarawak & Sabah (EASS) on 22 October 2025. The delegation was led by TEEAM President Mr. Albert Tan, accompanied by Council Members and representatives from Informa Markets. They were warmly received by EASS Chairman Mr. Hii Hua Choun, together with members of the EASS Committee.

The Visit marked another important milestone in strengthening collaboration and fostering closer ties between TEEAM and EASS. Both parties engaged in a constructive and fruitful exchange of views on potential areas of cooperation. During the meeting, Mr. Albert Tan reaffirmed TEEAM's commitment to working closely with EASS in organising meaningful and engaging joint activities that would bring added value to members and advance the industry collectively.

During the discussion, Informa Markets introduced the upcoming ENERtec Asia 2026 Exhibition, which will be co-hosted by TEEAM and held from 3 to 5 June 2026 at the Kuala Lumpur Convention Centre (KLCC). EASS members were formally invited to participate in the exhibition, which carries the theme "Empowering Energy Transition & Technology." In addition to the exhibition, a series of thematic forums focusing on key issues related to energy transition and technological innovation will be conducted concurrently, aimed at injecting fresh momentum into the industry and ushering in a new chapter of development for the energy and power sectors.

In his response, Mr. Hii Hua Choun reaffirmed EASS's strong support for major power and energy-related events, noting that EASS has consistently organised delegations to participate in such initiatives over the years. He assured that ENERtec Asia 2026 would be no exception and encouraged EASS members to begin preparations early and take part proactively in the exhibition. He also emphasised the importance of leveraging the ENERtec platform to further promote the growth and development of the electrical industry in Sarawak and Sabah.

Visit to University of Technology Sarawak

Following the meeting, Mr. Hii Hua Choun accompanied the visiting delegation to the University of Technology Sarawak (UTS) in Sibu, a state-owned university. During the visit, UTS introduced its industry–academia collaboration programmes, which are jointly promoted with EASS. These initiatives are aimed at strengthening technological advancement, workforce readiness, and talent development within the electrical and energy sectors in East Malaysia.

Mr. Hii also acknowledged the long-standing close cooperation between TEEAM and EASS in advancing the electrical industry nationwide. He noted that both Associations have previously organised overseas study visits together, which have contributed to the enhancement of Malaysia's professional standards and international competitiveness in the electrical and energy sectors.

Networking Dinner

The Visit concluded with a dinner hosted by Mr. Hii in honour of TEEAM President Mr. Albert Tan, and his delegation. The dinner provided a valuable platform for in-depth discussions on cross-regional collaboration and industry development between Peninsular and East Malaysia. The exchanges were highly fruitful and constructive, further strengthening the relationship between the two Associations. Mr. Albert Tan expressed TEEAM's sincere appreciation to EASS for their warm hospitality and continued partnership.

TEEAM Strengthens State Engagement with PES Sabah

Following the visit to Sibu, the delegation travelled to Kota Kinabalu and paid a Courtesy Visit to the Sabah Electrical Association (Persatuan Elektrik Sabah – PES) on 23 October 2025. The delegation was warmly received by PES President Mr. Lawrence Yapp, together with members of the PES Committee, in a cordial and constructive atmosphere.

During the meeting, TEEAM President Mr. Albert Tan, reaffirmed TEEAM's strong commitment to strengthening engagement and support for State Associations. He emphasised the importance of closer collaboration and more frequent interactions, and shared plans for a series of joint programmes and strategic initiatives aimed at delivering greater value to members and collectively advancing the industry.

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The Informa Markets team also provided an overview of the upcoming ENERtec Asia 2026 Exhibition during the session. PES members were encouraged to participate proactively and leverage the exhibition as a strategic platform to showcase their products and solutions, explore emerging technologies, expand market reach, and establish new business and industry connections.

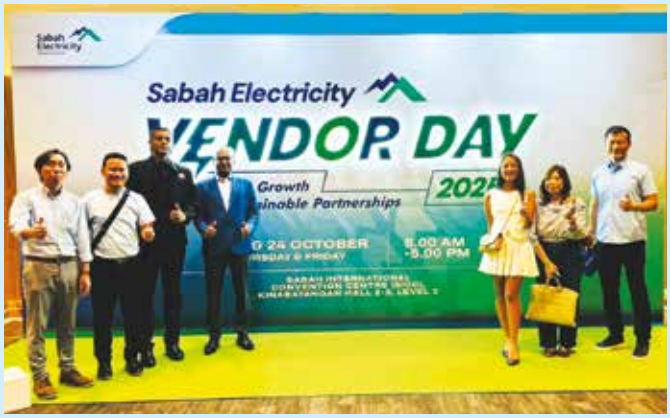
Meeting with the Energy Commission of Sabah (ECoS)

In conjunction with the Sabah visit, the delegation undertook a series of community and industry engagement activities. A Courtesy Visit was made to the Energy Commission of Sabah (ECoS) at its Kota Kinabalu office, where the delegation was hosted by the Deputy Chief Executive Officer Ir. Magdalene Chu. The meeting provided a valuable platform for constructive dialogue on regulatory matters and industry developments in Sabah.

Both TEEAM and ECoS expressed keen interest in exploring potential joint initiatives in areas such as industry standards, training, and technical engagement. It was a productive and engaging session, and TEEAM looks forward to building closer cooperation with ECoS moving forward.

SESB Vendor Day 2025

The delegation also visited TEEAM members who participated as exhibitors at SESB Vendor Day 2025, held at the Sabah International Convention Centre (SICC) in Kota Kinabalu. This visit enabled the delegation to engage directly with members, gain insights into current industry challenges and opportunities, and demonstrate support for members' active participation in key industry platforms. The participating members were Afrima/Energycomms, Hasilwan, Southern Cable, RD-Plamer, Tekno Bum and Qlux.



Appreciation

The visit to Sabah further reinforced TEEAM's proactive commitment to fostering strong partnerships with State Associations and key stakeholders, while promoting win-win collaboration and sustainable growth within the electrical and electronics industries nationwide. PES hosted a farewell dinner for the visiting delegation, providing an opportunity for further informal exchanges in a warm and cordial setting.

TEEAM records its sincere appreciation to PES and ECoS for their warm reception and constructive engagement during the visit. The Association looks forward to further strengthening collaboration with PES, ECoS, and industry stakeholders in Sabah through joint programmes and initiatives. Such continued cooperation will play a vital role in advancing industry development, enhancing professional standards, and supporting the sustainable growth of the electrical and energy sectors in Sabah and Malaysia as a whole.

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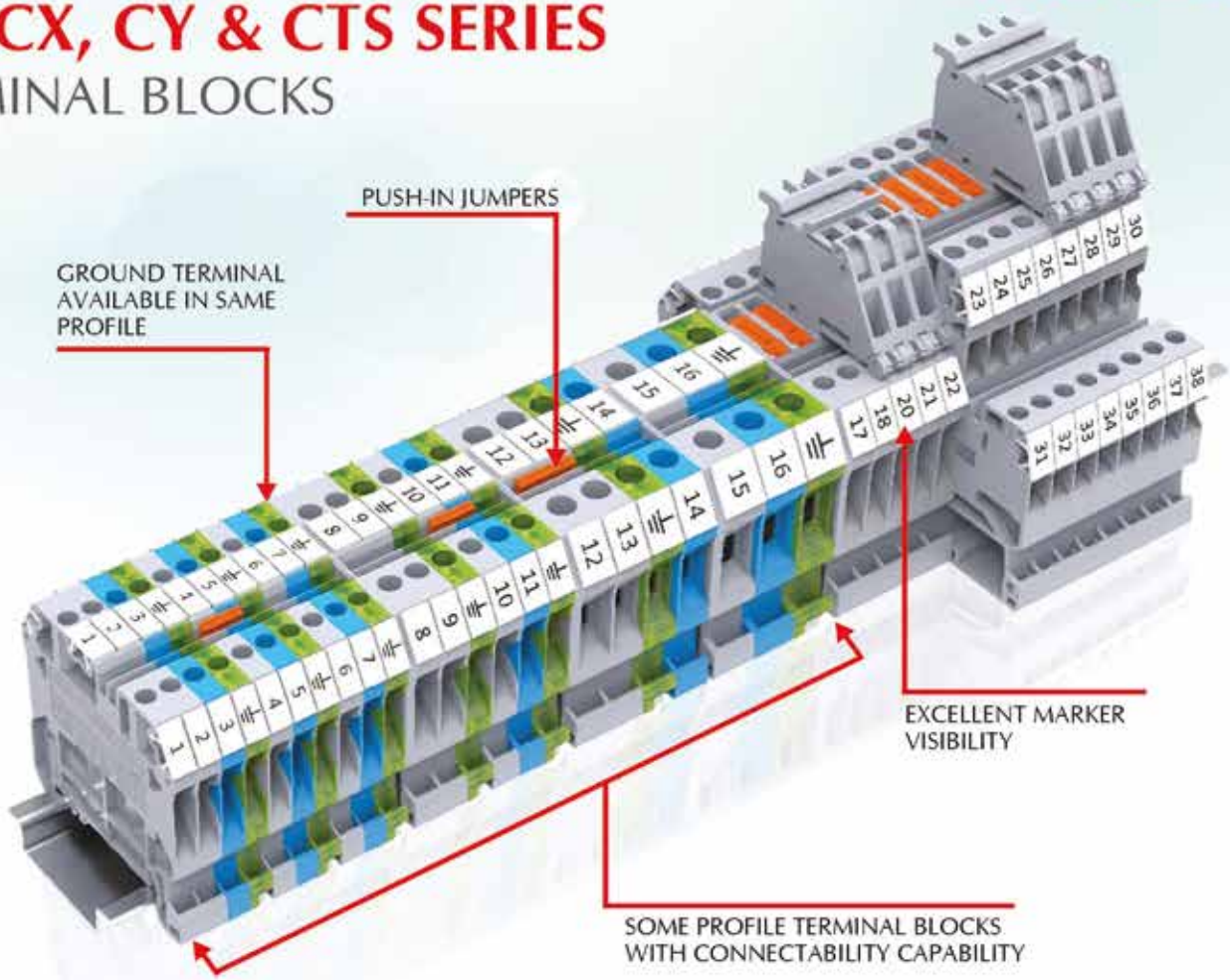

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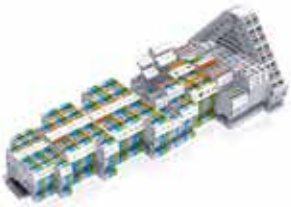

CP SERIES TERMINAL BLOCK

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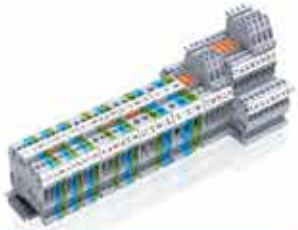

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Snapshots of SESB Vendor Day 2025

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TEEAM at PEA 62nd Anniversary Dinner

TEEAM was honoured to attend the Perak Electrical Association (PEA) 62nd Anniversary Dinner on 26 September 2025, held at the Exquisite Seafood Restaurant in Ipoh, Perak. The celebration brought together industry leaders, partners, and distinguished guests to commemorate more than six decades of PEA's dedicated service to the electrical fraternity in Perak.

TEEAM was represented by Deputy President Ts. Lim Sai Seong and Honorary Secretary Mr. Chris Yow, who attended on behalf of TEEAM President Mr. Albert Tan, who was away attending the AFEEC–FAPECA Conference and Meeting in Bali. During the evening, Ts. Lim delivered a congratulatory address on behalf of TEEAM.

In his speech, Ts. Lim conveyed TEEAM's warmest congratulations to PEA on achieving this significant milestone. He highlighted PEA's long-standing contributions to the electrical industry in Perak, particularly its efforts in promoting professionalism, fostering industry unity, and proactively supporting the growth and development of practitioners across the state.

He also reaffirmed TEEAM's commitment to further strengthening collaboration with State Associations nationwide. By deepening cooperation and aligning industry initiatives, TEEAM and its State counterparts can continue to advance the electrical and electronics industry collectively.

The evening was both memorable and meaningful, celebrating 62 years of PEA's dedication while reinforcing the strong relationship between TEEAM and PEA. A number of product display booths by members added to the lively and engaging atmosphere of the Dinner.

Here's to continued collaboration, progress, and shared success in the years ahead!

Snapshots of TEEAM at PEA 62nd Anniversary Dinner

Sips & Social Event

TEEAM's Sips & Social Event, held on 12 November 2025 at Cincin Megah Rise, Petaling Jaya, was a resounding success, bringing together members and guests for an evening of networking, camaraderie, and engaging conversations. The event was jointly organised by the Manufacturing Committee and the Business & Events Sub-Committee, both of which ensured a well-curated and enjoyable experience for all attendees.

More than 100 participants turned up, creating a lively atmosphere filled with meaningful interactions and renewed connections. Guests enjoyed a delightful selection of food and beverages, providing the perfect setting for informal discussions, knowledge sharing, and relationship building within the TEEAM community.

TEEAM extends its heartfelt appreciation to our event sponsors – Megapro, Shinz Global, and Alliance Bank – whose generous support contributed significantly to the success of the evening. Their commitment to the Association and to fostering industry engagement is deeply valued.

The Sips & Social Event not only strengthened bonds amongst members but also highlighted the importance of community and collaboration within the electrical and electronics industry. The positive energy and strong turnout reflected the growing interest in initiatives that bring members together in a relaxed and vibrant setting.

TEEAM thanks everyone who had participated and contributed to a truly memorable evening. We look forward to building on this momentum with more engaging activities and networking events in the near future.

Snapshots of Sips & Social Event

..... Continue Sips & Social Event

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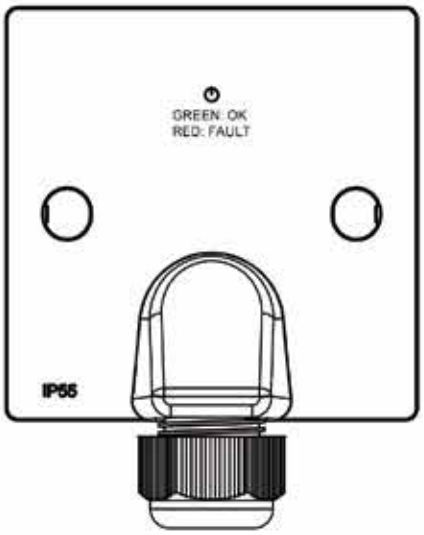

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Courtesy Visit by IEC President to Malaysia's IEC National Committee

The Malaysia IEC National Committee (IEC NC) had the honour of hosting Mr. Jo Cops, President of the International Electrotechnical Commission (IEC), during his Courtesy Visit on 11 September 2025 at the Kuala Lumpur Convention Centre (KLCC). The visit followed the highly successful ASEAN Electrotechnical Symposium and Exhibition (IESE) 2025, held a day earlier, where Mr. Cops delivered an inspiring keynote address on the future of global standardisation.

