



SUARA TEEAM



**A Publication of The Electrical
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PP 4829/03/2013(032303) ISSN PQ1780/4200/B | 90th Issue | April 2025


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Jentera & Pendawai Elektrik Perak)

SUARA TEEAM

A Publication of The Electrical and Electronics Association of Malaysia

Publisher & Editorial:

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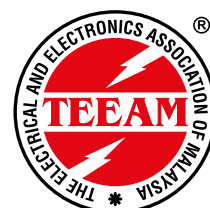
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Suara TEEAM is distributed free of charge to TEEAM members and selective organisations. For those who wish to purchase a copy, the cost is RM18.00, which includes postage within Malaysia.

For overseas orders, please check with the Publisher.

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From The Editor's Desk



We are extremely glad that TEEAM 73rd Anniversary Dinner is successfully being held at the One World Hotel, Petaling Jaya.

We sincerely appreciate everyone's generous support to make the Dinner a great success and a very memorable one for all!

In this issue of Suara TEEAM, we like to highlight the danger of non-standard hand showers. A new type of hand shower with a built-in start-stop water function is being widely promoted. This type of hand shower is not suitable for instant water heaters.

The Forum on the Malaysia Lighting Industry and Its Role in the Energy Transition is covered comprehensively in this issue of SUARA TEEAM.

The Taiwan Computer Association (TCA) hosted the Smart City Summit Expo and Net-Zero City Expo 2025 from 18 to 21 March 2025 in Taipei, Taiwan. Members of TEEAM were honoured to be invited as VIP Business Delegates to participate in the Expo's Forums and Summits. The TEEAM Delegation, led by President Ir. Chang Yew Cheong, consisted of 12 Members who pro-actively engaged in the Match-Made Asia Business Meetings.

TEEAM President Ir. Chang also led a Delegation of 19 Members to the ELECRAMA 2025 Exhibition, which was held from 22 to 26 February 2025 in New Delhi, India. Delegates participated in the Reverse Buyer-Seller Meet Business Matching Programme, which was hosted by the Indian Electrical and Electronics Manufacturers Association (IEEMA).

We appreciate your feedback on our prestigious Suara TEEAM magazine and welcome any suggestions on topics for us to focus on in our future issues.

Here's to the success of one and all!

Regards,

Ir Chew Shee Fuee, KMN
Editor
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Courtesy Visit from the Office of Commercial Affairs, Royal Thai Embassy, Kuala Lumpur

The Office of Commercial Affairs of the Royal Thai Embassy in Kuala Lumpur paid a Courtesy Visit to TEEAM on 15 January 2025. The three-member delegation was led by Mr. Chaityut Boonkong, Counsellor (Commercial), accompanied by his colleagues, Ms. Kachamat Panklieng and Mr. Muhammadfari Jalong. The Commercial Office operates under the Department of International Trade Promotion (DITP), Ministry of Commerce, Thailand.

The delegation received a warm welcome from TEEAM President, Ir. Chang Yew Cheong, alongside TEEAM Past President, Mr. Suresh Kumar Gorasia, and TEEAM Executive Secretary, Ms. Winnie Khong.

DITP organised the 'Malaysia-Thailand Industrial Products Business-Matching with Thai Exporters' event on 11 February 2025 in Kuala Lumpur. This initiative aimed to foster win-win business collaborations between Malaysian companies and Thai exporters. The event featured 20 Thai companies offering high-quality products across five key industrial sectors, namely,

machinery, electronics, automotive, medical supplies, and building materials. TEEAM members were invited to participate in these business meetings to explore potential partnerships and expand their business opportunities.

During the visit, DITP also highlighted a series of upcoming trade events in Thailand and Malaysia. TEEAM members are encouraged to take part in these opportunities to enhance their business prospects and strengthen bilateral trade relations.

The meeting fostered fruitful discussions on potential collaborations to enhance Malaysia-Thailand trade ties. Both parties exchanged insights and explored opportunities for further co-operation. The session concluded with a meaningful exchange of souvenirs, marking the commitment to continued partnership. TEEAM looked forward to strengthening its relationship with DITP and supporting initiatives that drive mutual business growth between Malaysia and Thailand.

Snapshots of the Courtesy Visit from the Office of Commercial Affairs, Royal Thai Embassy, Kuala Lumpur





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Malaysia-Uzbekistan Business Forum

The Malaysia-Uzbekistan Business Forum, a prestigious gathering of industry leaders, Government representatives, and business communities, was successfully held on 5 February 2025 at the Grand Hyatt Kuala Lumpur. Hosted by the Uzbekistan Government in conjunction with the official visit of the President of Uzbekistan to Malaysia, this landmark event underscored the commitment of both nations to strengthening economic collaboration and fostering investment opportunities.

The Forum was graced by the presence of the Prime Minister of Malaysia, the Right Honourable YAB Dato' Seri Anwar Ibrahim, and the President of Uzbekistan, His Excellency Mr. Shavkat Mirziyoyev, who jointly chaired the event. Their participation signified the importance of enhancing bilateral trade and investment between Malaysia and Uzbekistan across various high-growth sectors. Also present was Malaysia's Investment, Trade, and Industry Minister, YB Senator Tengku Dato' Seri Zafrul Tengku Abdul Aziz. Speaking at the Business Forum, he emphasised the importance of Business-to-Business (B2B) and Government-to-Business (G2B) smart collaborations, which are paving the way for strategic partnerships across multiple industries.

TEEAM President Ir. Chang Yew Cheong and TEEAM Past President Mr. Suresh Kumar Gorasia were honoured to be amongst the distinguished guests invited to attend the Forum. Alongside other industry leaders, representatives from Non-Governmental Organisations (NGOs), and key stakeholders from the business community, Ir. Chang had the opportunity to engage in discussions that highlighted strategic areas of co-operation. Some TEEAM members were present too to seek business opportunities.

The Malaysia-Uzbekistan Business Forum showcased immense potential for collaboration in sectors such as power & energy, green energy, electric vehicles, digital transformation, artificial intelligence, semiconductors, oil & gas, food technology, and agriculture. These industries present mutually beneficial opportunities that can drive sustainable economic growth for both nations.

The event proved to be an informative and highly productive platform for networking, allowing participants to exchange valuable insights, explore business partnerships, and gain a deeper understanding of the economic landscape of both Malaysia and Uzbekistan. With strong Government support and growing business interests, the Forum successfully set the stage for enhanced trade relations and future investment prospects.

The Malaysia-Uzbekistan Business Forum re-affirms the commitment of both nations to fostering stronger economic ties, paving the way for increased bilateral trade and long-term co-operation in key industries.

Snapshots of Malaysia-Uzbekistan Business Forum





President's Message



Growing Together, Brighter Tomorrow

As we step into 2025, I am deeply honoured to reflect on the remarkable strides we've made together as The Electrical and Electronics Association of Malaysia (TEEAM)! This year marks not only a continuation of our rich legacy but a bold leap toward shaping a future where technology and engineering serve as catalysts for national progress and global impact.

Over the past two years, TEEAM has achieved significant milestones. Last year, TEEAM as the co-host together with Informa Markets, had successfully organised the ENERtec Asia 2024. It was held from 26 to 28 June 2024 at the Kuala Lumpur Convention Centre. The ENERtec Asia 2024 was TEEAM's first Co-hosted Exhibition since 72 years of establishment. The ENERtec Asia 2024 had successfully invited more than 250 exhibitors from all over the world and this Exhibition also attracted more than 10,000 local and international participants to visit the grand industry-centric show. Syabas to TEEAM and all involved for making it great!

In conjunction with ENERtec Asia 2024, TEEAM as a member of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) and Federation of Asia-Pacific Electrical Contractors Associations (FAPECA), was greatly honoured to host the AFEEC & FAPECA Conference & Meeting 2024 with the theme 'Energy Transition: Pathway to Net Zero'. These events drew more than 200 international delegates from ASEAN and Asia Pacific members' countries to participate the 3 days' events, which included Conference, Meetings, Friendship Golf and Technical Visits to PNB Merdeka 118 (Tallest skyscraper in Malaysia and the world's second tallest building at 678.9m) & DNB 5G (National Digital) Experience Centre (nestled at the nearby TRX Exchange 106) for our AFEEC & FAPECA delegates.

TEEAM as the National E&E Association is very strongly promoting Electrical Safety at all levels. We have smart collaborations with Suruhanjaya Tenaga (Energy Commission) to have a series of Nationwide Roadshows and pro-actively participated in the HOMEDEC, HOME DECO and ENGINEER & MARVEX Exhibitions, amongst others, and also the very popular Electrical Safety Awareness Programmes in Shopping Malls to promote Electrical Safety to the general public. These enlightening and helpful series of E&E-based Safety Programmes are aimed to reduce electrical accidents and fatalities in homes and the workplaces. These go well in TEEAM's history of working very closely with the Government and Government Agencies to promote Electrical Safety. The great response from the public to get to know TEEAM and its E&E activities speaks volumes about the critical need for Electrical Safety Awareness in Malaysia!

Our E&E network is not only localised in Malaysia but is also globalised. As the current term TEEAM President, I was indeed honoured to be invited as the Keynote Speaker at various international levels, which included invitations from the Industry Co-operation Committee of the RCEP (RICC) of China to attend the 2024 Fuyang Investment & Trade Fair at the 1st RCEP Entrepreneur Co-operation Conference and the 2024 China-ASEAN Electrical Power Industry Co-operation Conference in Chongqing in May and June 2024 respectively. In addition, I was invited as a Panel Speaker for the Conference on 'World

of Opportunity Russia – ASEAN International Business Forum', which took place in November 2024 in Kuala Lumpur. This year 2025, at the Taiwan Smart City Summit Expo and Net-Zero City Expo 2025, I was also honoured to be invited to be a Panel Speaker on the topic 'Cross-Domain AI Applications: Driving Innovation in Smart Manufacturing and Smart Cities' at the Match-Made: Taiwan, ASEAN & India AI-Powered Business Networking in Taipei, Taiwan. This shows that TEEAM has been elevated to a different level and plays a very important role in the E&E industry in this region and at the international level too.

At the local level, TEEAM is an important industry stakeholder to develop the Malaysia Standard (MS). TEEAM's representatives have been pro-actively participating in various Technical Committees (TCs) and Working Groups (WGs) of the Department of Standard Malaysia (DSM). At the higher level, TEEAM's representatives sit as the Committee Members for the IEC National Committee (IEC NC) and National Standard Committee on Generation, Transmission and Distribution of Energy (NSC 05). TEEAM is also the Vice-Chair for the NSC 19 on Electrical and Electronics Equipment and Accessories. TEEAM also participated actively in other NSCs. In last October 2024, TEEAM was honoured to be part of the Malaysian Delegation to the 88th General Meeting of IEC (International Electrotechnical Commission) in Edinburgh, Scotland, UK. Together with yours truly were ST Safety Director, Ts. Nurhafiza Mohamed Hasan and DSM Senior Assistant Director, Mr. Mohd Noorhafiz. Malaysian Young Professionals Mr. Louis Loo (TEEAM Council Member) and Ts. Noranizar (TEEAM Member) attended the IEC General Meeting in Edinburgh too.

In the local network, TEEAM is a highly respected Association Member of MEIF (Machinery & Engineering Industries Federation) and is holding the position of 2nd Vice-President. Under the Federation capacity, various E&E Agendas have been pushed forward for the benefit of the E&E industry, including drafting of the MEIF TOR (Terms of Reference), Smart Manufacturing Task Force, Smart Crane Application to facilitate E&E applications into the various horizontal segments amongst various MEIF Association Members. TEEAM is also the Vice-Chair for the Malaysia Council of Mechanical & Electrical Associations (MCMEA). From time to time, TEEAM had raised various Electrical Contractors' issues to MCMEA for consolidating ideas to resolve the Contractors' problem, such as retention sum, CIDB training and foreign worker issues.

TEEAM continues to pro-actively organise various activities for the benefit of members, such as Technical Talks, Technical Visits, Fellowship Nights, Sports Activities, etc. Amongst others, the Series of Technical Talks conducted by Past President Ir. Chris Chew were very beneficial to TEEAM Members. Besides the afore-mentioned, we also had the 'Smart Manufacturing – Digital Transformation Seminar' and 'E-invoicing Talk'. Under our current term, I hereby wish to humbly share that we had the most number of Technical Visits, which are greatly benefiting Members in enhancing their knowledge and getting to know the Hosts, our Manufacturing Members, and thus creating high-value business opportunities for our Manufacturing Members!

As my two-year term comes to a close at the end of May 2025, TEEAM members will soon be casting your votes to select the New Office-Bearers' line-up for the 2025-2027 term. I sincerely hope that all Members will continue to lend your strong support to TEEAM, driving its positive momentum and strengthening its role in the E&E industry. This aligns closely with our 73rd Anniversary theme: 'Growing Together, Stronger Tomorrow!'

I would like to take this opportunity to express my heartfelt gratitude to all EXCO Members, Council Members and Secretariat Staff for putting in all your efforts, time and sacrifices whole-heartedly to support TEEAM's industry representations, activities and events. Our collective achievements would not have been possible without the unwavering support from our Members, Government agencies, and industry partners. Most importantly, I deeply appreciate the solid foundation laid by the many devoted individuals who have served TEEAM before us. Your enduring trust and contributions continue to fuel our mission and vision for the future.

Congratulations to one and all!



Ir. Chang Yew Cheong
President of TEEAM
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Courtesy Visit from IPC

On 15 January 2025, TEEAM had the honour of hosting a Courtesy Visit from IPC, a Global Trade Association representing all facets of the electronics industry across more than 75 countries, including Malaysia. The visiting delegation from IPC comprised Mr. Gaurab Majumdar (Executive Director - IPC SEA), Dr. Ranee Ramya (Country Manager - IPC Malaysia) and Ms. Manvi Kapoor (Manager, International Relations - IPC India). They were warmly welcomed by TEEAM President Ir. Chang Yew Cheong, TEEAM Past President Mr. Suresh Kumar Gorasia, TEEAM Council Member Ms. Ng Suan Lin and TEEAM Executive Secretary Ms. Winnie Khong.

IPC plays a crucial role in developing industry standards and offering certification programmes for the industrial, medical, aerospace, and defence sectors. The organisation also provides training and pro-actively hosts Conferences and Exhibitions to support industry advancements.

During their visit, the IPC representatives promoted the APEX EXPO 2025, which took place from 15 to 20 March 2025 at the Anaheim Convention Centre in California. This prestigious event focused on PCB fabrication, electronics assembly, and testing, offering industry professional valuable insights and great networking opportunities.

Additionally, IPC highlighted its plans for the 2026 iEMI (Integrated Electronics Manufacturing & Interconnections) Expo & Conference, set to be held in Bengaluru, India from 29 to 30 January 2026, where B2B meetings will be facilitated to enhance industry collaborations.

Looking ahead to July 2025, IPC will be organising Industry Networking & Technical Sessions in Kuala Lumpur, Penang, and Malacca. These sessions will cover essential topics such as electrostatic discharge (ESD), surface mount technology (SMT), best practices in electronics assembly, and wire harness techniques. IPC will be extending invitations to TEEAM members, encouraging their participation in these valuable industry events.

The meeting was highly productive, fostering closer ties between TEEAM and IPC while opening doors for further collaboration in the electronics sector. TEEAM appreciates IPC's dynamic initiative in supporting industry growth and looks forward to continued engagement in upcoming events!



IPC Delegation – (from left) Mr. Gaurab Majumdar (Executive Director - IPC SEA), Dr. Ranee Ramya (Country Manager - IPC Malaysia) and Ms. Manvi Kapoor (Manager, International Relations - IPC India).



TEEAM Officials – (from left) Ms. Winnie Khong (Executive Secretary), Ir. Chang Yew Cheong (President), Mr. Suresh Kumar Gorasia (Past President) and Ms. Ng Suan Lin (Council Member).



Photo for the album.



TEEAM 70th Anniversary Coffee Book Exchange.



TEEAM Series of Technical Talk 01/2025

The TEEAM Series of Technical Talk 01/2025 on Foundation Earthing System & Electrical Protection was held on 20 February 2025 at the TEEAM Seminar Hall in Kuala Lumpur. Featuring two eminent professionals, namely Ir. Toh Leong Soon and Ir. Chris SF Chew, who shared their expert insights on electrical protection and foundation earthing systems, the Talk was both informative and illuminative.

The Talk began with registration at 9.00 am. After registration, welcome remarks kicked off the session proper as its prelude. Ir. Toh Leong Soon, the first speaker, delivered his presentation on 'From Theory to Practice – Mitigating Real-World Risks in Foundation Earth System' from 9.30 am to 11.00 am. In his presentation, Ir. Toh focused on the practical application of foundation earthing systems to electrical systems in shop lots and terrace houses and their accompanying challenges.

He stressed the importance of low resistance to the ground for safe disconnection of power supply in the event of occurrences of electrical faults. Such conditions make it possible for protective devices to operate, indicating that foundation earthing systems reduce resistance more effectively than driven rods. Furthermore, the installation of parallel earthing rods is hampered by space constraints. This reality underscores how vital foundation earthing systems are as both technical and economical solutions.

However, while foundation earthing systems are beneficial, they are also not without potential risk where the existence of shared reinforced steel structure is concerned if the earth resistance is not sufficiently low, which is a serious consideration. If a Residual Current Device (RCD) fails in one unit, fault currents might bypass through the shared foundation to other houses or shop lots. This level of touch voltage will result in earth leakage, posing a significant electrical safety hazard to the occupants of such houses and shop lots.

Ir. Toh's field tests and findings address design and installation requirements to reduce earth resistance, ensuring RCDs operate correctly during faults. These



tests help to assess and demonstrate the advantages and disadvantages of the foundation earth system where it is implemented. Ir. Toh also highlighted earthing schemes and regulatory requirements preceding his exposition of the considerations and challenges of electrical installation & earthing systems and detailed his field test discoveries.

Ir. Toh subsequently proceeded to conduct a live demonstration, followed by holding a discussion and suggesting recommendations. He ended his presentation by opening the floor for a Q&A session.

Ir. Toh Leong Soon's background in electrical engineering, particularly in MV and LV systems, ELV systems, and renewable energy, and currently as a Consulting Engineer and Director of an M&E engineering consulting firm in Perak, not forgetting his notable recognition as the winner of the Tan Sri Ir. Hj. Yusoff Prize in 2024 for publishing an outstanding technical paper in the IEM Journal on the subject of Foundation Earthing Systems, added authoritative weight to his presentation.

Ir. Chris SF Chew was the next to speak after the coffee break on the equally important topic of electrical safety in buildings and the need for improvement on protection measures. A veteran with over 30 years of extensive experience in the field of electrical engineering and as Past President of TEEAM (for two different Terms) and AFEEC (ASEAN Federation of Electrical Engineering Contractors).

Ir. Chew brings with him a wealth of industry knowledge in electrical control and relay protection. He is also currently the Managing Director of both G H Liew Engineering Sdn Bhd and Chris Chew Electrical Consultant.

In Ir. Chew's presentation, his expertise shone through after he presented his topic title of 'Is the Current Electrical Protection for Homes Safe Enough? What are the added Measures that can be Implemented to Enhance it'? Ir. Chew discussed the definition of electrical faults, what kind of protection is necessary, the progress of relay protection over the years, distribution board protection features, and how to increase the level of protection using modern technology.

Under the subject of electrical faults, he explained what insulation failure (voltage) and overload (current) are. He then talked about what types of protection are necessary in the event of overcurrent and earth fault. Subsequently, Ir. Chew enlightened the audience of attendees on the progress of relay protection over the years in relation to electronics/transistors as well as electromechanical and digital applications.

He concluded his insightful presentation at 12.30 pm after speaking at length about DB protection features, in particular overcurrent/ overload protection, earth fault/leakage protection, and SPDs, before offering to answer questions regarding his presentation.

The Talk ended at 1.00 pm. The full house session of 50 participants benefited from the great technical sharing session from the two eminent Speakers. Syabas!

Snapshots of TEEAM Series of Technical Talk 01/2025





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MIBA's 'Constructing The Future' Dialogue & Networking



MIBA's Dialogue on 'Constructing The Future'.

The Malaysian Integrated Builders Association (MIBA) successfully hosted the 'Constructing The Future' – Dialogue, Dinner & Networking Event on 28 February 2025 at the Tropicana Golf & Country Club in Selangor. The event brought together esteemed construction industry professionals for insightful discussions, knowledge sharing, and networking opportunities.

TEEAM was invited to the event and representing TEEAM were Ir. Chang Yew Cheong (President), Dato' Andy Tan (Honorary Treasurer), Ir. T. Prabakaran Rajah (Committee Member), and Datuk Ganesh Muraj (Member).

The dialogue session featured thought leaders and industry experts who shared their perspectives on the future of the construction sector, addressing key trends, challenges, and emerging opportunities. The event also served as a valuable platform for fostering collaborations and strategic partnerships within the industry.

Attendees actively engaged in meaningful discussions, exchanging insights on sustainable construction practices, digital transformation, and market developments. The evening proved to be an enriching experience, reinforcing the importance of innovation and co-operation in driving the industry forward.