This engagement provided a meaningful platform for in-depth dialogue on key issues pertaining to international electrotechnical standards and conformity assessment under the IEC framework. Discussions explored win-win opportunities to enhance Malaysia's participation and visibility in the global standards ecosystem, as well as ways to strengthen stakeholder collaboration at both the national and international levels.

TEEAM was proudly represented by Deputy President Ts. Lim Sai Seong, who serves actively within the IEC NC and pro-actively contributed to the exchange of perspectives on industry needs, challenges, and future directions.

TEEAM extended its sincere appreciation to all IEC NC members and distinguished guests for their valuable presence and contributions. The session marked an important step forward in re-inforcing Malaysia's commitment to advancing global standards and supporting the nation's competitiveness in the electrotechnical landscape.

Snapshots of Courtesy Visit by IEC President to Malaysia's IEC National Committee

TEEAM's CSR at Pertubuhan Kebajikan Chester, Selangor

TEEAM's Corporate Social Responsibility (CSR) & Environmental, Social, and Governance (ESG) Sub-Committee brought smiles and the much-needed support to the elderly residents of Pusat Jagaan Pertubuhan Kebajikan Chester (Chester Welfare Association and Care Centre) Selangor during a heart-warming visit to them on 11 October 2025 at Sungai Buloh, Selangor.

The initiative saw TEEAM generously donating essential daily necessities, including adult diapers, Milo, oats and coffee, to enhance the comfort and well-being of the residents. A delicious chicken rice lunch with herbal and herbal drinks were also provided, bringing a moment of shared joy to all. TEEAM also contributed a 43" Smart TV to the Chester Centre and each resident also received an ang pow (red packet). In a noble testament to collective spirit, TEEAM Council Members personally contributed cash, further amplifying the impact of this meaningful and timely endeavour.

The day of honest-to-goodness relationship-building was filled with enriching conversations, warm smiles, and the creation of lasting memories, underscoring TEEAM's strong commitment to community welfare. The TEEAM Delegation comprised Honorary Secretary Mr. Chris Yow, Honorary Treasurer Dato' Andy Tan, Assistant Honorary Treasurer cum CSR & ESG Advisor Datuk Jacky Chen, CSR & ESG Co-Chairs Ir. Roger Wong and Mr. Steven Lee. Other Council Members were Tc. How Chee Seng, Mr. Chong Yoon Koon, Ms. Ng Suan Lin and Ir. Alex Looi. Secretariat staff Ms. Sherly Cheong was present too.

TEEAM extends its sincere gratitude to all who contributed to the resounding success of this CSR initiative. TEEAM also remains fully dedicated to spreading joy, kindness and fostering positive change within the community. Let's continue to spread kindness and make a positive difference together. A big shout out to the TEEAM CSR & ESG Sub-Committee and well-wishers!

For those who wish to contribute further (with no obligations), you may contact the Chester Centre at Tel: +603-6732 1581, Mobile: +6019-699 0893, E-mail: pertubuhan17@yahoo.com Website: www.pkcrs.wordpress.com

Snapshots of TEEAM's CSR at Pertubuhan Kebajikan Chester, Selangor

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TEEAM Golf Tournament 2025

The TEEAM Golf Tournament 2025 was successfully held on 15 October 2025 at the prestigious Glenmarie Golf & Country Club, Shah Alam, Selangor, bringing together an impressive turnout of 136 enthusiastic golfers. The event once again proved to be one of TEEAM's most anticipated annual sporting highlights.

Set against the lush greens of Glenmarie, the Tournament, which teed-off in the early morning, provided an excellent platform for social interaction and business networking amongst TEEAM members and invited guests. Beyond the friendly competition on the fairways, participants enjoyed the opportunity to strengthen professional relationships, renew friendships, and foster new connections in a relaxed atmosphere.

TEEAM extends its sincere appreciation to all golfers for their strong support and active participation. Special thanks are also due to our generous Sponsors, whose invaluable contributions played a vital role in making the tournament a resounding success.

A heartfelt commendation goes to the Sports & Social Sub-Committee, led by Ms. Amanda Tan and Ms. Lihna Liow, for their dedication, meticulous planning, and tireless efforts in organising a smooth, well-coordinated, and lively event. Their commitment ensured that every aspect of the Tournament ran seamlessly, allowing golfers to fully enjoy the day.

The TEEAM Golf Tournament 2025 concluded on a high note, with participants leaving with smiles, fond memories, and a shared sense of camaraderie. Well done and syabas to everyone involved for making this event truly memorable!

Snapshots of TEEAM Golf Tournament 2025

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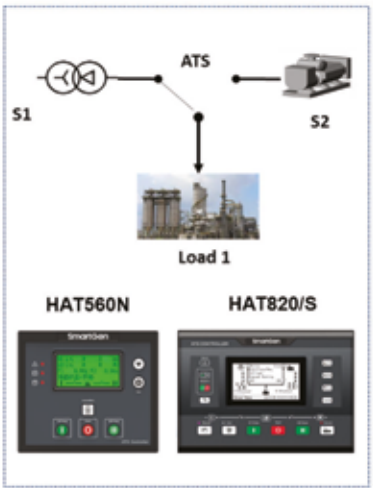
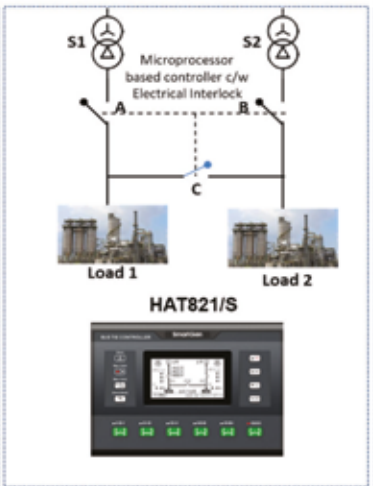
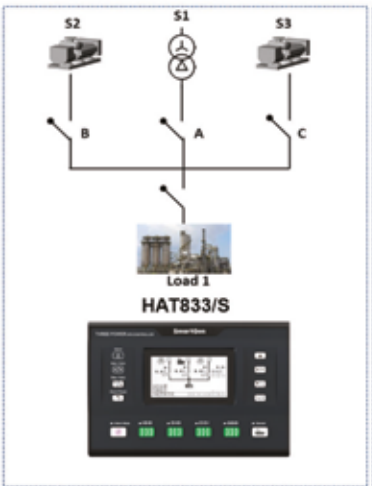


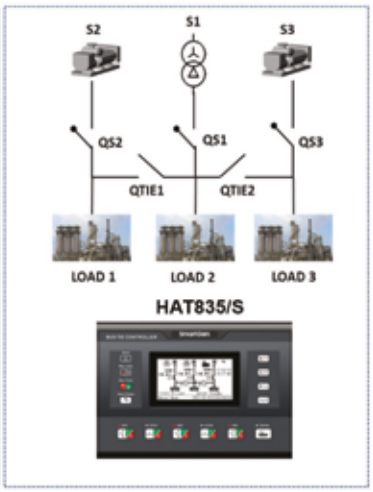
Dual-power switchover control module



Dual-supply control module with 1 bus tie



Tri-supply control module



Tri-supply control module with 2 bus ties

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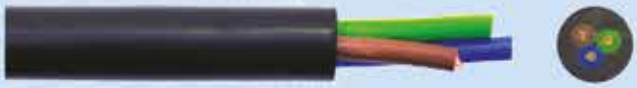

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4th Prize:
Chai Jun Chern
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5th Prize:
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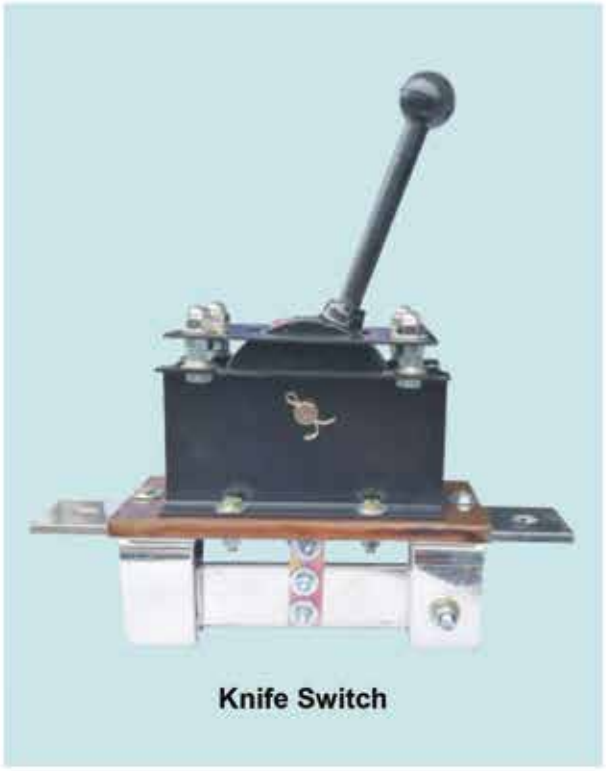

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TEEAM at PES 27th Anniversary Dinner

TEEAM attended the 27th Anniversary Dinner of Sabah Electrical Association (Persatuan Elektrik Sabah - PES on 6 September 2025, which was held at Port View Palace Hall (Hakka Hall) in Kota Kinabalu, Sabah. TEEAM's delegation was led by Honorary Secretary, Mr. Chris Yow, who delivered a speech on behalf of TEEAM President, Mr. Albert Tan, who was unable to attend due to an earlier commitment.

The evening began with the arrival of distinguished guests, including the Guest of Honour, Ir. Chu Wai Quan, Deputy Chief Executive Officer (Plan & Economic Regulation) of the Energy Commission of Sabah, representing Datuk Ir. Abdul Nasser Bin Abdul Wahid, CEO of the Energy Commission of Sabah (EcoS).

The evening's programme featured a presentation highlighting PES's milestones for 2024–2025, showcasing the Association's achievements, ongoing initiatives, and commitment to advancing industry standards. The programme was further enlivened by cultural performances, a celebratory cake-cutting ceremony, sponsors' recognition, and exciting lucky draws, all of which contributed to a vibrant and festive atmosphere.

In his address, TEEAM Honorary Secretary Mr. Chris Yow conveyed TEEAM's congratulations to PES on reaching this praiseworthy milestone, recognising the Association's contributions in advancing the electrical industry in Sabah and fostering collaboration amongst stakeholders. He further expressed TEEAM's commitment to strengthening ties and enhancing cooperation between associations across Malaysia.

The event was a meaningful occasion, reinforcing the bonds of friendship and professional collaboration between TEEAM and PES, whilst celebrating PES's 27 years of dedication and excellent service to the electrical industry in Sabah.

Snapshots of TEEAM at PES 27th Anniversary Dinner

Membership Recruitment Campaign

TEEAM appeals to members to help in recruiting companies and individuals to join the association to strengthen TEEAM's membership base. Incentives are offered by the Membership Recruitment Committee. Members introducing a new company member will be entitled to two points, whilst introducing an individual member will be entitled to one point. The points can be accumulated and used to redeem free advertisements in Suara TEEAM or redeem membership subscription.

For details, please contact the TEEAM Secretariat at Tel: +603-9221 4417.

The membership application form can be downloaded from the TEEAM website at www.teeam.org.my

TEEAM Series of Technical Talks 02/2025

The second series in TEEAM's Series of Technical Talks for 2025 saw 2 veteran engineers coming together to share their expertise on the insights they have gleaned from their years of experience of working in the industry. In particular, TEEAM's 2nd Technical Talk of 2025, which was held on 24 June 2025 focused on "Low Voltage Switchboard Design & Installation and Low Voltage Switchgear Faults & Solutions".

The knowledge-sharing event, which qualified for BEM 3 CPD Hours and CIDB 5 CCD Points, ran from 9:00 am to 1:00 pm at the TEEAM Seminar Hall. Participants benefited from 2 very experienced Speakers. They were Ir. Chew Shee Fuee and Ir. Johnny Ling Sieh Kieng.

Ir. Chew has over 40 years' experience in the electrical industry and is a Chartered Engineer (CEng), 1st Grade Electrical Engineer (Competent up to 500 kV), Fellow of the Institution of Engineers Malaysia (FIEM), Member of the Institution of Electrical Engineers (MIEE), and Member of IEEE. He specialises in electrical control and relay protection (up to 500 kV), electrical site testing, fault investigation, service, and maintenance of switchgears and relays and electrical supervision of substations and electrical audits. Additionally, he has held key leadership roles in notable engineering associations such as Past TEEAM President and former Vice-Chairman of MyENC (Malaysian Electrotechnical National Committee) as well as serving as President of the ASEAN Federation of Electrical Engineering Contractors from 2001 to 2004. He also presents lectures on electrical apparatus and the protection system.

As for the other Speaker, Ir. Johnny Ling Sieh Kieng has worked extensively in the Power utility, Oil & Gas and Services industries with over 45 years of experience. He began his career as a Protection engineer, specialising in system studies, protection relay settings, testing and commissioning of electrical equipment from low voltage up to 275 kV system. He also specialises in projects involving diesel, gas turbines, hydropower stations, and EHV substations up to 275 kV.

Ir. Ling's presentation was titled "Practical Insights on Low Voltage Switchboard Design and Installation: Challenges for Engineers and Contractors". In it, he detailed how Low Voltage (LV) Switchboards are essential in power distribution systems, supporting a wide range of electrical installations from high-rise buildings to large commercial and industrial complexes. His presentation addressed some common challenges encountered during the design, construction and installation of LV switchboards, while emphasising the importance of quality workmanship. He also provided some practical recommendations that could help engineers and contractors overcome such challenges.

Ir. Chew then took the podium next to present his talk on the topic of "Causes of Low Voltage Switchgear Failures and Solutions". His focus was on helping the audience understand why low voltage switchgear systems fail and what can be done about it. Ir. Chew pinpointed common failures and narrowed down the causes of the failures by breaking down the "main culprits" by component.

Those common failures involve general issues like flashovers, which are essentially electrical arcing across insulators, and scary stuff like explosions and fires. Switchboards, which are a type of low-voltage switchgear, contain various components, including air circuit breakers (ACBs), moulded case circuit breakers (MCCBs and MCBs), capacitors, busbars, terminals, cables, and protection relays.

ACBs can fail because of mechanical issues (parts wearing out or breaking), insulation faults or degradation (materials breaking down), and thermal stress (overheating damage). MCCBs and MCBs often fail for the same (or similar) reasons, too.

On the other hand, capacitors fail when there is excessive current flowing through them. Overuse from being overworked beyond their design limits and thermal stress or heat damage are also other causes for capacitor failures.

As for busbars, terminals, and cables, they tend to have issues from loose connections (a major cause!), poor quality lugs, or being too undersized for the job.

Protection relays fail when their power supply units are defective, their individual internal components become faulty or when they simply wear out due to old age.