With a blend of knowledge sharing and networking, the event was a resounding success, leaving participants inspired and well-connected for future endeavours in the construction sector.



Representing TEEAM at the event were (from right) Dato' Andy Tan (Honorary Treasurer), Ir. Chang Yew Cheong (President), Datuk Ganesh Muraj (Member), and Ir. T. Prabakaran Rajah (Committee Member).





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16th Edition of ELECRAMA 2025, India

The 16th edition of ELECRAMA, hosted by the Indian Electrical & Electronics Manufacturers' Association (IEEMA), showcased India's cutting-edge capabilities in Electrical and Power Technologies, re-affirming its role as a global partner in Energy Solutions. The E&E Mega Event took place from 22 to 26 February 2025 at the India Expo Mart, Greater Noida, Delhi NCR, under the theme 'Powering the Future of Energy'.

The Grand Inauguration was held on 22 February 2025 and was graced by Shri Manohar Lal Khattar, Honourable Union Minister of Power and Minister of Housing & Urban Affairs, Government of India. Sharing the stage with him were key industry leaders including Mr. Sunil Singhvi (IEEMA President), Mr. Vikram Gandotra (IEEMA President-Elect & Chairman of ELECRAMA 2025), Mr. Siddharth Bhutoria (IEEMA Vice President & Vice Chairman of ELECRAMA 2025), Mr. Oliver Blum (CEO, Schneider Electric) and Mr. Matthias Rebellius (CEO, Siemens Smart Infrastructure). Ms. Charu Mathur (IEEMA Director General) too joined the inauguration.

In his Keynote Address, Shri Manohar Lal Khattar highlighted India's strong commitment to Energy Security, Grid Modernisation, and Sustainability, all of which align with the nation's long-term vision of Viksit Bharat @ 2047. He emphasised that India is on track to become the world's third-largest economy by 2027 and a developed nation by 2047, with the Power Sector playing a central role in this transformation. The Electrical and Electronics Manufacturing Industry is key to scaling Clean Energy, strengthening Transmission Networks, and driving Grid Modernisation. With over 200 GW of Renewable Energy (RE) capacity already installed and an ambitious target of 500 GW by 2030, India strategically aims for 800 GW of total generation capacity, with 50% from renewable sources, further establishing itself as a global leader in Clean Energy!

Leading a 19-member Delegation, TEEAM President Ir. Chang Yew Cheong visited ELECRAMA 2025 to witness the massive showcase of India's Electrical and Power Sector. The TEEAM Delegation was highly impressed by the scale and quality of the event, which brought together the complete spectrum of Energy Solutions — from generation to distribution, from source to socket. ELECRAMA is not just a Trade Fair, it is a comprehensive platform for innovation, thought leadership, and industry collaboration, featuring technical conclaves, industry summits, and networking opportunities.

Spanning 42,000 net sqm of exhibition space and hosting over 1,000 Exhibitors, ELECRAMA 2025 served as a go-to hub for global interaction, innovation, and business development. It successfully brought together industry leaders, innovators, and policy-makers to drive digital transformation and sustainability across the sector.

The TEEAM Delegation also comprised Members from the Sarawak Electrical Association (SEA) and Electrical Association of Sarawak & Sabah (EASS).

All the Delegates participated in the Reverse Buyer Seller Meet (RBSM) — the largest gathering for International Buyers seeking to source high-quality electrical products and equipment from India. The RBSM Programme facilitated one-on-one business meetings amongst 500 International Buyers from 80 countries, including regions such as Africa, ASEAN, CIS (Commonwealth of Independent States), WANA (West Asia and North Africa), and NAFTA (North American Free Trade Agreement, terminated and replaced in 2020 by USMCA, i.e., United States-Mexico-Canada Agreement), with Indian sellers, creating immense opportunities for collaboration and trade!

TEEAM extends its sincere appreciation to IEEMA for the gracious invitation and warm hospitality extended to the TEEAM Delegation throughout ELECRAMA 2025 and the Reverse Buyer Seller Meet (RBSM) Programme. The event proved to be a valuable platform for exploring strategic business opportunities and strengthening international industry ties.

TEEAM hereby looks forward to an even greater participation of TEEAM Members @ ELECRAMA 2027, India – see you there in 2027!



(from left) Mr. Lee Men Chiew (EASS Member), Mr. Lee Joon Lee (EASS Vice Chairman), Dato' Andy Tan (TEEAM Honorary Treasurer), Ir. Chang Yew Cheong (TEEAM President), Dato' Sri Ir. Peter Lu (SEA Vice Chairman), Mr. Andrew Lu (TEEAM Council Member) and Ms. Winnie Khong (TEEAM Executive Secretary).

Snapshots of 16th Edition of ELECRAMA 2025, India





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Snapshots of 16th Edition of ELECRAMA 2025, India



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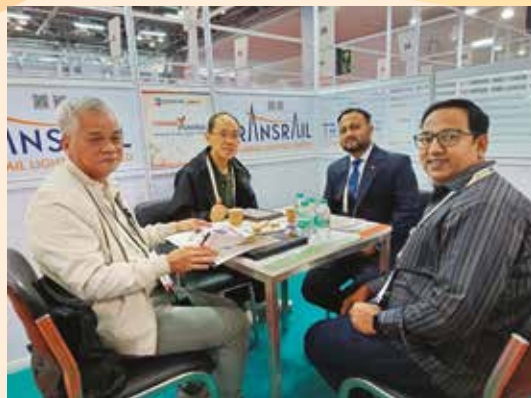
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**Snapshots of
RBSM @
16th Edition of
ELECAMA
2025, India**





(from left) Mr. Mihir Merchant (Special Invitee, IEEMA Executive Council), Ms. Charu Mathur (Director General, IEEMA), Mr. Vimal Anand (Joint Secretary, Department of Commerce, Ministry of Commerce & Industry, Government of India), Dr. Daru Claudiu Frunzulica (Deputy Minister, Romanian Agency for Investment & Foreign Trade), Mr. Siddharth Bhutoria (Vice President, IEEMA & Vice Chairman, ELEC RAMA 2025) and Mr. Amit Gupta (Chairman, RBSM 2025).

IEEMA and TEEAM Signing MOU

The Indian Electrical & Electronics Manufacturers' Association (IEEMA) and TEEAM have entered into a Memorandum of Understanding (MOU) to strengthen collaboration and promote mutual growth in the Electrical and Electronics (E&E) industries of India and Malaysia.

The MOU was formally signed on 24 February 2025 during the Reserve Buyer Seller Meet (RBSM) Reception at the ELEC RAMA 2025 Exhibition in New Delhi, India, marking a significant milestone in bilateral co-operation between the two industry Associations. The MOU Signing Ceremony was attended by Senior Representatives from both E&E Associations and was witnessed by TEEAM delegates, signifying shared commitment to advancing the E&E sectors in their respective countries.

The MOU aimed to join hands to understand the industry in their respective countries and to foster strategic win-win collaborations in the Electrical and Power sectors. It will certainly strengthen industry partnerships and drive innovation. TEEAM was represented by its President, Ir. Chang Yew Cheong and IEEMA was represented by Mr. Siddharth Bhutoria (Vice President of IEEMA & Vice Chairman of ELEC RAMA 2025) at the MOU Signing Ceremony.

About the Partners

IEEMA, established in 1948, is the apex industry Association representing Manufacturers of Electrical, Industrial Electronics, and Allied Equipment in India. The Association's Members contribute over 95% of India's installed power equipment base and represent a turnover exceeding USD60 billion.

TEEAM, founded in 1952, is Malaysia's National Trade Organisation with over 1,800 Corporate Members from the Engineering Construction & Services, Trading, and Manufacturing sectors of Malaysia's E&E industries. TEEAM plays an active role in policy advocacy and industry development, both nationally and across the Asia-Pacific region.

Objectives of the MOU

The MOU outlines several collaborative goals, including:

- Sharing industry information, market statistics, and research findings
- Exploring technology trends, joint development opportunities, and technology transfers
- Encouraging trade and business collaborations
- Exchanging information on industry standards and best practices

Key Areas of Collaboration

Both Associations have agreed to undertake joint initiatives such as:

- Participation in each other's Major Events and Conferences
- Organising B2B meetings to foster Trade and Networking
- Conducting Technical Seminars, Webinars, and Training Programmes
- Featuring each other's Websites on their respective Digital Platforms

Additionally, a Joint Working Group will be established to focus on common interests such as technical standards, exhibitions, and knowledge exchange programmes.

Representatives from both IEEMA and TEEAM expressed optimism about the future of this smart collaboration, noting its potential to open new avenues for innovation, investment, and sustainable growth in the Electrical and Electronics domain. This strategic partnership signifies a new chapter in India-Malaysia industrial co-operation and demonstrates the growing synergy between two key players in the Asia-Pacific E&E sector!

IEEMA also signed another 3 MOUs with Thai Electrical & Mechanical Contractors Association (TEMCA), Romanian Ownership Association for Electrotechnique Industries (APREL) and The Union of the Electricity Industry (EURELECTRIC), Belgium.



**Snapshots of
IEEAM
and TEEAM
Signing MOU**



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Advantage Assam 2.0 Roadshow in Kuala Lumpur

TEEAM Deputy President Ts. Lim Sai Seong, along with TEEAM Past President Mr. Suresh Kumar Gorasia, attended the Advantage Assam 2.0 Roadshow, which was held on 13 January 2025 at the JW Marriott Kuala Lumpur.

The Roadshow was organised by the High Commission of India in Kuala Lumpur in collaboration with the Federation of Indian Chambers of Commerce & Industry (FICCI). It showcased Assam's immense strategic potential as one of India's main gateways to Southeast Asia and an emerging hub for investment and innovation. The Roadshow was a prelude to the Advantage Assam 2.0 - Investment & Infrastructure Summit 2025, which was held on 25 February 2025 in Assam, India.

As the largest state in Northeast India, Assam is rapidly emerging as a key hub for trade and investment. Assam, one of India's most resource-rich states, has undergone significant industrial transformation over the years. From its colonial-era beginnings in the tea and oil industries to modern advancements in semiconductor manufacturing and MSMEs' (Micro, Small and Medium Enterprises') growth, Assam has positioned itself as a key player in India's economic landscape.

Participants at the Roadshow had the valuable opportunity to engage with high-level Government officials from Assam, gaining insights into the state's economic landscape and investment prospects. Key focus areas included semiconductors and electronics, green energy, aerospace and defence, agro and food processing, infrastructure development, high-value tech Industries, tourism and hospitality.

The event concluded with a Networking Luncheon, allowing attendees to foster meaningful business connections. Overall, this Advantage Assam 2.0 Roadshow was an excellent and insightful session for all who participated.

Snapshots of Advantage Assam 2.0 Roadshow in Kuala Lumpur



5th Joint Meeting of MTECC BAG

The 5th Joint Meeting of the Malaysia-Taiwan Economic Co-operation Committee Business Advisory Group (MTECC BAG) was an eventful occasion for industry leaders to discuss, propose and exchange industry-related suggestions and recommendations. Mr. Jacob Lee, a Council Member of the Federation of Malaysian Manufacturers (FMM), from Malaysia and Mr. Benny T. Hu, Chairman of the Chinese National Federation of Industries (CNFI), from Taiwan, co-chaired the meeting. The event took place on 4 September 2024 at the FMM premises in Bandar Sri Damansara, Kuala Lumpur.

Prior to the meeting, on 2 September 2024, FMM hosted a Networking Dinner at the Avante Hotel in Petaling Jaya for the Chinese National Federation of Industries (CNFI) delegation to nurture bilateral relationships.

Mr. Jacob Lee played a key role in welcoming attendees and setting the right tone for the discussions. Mr. Benny Hu co-led the meeting and expressed appreciation and gratitude to representative bodies and institutions for their support of bilateral initiatives.

As TEEAM is also a member of MTECC BAG, TEEAM President Ir. Chang Yew Cheong and Deputy TEEAM President Ts. Lim Sai Seong are TEEAM's representatives of the Committee. Ir. Chang Yew Cheong attended the meeting. The chief aim of the MTECC BAG platform is to facilitate and foster bilateral economic co-operation between Malaysia and Taiwan and establish business connections, focusing especially on industries such as the Electrical and Electronics (E&E) sector.

The event had a strong focus on expanding exports and imports. In particular, Mr. Lee highlighted significant growth in bilateral Malaysia-Taiwan trade, amounting to RM127 billion in 2023. He specifically noted that the increasing strength of the E&E sector played a predominant role in reaching these profitable figures.

Mr. Lee also noted a 44.3% increase in E&E exports in the first half of 2024 from RM43.3 billion in exports in 2023, while imports were RM83.79 billion in 2023. In the meeting, Mr. Lee reviewed MTECC BAG activities, such as trade fairs, summits and other collaborative initiatives, and assessed the advisory group's progress. He also stated expectations for new avenues for co-operation in joint ventures, technology transfers, and market expansion

strategies between the two nation's economies. When it was Mr. Hu's turn to deliver his remarks, he acknowledged the ongoing global economic uncertainties caused by geopolitical tensions. These developments stressed the vital importance of active participation in the need to build more resilient supply chains and enhance cross-border collaboration (especially with an innovation leader like Taiwan in technological advancements, one of which is semiconductors). These discussion points are particularly relevant for critical sectors like E&E.

Several of the recommendations proposed for submission to the Government of Malaysia by both Taiwan and Malaysia for consideration at the 9th MTECC meeting, which was organised on 18 November 2024, are to:

1. Modernise regulatory frameworks by revising existing investment agreements such as the outdated Bilateral Investment Agreement (originally signed in 1993). Doing so can create a more favourable environment for Taiwanese investments in the Malaysian E&E sector. By aligning the agreement with current global investment trends, there is potential to integrate aspects like innovation, digital trade, and cross-border data flow.
2. Promote and encourage university-industry partnerships. Investing in collaborative research programmes and technical-vocational education training (TVET) could greatly benefit the E&E sector, which traditionally depends on skilled engineers and technicians. Promoting student exchanges, joint TVET training initiatives, and employment schemes connecting Malaysian students with Taiwanese enterprises operating in Malaysia are just some of the recommendations that address the engineering talent gap in Malaysia.
3. Facilitate flexible labour policies. Concerns about the government freeze on hiring foreign workers introduced in March 2023 were highlighted during the meeting. This measure was noted as being detrimental primarily to the manufacturing industry, given the skill-intensive nature of the E&E industry. Introducing flexible recruitment policies (with proper oversight) can help fill critical talent gaps and support the industry's rapid growth.
4. Provide incentives for participation in cross-border trade fair initiatives. Stakeholders should encourage



stronger Malaysian participation in critical Taiwan-based trade exhibitions by distributing incentives like delegate quotas, accommodation subsidies, and early invitations for Malaysian companies to support events related directly or indirectly to E&E products and components. This could boost Malaysian E&E businesses' exposure and enable direct market access, technology showcases, and strategic partnerships with major Taiwanese electronics corporations.

5. Integrate smart manufacturing and automation. Taiwan associates recommended increased exchange and stronger collaborative engagement with Malaysian businesses in "Smart Manufacturing" and related advanced technologies. Doing so would benefit the Malaysian electronics manufacturing ecosystem by showcasing smart manufacturing technologies.
6. Fortify supply chain resilience and green technology. Develop a shared logistics system to emphasise circular economy principles. This will result in reducing costs and improving sustainability throughout the E&E supply chain. Developing specialised logistics solutions for sensitive electronic components and establishing shared testing and certification facilities to ensure quality standards would also prove useful.
7. Enhance Research and Development Initiatives. Create joint R&D platforms and establish technology collaboration centres between Malaysian and Taiwanese companies. Doing so can boost innovation in the E&E sector. Such initiatives could focus on key trends like smart manufacturing, robotics, and AI in electronics.
8. Expand halal certification. Request for JAKIM to approve additional halal certification bodies in Taiwan to simplify the process for businesses.
9. Incentivise technological innovation and investment. Offer tax incentives in the form of tax breaks and other fiscal incentives for companies engaging in joint ventures with Taiwanese partners, particularly those investing in technological advancements or establishing R&D facilities locally. Facilitate funding for startups in the E&E domain by supporting them through grants or venture fund initiatives. Doing so can stimulate innovation and accelerate the introduction of cutting-edge technologies.

These recommendations, if acted upon promptly and effectively by the Malaysian Government and industry stakeholders, could further accelerate Malaysia's progression as an E&E manufacturing leader within the Asia-Pacific region while benefiting from Taiwan's technological expertise and experience in this sector.

Mr. Jacob Lee expressed his appreciation for the productive discussion during the meeting and thanked the Secretariat for organising it. Mr. Benny Hu thanked attendees for participating and expressed appreciation to FMM for their hospitality.

Snapshots of the 5th Joint Meeting of MTECC BAG & Networking Dinner





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Non-Standard Hand Showers Increase the Risk of Scalding and Explosion from Electric Instant Water Heater in Malaysia

Choo Wei Seng

Chairman of Safety & Compliance Committee, TEEAM

Electric instant water heaters have always been popular amongst Malaysians due to their convenience and usability. However, their safety aspects, including electrical risks and scalding hazards, have been a hot topic of discussion. When installed correctly, electric instant water heaters are safe, reliable, and energy-efficient appliances for showering, and they have been widely used in Malaysia and South-east Asia for many years.

Malaysia is a country with high consumption of electric instant water heaters, with annual sales reaching nearly half a million units.

Recently, a deeply concerning trend has emerged on online platforms such as Shopee, Lazada, and TikTok, where a new type of hand shower with a built-in start-stop water function is being widely promoted. Consumers are purchasing these hand showers (Refer to Fig. 1) from these well-known platforms and replacing the existing hand showers on their instant water heaters.

This practice poses significant risks to consumers, particularly in terms of the risk of scalding as well as explosions. Below is a detailed explanation of why this modification is unsafe and carries a high risk of scalding and explosions.



Figure 1: Aftermarket/non-standard hand shower with start-stop button.

The majority of electric instant water heaters on the market and in use today are of the **Single Point Open Outlet type** and its heater canister is made out of plastic material called Nylon. This type of appliance is equipped with multiple safety features, including a thermo cut-out, which is installed during production (and tested in

the appliances). These thermo cut-outs are designed to prevent over temperature in both normal and abnormal use, even during temperature or pressure fluctuations in the domestic water supply.

These thermo cut-outs are typically two-stage devices, with settings at **55°C** and **85°C**. The **55°C** setting (low limit trip) acts as a resettable user protection mechanism, while the **85°C** setting (high limit trip) is a manual reset type designed for appliance protection in the event of abnormal operation. If the **85°C** setting is activated, the appliance will shut down, requiring a service call to diagnose the cause of activation before the thermo cut-out can be replaced.

The abnormal operation test complies with **Clause 19 of MS1597-1**.

Most electric instant water heaters are “**open outlet**” types, meaning that the water flow must be switched off at the **inlet supply** and never at the outlet. (Refer to Fig. 2).



It is prohibited to close the water outlet using a valve or restrict water flow by other means or devices. The water outlet should always remain opened ensuring there is no blockage of water flow to avoid water heater damage, leakage and safety issue!

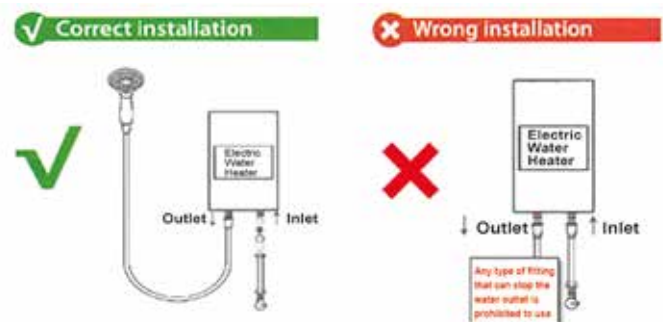


Figure 2: Water outlet is not blocked, and always open.

When an aftermarket hand shower with a “**start-stop**” function is fitted to an instant water heater, the following phenomenon occurs:

When the shower is turned on at the user control, water pressure activates the flow switch or micro switch, which in turn energises the heating elements. This results in an increase in the outlet temperature for the user.



- Full range of Low Voltage 440V & 525V capacitor
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With the manufacturer's supplied hand shower, consumers can safely switch between spray patterns without jeopardising back pressure or flow rate. Importantly, these hand showers are designed to prevent the user from stopping the water flow at any point, eliminating the risk of scalding and no pressure exertion happens at any point of the products.

It should also be noted that **MS1597-2-35:2019**, Section 7.12.1, clearly states:

- *"The installation instructions for open-outlet water heaters shall state that the outlet must not be connected to any tap or fitting other than those specified."*
- *"Fit only shower heads recommended by the manufacturer and never fit any additional device to restrict the water outlet flow."*
This is normally stated in the user's manual.
- *This outlet acts as a vent, and must not be connected to any form of tap or fitting not recommended by the manufacturer.*
This further warning is pasted at the bottom of the product.

With the unregulated supply of aftermarket and unapproved shower handsets — such as those with a start/stop function — consumers can stop the water flow at the outlet. If the stop button is pressed, it causes the instant water heater to remain pressurised. This keeps the heating elements energised, allowing them to continue heating the water (if the product uses a pressure switch). Apart from the pressure switch type, if the heater is incorporated with flow switch, it is also at risk as the flow switch could be possibly jammed by debris/dirt. The shower's safety device (thermo cut-out) will activate upon detecting abnormal operation, such as the outlet becoming blocked and flow switch jammed.

Despite the thermo cut-out operating, latent heat in the heating elements can cause the water within the appliance to overheat, potentially reaching temperatures as high as 80 to 85°C. If the shower is resumed (e.g., by pressing the start button on the handset), scalding hot water is discharged under pressure. This could lead to severe burn or scalding injuries!

Aside from the risk of scalding, the greater concern is the risk of explosion. Unlike multipoint/close outlet designs, multipoint/close outlet water heater canisters are designed to withstand high pressure. However, if the outlet is blocked and the flow switch is jammed, the tank in an open outlet design may not endure the pressure build-up before the thermal cut-out is triggered. This is especially true for tanks made of plastic.

Aftermarket/3rd party hand shower is most of the time not recommended to be fitted to any instant water heater, as the flow rate of hand shower supply by the manufacturer are mostly designed with it's appropriate flow rate to suit to electric instant water heater applications (most of the time low flow rate).



IMPORTANT :

Do not install any outlet flow control because the outlet serves as a vent for the tank body. Do not replace the Shower Head, Shower Hose, or any other unit parts with non-genuine spare parts. Parts for other models will not fit this model and could be a risk to the user.

WARNING :

using third-party accessories will void the warranty. Do not install a stop-button hand shower, which is completely forbidden and, when combined with instantaneous electric showers, can pose major safety issues.

Figure 3: Special warning / alert from manufacturer in product's manual.

Manufacturer/importer of instant water heater is concerned that too few suppliers of start/stop-button showerheads are providing clear warnings not to use their products with electric instant water heaters, as these hand showers are imported from China. Clear advice should be provided both at the point of sale and in the product instructions/product packaging.

Stakeholders/manufacturers/importers of instant water heaters in Malaysia need to collaborate more with the Department of Standards Malaysia and the Authorities to make consumers aware of the dangers of this type of showerheads being incorrectly installed. Manufacturers/importers of electric instant water heaters should advise consumers to refer to the manufacturer's website if there is any uncertainty about their hand shower type. They should encourage consumers to exercise caution and prioritise safety when purchasing and installing new bathroom accessories. They should also advise not to use start/stop type showerheads with instant water heaters. They should also advise that if anyone has purchased a product that you think may be unsafe, stop using it immediately, and report it to Industries' Expert/Consumer Association or respective authorities.

Safety isn't expensive, but it's invaluable!

Choo Wei Seng is the Chairman of TEEAM Safety & Compliance Committee and the Assistant Honorary Treasurer of TEEAM for the term 2023-2025. He represents TEEAM in the Department of Standards Malaysia (DSM)'s Working Group on Electrical Household for Motor Appliances (NSC19/TC5/WG1) and Working Group on Electrical Household for Heating Appliances (NSC19/TC5/WG2). He is currently the Factory Manager of Showertec Industries Sdn Bhd, a manufacturer of electric instant water heaters. He can be reached at E-mail: wschoo@showertec.my



Smart City Summit Expo and Net-Zero City Expo 2025

The Taiwan Computer Association (TCA) successfully hosted the Smart City Summit Expo and Net-Zero City Expo 2025, a premier global event fostering international collaboration in Smart City development. The Expo took place from 18 to 21 March 2025 at the Taipei Nangang Exhibition Centre, serving as a crucial platform for global policymakers, industry leaders, Government sectors, and technology pioneers to shape the future of urban development.

This year's Expo attracted over 600 exhibitors, with a whopping 2,300 booths showcasing cutting-edge innovations. The event welcomed representatives from more than 150 cities across 60 countries and featured over 200 expert-led sessions! This highly encouraging significant participation cemented the Expo's status as a leading global gathering for Smart City advancements.

Global Engagement and Business Opportunities

Speaking at the Opening Ceremony, TCA Chairman Mr. Paul Peng highlighted the event's growing international recognition, with an increasing number of overseas visitors participating each year. Over 500 Mayors and City Representatives engaged with Taiwanese cities and industries, enhancing global opportunities for Taiwan's IoT solutions, amongst others. Mr. Paul Peng also commended Delegations from Malaysia, Thailand, Vietnam, the United States, and Japan, as well as 83 industrial and commercial Chambers and Technology Associations, for their pro-active participation.

One of the Expo's key highlights was the transformation of its business match-making activities into the 'Global Business Match-Making Event,' focusing on four critical sectors: AI, IoT, Smart Transportation, and Smart

Energy. This wise biz-centric initiative facilitated deeper business collaborations and technological exchanges between international stakeholders.



TEEAM's Pro-Active Participation

Members of TEEAM were honoured to be invited as VIP Business Delegates to participate in the Expo's Forums and Summits. The TEEAM Delegation, led by President Ir. Chang Yew Cheong, consisted of 12 members who pro-actively engaged in the Match-Made Asia Business Meetings. These sessions provided valuable opportunities to explore profitable business partnerships with Taiwanese suppliers of innovative products and technologies.

President Ir. Chang was also invited as a Panel Speaker at the 'Match-Made: Taiwan, ASEAN, and India AI-Powered Business Networking' Forum. He contributed valuable insights on the topic 'Cross-Domain AI Applications: Driving Innovation in Smart Manufacturing and Smart Cities', underscoring the critical role of AI in shaping the future of Smart Cities and industrial innovation.



Strategic Partnerships and MOUs

The Expo facilitated the signing of several Memoranda of Understanding (MOUs), strengthening co-operation between cities, industries, and companies. Notable agreements included Taiwan's Smart Automation and Robotics Association smart-partnering with the Ho Chi Minh City Computer Association in Vietnam. Additionally, companies from Malaysia, Singapore, the Philippines, and Thailand signed MOUs to collaborate on carbon inventory management, carbon rights development, emergency response centres, and smart aquaculture—further expanding global Smart and Net-Zero city initiatives.

Taiwan's Commitment to Smart and Net-Zero Cities

Taiwanese local Governments played a significant role in the Expo, demonstrating their commitment to Digital

and Net-Zero City transformation. A total of 12 local City Governments set up themed pavilions showcasing their vision and achievements in smart and sustainable urban development.

The National Development Council of Taiwan hosted the 3rd Net Zero City Leaders Summit, while Taipei City organised the 2025 Taipei Smart City Summit. These City-level Forums provided a platform for Mayors and Leaders worldwide to exchange insights and strengthen global partnerships in urban innovation and sustainability.

About Taiwan Computer Association (TCA)

Founded in 1974, the Taiwan Computer Association (TCA) is the largest industrial association in Taiwan, boasting over 4,000 Corporate Members that collectively generate 80% of Taiwan's total ICT production value. TCA continues to play a pivotal role in driving technological advancements and fostering international collaboration in the Smart City ecosystem.

Acknowledgement

TEEAM expresses its deep gratitude to TCA for its warm hospitality and seamless event arrangements. Taiwan's Smart City Summit Expo and Net-Zero City Expo 2025 proved to be an immensely fruitful experience especially so for TEEAM's Delegates, paving the way for future win-win smart collaborations and advancements in Smart City innovations. TEEAM sincerely looks forward to many more members pro-actively participating in and deriving the huge potential and benefits from Smart City Summit Expo and Net-Zero City Expo 2026. See you there next year!

Snapshots of Smart City Summit Expo and Net-Zero City Expo 2025



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Snapshots of Smart City Summit Expo and Net-Zero City Expo 2025



Courtesy Visit from PKPPE, Perak

On 20 February 2025, our State Association Member, the Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik (PKPPE) – The Perak Electrical Chargemen & Wiremen Competence Association, Perak, made a Courtesy Visit to TEEAM. The Delegation, led by PKPPE President Mr. Tony Leong, was warmly received by TEEAM President Ir. Chang Yew Cheong alongside Vice President Ir. Lee Kok Chong, Assistant Honorary Treasurer Mr. Choo Wei Seng and Council Member Tc. How Chee Seng.

The Courtesy Visit served as a platform for both Associations to foster stronger ties and exchange insights on their respective activities. During the meeting, President Ir. Chang Yew Cheong took the opportunity to introduce TEEAM's various initiatives, particularly its efforts in promoting trade opportunities for industry players. He encouraged PKPPE members to pro-actively

participate in TEEAM's overseas trade missions, which provide valuable exposure to global markets, business networking opportunities, and the latest advancements in Electrical and Electronics technologies.

In return, the PKPPE Delegation shared key concerns and challenges faced by their members, particularly issues related to the Electricity Supply Act Handbook (ESAH). The discussion provided an avenue to address these concerns, exchange professional viewpoints, and explore potential collaborations for the benefit of the electrical industry.

The productive engagement concluded with a symbolic exchange of mementos, signifying the goodwill and mutual commitment to continue working together for the advancement of the E&E industry. Kudos to PKPPE for your Courtesy Visit!



Exchange of mementos.



PKPPE Delegation (front left) Ir. Toh Leong Soon (Technical Advisor), Mr. Tony Leong (President), Mr. Leaw Chee Khen (Vice President), Mr. Tan Soo Choy (Deputy President) and Mr. Edmund Teoh (Committee Member).



Malaysia-Thailand Industrial Products Business Matching

The Malaysia-Thailand Industrial Products Business Matching event was successfully held on 11 February 2025 at the Imperial Lexis Kuala Lumpur. Hosted by the Department of International Trade Promotion (DITP) under Thailand's Ministry of Commerce, the event highlighted five key industrial sectors, namely, machinery, electronics, automotive, medical supplies, and building materials.

Thailand's Trade Representative, Mr. Umes Pandey, led the Business Matching event, accompanied by the Minister Counsellor (Commercial), DITP Malaysia, Mr. Worawan Wanwil. According to Mr. Worawan, the Business Matching event was a good opportunity for Thai and Malaysian businesses to explore potential win-win smart partnerships and exchange critical knowledge. 'By facilitating high-level discussions and aligning business goals with governmental strategies, we are building a robust foundation for continued growth and pro-active collaboration. This event served as a critical turning point in boosting Thailand's exports to Malaysia and generating significant new opportunities for Thai businesses', he stated.

A total of 20 Thai companies participated in the event, showcasing high-quality products designed to help Malaysian businesses grow. The event commenced with Welcome Remarks by Her Excellency Ms. Lada Phumas, Ambassador of Thailand to Malaysia, followed by Opening Remarks from Mr. Umes Pandey. A Panel Discussion on 'The Future of Heavy Industries: Opportunities between Thailand and Malaysia' was moderated by Mr. Worawan, providing valuable insights into industrial growth prospects.

The event featured 70 pre-scheduled business pairings and more than 30 walk-in matchings, generating over 100

business opportunities between the two countries. This Business Matching initiative is expected to contribute significantly to Thailand's role in the ASEAN supply chain, further strengthening economic ties between Malaysia and Thailand. The anticipated trade value from the event is estimated at 120 million Baht (approximately RM15.74 million).

Following the Closing Ceremony, the Thai delegates and Malaysian participants attended a Business Networking Reception at the Poolside Bistro on Level 51 of the Imperial Lexis Kuala Lumpur. The event successfully fostered business collaborations, strengthened bilateral trade relations, and set the stage for future industrial partnerships between Malaysia and Thailand.

With a significant impact on cross-border business relations, the Malaysia-Thailand Industrial Products Business Matching event demonstrated the immense potential for economic co-operation within ASEAN, paving the way for increased trade and investment undertakings between the two neighbouring nations.



Snapshots of Malaysia-Thailand Industrial Products Business Matching





LED EMERGENCY LIGHT

HIGH ENERGY EFFICIENCY & SAVING



CEL-88
SURFACE TYPE
Emergency Light



CEL-20-44P
SURFACE TYPE
Emergency Light



CEE-101
RECESSED TYPE
Eye Ball
Emergency Light



CMM-15
SURFACE TYPE
Twin Lamp
Emergency Light



CKS-38P
SURFACE TYPE
Keluar Sign



CKS-2A
SLIM TYPE
(Recessed Type)
Keluar Sign



CKS-2A/DS
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Surface / Hanging Type
Keluar Sign
(Double Sided with Arrow)



CKS-2A
SLIM TYPE
Surface / Hanging Type
Keluar Sign
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Forum on the Malaysia Lighting Industry and Its Role in the Energy Transition

The Forum on 'Malaysia Lighting Industry and Its Role in the Energy Transition' was successfully held on 10 October 2024, a Thursday, at MITEC, Kuala Lumpur from 10:30am to 12:30pm. The informative Forum was jointly organised by the Malaysia CIE (MyCIE), TEEAM and the Machinery & Engineering Industries Federation (MEIF). Although 10:30am was when the forum started proper, Delegates and Participants were required to arrive half an hour earlier by 10:00am to register their attendance for the event. 10:30am saw the delivery of the Opening Remarks. These remarks were followed by special addresses by five Distinguished Speakers.

Dr. David Lacey, Director of Advanced Development & Services, R&D, Osram Opto Semiconductors (M) Sdn Bhd, has amassed over two and a half decades of highly valuable experience in the semiconductor industry. His primary areas of expertise lie in producing and enhancing organic and inorganic lighting solutions. Dr. Lacey has played an instrumental role in advancing and increasing awareness of LED technology, especially in developing highly efficient white LEDs and ultraviolet LEDs.

Since he is so well-versed in the subject matter of everything to do with LEDs, he is more than qualified to speak on the topic of 'Highly Efficient LEDs – More Barriers to Break?'. Dr. Lacey presented this topic as the first talk after the commencement of the 'Forum on the Malaysia Lighting Industry and Its Role in the Energy Transition', which was a segment of the ENLIT Asia 2024 event. He was one of five industry heavyweights to present talks pertaining to the Forum's chief focus. Moderated by Ir. Ts. Dr. Narendran Rengasamy, Treasurer of MyCIE, the Forum was certainly an enlightening and insightful experience for all who attended the industry event.

In his talk, Dr. Lacey outlined several key facets and milestones of ams OSRAM's successful journey into becoming the Titan of Sensing, Illumination and Visualisation that it is today. It is clear that ams OSRAM is



Dr. David Lacey, Director of Advanced Development & Services, R&D, Osram Opto Semiconductors (M) Sdn Bhd.

one of the major market leaders in the core semiconductor and lamp sectors. Such an assertion is evidenced by the formidable positions it has held in its strong focus on its core portfolio and unwavering commitment to the Automotive, Industrial and Medical markets.

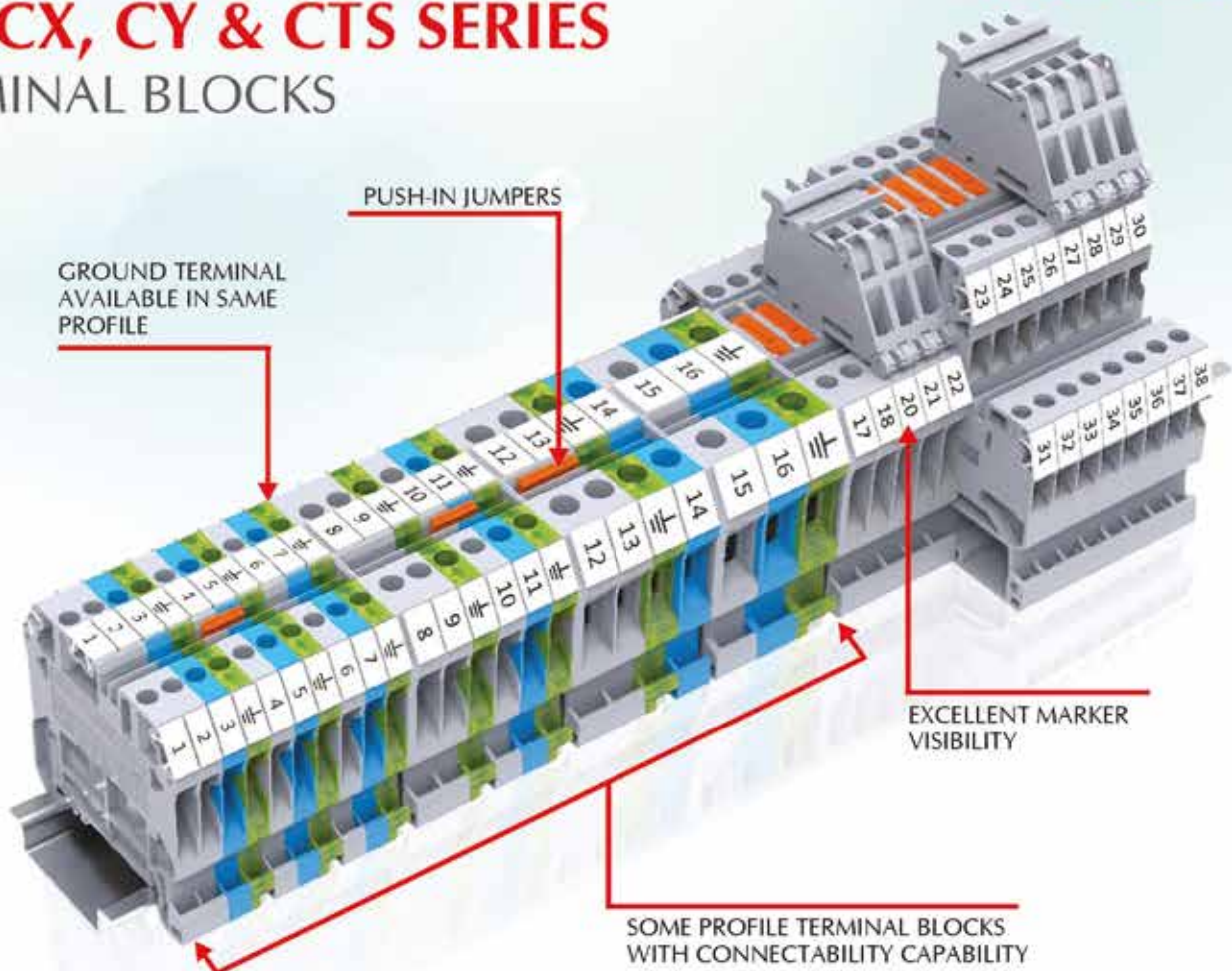
In supplying LED alone, ams OSRAM is in second place on the leaderboard with 13% of market share out of a total market of USD1bil as of the Trend Force Report conducted in 2023. However, ams OSRAM occupies the top position as the #1 Supplier of Light Sensors with a 29.2% market share out of a total market of USD1.1bil as reported by OMDIA in 2022, narrowly edging out its closest competitor STMicroelectronics by 0.7%. Ams OSRAM is also the market share leader of Bulb Suppliers in the Traditional Auto Lamps/Bulbs category in a total market of USD1.4bil as of 2023 according to an in-house market model owing to the lack of external research conducted in that year.

Ams OSRAM has also achieved great strides in being systematic about Emitter Technology Competence. It is responsible for Full Value Chain integration which is an interlinked system that covers all aspects of the

NEXT GENERATION

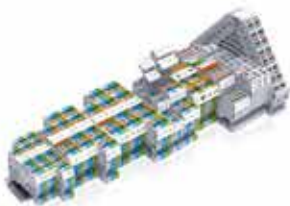
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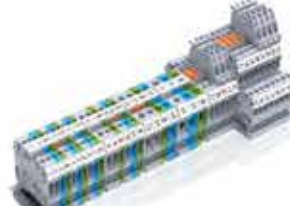
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LED development pipeline. These aspects (and their objectives) in sequential order are:

1. Research – to foster IP and Innovation.
2. Epitaxy – to define the Internal Quantum Efficiency.
3. Chip Design – to define the Light Extraction Efficiency.
4. Conversion – to define the Conversion Efficiency.
5. Package Design (including IC) – to define the Light Extraction Efficiency.

Some technological highlights consist of:

a) GaN (or Gallium Nitride) LEDs

- The current state is classical blue InGaN LEDs, which are reaching technological saturation.
- Future pathways include:
 - UV-C LEDs for sterile applications such as Disinfection
 - μ LEDs (micro-LEDs) for Advanced Displays, AR, and VR
 - Blue lasers for higher Brightness Applications
 - Integration with CMOS technologies (e.g., EVIYOS for Automotive Lighting Systems)

b) Evolution of External Quantum Efficiency (EQE)

Advancements in EQE focus on:

- Crystal quality improvement in epitaxial layers.
- Current spreading optimization in active chips.
- Reduction in absorptive losses within the chip layers.
- Dielectric mirrors designed for reflection efficiency.
- Key use case: High-power applications at 450 nm.

c) Micro LEDs (μ LEDs)

- A shift from miniLEDs to μ LEDs
- μ LED array technology (e.g., for AR projection):
 - Focus on miniaturisation to improve performance.
 - Barriers: Dominance of non-radiative recombination on small scales.
- Optical Characterisation: Thin-film μ LEDs exhibit unique size-based far-field behaviors.
 - Thin-film μ LEDs exhibit unique size-based far-field behaviors.