For ACB, MCCB and MCB failures, carrying out regular visual inspections to identify mechanical wear and tear, lubricating moving parts and replacing worn-out parts before they fail are recommendations. Using high-quality insulating materials, routinely testing insulation resistance and replacing degraded insulation materials are additional suggestions. The temperature of the circuit breakers should also be continually monitored through thermal imaging, and better cooling mechanisms such as sufficient ventilation and proper load balancing implemented to prevent thermal overloads.

To mitigate capacitor failures, it is crucial to select capacitors with appropriate voltage and current ratings for the application and to make sure their application is the correct size. There should also be regular discharge and inspections routinely scheduled to manage capacitor health. Lastly, load management strategies must be in place so that capacitors don't operate continuously at their limit.

As for busbar, terminal, and cable failures, technicians need to be properly trained to ensure connections are tight and secure. Only certified, high-quality lugs and connectors that match the cable size and current rating should be used. In addition, connections should be regularly checked and tightened, especially in high-vibration environments.

Last but not least, protection relays ought to be tested regularly and calibrated, and aging units replaced proactively. Using diverse redundant power sources to minimize risk in power supply unit failures is also recommended. Spare components should additionally be kept available for quick replacement, especially for older relays.

After Ir. Chew ended his presentation, TEEAM held a panel discussion and interactive Q&A session with the participants posing their burning questions to the two speakers to be answered. The Technical Talk then concluded with a summary and closing remarks, followed by the presentation of Appreciation Certificates to the Speakers.

All in all, the highly informative event was a practical, engineering-focused look at real-world problems that can cause expensive downtime and safety issues in electrical systems. The audience took home with them many significant lessons.

Snapshots of TEEAM Series of Technical Talks 02/2025

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Seminar on Empowering Global Competitiveness: Advancing Standards, Innovation & Readiness

Members of TEEAM participated in the high impact Seminar organised by the Kuala Lumpur & Selangor Chinese Chamber of Commerce & Industry (KLSCCCI) on 5 August 2025 at Wisma Chinese Chamber, Kuala Lumpur. The Seminar was supported by SIRIM and KLSCCCI's strategic Partner Alliance Bank.

The Seminar brought together industry experts and business leaders to explore practical strategies for enhancing export competitiveness. Key topics included:

- Unlocking funding & innovation opportunities for SMEs
- Leveraging standards & certifications to boost export growth
- Strengthening readiness for global trade

Members had the opportunity to gain valuable insights, network with industry peers, and explore potential collaborations to further elevate Malaysia's presence in the international market. The session was moderated by TEEAM Vice President Ir. Dr. Ng Kok Chiang, who is also an active Committee Member of KLSCCCI. TEEAM Past President Dato' Dr. Siew Choon Thye, who is also KLSCCCI Council Member was also present.

TEEAM thanked KLSCCCI for extending complimentary access to our members and for organising such an impactful programme that supports Malaysia's business community in staying competitive globally.

Snapshots of Seminar on Empowering Global Competitiveness: Advancing Standards, Innovation & Readiness

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How Incorrect Crimping Endangers Electrical Safety Why Standard-Compliant Cable Lugs and Certified Tools Matter

Choo WS & Goh JH

Introduction: A Small Component with a Major Safety Impact

Across Malaysia's electrical installations—whether in factories, commercial buildings, infrastructure tunnels, or residential projects—the humble crimped cable termination plays a far more critical role than most people realise. A cable lug may look simple, but the quality of its crimp determines whether a system runs efficiently for decades or becomes a hidden fire hazard waiting to ignite. In fact, many failure investigations throughout the region reveal that overheated or loose terminations are amongst the most common causes of electrical breakdowns and building fires. These risks intensify when installers use non-standard cable lugs or uncertified hand tools that fail to meet Malaysian safety requirements.

For electrical contractors, panel builders and electrical dealers, understanding proper crimping practices is no longer a matter of preference—it is a matter of compliance, responsibility, and long-term system reliability.

A Correct Crimp Makes the Lug Part of the Cable

A properly executed crimp effectively forms a cold-weld bond between the conductor and the cable lug. When the correct combination of lug, die, crimping tool and procedure is used, the copper strands compress uniformly into a compact mass, creating a joint that behaves as if the lug is simply an extension of the conductor. This produces exceptionally low electrical resistance, allowing current to flow with minimal temperature rise and ensuring long-term stability even under continuous loading, vibration, or thermal cycling.

Installations using correct crimping techniques routinely demonstrate service life spanning two to three decades without degradation. The reliability of such joints reduces maintenance needs, improves operational efficiency and enhances the overall safety profile of any electrical system.

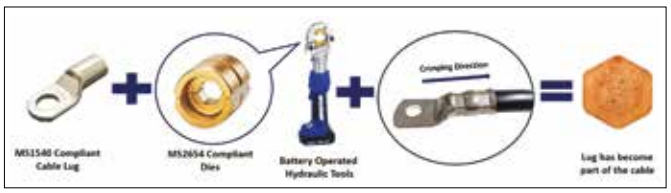

Figure 1: A correct crimp makes the lug part of the cable. The right combination of cable lug, crimping die, tool and crimping process ensures a secure termination where the lug effectively becomes an extension of the conductor.

The Hidden Dangers of Incorrect Crimping

When a crimp is executed poorly—whether due to the wrong die, poor-quality lug or an insufficient compression stroke—the connection becomes vulnerable from the moment it is energised. High resistance areas, commonly known as hotspots, begin developing at the interface between the conductor and the barrel. Over time, these hotspots can accelerate oxidation, weaken mechanical grip, and cause the joint to loosen under vibration or thermal expansion. As the connection deteriorates, temperatures climb even further, significantly increasing the likelihood of equipment malfunction, cable damage or electrical fire.

Incomplete or uneven crimps also create microscopic air gaps inside the lug barrel. These pockets of oxygen promote corrosion of the conductor strands, which further raises resistance and compounds the problem. In large buildings containing hundreds or thousands of terminations, the cumulative energy loss caused by poor crimps becomes substantial, leading to higher operating costs and unnecessary heat build-up across the installation.

Figure 2: A poorly crimped cable connection often creates heat loss and poses fire risk.

Why Malaysian Crimping Standards Exist — MS1540 and MS2654

Malaysian Standards were established to create a consistent, safe and repeatable method for producing high-quality electrical joints. MS1540 governs the manufacturing quality of copper lugs, ensuring that every lug meets strict criteria for material purity, dimensional accuracy, mechanical strength and copper hardness. Lugs that do not comply with MS 1540 often have inconsistent barrel diameters, uneven wall thickness, inferior conductivity or copper that is too soft or too brittle—all of which result in unreliable crimps.

Similarly, MS2654 regulates the performance of crimping dies and systems to ensure that conductor compression is uniform and that die alignment is correct. The standard ensures that the deformation of the strands meets repeatable, measurable criteria that installers can trust, regardless of job site or cable brand. Without these standards, the quality of electrical terminations would depend entirely on operator skill and tool variability, introducing unacceptable risk into electrical installations nationwide.

Matching Cable Classes with the Correct Crimp Profiles

Different types of cables respond differently to compression, which is why the matching of die profiles to cable class is so important. Solid and Class 1 conductors,

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traditional Class 2 stranded cables, and flexible Class 5 or Class 6 conductors each require specific crimp geometries to ensure proper deformation. When the wrong profile is used, strands may break, deform unevenly or fail to compact tightly, resulting in a weak and unreliable electrical connection. Correct pairing of dies, lugs and cables ensures that the conductor fills the barrel completely and forms a consistent low-resistance bond.

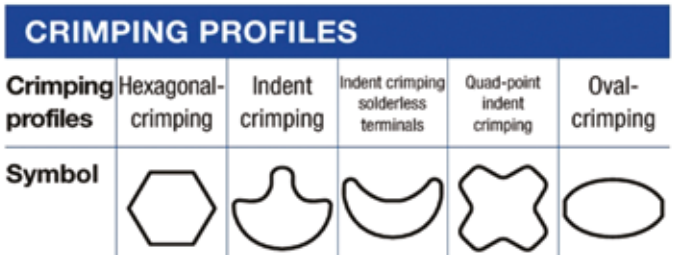

Figure 3: Different crimping profiles for different types of cables.

Hydraulic Crimping Tools: The Most Reliable Way to Achieve Standard Compliance

Battery-powered hydraulic crimping tools have become the preferred solution for professional installers because they guarantee consistent compression every time. Unlike manual hand tools, which vary greatly depending on operator strength and technique, hydraulic tools deliver controlled and predictable force throughout the entire crimp cycle. This ensures that each termination conforms to Malaysian Standards and manufacturer recommendations.

Modern hydraulic crimpers include advanced features such as one-button operation, automatic retraction upon completing a full compression, integrated LED lighting for dark or cramped environments, and ergonomic weight distribution to reduce operator fatigue. These features minimise human error and prevent partially completed crimps—one of the most common causes of overheating and equipment failure.

Why Contractors Must Prioritise Crimping Quality

Contractors today operate in an environment where clients, consultants and insurers demand higher safety compliance and traceability. Using non-standard lugs or uncertified crimping tools exposes contractors to costly rework, premature equipment failure, warranty disputes and, in the worst cases, legal liability. Failed inspections can delay entire projects, and poor workmanship can severely damage a contractor's reputation. Investing in proper tools and certified components is not only a technical requirement but also a long-term business safeguard.

Why Dealers Benefit from Stocking Certified Tools and Lugs

For electrical dealers and distributors, carrying certified MS1540-compliant lugs and MS2654-approved crimping dies offers a clear advantage. Not only does it improve customer trust and reduce the risk of returns, but it also positions the dealer as a reliable technical partner rather than just a supplier of parts. When contractors achieve consistent, problem-free installations using products supplied by the dealer, loyalty increases and so does repeat business. Dealers who actively promote proper crimping practices help raise the safety standards of Malaysia's electrical installations as a whole.

How Electromechanical Crimping and Stripping Tools Improve Production Quality and Efficiency for Electrical Panel Manufacturers

For manufacturers of switchboards, distribution boards and control panels, the quality and consistency of wire terminations directly influence product reliability, audit performance and customer confidence. Traditional manual tools, though still commonly used, often produce inconsistent crimps—especially during shift rotations or when workers rotate across shifts or work on high-volume production lines.

Electromechanical crimping and stripping tools, such as those developed by leading European manufacturers, offer panel builders a major competitive advantage. These tools provide precise, repeatable and fully controlled stripping lengths, conductor preparation and crimp formations. Because electromechanical tools operate with consistent force and automatic cycle completion, they eliminate variations caused by operator fatigue or technique. This ensures that every termination inside a panel meets the same high standard, reducing the likelihood of loose connections, overheating or premature failures once the board is energised.

Furthermore, the use of electromechanical tools significantly improves production efficiency. Automated stripping and crimping reduce assembly time per panel, support higher throughput and help manufacturers meet tight delivery deadlines without compromising quality. For ISO-certified manufacturers and those supplying to international customers, these tools also simplify compliance during factory audits and quality assurance checks. In short, panel builders who adopt electromechanical stripping and crimping technologies achieve superior reliability, faster production, and a stronger reputation for engineering excellence.

Conclusion: Every Crimp Matters

In the world of electrical installations, a single termination often carries the same importance as a major piece of equipment. When a crimp is done right, it quietly performs its role for decades, ensuring safety, efficiency and uninterrupted operation. When it is done poorly, it becomes a point of vulnerability with potentially severe consequences. By choosing MS1540-compliant lugs, MS2654-certified dies and modern hydraulic or electromechanical crimping tools, contractors, panel builders and dealers all contribute to safer, more reliable electrical systems across Malaysia.

Safety is priceless. And in electrical work, every crimp truly matters.

This Article is written by Choo WS & Goh JH of Conway Terminals Manufacturer Sdn Bhd, a manufacturer of electrical connectors, crimping & cutting tools, fuselinks, terminal blocks and other electrical accessories. They can be contacted at E-mail: wschoo@conway.com.my

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Technical Visit to Mikro MSC Berhad

TEEAM successfully organised a Technical Visit to Mikro MSC Berhad on 18 September 2025, providing members with valuable exposure to real-world applications in protection systems, power quality solutions, and advanced manufacturing processes.

The Technical Visit brought together industry professionals, engineers, and company representatives for a half-day event filled with high-value technical knowledge-sharing, demonstrations, and networking opportunities.

Opening & Welcome

Participants were warmly welcomed upon arrival and enjoyed light breakfast and coffee while networking with fellow members. Representatives from Mikro MSC Berhad then introduced the company's background, highlighting its journey from a local manufacturer to a reputable provider of protection relays, power meters, power quality solutions, busway systems, and other electrical products used across Malaysia and globally.

Technical Presentations

The programme featured two in-depth technical sessions delivered by experienced professionals from Mikro MSC Berhad:

1. Protection Relay: Complying with Suruhanjaya Tenaga's 4-Year Calibration Directive & MK Busway System by Ir. Lee Weng Yaw

Ir. Lee provided a comprehensive overview of the Suruhanjaya Tenaga (ST) requirement for 4-year calibration of protection relays, explaining its importance in ensuring system reliability and safety. Participants also gained insights into Mikro's MK Busway System, including its winning features, safety advantages, and installation considerations for various applications.

2. Enhancing Power Quality in Solar PV Systems with Power Factor Regulators by Ir. Ng Tong Heng

This session focused on the growing importance of power quality management in renewable energy installations. Ir. Ng explained how Power Factor Regulators (PFRs) help optimise the performance of solar PV systems, reduce losses, improve stability, and support compliance with grid requirements.

R&D and Manufacturing Facility Tour

Following the presentations, attendees were given a guided tour of Mikro's R&D laboratories and manufacturing facilities. Members observed the company's product development workflow, testing procedures, and modern production lines, gaining first-hand understanding of the engineering and quality assurance processes behind Mikro's product range.

Engagement & Conclusion

This highly enlightening Technical Visit to Mikro MSC Berhad concluded with a Q&A session where participants exchanged views with the technical team on practical challenges in the field, regulatory changes, and emerging technologies. Members expressed sincere appreciation for Mikro MSC Berhad's openness in sharing knowledge and showcasing their capabilities.

TEEAM extended its gratitude to Mikro MSC Berhad for hosting this highly-informative and very well-organised Technical Visit. TEEAM looks forward to arranging many more industry engagement programmes that promote continuous learning and collaboration within the electrical and electronics community. Kudos to Mikro MSC Berhad for your stellar example!

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Snapshots of Technical Visit to Mikro MSC Berhad






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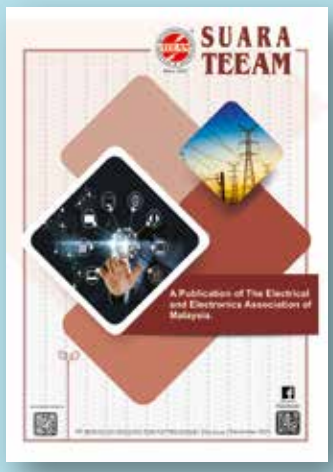

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State Associations News

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No. 2A/F, 2nd Floor, Hardin Road, 96000 Sibu, Sarawak.
Tel: +6084-319 949 Fax: +6084-325 112, 346 114
E-mail: sibucci@gmail.com

Courtesy Visit from TEEAM

The Electrical Association of Sarawak & Sabah (EASS), led by its Chairman Mr. Hii Hua Choun, together with members of the EASS Committee, warmly received a delegation from TEEAM and Informa Markets on 22 October 2025. The visit marked another important step in strengthening collaboration and fostering closer ties between the Associations.

The visiting delegation was headed by TEEAM President Mr. Albert Tan, with the objective of exploring collaborative opportunities and organising meaningful and engaging activities jointly with EASS. During the meeting, Informa Markets introduced the upcoming ENERtec Asia 2026 Exhibition, which will be co-hosted by TEEAM and to be held from 3 to 5 June 2026 at the Kuala Lumpur Convention Centre (KLCC). EASS members were formally invited to participate in the exhibition, which carries the theme "Empowering Energy Transition & Technology."

Following the meeting, EASS arranged a visit for the delegation to University of Technology Sarawak (UTS). A tripartite discussion involving EASS, TEEAM, and UTS explored collaboration opportunities in technical training and capacity-building initiatives for the benefit of the industry.

The visit concluded with a pleasant dinner hosted by EASS, providing an excellent opportunity for fellowship and informal exchanges, and further reinforcing the strong goodwill amongst the participating organisations.

Sabah Electrical Association
Lot No. 3-3-R, Beverly Hills Plaza,
Jalan Bundusan, 88300 Kota Kinabalu, Sabah.
Tel: +6088-712 358 Fax: +6088-717 358
E-mail: pes233sabah@gmail. Wedsite: www.pes-sabah.org

PES 27th Anniversary Dinner

The 27th Anniversary Dinner of the Sabah Electrical Association (Persatuan Elektrik Sabah – PES) was successfully held on 6 September 2025 at the Port View Palace Hall (Hakka Hall) in Kota Kinabalu, Sabah. This milestone event brought together members, industry stakeholders, and distinguished guests to celebrate more than two decades of PES's contributions to the electrical industry in Sabah.

The Dinner was graced by the Guest of Honour, Ir. Chu Wai Quan, Deputy Chief Executive Officer (Planning & Economic Regulation) of the Energy Commission of Sabah (ECoS) who attended on behalf of Datuk Ir. Abdul Nasser bin Abdul Wahid, Chief Executive Officer of ECoS.

The evening's programme featured a presentation highlighting PES's milestones for 2024–2025, showcasing the Association's achievements and ongoing initiatives. This was complemented by cultural performances, a celebratory cake-cutting ceremony, sponsors' recognitions, and exciting lucky draws, all of which contributed to a vibrant and festive atmosphere.

Overall, the anniversary dinner was a memorable and enjoyable evening, reflecting the strong camaraderie among members and reaffirming PES's continued dedication to serving the electrical industry and community in Sabah.

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Courtesy Visit from TEEAM

A delegation from TEEAM and Informa Markets paid a courtesy visit to PES on 23 October 2025 after visiting EASS a day earlier. The delegation was warmly received by PES President Mr. Lawrence Yapp, together with members of the PES Committee, in a cordial and constructive atmosphere.

During the meeting, TEEAM President, Mr. Albert Tan, reaffirmed TEEAM's strong commitment to deepening engagement and strengthening support for State Associations. He highlighted the importance of building sustained collaboration through more structured and frequent interactions, and outlined plans for a series of joint programmes and strategic initiatives aimed at enhancing member value and collectively advancing the industry in the years ahead

Johor Bahru Electrical & Electronics Association
No.7-01, Jalan Bentara Luar, Taman Iskandar,
80050 Johor Bahru, Johor Darul Takzim.
Tel: +607 - 333 8174 Fax: +607 - 224 1923
E-mail: info@jbeea.com.my Website: www.jbeea.com.my

JBEEA 47th Anniversary Dinner

The Johor Bahru Electrical and Electronics Association (JBEEA) successfully held its 47th Anniversary Celebration Dinner on 19 July 2025 at Restaurant Pekin Johor Jaya, Daiman 18 Golf, Taman Johor Jaya, Johor Bahru.

The occasion was celebrated by approximately 840 people with Guest of Honor of DUN (Dewan Undangan Negeri, i.e., State Legislative Assembly) Stulang YB Tuan Andrew Chen Kah Eng and MIDA Johor Director Encik Mohamad Reduan Bin Mohd Zabri. Other VVIPs included REHDA Johor Chairlady Ms Lindy Tan, IEM Southern Branch President Ir. David Puen Ming Shen, and President/Chairman from Electrical Associations of various States, namely, TEEAM, PEA (Perak), SEA (Sarawak), PKPPE (Perak) and Kluang, Johor. Representatives from affiliated Associations, including the Johor Electrical Appliances Dealers Association, also joined the celebration, together with JBEEA members, their families, colleagues, staff, and friends, making the evening a truly inclusive and well-supported gathering.

The entertainment for the evening featured LED Robot Dance Performance and NEON-themed Dance, which reflected the Dinner theme "LIGHT". Music live band was necessary for the happy atmosphere, and the much awaited Lucky Draws with attractive prizes made everyone stay back with anticipation. With the sumptuous meal and fun-filled entertainment, guests had a truly joyous and memorable evening.

The Perak Electrical Association
No. 12-A, Jalan Datuk Mahmud,
31650 Ipoh, Perak Darul Ridzuan.
Tel: +605 - 254 1502 Fax: +605 - 250 9145
E-mail: peaipoh@gmail.com

PEA 62nd Anniversary Dinner

The Perak Electrical Association (PEA) proudly hosted its 62nd Anniversary Celebration Dinner at the Exquisite Seafood Restaurant in Ipoh, Perak, marking a significant milestone in the Association's long and distinguished history. The grand evening saw an impressive turnout of 83 tables, drawing business owners, industry professionals, and distinguished guests from the electrical and electronics sector across Malaysia.

The Dinner was held in a vibrant and warm atmosphere, with the fully occupied hall reflecting the strong unity and solidarity within the industry. The overwhelming support for the event also underscored PEA's strong standing, credibility, and enduring influence within the electrical and electronics fraternity.

In conjunction with the Anniversary Celebration, PEA reaffirmed its commitment to Corporate Social Responsibility (CSR) by contributing a total of RM30,000 to three Chinese independent high schools and seven Chinese primary schools in the State of Perak. This meaningful contribution highlighted the Association's long-standing dedication to supporting education and community development.

In his address, PEA President Mr. Wong Ngen Wah reflected on the Association's illustrious journey over

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the past six decades, expressing pride and gratitude for the collective efforts of past and present members. He emphasised that for more than sixty years, PEA has remained a steadfast pillar of the industry, safeguarding members' interests, promoting integrity in business practices, and fostering unity among professionals within the electrical and electronics sectors. He further noted that the Anniversary Dinner held special significance, as it not only celebrated the Association's legacy and achievements but also carried a meaningful charitable mission.

The event also served as a platform to raise funds for the PEA Education Charity Fund, which supports the development of primary and secondary schools in Perak and provides financial assistance to students in need. This noble initiative exemplifies PEA's enduring belief in education as a cornerstone for sustainable societal progress.

The memorable evening concluded on a warm and appreciative note, having successfully brought together industry stakeholders in a spirit of celebration and generosity. The 62nd Anniversary Celebration Dinner once again demonstrated PEA's noble guiding principle of "Giving back to society what is taken from society," reaffirming the Association's continued commitment to social responsibility, education, and community upliftment.

Sarawak Electrical Association
2nd Floor, Lot 412, Lorong 11D,
Off Jalan Ang Cheng Ho, 93450 Kuching, Sarawak.
Tel: + 6019 - 886 5846 Fax : + 6082 - 45 1234
P.O. Box 16 , 93700 Kuching, Sarawak.
Email : sarawakelectrical@gmail.com

SEA at JBEEA 47th Anniversary Dinner

The Chairman of the Sarawak Electrical Association (SEA), Kapitan Francis Chew, attended the Johor Bahru Electrical Engineering Association (JBEEA) 47th Anniversary Dinner, which was held on 19 July 2025, at Restaurant Pekin Johor Jaya, Daiman 18 Golf, Taman Johor Jaya, Johor Bahru.

Kapitan Francis Chew extended SEA's warm congratulations to JBEEA on its 47th anniversary and conveyed his best wishes for the Association's continued growth and success. The occasion further strengthened cordial ties and mutual goodwill between SEA and JBEEA, reflecting the spirit of collaboration and unity within the electrical engineering fraternity nationwide.

Penang Electrical Merchants' Association
No. 171A, Malacca Street, 10400 Penang.
Tel: +604 - 229 0195 Fax: +604 - 228 4233
E-mail: pema_pg@yahoo.com Website: www.pema.org.my

PEMA 77th Anniversary Dinner Celebration cum Education Fund Awards 2025

The Penang Electrical Merchants' Association (PEMA) celebrated its 77th Anniversary Dinner Celebration cum Education Fund Awards 2025 on 2 August 2025 at the Noble Season Chinese Restaurant in Penang. The event was graced by more than 550 members and guests, including PEMA Trustees and Advisors, reflecting the strong support and unity within the Association.

The evening commenced with a welcoming address by Mr. Kevin Nia Jun Hau, Chairman of the Anniversary Dinner Organising Committee, followed by an address from Mr. Neoh Boon Tong, President of PEMA. In his speech, Mr. Neoh expressed his heartfelt appreciation to members, organisations, and individuals for their unwavering support, which contributed significantly to the success of the Anniversary Dinner and Education Fund Awards.

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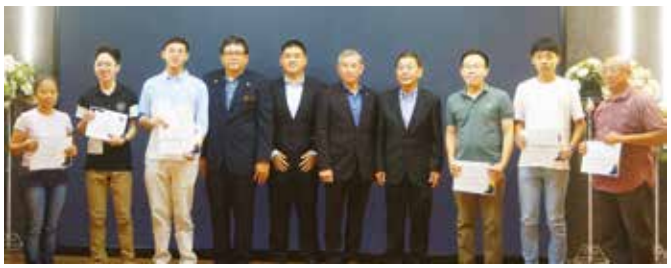
Over the years, PEMA has placed great emphasis on the development of education. In line with this commitment, the Association organises the Education Fund Awards annually to encourage and recognise the academic achievements of the children of PEMA members and their full-time employees, motivating them to strive for excellence in their studies.

The Education Fund Awards segment commenced with an address by Mr. Khaw Tatt Siew, Chairman of the PEMA Education Fund Committee. During the ceremony, the PEMA Academic Excellence Awards were presented to students who achieved outstanding results in the SPM (Sijil Pelajaran Malaysia, equivalent to O Levels) and STPM (Sijil Tinggi Persekolahan Malaysia, equivalent to A Levels) examinations. In total, 10 recipients were honoured, with awards amounting to RM3,600.00, in recognition of their academic excellence and dedication to their studies.

The celebratory dinner was further enlivened with a series of activities, including singing performances, a cake-cutting ceremony, presentation of certificates and souvenirs, as well as lucky draws. The evening concluded on a high note with delightful entertainment by the karaoke team, who performed a selection of all-time favourite soft and melodious songs, creating a warm and joyful atmosphere. Overall, the event was a resounding success and an enjoyable night for all who attended!

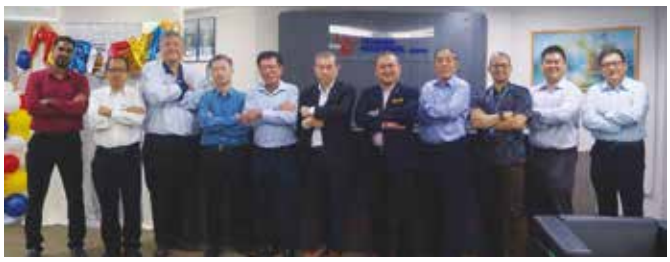


Courtesy Visit to the New TNB General Manager (Retail & Stakeholder), Penang

On 21 August 2025, a seven-member delegation led by PEMA President Mr. Neoh Boon Tong, paid a courtesy visit to the newly appointed General Manager of Retail & Stakeholder Division of Tenaga Nasional Berhad (TNB) Mr. Wan Ishak bin Soed.

During the visit, both parties engaged in constructive discussions on issues of mutual interest. TNB also provided clarification and assistance in addressing several challenges faced by PEMA contractor members, demonstrating its continued support and commitment to win-win industry collaboration.

The visit concluded with the presentation of souvenirs as a token of appreciation. PEMA looks forward to strengthening its working relationship with TNB and continuing close cooperation for the benefit of its members and the industry at large.



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13B, Medan Bendahara 2, Medan Bendahara,
31650 Ipoh, Perak
Email: pkppe.2001@gmail.com
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PKPPE at JBEEA 47th Anniversary Dinner

The President of the Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik (PKPPE), Perak (The Perak Electrical Chargemen & Wiremen Compentence Association) Mr. Tony Leong, attended the Johor Bahru Electrical Engineering Association (JBEEA)'s 47th Anniversary Dinner, held on 19 July 2025, at Restaurant Pekin Johor Jaya, Daiman 18 Golf, Taman Johor Jaya, Johor Bahru.

The dinner provided a meaningful platform for fellowship and networking among industry peers, fostering closer ties between PKPPE and JBEEA. Mr. Tony Leong conveyed PKPPE's warm congratulations to JBEEA on its 47th anniversary and expressed his best wishes for the Association's continued success and growth. The occasion further strengthened goodwill and collaboration between the two associations in advancing the electrical engineering industry.