It must be noted, however, that LED, particularly UV-C LED development, has its own set of challenges and solutions. Some of these challenges are performance issues such as light output and conversion inefficiencies, cost barriers such as wafer uniformity and reproducibility, and lifetime problems such as surface defects like hillocks leading to leakage. However, the innovations devised to address such difficulties are optimisation of GaN/AlN buffers to reduce defects such as dislocations and hillocks, improved MOVPE growth conditions to create homogeneous Al compositions on wafers, and enhanced active layer structures which achieve 8 to 9% WPE (Wall Plug Efficiency).

As for Cost and Lifetime Improvements, the bullet points below illustrate and exemplify them:

a) Cost Improvements:

- Addressing on-wafer uniformity issues by optimising growth conditions and hardware.
- Reduction in standard deviation for:
 - Al-composition distribution (from 1.46 to 0.26).
 - Emission wavelength ranges (from 9 nm to 2 nm).

b) Lifetime Enhancements:

- Optimised AlN buffer layers eliminate electrical/mechanical defects, ensuring:
 - No 'shorts' or 'shunts.'
 - Extended reliability of UV-C LEDs.

Ams OSRAM also aims to develop Smart LEDs by incorporating CMOS drivers into them. An example would be an EVIYOS LED array which integrates 200 μ m high-power pixels with phosphor conversion.

Last but not least, Dr. Lacey talked about extending performance in lighting applications, which include enhancing the mid-power portfolio with distinct features such as CR170 – CR197, 1800K to 6500K, deep-dimming and colour-tuning, 3-steps and fine-binning, LM80 & lifetime models, and sustainability. He also presented ams OSRAM's Professional Indoor Product Line with its focus applications on Office, Retail & Hospitality, and Industry & Others. He stated how mid-power LEDs are reaching high-power LED lifetimes and reliability, underscoring their increasing suitability in industrial use-cases.



Dr. Siew Choon Thye, Chairman of MyCIE.

It was Dr. Siew Choon Thye's turn to share next. As the Chairman of MyCIE, he presented his piece on the topic of 'The Malaysian Lighting Industry – Challenges and Opportunities'.

Dr. Siew spoke at length about MyCIE and its role as the Working Committee which executes and implements the projects of the NCCIE (Malaysian National Committee of CIE). He explained how NCCIE is a member country of the International Commission on Illumination. The Commission is also known more popularly as CIE, which is derived from the French title 'The Commission Internationale de l'Eclairage'.

The CIE has expressed its firm commitment to global co-operation. It is also keen on sharing knowledge with its partners on everything related to the art and science of light and lighting, colour and vision, photobiology and image technology.

Dr. Siew detailed how both MyCIE and NCCIE were formed back in 2009 with the support of DSM (Department of Standards Malaysia) to serve as a platform to connect with the International Forum on Light and Lighting and to advise the Malaysian Lighting Industry on how to enhance and scale their processes whilst updating and engaging them in international best practices, standards and exchange of knowledge. The parties which have

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shown interest in consulting MyCIE and NCCIE are universities and industry.

NCCIE's Technical Activities come under the purview of its six divisions, which are:

1. Vision and Colour
2. Physical Measurement of Light and Radiation
3. Interior Environment and Lighting Design
4. Transportation and Exterior Applications
5. Photobiology and Photochemistry
6. Image Technology

Dr. Siew also talked about the significance of lighting which plays a critical role in various aspects of our lives, including but not limited to safety, productivity, mood regulation and health. Lighting also greatly contributes to worldwide energy consumption of which lighting makes up nearly 20% of electricity usage and is responsible for 6% of CO₂ emissions. With these numbers in mind, there is an ever-increasing demand for stable and efficient green energy found in LED lamps which are driven by pro-active Government sustainability initiatives.

Dr. Siew emphasised the vast potential that there is in lighting, most particularly LED Lighting, to generate recurring revenue as Malaysia continues to push for energy efficiency and sustainable practices. Due to their energy-saving features, LED lighting solutions are widely adopted as the de facto lights in residential as well as commercial spaces. So rapid is the expansion of the LED lighting market in Malaysia that the revenue generated within the Lamps & Lighting market is projected to be US\$528.51m by 2029!

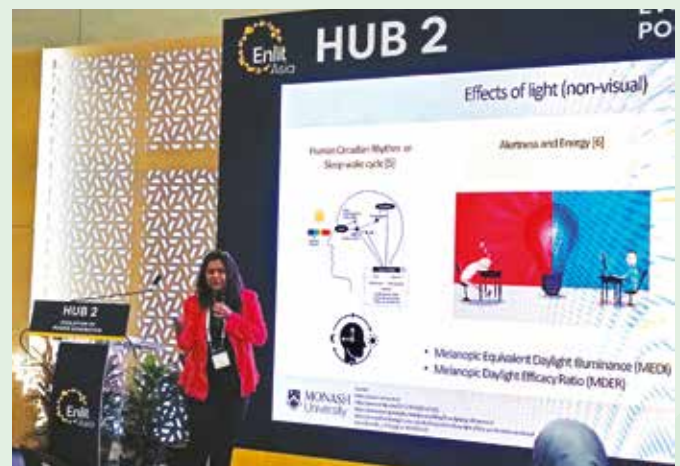
It is further projected that that this market will experience an annual growth rate of 3.80% (CAGR 2024-2029). Government initiatives and awareness campaigns have additionally fuelled the transition to LED lighting, contributing to market growth. Nevertheless, while the Malaysia LED lighting market has boomed exponentially as more and more consumers and businesses adopt and use energy-efficient lighting solutions, the market is not without its fair share of challenges. These challenges come in the form of counterfeit or substandard LED products which can undermine the good reputation of genuine manufacturers and instead pose safety risks. There are also valid concerns about the proper disposal of LED lighting products.

Dr. Siew then discussed how conventional lighting technologies, especially those with mercury as one of its constituents, pose serious and severe environmental and health dangers. And so international agreements like the Minamata Convention have sprung up to address and redress concerns about the long-term harmful effects mercury poses not just to humans but to the surrounding environment at large as well. Some of the health and safety hazards of not disposing of mercury waste properly are respiratory problems, headaches and vomiting in the short-term as well as nerve, lung and kidney damage in the long-term. Mercury can be found in light bulbs, thermometers, blood pressure devices, dental amalgams, contaminated fish and shellfish, certain skin lightening soaps and creams and coal power plants, to name just a few.

Dr. Siew also stressed the pressing need for enhanced professional competency within the lighting industry to

ensure quality and safety in lighting solutions. Some of those fundamental competencies are engineering expertise, knowledge of environmental impacts and adherence to safety regulations. Despite there being many businesses providing lighting solutions, the truth is that only 30% of such businesses have a good grasp of understanding lighting.

Dr. Siew ended his presentation by forecasting the immense market growth the lighting industry will experience in the future with the Government actively promoting energy efficiency through its plethora of LED-friendly policies, initiatives and programmes, such as the NETR and EECA and therefore how there are abundant opportunities for business. The two biggest business opportunities in relation to the benefits NETR brings to the lighting industry table are RM120-180 billion in investment opportunities in co-funded Government facility for Energy Transition, and investment opportunities for Green Growth across the Energy Transition Value Chain in the upward range of RM1.2-1.3 trillion.



Associate Professor Dr. Vineetha Kalavally.

Associate Professor Dr. Vineetha Kalavally of the School of Engineering at Monash University, Malaysia, then took the stage to deliver her talk on 'Human-Centric Lighting – The Energy Tradeoff'. She explained how light is not only a form of radiation that is visible to the naked eye but also has a profound effect on us on so many levels. So what is Human-Centric Lighting?

Human-Centric Lighting, also known by its other moniker Integrative Lighting, is lighting design that balances visual and nonvisual effects. Integrative lighting also combines human-centric lighting with energy efficiency. So why is this aforementioned kind of lighting so important? In addition to energy efficiency, the right type of lighting can impact human health, wellbeing and productivity, reiterating Dr. Siew's previous point in his talk about the significance of lighting playing a critical role in various aspects of our lives.

Light also has the non-visual power to affect human circadian rhythm or sleep-wake cycle, alertness and energy, and mood and emotions. Its visual effects centre around assisting and enhancing vision, illuminating colour perception and affecting visual comfort. Dr. Vineetha also introduced MEDR and MEDI which are both metrics to measure how much daylight is needed to achieve the same effect as a lighting setting and

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evaluate the circadian effect of artificial light compared to natural light.

Apart from presenting other pertinent metrics in relation to light and its visual and nonvisual effects, she then talked about energy tradeoff in integrative lighting. Dr. Vineetha detailed how traditional lighting may be more cost-saving with LED usage and occupancy sensors while integrative lighting which require a dynamic spectrum and intensity control for nonvisual effects may result in higher energy consumption despite its multiple health benefits. She then highlighted key technologies of integrative lighting, such as Dynamic LED Systems, Smart Controls & Sensors, and Daylight Harvesting.

Dr. Vineetha then introduced and spoke about several case studies. These studies revolved around office spaces and whether there is sufficient lighting for both visual and non-visual stimuli, the psychological effects of lighting, which require real measurements, control strategies and personal light exposure. She then continued her lecture with some more metrics discussing Harvard University studies on 300lx versus 500lx, circadian lighting schedules, CCT & MEDl control, MEDl exposure of folks in Switzerland versus those in Malaysia. She concluded her presentation by talking about integrative lighting's future potential to save energy consumption via LED retrofits and intelligent lighting control as well as its future potential to provide the right amount and spectrum of light to highly satisfy its users and enhance their cognition and alertness as well as maintain the average human circadian rhythm without disruption.

He further discussed DSM's roles and responsibilities and the National Standards and Accreditation Governance Structure. Mr. Hussalmizzar then touched upon the hierarchy of the IEC National Committee of Malaysia (IEC NC of MY) and how he is the Secretary of the Organisation aside from holding the position of Directorship in DSM. He then presented some MS statistics followed by MS implementation and called for regional and international participation.

Mr. Hussalmizzar concluded his talk by stating that DSM will continue its focus on developing relevant and related MS' to uphold the EECA & NETR and Lighting Industries. He also reiterated how DSM will be actively and proactively involved in International Standardisation activities. Mr. Hussalmizzar then encouraged all Malaysians to join DSM as national experts in standardisation activities -- whether they be on a national and/or international level.



Ir. Ts. Zulkiflee Umar, Deputy Director, Energy Efficiency & Conservation of the Energy Commission.



Mr. Hussalmizzar Hussain, Senior Director of Standardisation, Department of Standards Malaysia.

Dr. Vineetha's talk was followed by the presentation of Mr. Hussalmizzar Hussain, Senior Director of Standardisation, Department of Standards Malaysia, on the subject of 'Lighting Standards – Influence on Promoting Energy Efficiency'. He talked about the history of the establishment of DSM, a Government agency under MITI, and how it is governed by the Standards of Malaysia Act 1996 (Act 549). Mr. Hussalmizzar also explained about DSM being both a National Standards Body and National Accreditation Body to develop MS (Malaysia Standards) and promote the use of Standards as well as accredit Conformity Assessment Bodies.



Ir. Ts. Dr. Narendran Rengasamy (Treasurer MyCIE), Moderator of the highly engaging Forum, wrapped up the informative session with several observations, after which he opened the floor for a Q&A Session. Once the Q&A Session finished, Ir. Ts. Dr. Narendran gave some Closing Remarks. The group of participants then assembled together to take a group photo, following which the Programme successfully ended.

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State Associations News



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Celebration Banquet

After meticulous preparation, the Perak Electrical Association (PEA) 61st Anniversary Dinner concluded successfully and the Association held a Celebration Banquet on 15 November 2024 to recognise all those who had contributed to the praiseworthy success of the event! The smooth execution of the Anniversary Dinner not only enhanced the Association's image but also strengthened the cohesion amongst members and promoted win-win collaboration within the industry. The Celebration Banquet served as a high acknowledgment and encouragement for the untiring efforts of the Organising Team, participants, and partners. The atmosphere of the Celebration Banquet that evening was relaxed and joyful. Participants set aside the formality and restraint of the Anniversary Dinner and fully enjoyed the food and laughter at the banquet. The venue was filled with laughter and lively conversations, as the Board Members toasted one another, expressing their heartfelt gratitude for each other's hard work and continuous support.



PCCCI CNY 2025 Reunion Party

PEA was invited to attend the Perak Chinese Chamber of Commerce & Industry (PCCCI) Chinese New Year (CNY) 2025 Reunion Party organised by the Perak Chinese Chamber of Commerce and Industry on 31 January 2025 at Weil Hotel, Ipoh. President Mr. Richard Wong Ngen Wah and Secretary Mr. Low Kam Yoong represented the Association at this Grand Event.



PEA CNY 2025 Reunion Party

PEA held its CNY 2025 Reunion Party on the fifth day of the Chinese Lunar New Year on 2 February 2025 at its office, attracting many members and their families to participate enthusiastically. This event aimed to celebrate the Chinese New Year, strengthen connections and collaboration amongst members, and jointly embrace the challenges and opportunities of the new year. The gathering venue was brightly decorated, exuding a festive and lively atmosphere. The event featured exciting programmes, including a Lion Dance performance and a sumptuous lunch with refreshments. Members not only enjoyed a feast for the eyes and taste buds but also deepened their friendships through relaxed interactions. In his Chinese New Year address, President Mr. Richard Wong Ngen Wah expressed his sincere gratitude to all members for their support and contributions over the past year. He also expressed optimism that, with everyone's joint efforts, 2025 would bring even greater achievements for the Association. The attendees on that day included PEA Committee: Mr. Richard Wong Ngen Wah, Mr. Au Wai Yeen, Mr. Cheah Kong Yew AMP, Mr. Chong Kwong Yuen, Mr. Lau Sin Leong, Mr. Ngoi Ah Tee, Mr. Low Kam Yoong, Mr. Ngeow Khong Seng, Mr. Tiew Kah Wei, Mr. Wong Kok Mun, Mr. Chin Hoo Keat, Mr. Ng Yew Cho, Mr. Wong Seng Yin, Mr. Low Kam Keen, Mr. Hoo Xin Kai, Mr. Kan Kim Weng, Mr. Foo Ken-Khuan, Mr. Lee Khar Seng, Mr. Law Kah Ching and Mr. Kong Kean Wei, amongst others. Also present were invited guests Medical Advisor Dr. Yek Sing Chee, President's Advisors Mr. Leong Wa Sing PMP and Mr. Lee Kai Beng; Honorary Presidents Mr. Chan Kaim Sam, Mr. Teoh Kim Fong and Mr. Kong Wan Fook; Immediate Past President Cum Honorary Advisor Mr. Wan Kam Weng, and Auditors Mr. Lam Yong Kang and Mr. Wong Seng Fei.



Charity Donations

A Charity Donation Ceremony was held on 8 February 2025 to encourage members to care for the underprivileged in society during the CNY festive season. The Association urged continuous support for its charitable giving initiatives, bringing warmth and cheer to those in need. On the eleventh day of the Chinese New Year, the Association visited several selected welfare organisations to distribute charity ang-pows. The dedicated Committee who participated in the event

included: Mr. Richard Wong Ngen Wah, Mr. Au Wai Yeen, Mr. Lau Sin Leong, Mr. Ngeow Khong Seng, Mr. Chun Chung Heng, Mr. Hoo Xin Kai, Mr. Chin Hoo Keat, Mr. Low Kam Keen and Mr. Wan Kam Weng.



CNY Celebration Dinner 2025 of Persatuan Choy-Lee-Fat Perak

PEA was invited to attend the CNY Celebration Dinner 2025 organised by the Persatuan Choy-Lee-Fat Perak on 8 February 2025 at its Association premises. The attendees on that day included Mr. Wan Kam Weng, Mr. Kong Wan Fook, Mr. Lau Sin Leong, Mr. Low Kam Yoong, Mr. Low Kam Keen, Mr. Kong Kean Wei, Mr. Kan Kok Meng and Mr. Dezmond Ling Kok Wooi AMP.



PERDA CNY Celebration Dinner 2025

PEA was invited to attend the CNY Celebration Dinner 2025 organised by PERDA on 15 February 2025 at Restaurant Kim Wah Falim, Ipoh. The attendees on that day included Mr. Richard Wong Ngen Wah, Mr. Au Wai Yeen, Mr. Wan Kam Weng, Mr. Chong Kwong Yuen, Mr. Lau Sin Leong, Mr. Low Kam Yoong, Mr. Ngeow Khong Seng, Mr. Hoo Xin Kai, Mr. Low Kam Keen and Mr. Lam Yong Kang.



Donation to School Building Fund

Upholding its stellar commitment to giving back to society and supporting Chinese education, PEA visited and presented an RM5,000 School Building Fund Donation to SJK(C) Thung Hon Chenderong Perak on 21 February 2025. This caring contribution aimed to help the school improve its infrastructure and provide a better learning environment for students. The handover ceremony took place at SJK(C) Thung Hon Chenderong, where PEA President Mr. Richard Wong Ngen Wah led a delegation of Committee to present the cheque to the school's PIBG (Persatuan Ibu-Bapa & Guru, i.e., Parent-Teacher Association - PTA) Chairman. As a Token of Appreciation, the school presented PEA with a Banner and a Certificate of Gratitude. Also present to witness this meaningful charitable gesture were Mr. Wan Kam Weng, Mr. Au Wai Yeen, Mr. Lau Sin Leong, Mr. Ngoi Ah Tee, Mr. Ngeow Khong Seng, Mr. Hoo Xin Kai and Mr. Ong Kean Seng.



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ELECRAMA 2025, India

The Vice Chairman of Sarawak Electrical Association (SEA) Dato' Sri Ir. Peter Lu visited the ELECRAMA 2025 Exhibition, which was held from 22 to 26 February 2025 in New Delhi. Organised by the Indian Electrical & Electronics Manufacturers Association (IEEMA), the 2025 Edition had over 1,000 exhibitors. He also attended the Reverse Buyers Sellers Meet (RBSM) Programme to explore business opportunities. Over 500 international buyers from 80 countries were present at the RMSM programme! It was a very fruitful visit to see the latest technologies and offerings of the Electrical & Electronics industry in India.





Smart City Summit Expo & Net-Zero City Expo 2025

The Taiwan Computer Association (TCA) hosted the Smart City Summit Expo and Net-Zero City Expo 2025 for global collaboration at the Taipei Nangang Exhibition Centre from 18 to 21 March 2025. The Expo served as the ultimate platform to unite global policy-makers, industry leaders, Government sector and technology pioneers to shape the future of urban development. The Expo attracted over 600 exhibitors with a whopping 2,300 booths. The Vice Chairman of Sarawak Electrical Association (SEA) Dato' Sri Ir. Peter Lu also visited the Expo.



Electrical Association of Sarawak & Sabah

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32nd AGM & Election of EASS

The 32nd Annual General Meeting (AGM) of the Electrical Association of Sarawak & Sabah (EASS) was successfully held on 30 March 2025 at its premises. There was an election of new Office-Bearers for the term 2025-2027. The Chairmanship was once again helmed by Mr. Hii Hua Chuon

In his Opening Address, EASS Chairman Mr Hii Hua Chuon highlighted that since its establishment, the Association has consistently adhered to two core objectives, which are strengthening skills training and introducing new technological electrical products. He firmly believes that enhancing professional knowledge and technical expertise is the key to driving industry progress. He said that through systematic skills training, members can master the latest industry standards and technical specifications, besides accurately grasping industry trends in a rapidly changing market environment. This enables timely introduction of advanced electrical products and technologies, ensuring steady progress toward

EASS Office-Bearers For The Year 2025-2027

Chairman	Hii Hua Chuon
Deputy Chairman	Kapitan Tiong Chiong Kiing
1st Vice Chairman	Lee Joon Lee
2nd Vice Chairman	Hii Tao Chin
3rd Vice Chairman	Goh Kee Hin
4th Vice Chairman	Teu Sze Wang
5th Vice Chairman	Yu Hieng Jeong
6th Vice Chairman	Goh Yew Hwong
Secretary	Young Leh Luang
Secretary (Chinese)	Lai Chiong Ann
Secretary (English)	Ho Kiang Boh
Treasurer	Ling Kung Leh
Assistant Treasurer	Hii Teck Ping
Supervisor	Ngieng Hock Chung
Assistant Supervisor	Wong Ding Hie
Public Relations Officer	Tony Yang
Welfare Officer	Toh Kah Wuong
Committee Members	Wong Liong Hiong, Wong Siaw Ho, Sii How Wun, Wong Yuk Soon, Sii How Siang, Kong Kuok Shien, Ding Ing Hua, Siew Ik Kiong
Contractor Officer In-Charge	Lau Ting Hui
Contractor Assistant Officer In-Charge	Hii Teck Ang
Supplier Officer In-Charge	Tiong Ing Hang
Supplier Assistant Officer In-Charge	Teu Chun Yong
Air-Conditioner Officer In-Charge	Lau Kieng Ying
Air-Conditioner Assistant Officer In-Charge	Moh Kee Tung
Wireman Grade I Officer In-Charge	Wong Hock Chin
Wireman Grade I Assistant Officer In-Charge	Hii Lu Hui
Wireman Grade II Officer In-Charge	Hu Kheng Wei
Wireman Grade II Assistant Officer In-Charge	Sii Hou Kiong
Technician Officer In-Charge	Ling Ting Mong
Technician Assistant Officers In-Charge	Kapitan Chia Yik Chong, Petrus Ak. Lapok
Education Officer In-Charge	Ong Chet Kiong
Education Assistant Officer In-Charge	Ting Ying How
Tourism Officer In-Charge	Hii Tuang Hai
Tourism Assistant Officer In-Charge	Robert Hii Hie Ung
Chargeman Officer In-Charge	Chiang Ming Woon
Chargeman Assistant Officers In-Charge	Chua Peng Hui, Teng Mee Kong



higher standards in East Malaysia's electrical industry. EASS actively organises Professional Courses and Technical Trainings every year to comprehensively improve members' technical capabilities.