Other State Association Members' contacts:

Malacca Electrical Contractors and Traders Association
No. 389-G1, Taman Pringgit Jaya,
Jalan Mata Kuching, 75400 Melaka.
Tel: +606-283 8688 Fax: +606-7811466

Negeri Sembilan Electrical Engineering Association
c/o No. 194, Jalan Pantai, 71000 Port Dickson,
Negeri Sembilan Darul Khusus.
Tel: +606-647 1105 Fax: +606-647 4728

Sandakan Electrical Engineering Association, Sabah
Block B-2, Lot No. 25, Bandar Utama, Batu 6, Jalan Utara,
90000 Sandakan, Sabah.
Tel: +6089 - 666 963 Fax: +6089 - 669 936
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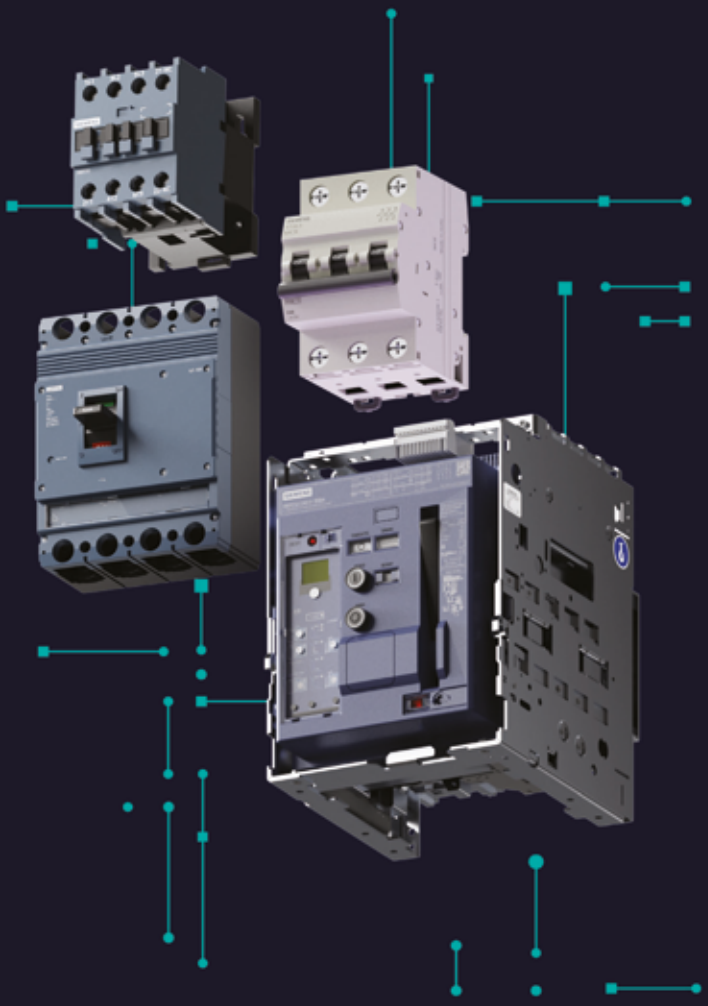

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International Energy Week 2025, Kuching

The International Energy Week (IEW) 2025 was officiated in grand style on 15 July 2025 at the Borneo Convention Centre Kuching, Sarawak. This prestigious event was organised by Informa Markets Malaysia Sdn Bhd, in partnership with the Ministry of Energy and Environmental Sustainability (MEESty), Sarawak, reaffirming Sarawak's growing prominence as a regional and global clean energy hub.

IEW 2025 was graced by an esteemed line-up of dignitaries, including the Right Honourable Premier of Sarawak, YAB Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari; the Right Honourable Deputy Prime Minister and Minister of Energy Transition and Water Transformation, YAB Dato' Sri Haji Fadillah Yusof; the Honourable Deputy Minister for Energy and Environmental Sustainability of Sarawak, YB Datuk Dr Hj. Hazland Abg Hj. Hipni; and the Chairman of Informa Markets Malaysia, Tan Sri Abdul Rahman Mamat.

Held under the theme "From Sarawak to the World: Journey to Clean Energy Leadership", IEW 2025 highlighted Sarawak's bold vision for a clean and sustainable future, driven by hydropower, technological innovation, and global collaboration. Over three transformative days from 15 to 17 July 2025, the event brought together more than 400 brands and companies from 25 countries. In addition, over 400 delegates participated in 20 insightful conference sessions, featuring 50 distinguished speakers who shared expertise on a wide range of topics, including renewable energy innovation, hydrogen technologies, smart grids, carbon capture, utilisation and storage (CCUS), green infrastructure, and other key enablers of the global energy transition. The exhibition halls were vibrant with breakthrough technologies, immersive showcases, and practical solutions shaping the future of sustainable energy.

TEEAM was proud to have participated in IEW 2025 both as a Supporting Organisation and an Exhibitor, demonstrating its continued proactive commitment to advancing the energy and electrical engineering ecosystem. Representing TEEAM at the event were Ts. Lim Sai Seong (Deputy President), Kapitan Francis Chew (SEA Chairman and TEEAM Council Member – State Representative), Mr. Andrew Lu (TEEAM Council Member), Dr. Jye Lu (TEEAM Member), Ms. Winnie Khong (TEEAM Executive), and Ms. Thila Sevellinggam (TEEAM Senior Executive).

Several TEEAM member companies also actively participated in the IEW 2025 showcase, including DNF Cable, Fluke Malaysia, Hasilwan, Toshiba, Hi-Essence Cable, May Quality, REPL, Schneider Electric, Smart Cable, Southern Cable, TNB Labs, Tonn Cable, and United U-Li, underscoring the strong industry representation and collaborative spirit within TEEAM.

Through its participation in IEW 2025, TEEAM reaffirmed its role as a proactive industry stakeholder, supporting platforms that foster innovation, knowledge exchange, and partnerships — all essential in driving a sustainable and resilient energy future for Malaysia and beyond.

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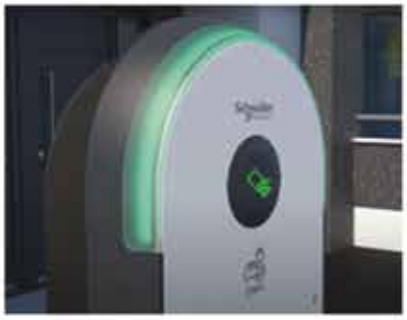

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Snapshots of International Energy Week 2025, Kuching


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Tel: 03-6140 3792 (HL) Fax: 03-6140 1984
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2 **SB TWO ELECTRICAL SDN BHD** (1217570-V)
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3 **SB THREE ELECTRICAL SDN BHD** (1240533-H)
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2025 RCEP Member Countries' Dialogue & Conference on NEV and Advanced PV Industrial & Supply Chains Cooperation in Hefei, China

The 2025 RCEP Member Countries' Dialogue & Conference on New Energy Vehicle (NEV) and Advanced Photovoltaic (PV) Industrial & Supply Chains Cooperation was held from 4 to 6 June 2025 in Hefei, Anhui Province, China. The Conference served as a strategic platform to promote regional collaboration, industrial integration, and policy alignment within the Regional Comprehensive Economic Partnership (RCEP) framework. The event attracted strong participation from industry leaders, associations, and non-governmental organisations from China, Malaysia, Thailand, the Philippines, Indonesia, Laos, Myanmar, Cambodia, and Singapore, as well as representatives from the Hefei and Anhui local Governments.

TEEAM's participation through a 7-member delegation, led by Immediate Past President Ir. Chang Yew Cheong, was both timely and significant, in view of Malaysia's growing focus on renewable energy development and sustainable transportation technologies. Through its involvement, TEEAM aims to strengthen international partnerships, gain deeper insights into emerging trends and policy directions, and play an active role in advancing the region's sustainable energy transition.

The TEEAM Delegation comprised Ir. Chang Yew Cheong (Immediate Past President), Ir. Lee Kok Chong (Vice President – Engineering Construction & Services), Dato' Andy Tan (Honorary Treasurer), Datuk Jacky Chen (Assistant Honorary Treasurer), Tc. How Chee Seng (Council Member), Ms. Winnie Khong (Executive Secretary), and Ir. Dr. Tan Kuang Leong (Guest).

A key highlight of the Conference was the signing of a Memorandum of Cooperation (MoC) between TEEAM and the China Anhui New Energy Association on 4 June 2025. The MoC was signed on behalf of TEEAM by Ir. Chang Yew Cheong, while Ms. Li Na, Vice President and Secretary General, signed for the China Anhui New Energy Association. This win-win, strategic milestone smart partnership marks an important step towards strengthening bilateral cooperation and was established with the objectives of:

- Seizing new opportunities arising from RCEP regional economic integration
- Deepening cooperation within the new energy industry
- Promoting business matchmaking and trade exchanges
- Sharing critical industry insights and market opportunities
- Supporting collaborative projects between Chinese and Malaysian enterprises

As part of the programme, Technical Visits were arranged to two of China's leading Electric Vehicle (EV) manufacturers, viz., BYD (Build Your Dreams) and NIO. These visits provided valuable insights into the future of mobility, highlighting cutting-edge innovations, large-scale manufacturing capabilities, and forward-looking designs that position both companies as major players in the global EV market.

The delegation also visited two other companies, i.e., Gotion High-Tech and Sungrow Power, gaining first-hand exposure to the latest advancements shaping the photovoltaic and new energy sectors. Gotion High-Tech, a global leader in lithium-ion battery technology and energy storage systems, showcased developments in battery cell innovation, intelligent Battery Management Systems (BMS), and grid-scale energy storage solutions. Meanwhile, Sungrow Power provided in-depth insights into its advanced inverter technologies and comprehensive PV system solutions. In addition, a private Technical Visit was arranged to Xunying Group/ Eagoal Group, a company actively involved in new energy storage systems and lithium battery supply.

These highly insightful Technical Visits offered valuable learning opportunities and opened avenues for potential collaborations and smart business partnerships. TEEAM extends its sincere appreciation to all host organisations for their warm hospitality and excellent arrangements.Dialogue and Conference reaffirmed its commitment to fostering regional cooperation, advancing technological exchange, and contributing meaningfully to the development of a resilient and sustainable energy ecosystem within the RCEP region.

Snapshots of 2025 RCEP Member Countries' Dialogue & Conference on NEV and Advanced PV Industrial & Supply Chains Cooperation in Hefei, China


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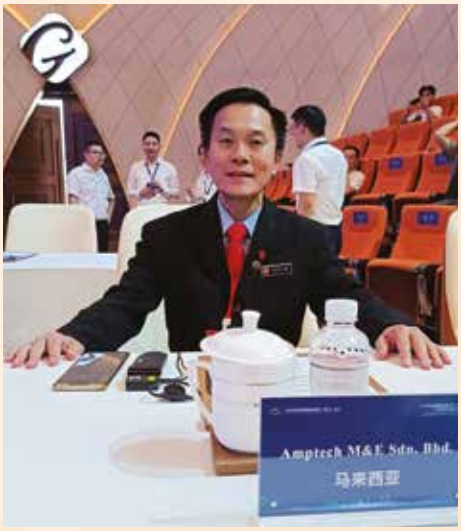
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Transforming Malaysia's Energy Landscape: Battery Energy Storage System (BESS) Development in Malaysia

Ir. Lee Kok Chong

Ir. Lee Kok Chong, TEEAM Vice President (Engineering Construction & Services) presented a paper at the 2025 ASEAN Federation of Electrical Engineering Contractors (AFEEC) & Federation of Asian-Pacific Electrical Contractors Associations (FAPECA) Conference, which was held on 24 September 2025 at the Ayodya Resort, Bali, Indonesia.

With nearly three decades of expertise in energy, engineering, and renewable integration, Ir. Lee presented a roadmap for Malaysia's adoption of Battery Energy Storage System (BESS), a technology he describes as "the key enabler of our nation's transition towards a low-carbon future."

Malaysia's energy landscape is at a turning point. Today, renewable energy (RE) accounts for just 17% of the country's capacity. But by 2039, that share is projected to rise to 31%, while coal, the nation's most carbon-intensive fuel, will decline from 37% in 2021 to just 22%. This transformation is not merely about swapping fuels, it's about reimagining how energy is stored, delivered, and consumed.

"Renewables such as solar and hydro are intermittent by nature. Without effective storage, their full potential cannot be realised," Ir. Lee explained. "That is why BESS is not just an option, it is a necessity".

Globally, the energy storage market is surging. Bloomberg NEF projects that BESS capacity will grow from 27 GW in 2021 to a staggering 411 GW by 2030. For Malaysia, this momentum aligns with its National Energy Transition Roadmap (NETR), which commits to 70% renewable penetration by 2050.

"BESS allows us to capture excess solar during the day and release it during peak demand at night," Ir. Lee noted. "It stabilises our grid, reduces reliance on fossil fuels, and most importantly, prepares Malaysia for a decentralised, low-carbon energy future." Malaysia's BESS deployment is expanding across multiple fronts.

Commercial and Industrial Users: For Solar PV System above 72 kWp, it's viable to pair with BESS to ensure power stability and independence. This is particularly vital for factories and commercial hubs that operate for 24 hours like cold storage, food processing plant, etc.

Utility-Scale Projects: From the pioneering 60MW/400MWh Peninsular Malaysia project by NUR Power Sdn Bhd, large-scale storage is gaining traction. The Government has already announced tenders for four more projects of similar scale, set to go online by 2026.

"These projects demonstrate Malaysia's seriousness", Ir. Lee remarked. "We are building not just capacity, but also confidence for investors and developers."

Central to this shift is Malaysia's investment in grid modernisation. Between 2025 and 2027, Tenaga Nasional Berhad (TNB) is channeling RM45 billion into expanding transmission and distribution networks, alongside smart grid technologies. The goal? A resilient system capable of handling higher shares of renewables while ensuring uninterrupted power supply.

Malaysia is also positioning itself as a regional player. Cross-border electricity sales, particularly to Singapore and Thailand, are opening new avenues for green energy exports.

As Ir. Lee put it, "Our grid will not only serve Malaysians, it will connect us to ASEAN's broader energy future." The opportunities are vast. Malaysia targets RM637 billion in renewable and green technology investments by 2050. With falling solar costs and increasing demand for stable power, BESS is becoming an attractive option to store energy when it's cheap and selling it back during peak hours.

..... Continue on page 99

New Members

The following new members have been approved and accepted by the TEEAM Council from April 2025 – December 2025. A warm welcome to all the new members and special appreciation is extended to those who introduced these new members. For those who are not yet members……why wait? Join us and find out how our Association can offer our value-added services to you and your highly esteemed Companies!

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Jalan Kelang Lama, 58200 Kuala Lumpur.
Mobile: +6017-845 1318
E-mail: support@drybox.com.my
Website: http://drybox.com.my
Contact Person: Mr. Tan Ming Horng
Business: Wholesale of electrical & electronics goods, retails sale.

Prima Niaga Group Sdn Bhd
15th Floor, Unit 8, Tower 2, Faber Towers,
Jalan Desa Bahagia, Taman Desa, 58100 Kuala Lumpur.
Tel: +603-7971 1313
E-mail: info@primaniaga.my
Website: www.primaniaga.my
Contact Person: Mr. Lau Cheong Seng
Business: Wholesale electrical and electronic goods.

GCI Science & Technology (M) Sdn Bhd
Suite 12-1, The Vertical Corporate Tower B, Avenue 10,
Bangsar South City, No. 8, Jalan Kerinchi,
59200 Kuala Lumpur.
Tel: +603-2242 2919 Fax: +603-2242 2919
E-mail: cl@gcidesign.com
Contact Person: Ms. Cheng Ling
Business: Communication, electrical & electronics and information services.

KSS Copper Sdn Bhd
No. 5, PT 3815, Jalan 1/148A,
Taman Sungai Besi Industrial Park,
57100 Kuala Lumpur.
Tel: +603-7980 8566
E-mail: sales@ksscopper.com.my
Website: www.ksscopper.com.my
Contact Person: Dato' Sri Paranthaman
Business: Manufacturing of copper wires, rods, busbar & strips.