He said that in 2024, through collective efforts, the Association achieved fruitful results, including organising a "High-Altitude Safety Operations" Training Course to enhance members' safety awareness and operational skills, which received an enthusiastic response.

Mr. Hii went on to emphasise that for the development of the electrical industry in East Malaysia, establishing win-win co-operation with relevant institutions is crucial. EASS will continue to have close collaboration with Sarawak Energy. Sarawak Energy's long-standing understanding and support, along with on-going communication, have led to consensus on power supply standards and technical specifications, resolving many differences and providing strong support for the stable development of the electrical appliance industry.

Sarawak Energy actively listens to industry voices, making flexible adjustments on issues related to electrical installation and power safety, balancing industry standards with practical needs. This smart collaborative model has boosted members' confidence and accelerated technical upgrades.

He added that with the development of Smart Grids and Energy Management Technologies, the Association will continue strengthening co-operation with Sarawak Energy to ensure that the local electrical industry keeps pace with technological trends, jointly driving innovation and creating mutual benefits.

Mr. Hii also highlighted that members are encouraged to visit International Electrical Exhibitions and even travel to renowned electrical manufacturing countries to experience first-hand cutting-edge technologies and innovative products. Through these in-depth exchanges, members gain new knowledge, stay attuned to industry developments, and apply what they learn in practice, continuously driving the upgrading and transformation of East Malaysia's electrical industry!

Academic Excellence Awards

Education remains a core mission of EASS. Education is the most worthwhile investment in life. Only by nurturing more talented individuals with knowledge, skills, and ethics can society continue to progress. EASS presented Academic Excellence Awards to children of its members during the 32nd AGM. Academic Excellence Awards recognises outstanding students and honours the hard work and sacrifice of their parents too.



Smart City Summit Expo and Net-Zero City Expo 2025

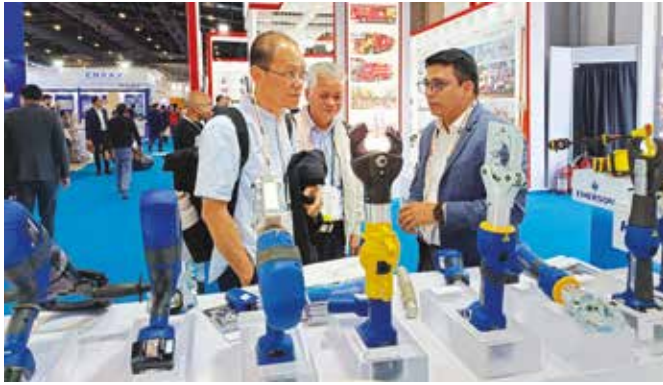
A delegation from EASS headed by Vice Chairman, Mr. Lee Joon Lee visited the Smart City Summit Expo and Net-Zero City Expo 2025 from 18 to 21 March 2025 at the Taipei Nangang Exhibition Centre, Taiwan. It was a premier global event fostering international collaboration in Smart City development and serving as a crucial platform for global policy-makers, industry leaders, Government sectors, and technology pioneers to shape the future of urban development. The EASS Delegation gained valuable insights into advanced electrical trends and broadened their horizon.



ELECRAMA 2025, India

EASS Vice Chairman Mr. Lee Joon Lee and Member Mr. Lee Men Chiew joined the TEEAM Delegation to visit the ELECRAMA 2025 Exhibition in New Delhi, India from 22 to 26 February 2025. ELECRAMA is the flagship showcase of the Indian Electrical Industry eco-system and the largest stand-alone show in the electrical and allied equipment industry, and also the largest T&D show in the world! The EASS Delegates were very impressed with the enormous range of products and technologies.





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Joint Charity Programme

In 2025, Penang Electrical Merchants' Association (PEMA) had a good start with a Joint Charity Programme with Heng EE High School for the Old Folks' Home at Penang Home for the Infirm and Aged. In view of the tremendous success of the last Charity Programme and the feeling of joy in helping the unfortunate, the PEMA Welfare Committee under the caring stewardship of Mr. Lim Kim San and Mr. Khaw Tatt Siew organised a Charity Event supported by Heng Ee High School, on 8 February 2025.

The event was filled with joyful activities, including captivating Music and Dance performances, a traditional Lion Dance, and Buffet lunch thereafter. This event was an overwhelming success as PEMA & Heng Ee High School managed to raise a truly praiseworthy RM47,988.00, which was in excess of their target. The Charity Event was graced by YB Tuan Sanisvara Nethaji Rayer Rajaji and YB Ong Ah Teong.



One-Day Seminar on LV Switchgear: Design & Calculation

PEMA with the support of Himel Sdn Bhd, organised a Seminar on Low Voltage (LV) Switchgear: Design & Calculation on 25 February 2025 at Eastern & Oriental Hotel, Penang. The Organising Chairman was PEMA Technical Committee Chairman, Ir. Ong Beng Siong. The Seminar covered LV Switchgear, one of the significant pieces of equipment utilised for power distribution in the electrical system and is connected to all types of loads (industrial process or building power). This device is used to combine all the protection devices for the electrical system into one main enclosure.

Himel is a global manufacturer and provider of robust, reliable and safe electrical products. Its mission is to make efficient and reliable power easily accessible to people, wherever they are – at home, office, industrial or commercial facility. The Speaker was Mr. Jason G. Sonido, Assistant Manager for LV Business Development SEA-Himel.

The response to the Seminar was encouraging with about 50 participants in total. The Seminar has 10 CIDB CCD points and 7 BEM CPD hours and was also HRDF claimable.





**Persatuan Kekompetenan Penjaga
Jentera & Pendawai Elektrik Perak (PKPPE)**
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TEEAM Technical Talk

A supportive delegation of 11-members from PKPPE attended the TEEAM Series of Technical Talk 01/2025 on 'Foundation of Earthing System & Electrical Protection', which was held on 20 February 2025 at the TEEAM Seminar Hall in Kuala Lumpur.

Distinguished Speaker, Ir. Toh Leong Soon, who is also PKPPE Technical Advisor, spoke on the importance of earthing in the electrical system, to enable automatic disconnection of power supply in the event of electrical fault, whereas the second Speaker, Ir. Chew Shee Fuee spoke on the important issues involved in the protection principles. He also shared on possible future progress in smart protection. It was a good take-away for all the attendees.



Courtesy Visit to TEEAM

The Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik (PKPPE), Perak (The Perak Electrical Chargemen & Wiremen Competence Association) paid a Courtesy Visit to TEEAM on 20 February 2025. Headed by PKPPE President, Mr. Tony Leong, the delegates highlighted some concerns related to the Electricity Supply Act Handbook (ESAH). The cordial discussion ended with an exchange of memento for the record and thereafter to a sumptuous lunch hosted by TEEAM at the Pik Wah Restaurant in Chin Woo Stadium, Kuala Lumpur.



Other State Association Members' contacts:



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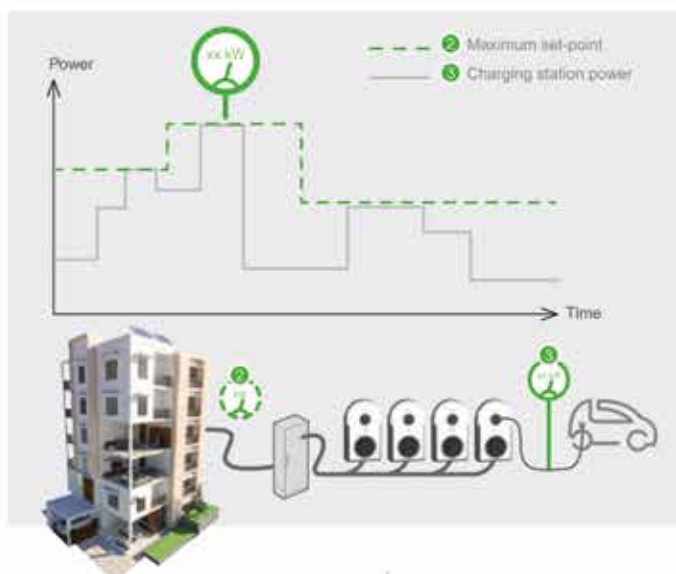
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Challenges and Opportunities in the Electrical Industry – Part 47

Ir Chew Shee Fuee KMN, TEEAM Past President

Guidelines for Solar Photovoltaic Installation for Self-Consumption in Peninsular Malaysia (January 2025)

This is a new scheme for Solar Photovoltaic Installation and particularly designed for own consumption and the output shall not be supplied to others.

Solar Photovoltaic (PV) is very important in the energy transition and there has to be more ways the Government can play in order to promote and expand the capacity to many times the current capacity. The requirement on battery storage system becomes necessary in order to ensure a resilient system. At this moment the amount of storage required is stipulated by the Energy Commission (Suruhanjaya Tenaga) of Malaysia.

For Non-Domestic Consumer, there shall be no capacity limit on the solar PV installation, provided that the consumer shall comply with all technical and regulatory requirements.

For Non-Domestic Consumers, solar PV installation of more than 72kWp shall be installed with battery energy storage system with having full capacity of at least one hour rating to reduce the impact of intermittent energy production of the Solar PV System on the Grid System. A solar PV installation of X kWp shall be installed with a battery energy storage system of at least 1xX kWh which is charged by the Solar PV System. The battery energy storage system can be a.c. or d.c. coupled.

If the Non-Domestic Consumer intends to increase the capacity to greater than 72kW, a licence from the Commission is required.

For Domestic Consumer, the capacity of the solar PV installation shall not exceed

- (i) 5kW for single-phase 230V supply; or
- (ii) 12.5kW for three-phase 400V supply.

If the consumer intends to increase the capacity to greater than the above, a licence from the Commission is required.

Latest Update on Adjustments to the Solar for Self-Consumption (SELCO) Programme Including Implementation of Standby Charge (25 March 2025)

The Government has agreed that adjustments to the implementation of the Solar for Self-Consumption (SELCO) Programme will be implemented as follows:

- (i) the implementation of the requirements for the installation

of energy storage systems is exempted until 31 December 2025;

- (ii) installation capacity below 1MWp is exempted from the standby charge;
- (iii) installation capacity above 1MWp is subject to a standby charge at the rate of RM12/kWp; and
- (iv) Higher Education Institutions registered with the Ministry of Higher Education and carrying out installations above 1MWp are exempted from the standby charge and requirements for the installation of energy storage systems.

The above information had been extracted from the following documents by the Energy Commission:

- 1) Latest 01012025 Full Guidelines for Solar Photovoltaic Installation
- 2) Kenyataan ST - Makluman Terkini Mengenai Penyesuaian Program SELCO Termasuk Pelaksanaan Standby Charge_FINAL

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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Industry 5.0: Engineering a Sustainable Revolution

Ir. Alex Looi Tink Huey

The world is at the dawn of a new industrial era – Industry 5.0. Unlike its predecessor, which championed automation and efficiency, Industry 5.0 prioritises a synergy between cutting-edge technologies and sustainability, placing human ingenuity at the heart of industrial progress. This paradigm shift is more than just an evolution; it is a redefinition of how industries operate, blending Artificial Intelligence (AI), the Internet of Things (IoT), and smart automation with environmental consciousness and people-centric collaboration.

In an age where climate change, resource depletion, and global energy crises loom large, Industry 5.0 emerges as a transformative force. It reimagines supply chains, optimises renewable energy solutions, and advances sustainable development goals – all while ensuring that innovation does not come at the expense of the planet [1].

For decades, industrial revolutions have been driven by automation, productivity, and cost reduction. Industry 4.0 took this to unprecedented heights with AI, big data, and machine learning, revolutionising manufacturing and supply chain management. However, as industries optimised operations, the unintended consequences of rapid technological advancement – rising carbon emissions, resource scarcity, climate change, and economic displacement – became evident.

Industry 5.0 corrects this trajectory by harmonising technological innovation with sustainability [2]. The key principles of this revolution include:

- 1. Human-Machine Collaboration** – Instead of replacing human intelligence, Industry 5.0 enhances it. AI and robotics work alongside engineers and technicians, ensuring better decision-making and customisation.
- 2. Sustainability at the Core** – Resource efficiency, circular economy models, and low-carbon production processes are prioritised to align industrial progress with environmental goals.
- 3. Resilience and Adaptability** – Supply chains are designed to be more flexible, capable of withstanding disruptions such as global pandemics and geopolitical shifts.
- 4. Personalisation and Customisation** – Unlike mass production, Industry 5.0 fosters agile, customer-focused manufacturing that minimises waste and maximises efficiency.

These principles redefine the relationship between technology, industry, and sustainability, making Industry 5.0 a catalyst for achieving the United Nations Sustainable Development Goals (SDGs).

Table 1.1 Differences between Industry 4.0 and Industry 5.0 [1]

Industry 4.0	Industry 5.0
1. Industry 4.0 prioritised widespread product customization.	1. The goal of Industry 5.0 was to personalise products on a mass scale.
2. Data utilisation in digital form.	2. Utilising data intelligently.
3. Offer a distinctive experience.	3. Provide innovative experience.
4. Improved integration of information technology and machines.	4. A close partnership between humans and machines.
5. Establish digital manufactories.	5. Develop intelligent manufactories looking ahead.
6. Conduct all specialised duties in less time and for less cost.	6. Carry out an accurate and innovative duty in less time and with fewer resources.
7. Utilizing information technology creates digitalisation and automation.	7. Utilising innovative technology to globalise the manufacturing system.

The integration of Industry 5.0 into the renewable energy and energy efficiency sector marks a pivotal advancement. As the world races towards net-zero emissions, the marriage of AI-driven automation and sustainable energy solutions offers a viable path forward.

Real-Time Monitoring and Smart Energy Management

Industry 5.0 technologies, including IoT and AI, enable real-time tracking and predictive analytics to optimise energy consumption. Smart sensors in power grids, wind turbines, and solar farms detect inefficiencies, anticipate failures, and dynamically adjust output to match demand. This not only reduces energy waste but also extends the lifespan of renewable energy assets and optimises energy Demand-Side Management (DSM).

Efficient Resource Utilisation

A crucial challenge in renewable energy lies in storage and distribution. AI-powered grid management ensures that renewable energy is stored efficiently and distributed where needed, preventing wastage. Battery technologies, coupled with predictive algorithms, stabilise fluctuations in wind and solar power, making green energy more reliable and accessible.

Decentralised and Sustainable Supply Chains

Industry 5.0 fosters the decentralisation of energy production through smart grids and localised renewable energy sources. Businesses and communities can integrate solar, wind, and bioenergy solutions into their operations, reducing dependency on fossil fuels while enhancing energy security.

By embedding sustainability into industrial processes, Industry 5.0 ensures that technological advancements contribute to – not compromise – environmental and people's well-being.



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Figure 1.1 Industry 5.0 and sustainability framework [2]

Figure 1.1 presents a dynamic web of interconnections within the Industry 5.0 paradigm, mapping out key trends, emerging challenges, and untapped opportunities while highlighting the pivotal roles of various stakeholders in advancing sustainability [2]. At its heart, Industry 5.0 champions the idea that technological progress and sustainability are not opposing forces but rather two sides of the same coin. This framework underscores that renewable energy and energy efficiency adoption and sustainable industrial practices are not just add-ons but essential drivers of future-proof development.

Governments act as catalysts, shaping the regulatory landscape and setting the stage for greener industries. Companies take centre stage as innovators, integrating cutting-edge sustainable technologies into their operations. Meanwhile, consumers wield significant influence, steering the market towards eco-conscious products through demand. Together, these forces form a cohesive ecosystem, proving that a sustainable industrial future is not just possible – it is inevitable.

Malaysia's Energy Efficiency and Conservation Act 2024: A Game Changer

On 25 June 2024, Malaysia took a historic step towards a sustainable future with the enactment of the Energy Efficiency and Conservation Act (EECA) 2024. Gazetted on 1 January 2025, this landmark legislation supersedes the Efficient Management of Electrical Energy Regulations (EMEER) 2008, marking a comprehensive shift towards holistic energy efficiency.

The EECA 2024 is not merely a regulatory upgrade – it is a strategic framework designed to future-proof Malaysia's energy landscape. It aligns with national and global sustainability commitments, including the National Energy Transition Roadmap (NETR) 2050 and the Paris Agreement (COP21) [3].

Key Objectives of EECA 2024:

Comprehensive Energy Efficiency Legislation – Establishing a robust framework to drive nationwide energy efficiency initiatives.

Carbon Emission Reduction – Supporting Malaysia's pledge to reduce carbon emissions by 45% by 2030, compared to 2005 levels.

Sector-Wide Energy Efficiency Improvements – Encompassing industrial, commercial, and residential energy use.

Pathway to Carbon Neutrality – Accelerating Malaysia's transition towards net-zero emissions by 2050.

Unlike its predecessor, which focused solely on electricity, the EECA 2024 introduces a broader scope, encompassing all major energy forms and shifting the focus from kilowatt-hours (kWh) to gigajoules (GJ). This transition signals a paradigm shift in national energy management.

A fundamental tenet of sustainable energy management is that efficiency must precede conservation. Addressing energy inefficiencies before implementing conservation strategies is akin to fixing a leaky bucket before replenishing the water supply.

The Benefits of Energy Efficiency:

Reduced Operational Costs – Businesses and industries experience significant savings by minimising energy wastage.

Lower Carbon Footprint – Efficient energy use directly reduces emissions, contributing to climate action efforts.

Enhanced System Reliability – Ensuring that industries and infrastructure operate securely and efficiently.

Energy efficiency improvements also pave the way for more ambitious conservation strategies. By demonstrating tangible benefits, they build confidence among stakeholders and encourage further investment in sustainable initiatives.

While Malaysia has over 28,867 registered industries, only 1,200 (approximately 4.3%) will be directly impacted by the EECA 2024. However, these industries collectively account for a staggering 66% of the industrial sector's total energy consumption [4].

Similarly, within the commercial sector – comprising office buildings, hotels, and hospitals – just 0.04% of Malaysia's 1.5 million commercial consumers fall under the EECA 2024's jurisdiction. Yet, this small group is responsible for 21% of the sector's total energy consumption [4].

These figures highlight the high-impact potential of targeted energy efficiency measures. By addressing the consumption patterns of these key players, Malaysia can unlock significant energy savings and set a precedent for a more sustainable industrial and commercial landscape.

Conclusion: Engineering the Future with Industry 5.0

As we transition from Industry 4.0 to Industry 5.0, the message is clear – technological innovation and sustainability must go hand in hand. The future is not

Unyielding Transformation: Forging Unbreakable Alliances to Revolutionise Malaysia's E&E Landscape

Prof. Datin Lorela Chia

In an era where rapid digital transformation and sustainability imperatives converge, the traditional boundaries of the Electronics & Electrical (E&E) sector are being redrawn. While the sector has long been driven by technical innovation and rigorous policy frameworks, the future demands a broader, more integrative approach—one that champions visionary leadership, embraces cross-sector partnerships, and navigates the practical challenges of transformation with realistic, incremental steps.

Beyond the Conventional Narrative

Sustainability in the E&E industry is often reduced to environmental metrics or isolated technical innovations. However, the true potential lies in a holistic approach that aligns business resilience with social innovation and ecosystem-wide collaboration. This article is not about technical minutiae; rather, it is a strategic commentary on forging alliances that can catalyse transformative change across our industry. The aim is to inspire us to think beyond the obvious, to blend ground-breaking ideas with actionable steps that bridge the chasm between aspiration and reality.

The Rise of Adaptive Ecosystems in 2025

Emerging trends suggest that the future of the E&E sector will be defined by adaptive ecosystems that harness advanced technologies while remaining grounded in pragmatic implementation.

• Predictive Sustainability Analytics

Forward-thinking manufacturers are beginning to employ digital twin technology—not merely as a replication of their production lines, but as a dynamic tool to forecast maintenance needs, optimise resource allocation, and reduce waste. These real-time simulations, driven by artificial intelligence, can transform how we perceive and manage sustainability challenges.

• Quantum-Inspired Decision-Making

Although still in its infancy, the concept of quantum-inspired optimisation is emerging as a potential game-changer. By drawing on principles of quantum computing, businesses can rethink risk management and resource allocation strategies, potentially leading to more agile and informed decision-making processes.