Interlec Electrical Supplies Sdn Bhd
No. 17, Jalan 5/108C, Taman Sungai Besi, 57100 Kuala Lumpur.
Tel: +603-7981 7668, 7568, 7971 2809
Fax: +603-7981 2720
E-mail: ckyap@myinterlec.com
Contact Person: Mr. Yap Chee Keong
Business: Wholesaler and retailers of electrical parts and products.

Gencity Sdn Bhd
No. 3, Jalan P4/7, Seksyen 4, Bandar Teknologi Kajang,
43500 Semenyih, Selangor Darul Ehsan.
Mobile: +6013-319 3111
E-mail: andy@gencitysb.com
Contact Person: Mr. Andy Koh
Business: Sales, repair, service, rental of genset, transformer, etc.

Malaysia Microelectronic Solutions Sdn Bhd
Suite B306, Block B, 3rd Floor, Phileo Damansara 1,
46350 Petaling Jaya, Selangor Darul Ehsan.
Tel: +603-7931 2257 / 2258
E-mail: sales_info@my-ms.com
Website: https://my-ms.com
Contact Person: En. Khairil Anuar Bin Muhammad
Business: Industrial electronics repair services & IC design.

Megapro Metal Industries Sdn Bhd
Lot 1556 (PT5310), Batu 19,
Off Jalan Kajang Semenyih, Kajang Jaya Industrial
43500 Semenyih, Selangor Darul Ehsan.
Tel: +603-8723 6398
E-mail: megahock.amandatan@gmail.com
Contact Person: Mr. Liew Kang Woei
Business: Manufacturing cable support systems.

Sky Power Sdn Bhd
C-7-1, Jalil Link 5, No. 5, Jalan Jalil Perkasa 1,
Bukit Jalil 57000, Kuala Lumpur.
Tel: +603-8699 1812
E-mail: general@skypowersb.com
Website: www.skypowersb.com
Contact Person: Mr. Desmond Goh
Business: Mechanical & electrical contractor.

Prestige Integration Sdn Bhd
No. 27-2, Jalan Temenggung 27/9, Bandar Mahkota Cheras,
43200 Cheras, Selangor Darul Ehsan.
Tel: +603-9011 5486 Fax: +603-9011 5586
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Contact Person: Mr. Hung Siang Wei
Business: ICT, ELV, mechanical & electrical services.

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E-mail: ceria.chs@gmail.com
Contact Person: Ts. Chew Han Siong
Business: Testing/Inspection & maintenance of electrical installation

Multiventure Resources
No. 11, Jalan Kemuning Damai 32/148, Kemuning Utama,
40460 Shah Alam, Selangor Darul Ehsan.
Mobile: +6017-300 3010
E-mail: multiventureresources@gmail.com
Contact Person: Mr. Tinesan a/l Ganeson
Business: Safety officer manpower supply for construction (3rd party service provider).

UL Services (Malaysia) Sdn Bhd
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USJ 1, UEP, 47600, Subang Jaya, Selangor Darul Ehsan.
Tel: +603-8601 7137
E-mail: darren.chua@ul.com
Website: http://ul.com
Contact Person: Mr. Darren Chua
Business: Consultancy, advisory & testing certification.

Yet challenges remain due to high upfront costs, fire safety concerns, and environmental impact on disposal of used batteries. To address these challenges, Malaysia has launched the MyBESS programme, promoting locally assembled storage systems to cut costs, whilst the Fire and Rescue Department is grafting safety guidelines aligned with international standards such as NFPA 855.

Battery recycling is also gaining focus, with technologies designed to recover valuable metals like lithium, cobalt, and nickel. Ir. Lee emphasised "Our responsibility does not end with installation, we must ensure BESS is safe, sustainable, and recyclable."

Ir. Lee left delegates with a compelling message. "BESS is not just about technology, it's about resilience, sustainability and prosperity. It is the bridge between our fossil-fuel past and our renewable future."

Malaysia is positioning itself as a leader in South-east Asia's energy transition. From industrial rooftops to national grids, from local assembly lines to cross-border trading, BESS is more than a system, it is Malaysia's bet on a cleaner, smarter, and more connected tomorrow.

Ir. Lee Kok Chong *is a Professional Electrical Engineer with 28 years of experience in consulting, design and contracting for MV interconnections of renewable energy plants, bulk oil terminal jetties, factories/industrials and building electrical services. He holds an MBA from the University of Alabama in Birmingham, England, and B.SC. in Electrical Engineering from Huntsville, U.S.A. He is a Qualified Person of Grid Connected Photovoltaic (GCPV), Certified ASEAN Energy Manager, Green Building Index (GBI) Facilitator and ST 33kV Competent Engineer. Ir. Lee has served in key roles within IEM, SIRIM and currently he is the Vice President and Chairman of the Engineering Construction & Services Group of TEEAM. He has contributed to Malaysian Standards development for MS1979, LED Lightings under the Technical Committee for Lightings & Ballast previously under SIRIM, Energy Efficiency & Conservation Guidelines for Malaysian Industries Part 1: Electrical Energy Use Equipment, Malaysian Energy Efficiency Master Plan, Malaysian Green Technologies Roadmap and IEM - IET Energy Conference (IIEC) on Renewables & Energy Efficiency.*

..... Continue New Members

Suntech Electrical Supply Sdn Bhd No. 22, Taman Harta Pertama Bukit Baru, Off Jalan Paya Ikan, 75150 Melaka. Tel: +606-284 1229 Fax: +606-284 4331 E-mail: suntech_et@hotmail.com Contact Person: Mr. Yong Wee Tak *Business: Wholesale of electrical parts, cables & hardware.*	**Act Eramas Letrik (M) Sdn Bhd** No. 6, Jalan Dato Haji 2, Taman Tan Yew Lai, 58200 Kuala Lumpur. Tel: +603-7772 9978 / 9078 E-mail: acteramas55@gmail.com Contact Person: Ms. Apple Wong *Business: Wholesale of electrical and electronics goods.*
CK Power Electrical (M) Sdn Bhd No. 10, Jalan Rodat 4/KU5, Bandar Bukit Raja, 41050 Klang, Selangor Darul Ehsan. Tel: +603-3359 3090/3091 E-mail: ckpowerelectricalm@gmail.com Contact Person: Mr. Chong Jin Kang *Business: Electrical supplier.*	**LKH Electric (M) Sdn Bhd** No. 2, Rio Unit 10-9, Bandar Puteri Puchong, 47100 Puchong, Selangor Darul Ehsan. Tel: +607-599 8888 E-mail: sales@limkimhai.com.my Contact Person: Mr. Daniel Chandy Samuel *Business: Power distribution.*
South Asia Growth Sdn Bhd Lot 66, Kawasan Perindustrian Semambu, 25350 Kuantan, Pahang Darul Makmur. Tel: +609-566 5451 Fax: +609-566 5452 E-mail: design@sag.com.my Website: www.sag.com.my Contact Person: Mr. Johnny Wong *Business: Manufacturer of street lighting, indoor & outdoor lighting, industrial lighting, decorative pole, earth chamber, etc.*	**Exquisiteness Engineering Sdn Bhd** No.G-1-16, Plaza Arkadia, No. 3, Jalan Intisari Perdana, Desa Parkcity, 52200 Kuala Lumpur. Tel: +603-2729 1744 E-mail: project@exquisiteness.my Website: www.exquisiteness.my Contact Person: Mr. Sheng Yuan Biao/Mr. Ivan Teng *Business: Mechanical & Electrical contractor.*
Ir. Ng Yen Yee No. 27, Lorong CP 6/50, Taman Cheras Perdana, 43200 Batu 9 Cheras, Selangor Darul Ehsan. Mobile: +6012-388 3278 E-mail: woodcat_2000@hotmail.com *Business: Utilities & renewable energy.*	**Wee Ming Electrical & Refrigeration Work Sdn Bhd** No. 427, Lorong 9 Ang Cheng Ho, 93100 Kuching, Sarawak. Mobile: +6019-874 3303 E-mail: weemingelectrical@gmail.com Contact Person: Ms. Then Lee Miin *Business: Electrical contractor.*
JX Sky Technologies Sdn Bhd No. 30-1, Jalan PUJ 3/8, Taman Puncak Jalil, Bandar Putra Permai, 43300 Seri Kembangan, Selangor Darul Ehsan. Tel: +603-9547 4271 Fax: +603-8940 1170 Mobile: +6012-733 1132 E-mail: hslaw@jxskytech.com Website: www.jxskytech.com Contact Person: Mr. Law Hua Soon *Business: Manufacturer of emergency lighting and exit sign luminaires.*	**M S ICT Solution Sdn Bhd** Level 2-B, 2A, Jalan 13/6A, 46200 Petaling Jaya, Selangor Darul Ehsan. Tel: +603-7980 2688 Fax: +603-7457 2666 E-mail: msictsupport@msict.com.my Website: www.msict.com.my Contact Person: Ms. Tio Siow Wei

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Website : https://www.umscable.com.my

Challenges and Opportunities in the Electrical Industry – Part 48

Ir Chew Shee Fuee KMN, TEEAM Past President

1. MS IEC 60038:2006 – IEC Standard Voltages

Since 1 January 2008, Suruhanjaya Tenaga (ST), i.e., Energy Commission, has adopted the low-voltage system of 230/400V, with a permissible tolerance of +10% and –6%, in line with MS IEC 60038:2006.

The IEC proposed the 230/400V system to harmonise the historical differences between countries operating on 220/380V and 240/415V systems. To achieve this harmonisation, both legacy systems were required to comply with the following voltage ranges:

- 220/380V systems to operate within 230/400V (+6%, –10%)
- 240/415V systems to operate within 230/400V (+10%, –6%)

As a result, equipment and appliances rated for 230/400V and designed to withstand voltage variations of ±10% can be safely used in both systems without modification.

The long-term objective of this harmonisation effort is to further narrow the voltage tolerance, potentially to ±6%, once system stability and infrastructure allow.

Apart from the nominal voltage rating change to 230/400V, there are virtually no differences in new electrical installations compared to previous designs, as the operational voltage limits remain unchanged. Nevertheless, it is important that all new installations are designed based on a nominal voltage of 230/400V with a target tolerance of ±6%.

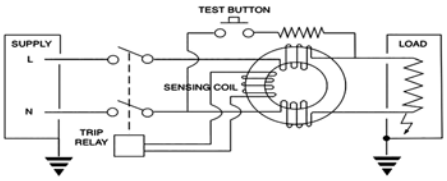
A narrower voltage range will, in the long run, reduce the cost of electrical equipment and appliances, as manufacturers will be able to optimise designs. Additionally, improved voltage regulation will enhance the performance and extend the service life of electrical equipment.

2. Voltage-Independent RCDs and Voltage-Dependent RCDs

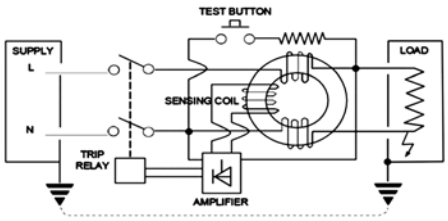
Residual Current Devices (RCDs) play a critical role in protecting against electric shock and earth leakage faults. With the increasing prevalence of AC/DC and DC/AC power conversion systems, RCD operational requirements have become more complex.

Currently, voltage-independent RCDs are the most commonly permitted devices in Malaysia. Their operation relies solely on the detection of residual (leakage) current, making them highly reliable even in situations where the supply voltage is unstable or absent.

On the other hand, voltage-dependent RCDs are generally more compact and are capable of providing enhanced detection of DC components and complex leakage currents that may not be fully detected by voltage-independent RCDs. However, the use of voltage-dependent RCDs is not permitted in Malaysia under current regulations.



The above is a Voltage Independent RCD's internal components and wiring diagram.



The above is a Voltage Dependent RCD's internal components and wiring diagram.

The primary function of an RCD is to provide protection when current leakage occurs. In such situations, the mains voltage typically does not collapse significantly, allowing a voltage-dependent RCD to operate effectively. Furthermore, voltage-dependent RCDs can offer more advanced analysis of leakage characteristics, enabling improved fault discrimination and identification of possible fault causes.

Ir. Chew Shee Fuee KMN *B Sc (Hons) (Strathclyde), PEng, CEng, FIEM, MIEE Member, IEEE Member, 1st Grade Electrical Engineer (Competent up to 500 kV).*

Ir. Chew was President of The Electrical and Electronics Association of Malaysia (TEEAM) from 2001-2005 and 2013-2017. He was the President of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) for 2016-2018. He is a Past Chairman of The Institution of Engineering & Technology (IET) Malaysia Local Network. Ir. Chew is currently the Managing Director of G H Liew Engineering (1990) Sdn Bhd and Chris Chew Electrical Consultant. He graduated from the University of Strathclyde, Glasgow with a B Sc (Hons) in Electrical & Electronics Engineering. He is a Professional Engineer and is also licensed by the Energy Commission (Suruhanjaya Tenaga, ST) as a Competent Engineer (without voltage limits), and a Service Engineer to carry out electrical testing up to a voltage of 500 kV.

Ir. Chew has more than 40 years of industry experience in electrical control and relay protection. He is also specialised in electrical site tests on power equipment, electrical fault investigation, plus service and maintenance of electrical switchgears and relays. His work also includes electrical supervision of sub-stations and electrical audit. He also presents lectures on electrical apparatus and the protection system. He can be reached at E-mail: sfchew@ghliew1990.com

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Hazy Skies and Asthma Sufferers' Cries: The Importance of AIs (Air Indexes)

Caleb Masuda Koh

Picture the scene: An odour wafts through the air. Your nose immediately wrinkles, and your smile quickly turns into a frown. At first, it seems like maybe your mind is tricking you. Nothing seems to be burning on the near horizon, and yet you pick up a faint but growing acrid scent.

The dreaded annual and perennial transboundary phenomenon has reared its ugly head again! Haze is back! But each time our frustration increases because this incident never ends. Even if it is only once a year, that is still plenty for those of us who just want to enjoy (relatively) clean air, free of pollutants, where we strive to own some agency. (We already have little control over inconsiderate individuals smoking in public restrooms in both government and commercial settings wherein we need to relieve ourselves quickly despite the issue being a significant health hazard. These days, many people who don't smoke end up contracting lung cancer from second-hand smoke, underscoring how vitally important it is to enact legislation to prohibit smoking in public places and spaces and to constantly and consistently enforce such laws.)

For people living with asthma (or other respiratory conditions such as bronchitis), haze is even more hellish than a mere noxious "odour" to others who are spared from such health ordeals. And without many of us knowing, our consumption of the unwanted phenomenon with its unwelcome presence can effect dire health outcomes, especially long-term.

The unfortunate truth is haze is not just something that irritates our eyes, noses, throats and skin temporarily; it continually interferes with our striving to maintain good health by introducing (and reintroducing) harmful particulate matter (PM) into our lungs and bodies. These pollutants build up in our bodies over time and can lead to conditions like COPD (chronic obstructive pulmonary disease), strokes, cardiac arrests and lung cancer! And these health outcomes aren't just speculative, as there have been studies conducted that confirm such connections.

In an article titled "Impact of Haze Event on Daily Admission of Respiratory System Patients in Peninsular Malaysia," published in a Malaysian scientific journal in 2023, its author-researchers Nurul Anis Ayuni Khairul Anuar, Humaida Banu Samsudin and Noriza Majid from the National University of Malaysia discovered findings support a correlation between higher pollution levels and increased respiratory illness hospitalisations. Health impacts were most pronounced in areas with greater pollution exposure.

Groups in the population most affected by haze are children, the elderly, those with pre-existing health conditions and pregnant women. In fact, a study conducted by **Stockholm Environment Institute (SEI)** with lead author Chris Malley in 2017, calculated the significant percentage of preterm births associated with air pollution, estimating 2.7 million preterm births per year were linked to exposure to fine particulate matter.

So the next question that begs to be answered is, "What is haze, why does it occur and how can we measure its severity for our and our families' safety?" Haze is caused when sunlight encounters tiny pollution particles in the air, leading to reduced clarity and colour in visibility. Increased pollutants result in more absorption and scattering of light. Hence why on some days, our iconic Twin Towers are shrouded in an impenetrable veil of grey.

Beyond just reducing visibility and also reducing opportunities to earn revenue from tourism since no one likes to snap photos of landmarks they can't see, haze often contributes to acid rain, which harms aquatic life and damages infrastructure. More importantly, Malaysia's Ministry of Health defines haze as **"a situation where there is pollution to the air by suspended particulate matter."**

Haze-forming air pollution originates from various sources, such as power plants, factories, vehicles and construction activities, especially during dry spells. Industrialisation and urbanisation exacerbate this severe air pollution. Therefore, in theory, haze can and should actually happen more than once a year.

Natural sources include windblown dust and soot from wildfires. As for Southeast Asia's chronic predicament, the primary culprit is open burning and forest fires in neighbouring countries, especially Indonesia, where peat land fires in Sumatra/Kalimantan are intensified by dry weather, slash-and-burn agriculture, and wind patterns.

Major pollutants are often not directly emitted but are formed when gases react in the atmosphere after being carried distances from their sources. Apart from PM2.5, which is deadly because it can penetrate deep into the lungs and bloodstream, leading to severe health risks including inflammation and increased mortality rates, other pollutants found in haze are sulphur dioxide (SO2), nitrogen dioxide (NO2), ozone (O3) and carbon monoxide (CO).

So what is PM2.5 and why is it so important to explain what it is?

This is my best attempt to define PM2.5:
PM2.5 refers to airborne particulate matter measuring 2.5 micrometres or smaller in diameter. Because of their tiny size, these microscopic particles can be inhaled deeply into the respiratory system, posing significant health risks and contributing heavily to air pollution.

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Sources of PM2.5 pollution include motor vehicle emissions, energy generation facilities, various industrial activities, and natural events like wildfires. (In the Southeast Asian context, PM2.5 is also "created" from forest fires where slash-and-burn agriculture is widespread…and largely unregulated and not significantly penalised.) Additionally, PM2.5 can form indirectly in the atmosphere through complex chemical interactions between precursor pollutants, particularly sulphur dioxide and nitrogen oxides released by industrial and transportation activities, to create secondary particulate matter.

It is certainly disheartening, if not depressing, that we seem to not be able to own any agency over this matter (no pun intended). But such a notion doesn't mean we can't take proactive measures to strive to protect ourselves and our loved ones from the unwelcome effects of haze and its key ingredient PM2.5. One way is to be acquainted with API and to check it regularly before heading outside with our families.

Not to be confused with the acronymic abbreviation of Application Programming Interface commonly used in software engineering, API stands for Air Pollution Index and is known as Indeks Pencemaran Udara in Malay. Historically used in mainland China and Hong Kong before being replaced by more updated systems, API is a system utilised in Malaysia to communicate air quality levels based on various pollutants. If the thermometer helps us to ascertain how high our fever is, the API is a health thermometer for the air to measure how polluted it is.

In Malaysia, the API measures several pollutants including carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2), sulphur dioxide (SO2), and PM2.5 particulate matter. The former are reported in parts per million by volume (ppmv), while the latter is measured in micrograms per cubic meter (μg/m3).

1. **Health Classifications**: The API categorises air quality into five classifications:
   - o **0-50**: Good
   - o **51-100**: Moderate
   - o **101-200**: Unhealthy
   - o **201-300**: Very unhealthy
   - o **301-500**: Hazardous
   - o An API exceeding 500 triggers a state of emergency, impacting government services and prohibiting certain commercial activities.

In particular times throughout history, the API readings have been so catastrophically high in Malaysia that we were almost crippled by the health crisis. Schools had to be closed, government expenditures increased exorbitantly, the economy was severely affected, environmental damage was widespread, both from the fires that caused it and the smoke itself, and public health was substantially and adversely impacted. Although the long-term effects on animal health and reproduction are not yet fully understood, ecosystems were also affected as the fires contribute to deforestation and habitat destruction, harming wildlife such as orangutans, birds, and amphibians.

Schools are one of the first services to be suspended during a haze crisis, as the health of children is a top priority.

- **Widespread closures**: During the 2019 haze, over 1,484 schools were forced to close across multiple states, affecting more than one million students.
- **Safety protocols**: School closures are usually mandated when the API exceeds 200 (considered "very unhealthy"). During periods of unhealthy air quality (API over 100), schools are required to stop all outdoor activities.
- **Learning disruption**: The last-minute nature of closures has caused concern among parents and disrupted the academic calendar for students across the country.

As for economic consequences, the recurrent haze events have cost the country billions of ringgit through direct and indirect losses:

- **Massive losses**: The 1997 haze crisis alone cost Southeast Asia an estimated US$9 billion, much of which was in Malaysia. In 2019, air pollution cost Malaysia an estimated 20% of its GDP.
- **Productivity loss**: Companies report increased sick days during haze episodes. This and other factors, such as parents staying home with children during school closures, accounted for nearly RM958 million in lost productivity in 2013.
- **Decreased tourism**: The poor visibility and public perception of unhealthy air have severely impacted Malaysia's tourism industry, leading to flight delays and cancellations, with long-term effects on the country's appeal as a tourist destination.

The health effects were also significant:
Haze, primarily composed of fine particulate matter (PM2.5), poses serious short- and long-term health risks, especially for vulnerable groups like children, the elderly, pregnant women and those with existing respiratory conditions.

- **Short-term health issues**: Common symptoms during haze episodes include eye and throat irritation, coughing, dry skin, fatigue, and headaches.
- **Respiratory problems**: The haze can trigger asthma attacks and worsen chronic respiratory illnesses like bronchitis. In 2019, one study linked haze exposure to a 19% increase in respiratory mortality.
- **Cardiovascular complications**: Long-term exposure increases the risk of death from cardiovascular diseases and can reduce life expectancy.

What are some recommendations for those of us who unfortunately have to regularly live through haze?

- Adequate water consumption to prevent dehydration and support skin health ought to be encouraged.
- We should try our very best to ensure the air we breathe indoors is clean (and therefore sufficiently free of particulate matter) by avoiding smoking and cooking methods that generate smoke, and use air purifiers. Unsurprisingly, the air purifier industry sees a significant boost in sales and thereby revenue from a marked increase in air purifier purchases during times of haze.
- Limit outdoor activity during days when high levels of air pollution are present, and wear masks (NIOSH-certified N95) when we cannot avoid going outside.

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TEEAM at JBEEA 47th Anniversary Dinner

TEEAM President Mr. Albert Tan led a delegation to Johor Bahru to attend the Johor Bahru Electrical Engineering Association (JBEEA) 47th Anniversary Dinner, held on 19 July 2025 (Saturday) at Restaurant Pekin Johor Jaya, Daiman 18 Golf, Taman Johor Jaya, Johor Bahru. The evening brought together industry practitioners, partners, and long-standing supporters to commemorate JBEEA's remarkable journey of 47 years of faithfully serving the electrical engineering community in Johor.

Aptly themed "Light", the celebration reflected the very essence of the electrical and electronics industry! Guests were encouraged to interpret the theme creatively in their attire, contributing to a vibrant and visually captivating atmosphere that set the tone for an enjoyable evening of fellowship and celebration.

JBEEA's 47th Anniversary Dinner served as a meaningful platform for remembrance, recognition, and renewed connection within the industry. The event honoured the Association's past achievements, acknowledged the pro-active efforts of its members, and celebrated the strong camaraderie that has sustained JBEEA for nearly five decades.

TEEAM's presence at the Dinner underscored the Association's commitment to fostering close collaboration with State Associations across Malaysia. President Albert Tan expressed appreciation for the long-standing collaboration between TEEAM and JBEEA and reaffirmed the importance of continued cooperation in advancing industry standards, encouraging knowledge exchange, and supporting the growth of the electrical engineering sector nationwide.

The evening was marked by warm hospitality, lively conversations, and a shared sense of purpose amongst attendees. As JBEEA proudly celebrates 47 years of stellar service, TEEAM looks forward to further strengthening this partnership and working hand-in-hand to support a dynamic and progressive industry.

Congratulations to JBEEA on this memorable milestone, and here's to many more years of shared success!

Snapshots of TEEAM at JBEEA 47th Anniversary Dinner

..... Continue Hazy Skies and Asthma Sufferers' Cries: The Importance of AIs (Air Indexes)

- We should actively engage in practices to clean our bodies on a regular basis to remove pollutants after exposure.
- Refrain from going outdoors to exercise when there are smog and haze to minimise health risks. Opt for indoor aerobic activities instead. Therefore frequently monitoring API is critical.
- We may also need to recognise the importance of lifestyle and policy modifications, such as conserving energy and using clean energy to combat air pollution (where possible for both suggestions).

In summary, while the API has been replaced with more updated systems like the Air Quality Health Index (AQHI), which categorises health implications based on pollution levels, in countries like China and Hong Kong where it was historically used, the API still remains a helpful way to gauge how severe the haze is in Malaysia and to know what we should do in response to its severity.

Caleb Masuda Koh *is a freelance writer. He can be contacted at E-mail: cmaskoh@gmail.com*

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Wake Up to Wellness: The Power and Practice of Sound Sleep

Caleb Masuda Koh

Ah, sleep. The one non-negotiable commodity we need more of but often can't get enough of. More than merely resting for a period of time, sleep is undoubtedly essential to proper and even optimal functioning. And that is why getting good sleep is paramount to ensuring one performs at peak productivity throughout the day, whether at work or juggling the needs of a family at home.

But how important is sleep to our everyday lives, other than helping us to perform our day-to-day tasks more effectively…and efficiently? In short, what good does good sleep do to us in terms of benefits? In Matthew Walker's TED Talk "Sleep Is Your Superpower," the British professor of neuroscience and psychology at the University of California considers sleep a "superpower" for several key reasons:

1. **Memory and Cognitive Function**: Walker emphasises that sleep is fundamental to cognitive maintenance. It is also critical for effectively consolidating and storing memories. Without adequate sleep, individuals can experience a significant deficit in their ability to form new memories—up to a 40% reduction in memory-making capabilities.

   As a side note, I've noticed a loved one of mine not being able to recollect her thoughts when she is (briefly) interrupted or distracted from her train of thought. Although this characteristic may be rather commonplace in most people, a caveat is that she has suffered from chronic insomnia nearly all her life, compounding her inability to recall short-term information she wanted to share with me as she hardly gets any sleep every night.

   While we sleep, the brain processes and organises information we acquire throughout the day, transferring memories from short-term to long-term storage. In so doing, this data transfer and restructuring by our brains during sleep function like a "save button" for new learnings. Additionally, sleep clears old neural pathways.

   Regular lack of sleep also impairs judgement and performance, much like the effects of alcohol intoxication. This impairment can lead to increased risk of accidents and injuries and can hinder one from being capable of making good decisions.

2. **Prevention of Cognitive Decline**: This benefit is similar to the one stated above, but there has been an alarming health trend in recent years of more and more people being afflicted by neurodegenerative diseases like Alzheimer's. This condition is linked to a continual lack of sleep, which leads to an increased risk of such cognitive decline, especially as we age.

3. **Enhanced Cognitive Performance**: Well-rested brains perform better at tasks requiring attention, problem-solving, and decision-making. Sleep deprivation can severely impair focus and cognitive abilities, leading to errors and decreased productivity.

4. **Cleaning and Repairing**: During deep REM (rapid eye movement) sleep, the brain efficiently clears away waste products that build up when we are awake. This cleansing process is crucial for maintaining healthy brain function as it helps in removing toxins that accumulate throughout the day. The deeper the sleep, the more efficient this waste disposal becomes.

5. **Circadian Rhythms**: Walker discusses the importance of aligning our sleep patterns with our natural circadian rhythms. Disrupting these rhythms can adversely affect our health, making it essential to prioritise a sleep schedule that respects our body's natural clock.

   You may be wondering what are "circadian rhythms"? Good question. Circadian rhythms are our bodies' incredible internal clocks that function as gentle, automatic timers to keep our systems running in sync with the natural world. These natural systems aren't just merely about sleep; they are our bodies' built-in schedule and master conductor orchestrating a whole symphony of biological processes throughout the day.

   The word "circadian" literally comes from Latin: "circa" meaning "around" and "diem" meaning "day." So, it's about what happens "around a day." It's our body's natural 24-hour cycle that informs us what time it is without the need for a smartphone and control many various aspects of our biology, including when we should wake up or sleep, when we feel hungry and when we digest best, fluctuations in body temperature and even regulate how our energy and hormones shift from morning to night.

   Believe it or not, your body innately knows when it's daytime and when it's nighttime. When the sun comes up, your internal clock signals to your brain, "Okay, time to be awake and alert!" It then starts reducing the production of melatonin (that's your sleep hormone) and increasing hormones (such as cortisol) that make you feel energetic and focused. As evening approaches and light fades, the clock reverses this process – melatonin production ramps up, and your body starts preparing for sleep.

   The unfortunate thing is, our modern lifestyle often fights against these natural rhythms. We stay up late staring at bright screens, work night shifts, or keep irregular sleep schedules. It's like we're constantly giving ourselves jet lag without ever boarding an aeroplane!

   When we consistently sleep in harmony with our natural rhythms - going to bed when our body signals it's tired and waking with the natural light - everything just works better. Your digestion improves, your mood stabilises, your immune system gets stronger, and your brain functions more clearly. It's like the difference between driving on a smooth highway versus a bumpy dirt road.

6. **Improved Dream States**: Engaging in good sleep hygiene not only enhances the amount of sleep we get but also the quality of our dreams. Positive dream states can influence our overall mood and mental health, reinforcing the cycle of good sleep and well-being.