Uncharted Collaborative Pathways

Transformative change in our industry cannot be achieved in silos. The future lies in forging collaborative alliances that bring together diverse stakeholders:

• Interdisciplinary Alliances

By partnering with technology innovators, social enterprises, and academic institutions, we can co-

create sustainable solutions that are both innovative and implementable. For example, blockchain technology is being piloted in supply chain management to enhance transparency in sourcing and ensure ethical compliance—a practice that builds trust across the entire value chain.

• Modular and Circular Design Innovations

Embracing modular design principles not only facilitates repair and upgrades but also underpins circular economy practices, reducing e-waste and promoting resource reuse. Such innovations demonstrate that sustainability can be embedded in the product design phase, rather than being an afterthought.

• Smart Manufacturing and IoT Integration

The integration of Internet of Things (IoT) sensors and smart devices is already transforming energy monitoring and operational efficiency on the factory floor. This digital integration offers an agile approach to real-time decision-making, ensuring that sustainability and efficiency move in tandem.

Bridging the Chasm Between Vision and Reality

While these ideas are undeniably exciting, they must be tempered by the realities of our industry. Change is rarely a leap—it is a series of strategic, incremental steps.

• Incremental Implementation

The adoption of disruptive technologies such as digital twins or blockchain systems should be approached in phases. A gradual integration allows legacy systems to be updated over time without causing operational disruptions. Pilot projects and measurable benchmarks can serve as early wins to build confidence amongst sceptical stakeholders.

• Multi-Stakeholder Collaboration

Effective transformation requires the collective effort of industry players, government agencies, and academic institutions. By sharing risks and rewards, and by engaging in open dialogue about challenges and best practices, we can create a resilient ecosystem that is adaptable to both market and environmental uncertainties.

• Change Management

Transformative change also hinges on cultivating a culture that embraces innovation. Visionary leadership must not only inspire but also equip teams with the skills and mindset required to navigate uncertainty. This means investing in training, fostering an environment of continuous learning, and recognising that the path to sustainable disruption is as much about people as it is about technology.

Leadership Beyond Technical Mastery

True leadership in today's E&E sector extends beyond technical mastery. It is about holistic stewardship—a balanced focus on innovation, human capital, and environmental responsibility.

• Agile Adaptation

Leaders must be ready to pivot in real time, leveraging both data-driven insights and on-the-ground socio-economic realities. This adaptive approach ensures that organisations remain resilient in the face of rapid technological and environmental changes.

• Holistic Stewardship

The narrative must shift from viewing sustainability as an optional add-on to recognising it as a core strategic imperative. By integrating sustainable practices into every facet of operational strategy—from supply chain management to product design—we create a foundation for long-term success that is both economically viable and socially responsible.

A Vision for Sustainable Disruption

Looking ahead, the E&E sector is poised at a critical juncture. The challenges are significant, but so too are the opportunities. By embracing innovative technologies and fostering collaborative partnerships, we can transform

sustainability from a lofty ideal into an everyday reality. For me, the path forward is clear: we must create a future narrative that is not only forward looking but also deeply grounded in the practical realities of our industry. This vision calls for disruptive alliances, adaptive leadership, and a relentless focus on measurable, incremental progress. In doing so, we will not only keep pace with global trends but also set new benchmarks for what is possible in sustainable innovation.

Prof. Datin Lorela Chia is the Founding President of the Malaysia Association of Sustainable Supply Chain & Innovation (MASSCI) and Vice President 1 of the Machinery & Engineering Industries Federation (MEIF). She also serves on the National Governing Committee of the Machinery & Equipment Productivity Nexus (MEPN), where she champions industrial productivity, sustainable supply chains, and digital transformation. A frequent public speaker, she contributes to advancing Malaysia's industrial competitiveness and the adoption of emerging technologies. She can be contacted at E-mail: yc.chia@gmail.com



..... Continue Industry 5.0: Engineering a Sustainable Revolution

just about automating production lines or optimising algorithms; it is about engineering a world that is efficient, adaptable, and environmentally responsible.

Industry 5.0 is not a distant concept – it is unfolding now. The fusion of AI, IoT, and renewable energy and energy efficiency solutions is already reshaping industries, driving new business models, and redefining our approach to sustainability. The enactment of the EECA 2024 underscores Malaysia's commitment to this shift, providing a structured path towards a greener, more efficient future.

The road ahead is challenging but filled with immense opportunities. Engineers, policymakers, and industries must collaborate to embrace the Industry 5.0 revolution, ensuring that technological progress enhances – not endangers – our planet. The question is not whether we can integrate sustainability into industry, but rather, how quickly and effectively we can do it.

Industry 5.0 is here. The future is sustainable and engineers will lead the way!

References

1. Masoomi, B., Sahebi, I. G., Ghobakhloo, M., and Mosayebi, A. Do industry 5.0 advantages address the sustainable development challenges of the renewable energy supply chain? *Sustainable Production and Consumption*, volume 43, pages 94-112, (2023). <https://www.sciencedirect.com/science/article/pii/S2352550923002488>. Accessed January 2025.
2. Rame, R., Purwanto, P., and Sudarno, S. Industry 5.0 and sustainability: An overview of emerging trends and challenges for a green future. *Innovation*

and Green Development, volume 3, issue 4, (2024). <https://www.sciencedirect.com/science/article/pii/S294975312400050X>. Accessed January 2025.

3. Energy Commission of Malaysia. Objectives of the EECA 2024. <https://www.st.gov.my/eng/microsites/index/19/104>. Accessed January 2025.

4. The Edge Malaysia. Energy Efficiency and Conservation Act to be in force from Jan 1 next year. <https://theedgemalaysia.com/node/734931>. Accessed December 2024.

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New Members

The following new members have been approved and accepted by the TEEAM Council from January 2025 to March 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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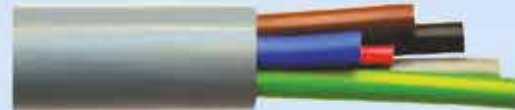
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Courtesy Visit from Business Sweden

TEEAM had the pleasure of receiving a Courtesy Visit from representatives of Business Sweden, The Swedish Trade & Invest Council on 8 October 2024. The Delegation comprised Mr. Viktor Forsgren and Mr. Christoffer Wide from Business Sweden, based at the Embassy of Sweden in Kuala Lumpur, and Mr. Niklas Forsgren from Epishine, a leading Swedish company specialising in printed organic solar cells.

Epishine is at the forefront of innovation in sustainable energy solutions, offering cutting-edge printed organic solar cells that provide a viable alternative to disposable batteries. Their technology seamlessly integrates with consumer electronics, such as remote controls and keyboards, as well as IoT devices like sensors and global digital trackers, including packages and air tags. With a vision to expand into Malaysia, Epishine is actively seeking local business partners to foster growth and collaboration in the region.

Welcoming the Swedish Delegation on behalf of TEEAM were Dato' Andy Tan (Honorary Treasurer), Mr. Suresh Kumar Gorasia (Past President), Ir. Ts. Roger Wong (Council Member), and Ir. T. Prabakaran Rajah (Committee Member). The meeting provided a valuable platform for engaging discussions on potential business opportunities, market expansion, and technological collaboration between Sweden and Malaysia.



A snapshot after the meeting.



Presentation of TEEAM 70th Anniversary Coffee Book as a memento.

Business Sweden, commissioned by the Swedish Government and Industry, plays a crucial role in supporting Swedish companies in their global expansion while also assisting international companies in investing and growing in Sweden. This Courtesy Visit reaffirmed their commitment to fostering strong business connections and exploring new opportunities in the Malaysian market.

The discussion was highly productive, paving the way for future collaborations that could drive innovation and economic growth in both countries. TEEAM looks forward to continued engagement with Business Sweden and Epishine to explore synergies in the Electrical and Electronics sector.

..... Continue New Members

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SEL Recommendations on Periodic Maintenance Testing of Protective Relays

Karl Zimmerman

This is a White Paper published by Schweitzer Engineering Laboratories, Inc. (SEL)

Introduction

There continues to be high interest in testing practices for protective relaying systems. For example, in 2007, the U.S. Federal Energy Regulatory Commission (FERC) issued Order No. 693, which mandates that all users, owners, and operators of the bulk power system comply with electric reliability standards.

To address the FERC comments from this order, the North American Electric Reliability Corporation (NERC) developed Standard PRC-005-2, Protection System Maintenance, which merges the following previous standards:

- PRC-005-1 – Transmission and Generation Protection System Maintenance and Testing
- PRC-008-0 – Under Frequency Load Shedding Equipment Maintenance Programmes
- PRC-011-0 – Under Frequency Load Shedding System Maintenance and Testing
- PRC-017-0 – Special Protection System Maintenance and Testing

NERC Standard PRC-005-2 defines what elements of a protection system should be tested and how often. The standard also includes requirements for developing and documenting the implementation of a test plan [1].

FERC issued the order approving PRC-005-2 on December 19, 2013. The enforcement date for PRC-005-2 will be 1 April 2015, which is the first date that entities must be compliant with the standard. The regulatory approval date in the United States is 24 February 2014. The purpose of this paper is to provide recommendations for testing SEL relays and guidance for developing a test programme. Utilities and other entities should use their own experience and expertise to develop and implement their test plans.

Background

The goal of testing relays is to maximize the availability of the protection and to minimize the risk of a misoperation. The paper “Philosophies for Testing Protective Relays” describes an approach to testing digital relays and the factors that affect a maintenance interval [2].

An important factor in analysing test intervals is monitoring the self-test alarm of a relay. SEL relays

continually monitor and control power protection systems in addition to continuously monitoring their internal self-test diagnostics. Relay self-test diagnostics are capable of detecting approximately 85% of component failures. The paper “Assessing the Effectiveness of Self-Tests and Other Monitoring Means in Protective Relays” shows a strategy for relay testing [3].

Using the best testing method is integral to a good testing philosophy. The paper “A Comparison of Line Relay System Testing Methods” provides guidance for selecting the best test method [4].

Finally, developing a plan for periodic testing assumes that a system is properly and comprehensively commissioned. The paper “Lessons Learned from Commissioning Protective Relaying Systems” describes best practices for commissioning protective relay systems [5].

Observed field return data show that SEL relays have a mean time between failures (MTBF) of about 500 years. This is a measurement of hardware failures and equates to about 0.2% (1/500) failures per year. Also, historical data show that self-tests detect about 85% of relay failures. Thus, about 15% of the 0.2% failures (about 0.03% per year) go undetected. The SEL maintenance indicator (MI), which tracks all maintenance performed on a particular relay, is approximately 130 years. Using the MI, the number of undetected failures per year is 0.12% (1 undetected failure in 870 relays).

Recommended Approach

The following describes the SEL recommended approach to relay testing and best practices:

1. Perform comprehensive commissioning testing at the time of installation. Use thorough checklists, simulations, laboratory testing, and/or field checks to verify the performance of the protection system, including inputs, outputs, and settings.
2. Monitor the relay self-test alarm contact in real time via supervisory control and data acquisition (SCADA) or other monitoring system. If an alarm contact asserts, take immediate steps to repair, replace, or take corrective action for the alarmed relay.
3. Monitor potential relay failures not detected by self-tests. Specifically, these are logic inputs, contact outputs, and analog (voltage and current) inputs. Use continuous check of inputs (e.g., loss-of-potential logic) when available. If a secondary relay system is in place, compare



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the metering values between the primary and secondary systems.

4. Analyse event reports to root cause, and verify logic inputs and output contact operation. Use event reports as documentation to validate correct operation of the protection system.
5. Observe and act on all product service bulletins. Not every service bulletin requires action, but each bulletin should be evaluated. Upon request, SEL can provide specific information or a secure website to track affected relays.

If Steps 1 through 5 are followed, periodic testing, if performed, will not identify any additional failures.

Many users follow Steps 1 and 2 but do not perform Steps 3 through 5 consistently. In this case, perform periodic testing (e.g., once every ten years) on portions of the relay not tested by self-tests. This includes injecting known current and voltage signals to verify relay measuring accuracy, asserting inputs, and pulsing output contacts. This need not include re-verifying settings, plotting time-current curves or mho circles, and so on. These characteristics are verified at commissioning and do not change. This testing may identify the small number of failures not detected by self-tests (e.g., using the previous failure rates, testing every ten years would detect $0.12\% \cdot 10 = 1.2\%$ failures, or 1 failed relay found in 83 relays tested).

This philosophy also applies to systems that do not operate frequently (e.g., bus or transformer differential protection).

Testing When Self-Test Alarm is Not Monitored

In some rare applications (installations without SCADA or communications), the self-test alarm is not monitored. This is not recommended. For these applications, the relays should be tested every one to six years, including the following:

- Check that the self-test alarm is not asserted.
- Inject known current and voltage signals to verify proper metering.
- Assert inputs, and pulse outputs.

This need not include reverifying settings, plotting time-current curves or mho circles, and so on. These characteristics are verified at commissioning and do not change.

NERC PRC-005-2 Guidance

Table 1-1 and Table 3 of PRC-005-2 establish a specific maximum maintenance interval and required maintenance activities for components that possess the attributes stated in Table 1-1 as follows:

Monitored microprocessor protective relay with the following:

- Internal self-diagnosis and alarming...
- Voltage and/or current waveform sampling three or more times per power cycle, and conversion of samples to numeric values for measurement calculations by microprocessor electronics.

Alarming for power supply failure... [1]

SEL protective relay products include self-diagnostics, alarm functions, and sampling functions that are capable of fulfilling these requirements.

References

- [1] NERC Standard PRC-005-2, Protection System Maintenance, February 2014. Available: <http://www.nerc.com>.
- [2] J. J. Kumm, M. S. Weber, E. O. Schweitzer, III, and D. Hou, "Philosophies for Testing Protective Relays," proceedings of the 48th Annual Georgia Tech Protective Relaying Conference, Atlanta, GA, May 1994.
- [3] J. J. Kumm, E. O. Schweitzer, III, and D. Hou, "Assessing the Effectiveness of Self-Tests and Other Monitoring Means in Protective Relays," proceedings of the PEA Relay Committee Spring Meeting, Matamoras, PA, May 1995.
- [4] C. Araujo, F. Horvath, and J. Mack, "A Comparison of Line Relay System Testing Methods," proceedings of the 33rd Annual Western Protective Relay Conference, Spokane, WA, October 2006.
- [5] K. Zimmerman and D. Costello, "Lessons Learned From Commissioning Protective Relaying Systems," proceedings of PowerTest 2009, San Antonio, TX, March 2009.

Biography

Karl Zimmerman is a Regional Technical Manager with Schweitzer Engineering Laboratories, Inc. in Fairview Heights, Illinois. His work includes providing application and product support and technical training for protective relay users. He is an active member of the IEEE Power System Relaying Committee and vice chairman of the Line Protection Subcommittee. Karl received his BSEE degree at the University of Illinois at Urbana-Champaign and has over 20 years of experience in the area of system protection. He is a registered Professional Engineer in the state of Wisconsin. Karl was a recipient of the 2008 Walter A. Elmore Best Paper Award from the Georgia Institute of Technology Protective Relaying Conference, is a past speaker at many technical conferences, and has authored over 40 technical papers and application guides on protective relaying

Acknowledgement

This is a White Paper published by Schweitzer Engineering Laboratories, Inc. (SEL).
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- Rated current: 630~2000A
- Rated short circuit breaking current: 20~25kA



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Malaysian Economic Statistics Review

MESR Volume 3/2025

Key Reviews & Overviews

The Department of Statistics, Malaysia (DOSM) had recently released the Malaysian Economic Statistics Review (MESR) Volume 3/2025 in March 2025. This edition focuses on the economic performance based on the latest statistics published for the reference month of January 2025 along with preliminary key statistics for February 2025. The data and analysis presented in the MESR for March 2025 provide a comprehensive overview of our current economic landscape and guide to our path forward. The MESR will assist users and readers to have the latest information on the economic performance, and in much greater detail.

Key Reviews

- According to the World Economic Situation and Prospects (WESP) report published in January 2025, the global economy is expected to grow by 2.8 per cent in 2025 and 2.9 per cent in 2026, which is still below the pre-pandemic average of 3.2 per cent. The economic growth in China and the United States (US) are projected to slow, while Europe, Japan, and the United Kingdom are set for modest recoveries. Meanwhile, Indonesia and India are expected to remain robust.
- Malaysia's economy expanded by 5.1 per cent (2024), improving from 3.6 per cent in 2023. All major sectors showed growth, with the Services sector leading at 5.4 per cent, followed by Manufacturing at 4.2 per cent and Construction at 17.5 per cent. Agriculture grew by 3.1 per cent, while Mining and Quarrying recorded a 0.9 per cent increase.
- In January 2025, Natural Rubber (NR) production showed a slight year-on-year increase of 0.2 per cent to record 30,342 tonnes against 30,287 tonnes in January 2024. However, on a monthly basis, production dropped by 20.8 per cent from 38,299 tonnes in December 2024. Meanwhile, the annual production of fresh fruit bunches in February 2025 declined by 0.8 per cent year-on-year to 6,403,128 tonnes compared to 6,453,366 tonnes in February 2024. On a monthly basis, production also decreased by 2.7 per cent from 6,581,813 tonnes in January 2025.
- Malaysia's Industrial Production Index (IPI) in January 2025 rose by 2.1 per cent year-on-year, primarily driven by a 3.7 per cent increase in the Manufacturing sector, though this was slower than the 5.8 per cent growth recorded in December 2024. In contrast, the Mining and Electricity sectors declined by 3.1 per cent and 0.1 per cent, respectively. Overall, the IPI fell by 0.4 per cent against the previous month.
- Simultaneously, the Manufacturing sector posted a 3.5 per cent increase in sales value in January 2025, reaching RM158.1 billion, following a 5.7 per cent growth in December 2024. This growth was mainly supported by the Food, beverages & tobacco sub-sector (10.6%), followed by Electrical & Electronics products (7.3%) and Non-metallic mineral products, basic metal & fabricated metal products (2.1%). Compared to the previous month, the sales value registered a slight decline of 0.2 per cent.
- The Wholesale & Retail Trade sector recorded RM148.9 billion in sales in January 2025, and grew 4.6 per cent from the same month last year, mainly supported by Retail trade (8.2%) and Wholesale trade (4.9%). Similarly, the volume index also rose 3.8 per cent year-on-year, with strong contributions from Retail and Wholesale trade. However, compared to December 2024, overall sales dropped by 2.1 per cent, mainly due to a sharp 19.4 per cent fall in Motor vehicles sales.
- On the prices front, Malaysia's inflation remained steady at 1.7 per cent in January 2025, matching the rate recorded in December 2024, with increases seen in areas such as Restaurant & accommodation services, Personal care, Social protection & miscellaneous goods & services, Recreation, Sport & culture, Education, Health and Transport. However, slower price growth in Housing, Water, Electricity, Gas & other fuels and Food & beverages, along with declines in Information & communication (-5.3%) and Clothing & footwear (-0.3%), influenced the moderation in overall inflation. On a monthly basis, inflation edged up slightly by 0.1 per cent, unchanged from the previous month. In February 2025, inflation increased at a slower rate of 1.5 per cent with where the index points stood at 134.1.
- Malaysia's Producer Price Index (PPI) rose by 0.8 per cent year-on-year in January 2025, up from 0.5 per cent in December 2024, mainly driven by the growth in the Agriculture, forestry & fishing sector. The Mining and Manufacturing sectors recorded declines, particularly in crude petroleum, natural gas, and petroleum related products. In contrast, the Electricity & gas supply and Water supply sectors posted modest increases. Compared to the previous month, the PPI eased by 0.3 per cent, from 0.8 per cent. PPI in February 2025 recorded an increase of 0.3 per cent.
- In January 2025, Malaysia's total trade grew 3.1 per cent year-on-year to RM241.9 billion, supported by higher exports of RM122.8 billion (+0.3%) and imports of RM119.2 billion (+6.2%). Export growth came mainly