7. **Emotional and Mental Well-being:**
   Emotional Regulation: Good quality sleep improves mood and enhances emotional resilience. Research shows that good sleep can lower the risk of mental health issues, including depression and anxiety disorders, by stabilising mood and emotional responses, contributing to a better overall sense of well-being.

8. **Neurotransmitter Regulation and Brain Health**
   Neurotransmitter Balance: Adequate sleep supports the balance of neurotransmitters which also play a role in mood regulation, particularly serotonin and dopamine. This balance is essential for mental health and proper brain function.

9. **Mood and Stress Levels**: Sleep helps balance stress hormones and mood regulation, resulting in a better quality of life.

10. **Weight Management**: Quality sleep helps in hormone regulation, which is connected to hunger and metabolism. Poor sleep might disrupt these hormones, making weight control more challenging.

11. **Heart Health**: Walker notes that sleeping less than six hours a night can greatly increase the risk of heart disease. Deep sleep facilitates the lowering of heart rate and blood pressure, which are protective factors against heart conditions.

12. **Physical Restoration and Repair**: Sleep plays a crucial role in physical restoration. It is during sleep that the body builds and repairs itself by renewing cells. This replenishing process also restores energy levels and strengthens the immune system, making individuals less susceptible to infections and viruses.

13. **Chronic Conditions and Longer Life Expectancy**: Insufficient sleep is connected to an increased risk of developing chronic conditions, such as hypertension, diabetes and even some cancers, which can ultimately affect life expectancy.

14. **Impact on DNA**: Lack of sleep affects gene activity in significant ways. Research shows that sleep deprivation can distort the activity of numerous genes, with those related to immune function being negatively impacted, while genes associated with tumour promotion and chronic inflammation might be activated.

15. **Healthy Skin and Appearance**
    Skin Repair: Sleep plays a substantial role in skin health. During deep sleep, the body enhances blood flow to the skin, leading to repairs and replenishing of skin cells, contributing to a healthier appearance and reducing signs of aging. Maybe that is why and how the pop culture term of "getting my beauty sleep" came about to be so common a statement?

I also feel it is pertinent at this juncture to debunk a long-standing and widely-held myth that senior citizens need less sleep than younger adults or than even children. The National Institute of Aging in the United States of America recommends generally 7 to 9 hours of sleep per night for adults. Its website declares that "getting enough sleep helps you stay healthy and alert", while also noting that many "older people tend to go to sleep earlier and get up earlier than they did when they were younger". However the US Government body advises senior citizens who don't sleep well and are consequently always sleepy or find it hard to get enough sleep at night to talk with a doctor.

At any rate, I must make a disclaimer that all of the health insights (and warnings!) detailed above do not solely originate from Dr. Walker and his research on sleep. I also gathered and amalgamated knowledge of sleep from authors of other books on the subject and rewrote and elaborated on such information.

Sleep is so important that intentional sleep deprivation used by the Navy SEALs to toughen their recruits or by military regimes to interrogate and torture their prisoners can cause them to lose orientation of day and night, effectively either making them crazy or zombie-like. In fact, it is widely believed that a certain number of days without sleep can lead to premature death.

Of course where oppressive and repressive regimes are concerned, the end goal of sleep deprivation is always for the prisoner to "break" and reveal sensitive and damning information. As for special forces units, however, the aim of inflicting sleep deprivation is for entirely different motives - to test their recruits' mental and emotional strength. Special forces commanders also use sleep deprivation as a tool to ascertain how psychologically resilient their recruits really are, which is critical in times of deadly war at the front lines with (often) little to no outside help.

The other thing about sleep and its crucial importance that we must consider is that we can deprive ourselves of sleep so much that such incidents eventually and inevitably result in "sleep debts". And I'm not sure whether my current chronic fatigue syndrome is the (direct) consequence of not sleeping enough in the past, that is, in all the years of my life, that no matter how much I sleep now, I still always feel exhausted several moments later even if I had refreshing and rejuvenating rest earlier.

On another note, a close friend of mine (who is a lawyer) makes sure he gets or at least tries to get as much sleep as possible every night so that he can last the entirety of the next day when the time comes for him to work long hours in using immense brainpower and employing meticulousness to attend to volumes after volumes of paperwork. He also sleeps at any opportunity he can get to do so.

So having said all that, how do we ensure that we get enough good quality sleep every night (or day, depending on when we sleep and on whether we work night shifts)? Here are some helpful ways to ease into a routine of preparing for restful sleep and for maintaining good sleep hygiene (as mentioned in a previous feature article):

1. Establish a Consistent Sleep Schedule

- **Regular Sleep and Wake Times**: Aim to go to bed and wake up at the same time each day, including weekends. This consistency helps regulate your body's internal clock, making it easier to fall asleep and wake up refreshed.

2. Create a Relaxing Pre-Sleep Routine

- **Wind Down Before Bed**: Take time to relax and disconnect from daily stresses. An hour before bedtime, you might consider:
  - **Switching Off Electronics**: The blue light emitted by screens can disrupt melatonin production and delay sleep. Switching off your devices helps cue your body for rest.

- **Engaging in Relaxing Activities**: Consider activities like reading a book, gentle stretching, or listening to calming music to create a serene atmosphere conducive to sleep.

3. Optimise Your Sleep Environment

- **Dark, Quiet, and Cool**: Ensure your bedroom is an ideal sleep environment. Aim for:
  - **Darkness**: Use blackout curtains or an eye mask to eliminate light, which can interfere with your sleep cycle.
  - **Quietness**: If noise is an issue, consider earplugs or white noise machines to block disruptive sounds. So what is white noise? The Sleep Foundation defines white noise as referring to "a noise that contains all frequencies across the spectrum of audible sound in equal measure".
    In layman's terms, white noise is a consistent, soothing sound that helps to mask or block out background noise by making lower-level, consistent sounds more audible over other noises. It is referred to as "white" due to its particular frequency spectrum.
    According to Wikipedia, an online user-submitted encyclopaedia, white noise machines are "devices that produce a noise that calms the listener, which in many cases sounds like a rushing waterfall or wind blowing through trees, and other serene or nature-like sounds". These machines are sometimes also called "sound machines" or "sound conditioners". Their primary purpose is to help you sleep better, concentrate, or simply create a consistent and relaxing audio atmosphere. (I have one of them but often forget to use it regularly although that by no means negates its helpfulness and usefulness.)
  - **Cool Temperature**: Aim for a bedroom temperature around 18 degrees Celsius, which is ideal for inducing sleep.

4. Limit Stimulants and Heavy Meals

- **Avoid Caffeine and Nicotine**: Stimulants can disrupt sleep patterns. Avoid consuming caffeine in the afternoon or evening.
- **Watch What You Eat**: Large meals, spicy foods, or heavy snacks close to bedtime can cause discomfort and indigestion, disturbing sleep. Aim to finish eating at least 2-3 hours before sleep.

5. Incorporate Relaxation Techniques

- **Try Relaxation Exercises**: Progressive muscle relaxation can help ease tension and prepare your body for sleep.
  - **Technique**: Starting with your toes, tense the muscles for five seconds and then relax. Gradually work your way up to your head, which can help reduce physical tension.
- **Breathing Exercises**: Deep breathing or mindfulness meditation can calm your mind and foster relaxation.

6. Mind Your Daytime Habits

- **Get Regular Exercise**: Physical activity can improve sleep quality. Aim for at least 30 minutes of moderate exercise most days of the week, but avoid vigorous exercise close to bedtime.
- **Limit Napping**: While short naps can be refreshing, long or irregular napping during the day can negatively affect nighttime sleep, especially if taken later in the afternoon.

7. Manage Stress and Anxiety

- **Therapeutic Practices**: Engage in practices like Pilates or mindfulness to reduce stress levels and promote relaxation.

8. Clear Your Mind

- **Brain Dumps**: This (daily) practice may not work for everyone but I find it helpful in decluttering my mind and freeing it of worry the night before I need to do something the next morning, such as work or some other pressing endeavour. (Additionally, you can also employ it in the morning of every new day.) What I do is I write whatever is on my mind before I head to sleep in either a physical journal, an online notepad that autosaves after I type or a word processor like Microsoft Word (or LibreOffice, if you wish to go the free and open-source route).
  In the "brain dump" as I affectionately call it, I write whatever is running through my mind at night which may (or may not) be important or even use that time (ideally half an hour or more before bedtime) to work out my schedule and priorities for the following day. By doing so, I feel I have less stress and anxiety weighing my brain down and I can sleep more peacefully since my mind has essentially become something of a "blank slate", with nothing inside it for it to consciously or subconsciously trouble me while I try to sleep or while I'm already sleeping. It is difficult for us to sleep when our minds are still active.

9. Use Your Bedroom for Sleep Only

- **Avoid Wakefulness Associations**: Limit activities in your bedroom to sleep and intimacy only. This helps reinforce the association that your bed is exclusively for sleep. If you find yourself awake for too long, get up and go to another room until you feel sleepy.

10. Try Using Aromatherapy

- **Essential Oils**: Scents like lavender, chamomile, or eucalyptus can promote relaxation and improve sleep quality. Consider using essential oils in a diffuser or applying a few drops on your pillow.

11. Consult a Professional if Necessary

- **Sleep Disorders**: If you continue to struggle with falling asleep or experience disturbed sleep regularly, consider consulting a healthcare professional. There may be underlying sleep disorders that require attention. Conversely, one can sleep too much and too often, too, like in the case of narcolepsy, which is a chronic neurological disorder that disrupts the brain's ability to control sleep-wake cycles, leading to excessive daytime sleepiness and sudden episodes of sleep. The condition can interfere significantly with daily activities and can be dangerous if its sufferer is driving or doing some other activity that requires constant concentration and attention.

In conclusion, I can't stress enough the importance of getting enough sleep and good quality sleep at that. With so many benefits outlined above, how can one afford to miss out on getting much-needed rest? You would have to be either insane or irresponsible to neglect the state of your sleep health when it affects and impacts so many areas of your life both positively and negatively. Let us try to get more sleep so that we can function better each and every day!

Caleb Masuda Koh *is a freelance writer. He can be contacted at E-mail: cmaskoh@gmail.com*

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Remarks : IFC-Inside Front Cover
IBC-Inside Back Cover
OBC-Outside Back Cover

TEEAM Academic Excellence Awards 2024

TEEAM proudly presented its Academic Excellence Awards 2024 in conjunction with TEEAM 73rd Annual General Meeting, held at the Kuala Lumpur Golf & Country Club on 1 June 2025. This meaningful occasion recognised and celebrated the outstanding academic achievements of the children of TEEAM members, as well as the children of members' employees.

The Awards honoured students who excelled in key national and international examinations, including the Sijil Pelajaran Malaysia (SPM), also known as the Malaysian Certificate of Education (MCE); the International General Certificate of Secondary Education Ordinary Level (IGCSE O-Level); and the Sijil Tinggi Persekolahan Malaysia (STPM), also known as the Malaysian Higher School Certificate (HSC).

A total of seven deserving students received Certificates of Excellence along with monetary awards in recognition of their exemplary performance. Through this noble initiative, TEEAM reaffirms its strong commitment to promoting academic excellence and inspiring the next generation of students to strive for success, leadership, and innovation.

TEEAM extends its heartfelt congratulations to all award recipients, together with their parents and family members, and wishes them continued success in their future endeavours!




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with Smart Transfer Controller

for active & passive synchronising

MS IEC 60947-6-1				
ATS 2 pole, 3 pole, and 4 pole	 Open Transition Without "OFF" position	 Open Transition With or Without "OFF" position	 HIGH SPEED Open Transition With "Sync Check" feature	 Close Transition With "Sync check" feature
Aichi	W2/WN	WN	WS	WP
VITZRO TECH	W/WN	WN	-	CTTS
Contact Transfer Time	≥ 100ms	≥ 200ms	3 - 8ms	50ms (Overlapping Time)

APPLICATIONS

- Emergency supply transfer
- Bypass isolation
- Peak Load Shaving combined with Active Synchronising
- Active or Passive Synchronising for Close transition ATS

OTHERS

- Operated with Micro processor-based controller
- AC 33 B rating per IEC60947-6-1
- Solenoid operated for quick transfer
- Mechanically held contacts

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Screen		TFT	LCD	LCD
Accuracy	U,I	0.1	0.2	0.2
	P,Q,PF	0.2	0.5	0.5
	Kwh	0.2S	0.5S	0.5S
	V/A/P/Q/S/PF/Hz	o	o	o
Measurement	Demand	o	o	o
	Max/Min value	o	o	o
	Neutral current	o	-	-
	Bi-directional energy	o	o	o
Energy Metering	4 Quad kVAR energy	o	o	o
	Tariff energy	o	o	-
	THDi/THDv	o	o	o
Power Quality	Harmonic V/A	up to 63rd	up to 51st	up to 31st
	Voltage sag/dip event	o	-	-
Monitoring	Unbalance	o	o	o
	Flicker/Transient	o	-	-
Communication	RS485 (Modbus-RTU)	o	o	o
	Ethernet	Option	-	-
	Digital input	2	4	-
Input/Output	Relay output	2	3	-
	Energy pluse	1	2	-
Data Log	Hour Meter	o	-	-
	SOE Record	o	-	-
	Demand/Min/Max	o	-	-
	Memory	8MB	-	-

Sfere S15 IoT Gateway

- S15 Gateway can be used with or without internet connection
- Power Supply AC/DC 80-270V
- Data Logging up to 600 Points
- Data Logging Interval and Points adjustable
- No Special App/Software required
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- *System can be further integrated into web server and online monitoring capabilities for high level monitoring*
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Monitoring

Web Server

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AN ENERGY STORAGE SOLUTION

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- Maintains a temperature difference within ±5°C at the product level, cutting cooling energy consumption by 15%.
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- Controls cell temperature effectively. Keeps below 2.8°C. Maintains temperature rise below 4.5°C. Limits maximum cell temperature to 35°C, extending battery cycle life by 20%.
- Uses AI algorithms for real-time system optimization, boosting efficiency by ~1%.

High-Level Integration

- "All-in-one" cabinet design occupies only ~1.35m², reducing space requirements by 26%.
- PCS is downward compatible with PDU, featuring integrated control, protection and detections, enhancing unit installed capacity by 10%.
- Integrating EMS, BMS enables unified data management for optimized energy storage use.

Intelligent Operations Control

- Supports advanced local energy management: dynamic demand tracking, peak load shifting, and smart control.
- Enables coordinated operation of temperature regulation, fire protection, and PCS.
- Supports over-the-air (OTA) upgrades for continuous system improvement.

High Reliability

- Automotive-grade production line ensures strict quality standards.
- Operates reliably across wide temperature range: -25°C to 55°C.
- Withstands extreme weather: resistant to hurricanes (15 mph+) and high corrosion environments (C4+).

Cost Efficiency

- Multi-fusion system design reduces cabinet cost by 8%, shortening ROI payback period.
- Uses lithium iron phosphate (LFP) cells to reduce energy cost per unit by 12%.

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