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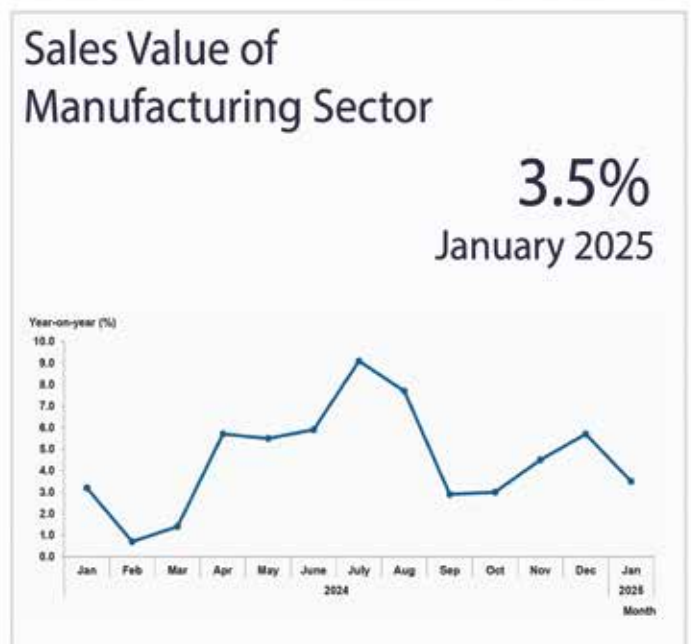
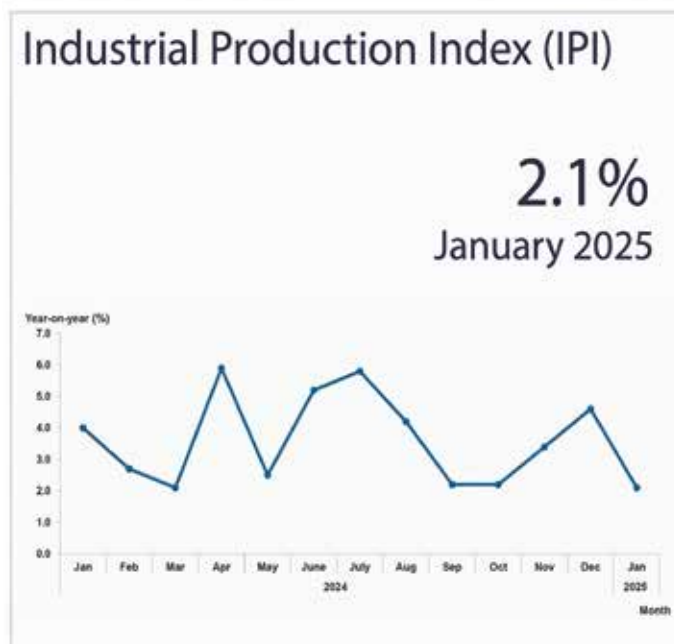
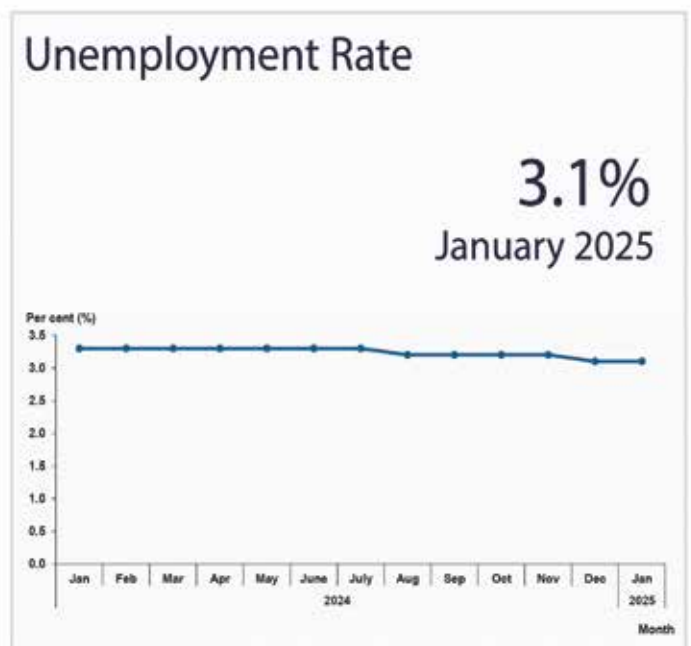
from Electrical & electronic products (E&E), Palm oil-based goods, and rubber gloves, while imports were boosted by E&E products and aircraft equipment. However, compared to December 2024, total trade fell by 6.2 per cent, with both exports and imports down by 7.2 per cent and 5.1 per cent, respectively, reflecting a short-term slowdown.

- Based on the labour market, employed person in January 2025 increased by 455.0 thousand persons (+2.8%), reaching 16.68 million, as compared to January 2024. This annual growth has led to a 68.5 per cent rise in the employment-to-population ratio, up 0.4 percentage points from the same month last year. The number of unemployed persons dropped by 26.1 thousand (-4.7%) year-on-year to 533.8 thousand.

Meanwhile, the unemployment rate remained at 3.1 per cent as recorded in the last month. As a result, the labour force grew by 428.9 thousand persons (+2.3%) over the year to 17.22 million, with the labour force participation rate increasing slightly to 70.6 per cent.

- The Leading Index (LI) increased by 0.4 per cent year-on-year to 112.5 points in January 2025, marking its 14 consecutive months of growth, mainly driven by Real Imports of Semiconductors and the Number of Housing Units Approved. However, the index fell by -1.2 per cent month-on-month as most components declined, and the smoothed LI remained below 100.0 points, indicating modest economic prospects amid global challenges.

Key Economic Indicators



Note:

- 1) Unemployment rate is the proportion of unemployed population to the total population in labour force
- 2) The remaining indicators are expressed in year-on-year percentage change



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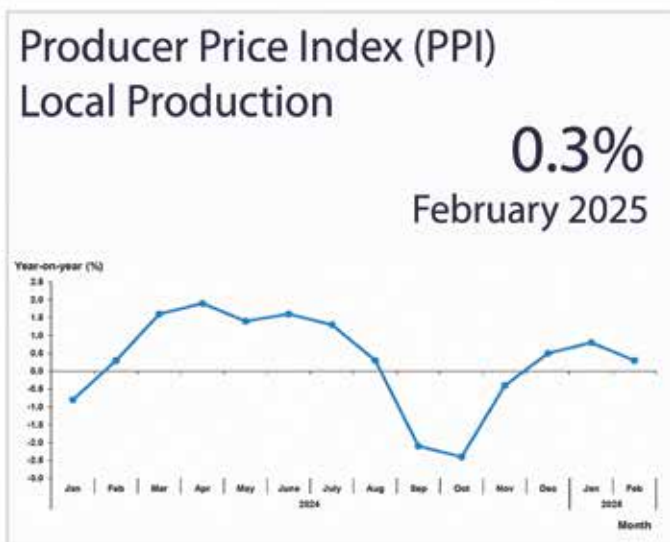
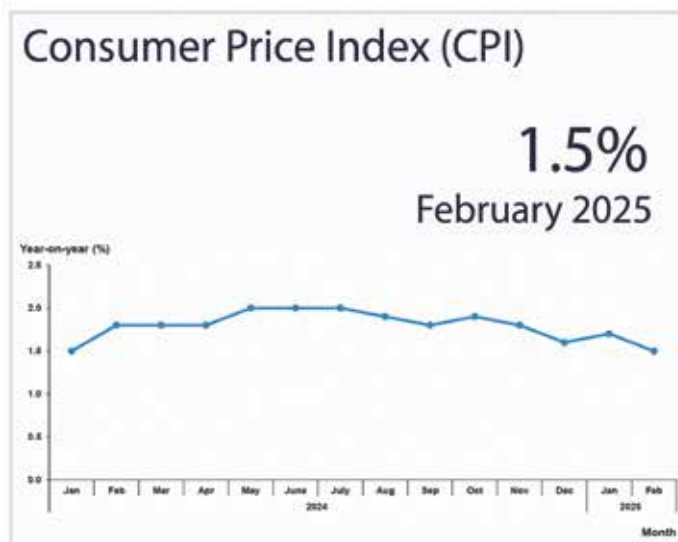
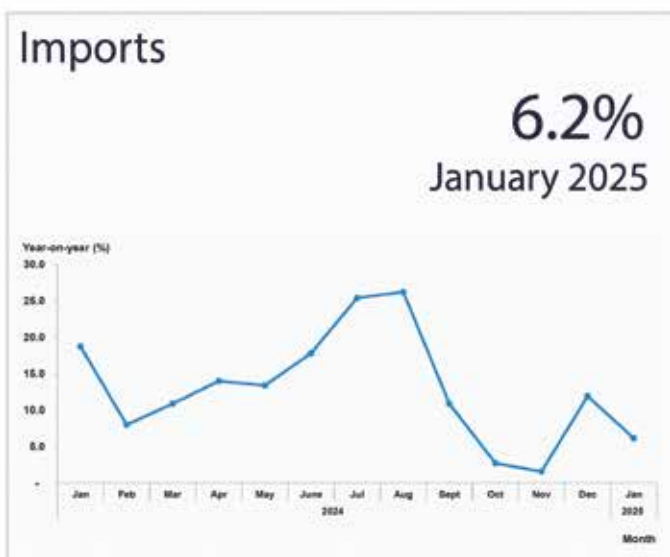
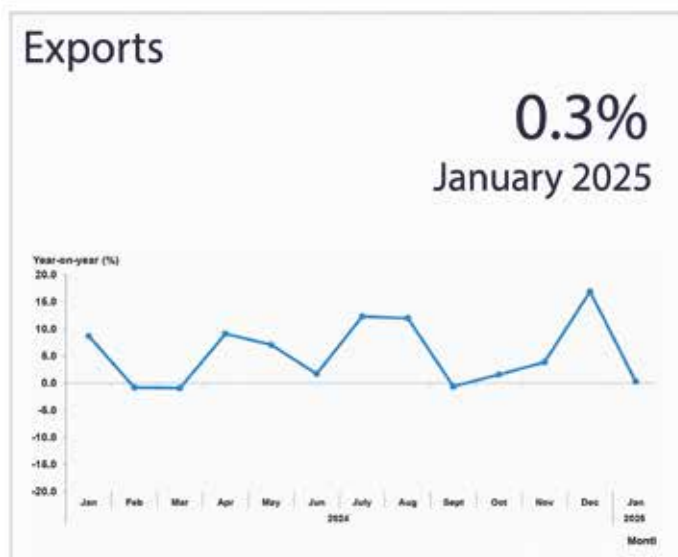
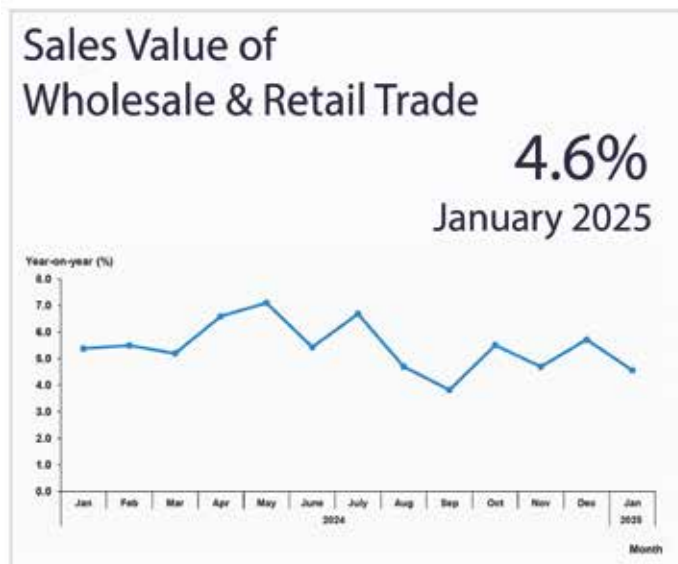
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Overview of World Economy

Based on the World Economic Situation and Prospects (WESP) report published in January 2025, the global economy is projected to grow at 2.8 per cent and 2.9 per cent in 2025 and 2026, respectively, mirroring the growth remaining below the pre-pandemic average of 3.2 per cent. China and the United States (US) are expected to grow at a slower pace, while Europe, Japan and the United Kingdom (UK) will experience modest

recoveries. On the other hand, both Indonesia and India are anticipated to perform well.

This sluggish performance reflects continued structural issues such as restricted investment, moderate productivity growth, high debt levels and demographic limitations. Numerous developing countries are currently dealing with the long-term impacts of the pandemic and other recent shocks. While the green transition and technological improvements have the potential to



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promote Gross Domestic Product (GDP), the advantages may be disproportionately concentrated in developed nations. Meanwhile, many developing countries confront substantial challenges in raising funds to invest in key infrastructure, technology and human resources, as well as moving up the manufacturing and services value chains.

The US economy outperformed predictions in 2024, growing by 2.8 per cent on the back of strong consumer spending, public sector spending and non-residential investments. However, growth is expected to fall to 1.9 per cent in 2025 before recovering to 2.1 per cent in 2026, owing to a weakening labour market, sluggish income growth and likely cuts in public spending. While interest rate drops may boost the economy, persistent core inflation is projected to keep the Federal Reserve cautious, restricting the pace of monetary easing.

Economic growth in Europe is predicted to progressively increase in 2025 and 2026, following a weaker-than-forecast performance in 2024. In the European Union, GDP growth is expected to accelerate from 0.9 per cent in 2024 to 1.3 per cent in 2025 and 1.5 per cent in 2026. Lower inflation, improving financing conditions and strong labour markets are predicted to boost private spending and investment. However, fiscal consolidation, geo-political uncertainty and long-term problems such as population ageing and low productivity growth may reduce the rate of expansion.

Additionally, Japan's economy is predicted to improve, with growth accelerating from -0.2 per cent in 2024 to 1.0 per cent in 2025 and 1.2 per cent in 2026. Private consumption, which has stopped due to sluggish wage growth since mid-2023, is expected to gradually rebound, while investment remains solid.

The Bank of Japan confronts a policy quandary, as additional monetary tightening risks sending the economy back into deflation by reducing wage growth, which has just lately begun to strengthen.

Overview of Malaysia's Economy

Malaysia's economic grew by 5.1 per cent, up from 3.6 per cent in 2023 with all major sectors recording improved performance. The Services sector led with a 5.4 per cent growth, followed by Manufacturing (4.2%) and Construction (17.5%) sectors. The Agriculture and Mining & Quarrying sectors expanded by 3.1 per cent and 0.9 per cent, respectively.

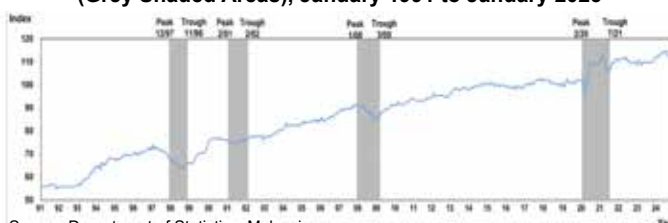
On the demand side, growth was primarily driven by Private final consumption expenditure, which increased by 5.1 per cent. Gross Fixed Capital Formation (GFCF) marked the highest growth since 2012 at 12.0 per cent, reflecting strong Construction activities. Capital expenditure on machinery and equipment also rose, further boosting GFCF performance. Meanwhile, the Government final consumption expenditure grew by 4.7 per cent in 2024. Both Exports and Imports rebounded to 8.5 per cent and 8.9 per cent, respectively, while net exports recovered to 2.2 per cent, signalling improved external demand (Table 1).

Table 1: Annual Percentage Change (%) of Malaysia's GDP by Production and Expenditure Approach, 2023 - 2024 and Q1 - Q4 2024

Kind of Economy Activity	2023	2024	2023				2024			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GDP	3.6	5.1	5.5	2.8	3.1	2.9	4.3	5.9	5.4	5.6
PRODUCTION										
Services	5.1	5.4	7.1	4.5	4.9	4.1	4.8	5.9	5.2	5.5
Manufacturing	0.7	4.2	3.2	0.1	-0.1	-0.3	1.9	4.7	5.6	4.4
Construction	6.1	17.5	7.4	6.2	7.2	3.6	11.9	17.3	19.9	20.7
Agriculture	0.7	3.1	1.4	-0.7	0.3	1.9	1.7	7.3	4.0	-0.5
Mining & quarrying	0.5	0.9	1.6	-2.1	-1.1	3.5	5.7	2.7	-3.9	-0.9
EXPENDITURE										
Private final consumption expenditure	4.7	5.1	6.1	4.2	4.1	4.2	4.7	6.0	4.8	4.9
Gross fixed capital formation	5.5	12.0	4.9	5.5	5.1	6.4	9.6	11.5	15.3	11.7
Government final consumption expenditure	3.3	4.7	-2.0	3.3	5.3	5.8	7.3	3.6	4.9	3.3
Export	-6.1	8.5	-2.9	-9.0	-12.0	-7.9	5.2	6.4	11.8	8.5
Import	-7.4	8.9	-6.7	-8.8	-11.3	-2.6	6.0	6.7	13.5	5.7
Net export	-16.2	2.2	71.2	-11.9	-19.9	-52.9	-24.5	3.4	-8.8	57.6

Source: Department of Statistics, Malaysia

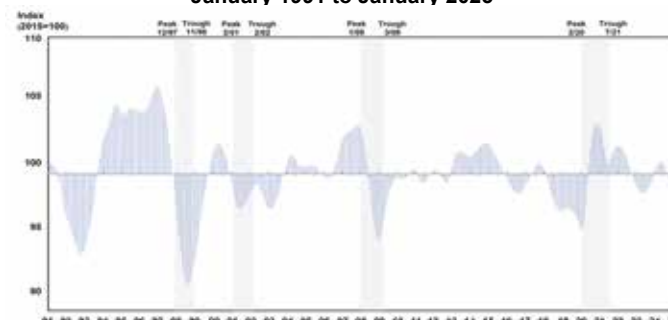
Chart 1: Leading Index (2015=100) and Business Cycle (Grey Shaded Areas), January 1991 to January 2025



Source: Department of Statistics, Malaysia

Meanwhile, the LI maintained its positive growth for 14 consecutive months, increasing 0.4 per cent to 112.5 points in January 2025 as compared to 112.1 points in the same month of the previous year. The double-digit increases in the Real Imports of Semiconductors (14.1%) and the Number of Housing Units Approved (13.7%) were the contributors to this rise. In contrast, the monthly performance of LI showed a decrease of 1.2 per cent as five out of seven components declined mainly by the Real Imports of Other Basic Precious & Other Non-ferrous Metals (-0.6%). The smoothed growth rate of the LI for January 2025 remained below 100.0 points, anticipating modest economic growth prospects, bolstered by resilient domestic demand despite a challenging international market.

Chart 2: Leading Composite Index (Long Term Trend = 100) and Business Cycle (Grey Shaded Areas), January 1991 to January 2025



Source: Department of Statistics, Malaysia

The full publication of the MESR Volume 3/2025 can be downloaded from the DOSM website at www.dosm.gov.my

Acknowledgement

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A Brief History of AI Development: From Turing's Dream to the Rise of Deep Learning Towards AGI

Ir. Ts. Prof. Dr. Tan Chee Fai

I. Origins: Turing's Vision and the Birth of Machine Intelligence

In the 1940s, when computers were still in their infancy, British mathematician Alan Turing began envisioning the possibility of "machines that can think." In 1950, he published his landmark paper "Computing Machinery and Intelligence," in which he introduced the now-famous Turing Test to explore whether machines could exhibit intelligent behaviour. Turing proposed that if a machine could engage in a conversation indistinguishable from that of a human, then it could be said to be "thinking."



Figure 1: Alan Turing
(Photo: https://en.wikipedia.org/wiki/Alan_Turing)

Alan Turing, in the 1940s and 1950s, proposed a series of ground-breaking ideas on machine intelligence, earning him the enduring title of "Father of Artificial Intelligence."

This bold thought experiment bypassed the philosophical complexity of defining "intelligence" by offering a practical and testable framework. Instead of asking what intelligence is, Turing shifted the focus to how it might be recognised – through interaction. His approach transformed the abstract question of machine intelligence into a scientifically examinable hypothesis, laying the conceptual foundation for the field of Artificial Intelligence (AI).

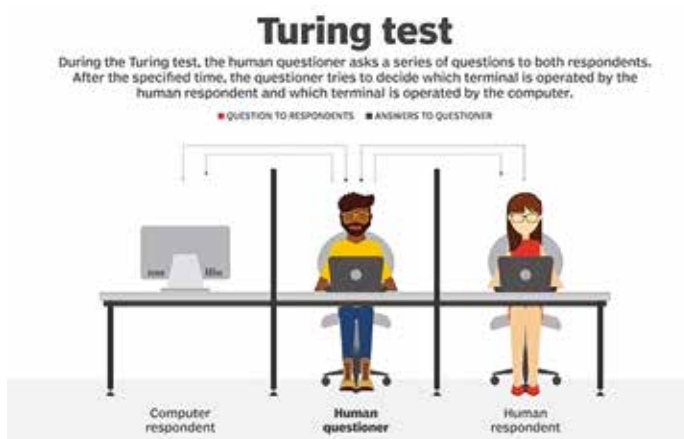


Figure 2: Turing Test
(Photo: <https://www.techtarget.com/searchenterpriseai/definition/Turing-test>)

During this formative period, Turing was not alone. Other pioneers began constructing early prototypes of intelligent systems. In 1943, neuroscientist Warren McCulloch and mathematician Walter Pitts proposed the first artificial neuron model. Their work mathematically simulated biological neural networks and demonstrated that simple neural architectures could perform basic logical operations.

This breakthrough showed the potential for mimicking brain-like functions through computation – a foundational idea that would later inspire developments in machine learning and neural networks.

This marked the first time in history that the concept of a network was used to simulate the human brain's neural activity, and it is widely regarded as the beginning of modern neural network theory. Around the same time, in 1949, Canadian psychologist Donald Hebb introduced the Hebbian Learning Rule, summarised by the phrase "cells that fire together, wire together." The principle – "use it or lose it; simultaneous activation strengthens connections" – offered early inspiration for the connectionist approach that would later influence machine learning algorithms.

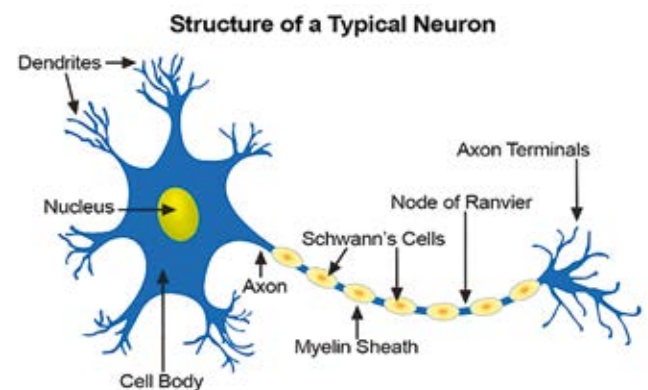


Figure 3: Structure of typical neuron
(Photo: <https://github.com/platnic/Machine-Learning-Basics?tab=readme-ov-file>)

On the practical side of technology development, a major milestone occurred in 1951 when Marvin Minsky and Dean Edmonds built the world's first neural network machine, known as SNARC (Stochastic Neural Analogue Reinforcement Calculator). Using vacuum tubes, the machine was capable of simulating the learning behaviour of a rat navigating through a maze. This device demonstrated the potential of artificial neural networks to replicate basic forms of learning and adaptation, foreshadowing the path toward intelligent machines.

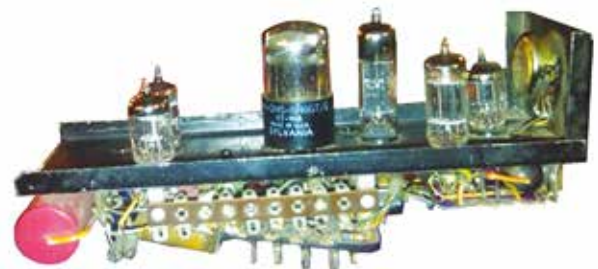


Figure 4: Stochastic Neural Analog Reinforcement Calculator (SNARC)
(Photo: <https://cyberneticzoo.com/mazesolvers/1951-maze-solver-minsky-edmonds-american/>)

In addition, the 1950s saw the emergence of simple autonomous robots such as the mechanical turtles developed by British neuroscientist Grey Walter, and the Johns Hopkins Beast created in the United States. These early robots did not rely on digital computers; instead, they used analogue circuits to exhibit basic behaviours such as light-seeking and obstacle avoidance. Though primitive by today's standards, these machines demonstrated that behavioural intelligence could be achieved through simple sensory-motor feedback loops, laying early groundwork for what would later evolve into robotics and embodied AI.



Figure 5: Grey Walter Tortoise
(Photo: https://americanhistory.si.edu/collections/object/nmah_879329)

Although these early experiments were based on relatively simple principles, they reflected the nascent idea of simulating biological behaviour – planting the seeds for the future development of AI.

Even before the term AI was coined, Turing's thought experiments and the prototypes built by pioneering scientists had already sketched the earliest blueprint of what would later be known as machine intelligence. The question "Can machines think?" ignited the curiosity of generations of researchers, setting them on a path of discovery that continues to this day.

II. The First Wave: The Rise and Golden Age of Symbolic AI

John McCarthy (Figure 6) coined the term "artificial intelligence" during the 1956 Dartmouth Conference, which is widely regarded as the founding moment of the AI discipline. He is recognised as one of the founding fathers of AI.



Figure 6: John McCarthy, the founding fathers of artificial intelligence
(Photo: [https://en.wikipedia.org/wiki/John_McCarthy_\(computer_scientist\)](https://en.wikipedia.org/wiki/John_McCarthy_(computer_scientist)))

In the summer of 1956, a landmark academic workshop held at Dartmouth College in the United States came to be recognised as the official birth of AI. This eight-week event, known as the "Dartmouth Summer Research Project on Artificial Intelligence," brought together some of the most brilliant minds of the era. Amongst them were a young mathematician John McCarthy, Marvin Minsky, Claude Shannon, the father of information theory, and Nathan Rochester, a leading researcher from IBM.

It was in the proposal for this workshop that John McCarthy first introduced the term "artificial intelligence" to define the project's ambitious goal: "to find ways to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves." With that, artificial intelligence was officially named and given a clear mission. Its founders boldly declared that any aspect of intelligence could, in principle, be precisely described and replicated by a machine.

The Dartmouth workshop has since been called the "constitutional convention of AI." Amongst its participants

were pioneers who would go on to shape the field for decades: Ray Solomonoff, Oliver Selfridge, Arthur Samuel, Allen Newell, and Herbert Simon. During the conference, Newell and Simon stunned attendees by presenting the world's first artificial intelligence program, the Logic Theorist – a system capable of proving geometric and logical theorems. This moment marked a major breakthrough, and AI entered its first golden age.

From the late 1950s to the mid-1960s, a wave of astonishing AI programmes emerged. Computers could now prove mathematical theorems, solve algebra word problems, and even communicate using simple English. These early successes led to widespread optimism. Many researchers confidently predicted that human-level intelligent machines would be built within a generation.

This period of AI development was dominated by the symbolic approach, also known as rule-based or classical AI. Inspired by mathematical logic, researchers sought to represent human knowledge and reasoning using symbols and formal rules. Following the Logic Theorist, Newell and Simon developed the General Problem Solver (GPS), which aimed to solve a broad class of abstract problems using a unified algorithmic approach. Meanwhile, John McCarthy created the Lisp programming language in 1958, which excelled at symbolic manipulation and became a foundational tool for AI programming.

The prevailing belief was that if human expertise could be codified into if-then rules, then machines could emulate expert reasoning. This philosophy led to the rise of expert systems in the 1960s and 1970s. One notable example was MYCIN, developed for medical diagnosis. By encoding hundreds of clinical rules, MYCIN could suggest possible diseases and treatment plans based on patient symptoms – a significant demonstration of the potential of symbolic AI.

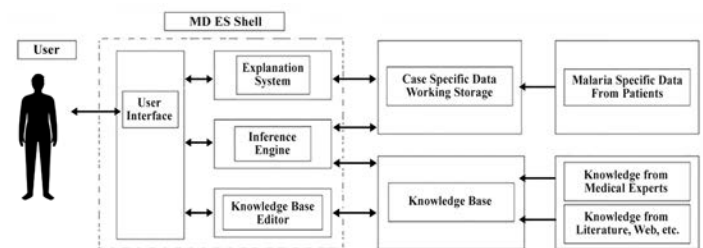


Figure 7: Architecture of the Medical Diagnosis Expert System (MDES) for malaria and related diseases
(<https://www.scirp.org/journal/paperinformation?paperid=86252>)

Other prominent scientists in symbolic AI included Edward Feigenbaum, who, along with his collaborators, developed the DENDRAL system. Designed to assist chemists in deducing molecular structures, DENDRAL demonstrated that expert systems could perform exceptionally well in narrow, well-defined domains. These successes brought symbolic AI widespread acclaim and significantly raised public expectations.

However, the early symbolic approach also carried the seeds of its own limitations. As researchers attempted to tackle more complex and open-ended problems, they quickly realised that hand-coded rules alone were insufficient. Human intelligence depends on vast amounts of common-sense knowledge and implicit understanding, much of which is difficult – if not impossible – to express through rigid symbolic rules. For instance, enabling a



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- ✓ Remote & Cloud-Based Monitoring
- ✓ AI-Supported Analysis System



computer to understand language ambiguity or contextual reasoning proved far more challenging than proving mathematical theorems.

Despite these emerging challenges, the field of AI remained highly optimistic up through the late 1960s. Funding poured in, and talent surged into the field, with Governments actively supporting AI research. Notably, the U.S. Defence Advanced Research Projects Agency (ARPA) invested heavily during this period, driven by the hope of realising intelligent machines in the near future.

Thus, the first wave of AI, characterised by symbolic reasoning and rule-based systems, took shape. Artificial intelligence was formally established as a scientific discipline at the 1956 Dartmouth Conference, and under the leadership of visionaries like McCarthy, it flourished. The early AI programmes exhibited remarkable feats of “intelligence,” fuelling the belief that the mysteries of human cognition were on the verge of being solved. Yet, this initial wave of enthusiasm would soon face the sobering realities of AI's deeper complexities.

III. The Coming Winter: AI's First Major Downturn

From the late 1960s to the early 1970s, the field of artificial intelligence began its descent from early optimism into a period of stagnation and disillusionment. This era would later be known as the First AI Winter (1974–1980), marked by unmet expectations, critical scrutiny, and a sharp decline in funding and institutional support. The ambitious promises made by early AI researchers had failed to materialise, and both Governments and private funders began to lose patience. As a result, many major AI initiatives were scaled back, defunded, or discontinued altogether.

Machine Translation Failures

As early as the 1960s, the U.S. Government invested heavily in machine translation, aiming to develop systems that could automatically translate Russian texts during the Cold War. Despite significant funding, progress was disappointing. In 1966, the U.S. Government's ALPAC Report (Automatic Language Processing Advisory Committee) delivered a scathing review, concluding that millions of dollars had produced little practical value. The report criticised the field's overly ambitious claims and directly led to the termination of most federal funding for machine translation – one of AI's first major public setbacks.

Transatlantic Doubts

In 1973, British mathematician Sir James Lighthill submitted a report to the UK Government on the state of AI research. Known as the Lighthill Report, it harshly criticised the field, asserting that despite grand aspirations, AI had delivered very few practical results. Lighthill argued that AI had failed to understand intelligence or build useful systems, and recommended cutting unrealistic research investments. The UK Government acted on the report's conclusions, leading to the closure of several AI laboratories and the withdrawal of major public funding.

Military Funding Withdrawn

During the 1960s, the U.S. Defence Advanced Research Projects Agency (ARPA) had been a key supporter of exploratory AI research. However, by the early 1970s,

ARPA began demanding clear, defence-related outcomes. Lacking immediate military applications, areas such as speech recognition and robotics saw dramatic reductions in funding. In 1969, the U.S. passed the Mansfield Amendment, which restricted military funding to research with direct defence utility. This legislative change cut off funding for many foundational AI efforts, exacerbating the downturn.

Theoretical and Philosophical Criticism

Beyond funding challenges, the foundational assumptions of AI came under fire. In 1972, philosopher Hubert Dreyfus published “What Computers Can't Do,” in which he sharply criticised symbolic AI researchers for making grandiose and unsubstantiated claims. He argued that human intelligence depends on embodied experience and intuition, which cannot be captured by rule-based symbolic systems. Dreyfus's critique struck a nerve, and scepticism toward AI's feasibility became widespread in academic circles. The prevailing sentiment was that strong AI – machines with human-like intelligence – was not only unachievable but conceptually flawed.

A Period of Retreat

These factors combined to plunge AI into a period of research stagnation by the mid-1970s. Funding dried up, many projects were cancelled, and young researchers turned to other fields. Only a few groups persevered — for example, Allen Newell and his team at Carnegie Mellon University continued working on knowledge representation and expert systems, but overall, the momentum of the early AI movement had stalled. Globally, the impact was felt as well: AI research efforts in countries like Japan and the Soviet Union also slowed considerably.

Lessons from the Winter

The First AI Winter forced the community to re-assess the complexity of intelligence. Much of the early optimism had been built on underestimating the true difficulty of the problems involved. As robotics expert Hans Moravec later observed, “Scientists were trapped in a web of their own optimism, and public expectations outpaced what the technology could realistically deliver.” This sobering reality check catalysed a shift in AI research: toward more grounded, mathematically rigorous foundations, and toward narrower, more practical applications. From this introspection emerged new directions – including the early seeds of machine learning, which would later drive AI's resurgence in the decades to come.

IV. The Second Wave: The Rise of Machine Learning and the Revival of Neural Networks

(The Boom and Bottleneck of Expert Systems)

In the 1980s, expert systems – also known as “knowledge engineering” – sparked a commercial boom. Thanks to the success of the previous generation of expert systems in the fields of medicine and chemistry, American companies began investing in the development of AI software for business decision-making. A typical example was the XCON system developed by Digital Equipment Corporation (DEC), which was used to configure computer components and significantly improved production efficiency. Many large companies established AI departments, and AI companies such as Symbolics received large-scale investments. By



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the mid-1980s, the expert systems industry had an annual output value of several hundred million US dollars, and AI once again became a popular term.

However, the good times did not last. The limitations of expert systems gradually became apparent: first, their development and maintenance costs were extremely high, requiring experts to continuously provide new rules, and they could not automatically learn new knowledge; second, these systems were brittle – when faced with situations beyond their rule base, they could make absurd errors. At the same time, with the improvement of microcomputer performance, the market for expensive Lisp workstations, which were required to run expert systems, suddenly collapsed in 1987: in that year, ordinary computers from Apple and IBM had already surpassed the performance of specialised AI workstations, whose sales plummeted. A large number of AI start-ups went bankrupt or were acquired in a short period of time, and investor interest shifted. The U.S. Department of Defence's Strategic Computing Initiative also reduced its investment in AI in the late 1980s, turning to more practical projects instead. As a result, by around 1993, more than 300 AI companies had shut down, marking the end of the commercial wave of symbolic AI.

This second downturn came to be known as the Second AI Winter (approximately 1987-1993). Fortunately, even during the winter, AI technology itself did not come to a standstill, but instead “lay dormant” and quietly developed in other fields. For example, data mining, industrial robotics, speech recognition, and search engines all made breakthrough progress in the 1990s – but were often not labelled as “AI.” As philosopher Nick Bostrom said: once a particular AI technology becomes useful and widespread, people no longer call it AI. Many achievements that once belonged to AI had become part of everyday technology. During this period, computer chess also made great advances. In 1997, IBM's Deep Blue defeated world chess champion Garry Kasparov, bringing AI back into the public eye. However, Deep Blue's success was mainly due to its powerful computing capability and sophisticated algorithms (such as game tree search and chess database), and had little to do with learning-based AI.

The Rise of Statistical Machine Learning

At the same time, a quieter but more enduring force was taking root in the AI community: statistical machine learning. Unlike symbolic AI, which emphasised human-interpretable rules, machine learning focused on how programs could automatically discover patterns from data. As early as 1959, Arthur Samuel, a classmate of Marvin Minsky, developed a checkers program that could learn to play better through experience – an early example of machine learning. However, it wasn't until after the mid-1980s that machine learning truly began to enter the mainstream.

Theoretical Foundations

A wave of theoretical breakthroughs laid the mathematical groundwork for modern machine learning:

- In 1984, statistician Leo Breiman and colleagues advanced decision tree methods;
- In 1986, Tom Mitchell and others introduced the version space framework;

- In 1988, Richard Sutton formalized reinforcement learning using Markov Decision Processes (MDPs).

A particularly influential milestone was the 1986 publication of *Parallel Distributed Processing* by David Rumelhart and collaborators, which systematically introduced connectionist models – what we now call neural networks – along with the backpropagation algorithm. This made it feasible to train multilayer neural networks and marked a significant turning point in the revival of neural network research.

Algorithms and Models

The 1990s saw the emergence of many practical machine learning algorithms, such as:

- C4.5 decision trees,
- Support Vector Machines (SVMs),
- Naive Bayes classifiers, and
- Hidden Markov Models (HMMs).

Unlike expert systems, these algorithms did not rely on handcrafted rules. Instead, they learned predictive models directly from large volumes of data. They proved highly effective in applications like handwritten digit recognition and spam filtering, demonstrating the power of machine learning to handle real-world tasks with high accuracy.

Data and Computing Power

The success of machine learning was inseparable from the availability of data and advances in computing power. With the rise of the internet and database technologies, the amount of data available for training models grew exponentially. At the same time, Moore's Law ensured that by the late 1990s, computers were powerful enough to train increasingly complex models.

During this period, many researchers in the field deliberately avoided using the term “AI”, wary of reviving memories of the AI winters. Instead, they conducted their work under terms like “pattern recognition”, “data mining”, and “machine learning”. Yet, at its core, the underlying idea remained the same: to build machines that can learn autonomously.

The Revival of Neural Networks and Hinton's Persistence

Among the various branches of machine learning, artificial neural networks have had a particularly turbulent journey. Initially rising to prominence in the 1950s and 1960s, the field suffered a major setback after Marvin Minsky and Seymour Papert published their 1969 book *Perceptrons*, which highlighted the limitations of single-layer neural networks. As a result, research in this area stagnated for some time.

However, in the mid-1980s, the discovery of the backpropagation algorithm breathed new life into neural networks. This algorithm enabled multi-layer neural networks (perceptrons with hidden layers) to efficiently adjust their internal weights, allowing them to learn complex mappings autonomously. In 1986, Geoffrey Hinton, David Rumelhart, and others published a paper in *Nature* demonstrating the effectiveness of backpropagation in training neural networks, causing a sensation in the field. Neural networks quickly returned to academic attention, and a new wave of research into connectionism began.

However, due to limitations in computing power and data availability, neural networks in the 1980s and 1990s were



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only capable of solving small-scale problems. The industry held divided opinions on their future, and many dismissed them as a passing “hype.” During the Second AI Winter, neural network research was also impacted, with funding significantly reduced.

Yet Hinton remained steadfast in his belief in the potential of neural networks. This British-born, Canada-based computer scientist continued to explore ways to improve neural network architectures during those difficult years. In 2006, Hinton and his collaborators proposed the Deep Belief Network (DBN), which used layer-wise pretraining to overcome the difficulties of training deep neural networks. Although this achievement did not initially attract mainstream attention, it planted the seeds for the upcoming deep learning revolution.

Hinton's story reflects a deeper ideological debate: symbolic AI emphasises human knowledge and logic, while connectionism believes that intelligence can emerge from data. Hinton was one of the most determined representatives of the latter. He once recalled that in the 1990s, the main obstacles preventing neural networks from reaching their potential were that “our datasets were smaller by three to four orders of magnitude, and computers were slower by six orders of magnitude.” In other words, at that time, hardware performance and data scale were far from sufficient to support deep neural networks. But Hinton and his peers firmly believed that “we must take the long view,” waiting for the day when the technological environment would catch up.

Indeed, in the second decade of the 21st century, the Internet provided massive amounts of data, and the parallel computing power of hardware such as GPUs rapidly increased. The deep neural networks that were once “too expensive to train and too hard to scale” finally found their moment to shine.

During this second wave of AI, machine learning gradually became the core approach of artificial intelligence – especially neural networks, which rose from the ashes after decades of ups and downs. Thanks to the unwavering efforts of scientists like Hinton in exploring deep neural networks, AI was finally able to embrace the deep learning revolution when data and computing power were ready.

V. The Deep Learning Revolution: Breakthroughs in Big Data, Computing Power, and Algorithms

Entering the 2010s, AI ushered in a new revolution dominated by deep learning. If earlier machine learning could be likened to “single-layer kung fu,” then deep learning represents multi-layer, large-scale neural networks, enabling machines to automatically extract high-level features from vast amounts of data. It overcame many tasks that were once considered “impossible for computers to surpass humans.” This revolution did not occur by chance, but rather was the result of the combined effect of timing, infrastructure, and human effort:

Timing (Big Data)

With the rise of the Internet, social media, and the Internet of Things (IoT), the volume of data generated by humanity

has grown explosively. Storing and processing massive datasets became affordable and feasible. Machine learning models finally had enough “food” to be trained – previously scarce data samples now exist in the hundreds of millions or more. In practice, for many AI tasks, increasing data scale by several orders of magnitude has shown greater performance gains than fine-tuning algorithms. This is especially evident in speech recognition and image recognition. Abundant data provided fertile soil for deep models to grow.

Infrastructure (Computing Power)

Advances in hardware technology gave deep learning wings. Around 2006, Graphics Processing Units (GPUs) experienced rapid development in the gaming industry – coincidentally, they are well-suited for parallel matrix computations, making them ideal for accelerating neural network training. Additionally, the rise of cloud computing enabled on-demand access to computing resources. As Hinton once metaphorically put it, computers used to be “a million times slower,” but today, parallel computing and large-scale distributed training allow tasks that used to take months to be completed in just days or even hours. This computational leap resolved the time bottleneck in training deep networks.

Human Effort (Algorithmic Breakthroughs)

As data and computing power became available, there were also key algorithmic breakthroughs. In addition to the maturation of the backpropagation algorithm, researchers around 2010 solved several practical challenges in training deep networks – such as improved weight initialization, regularisation techniques (like Dropout), and improved activation functions (like ReLU). These advances significantly alleviated issues like the vanishing gradient problem in deep network training.

Moreover, new architectures emerged one after another: Convolutional Neural Networks (CNNs) achieved outstanding results in the field of image processing; Recurrent Neural Networks (RNNs) and their variants like LSTM proved successful in sequential data tasks.

These algorithmic innovations made deep learning models both deeper and more effective.

A Glimpse into the Principles of Deep Learning

Simply put, deep learning refers to artificial neural networks with multiple layers of “hidden units.” The earliest perceptron had only input and output layers, while a deep neural network contains several hidden layers, each composed of many “neuron” nodes. Each node receives information from the previous layer through weighted connections, processes it using a non-linear activation function, and passes it on to the next layer.

The first layer of the network may learn low-level features from the input data (such as edges and corners in an image), while the middle layers combine them into more complex patterns (like contours or object parts). The deeper the layer, the higher the level of abstraction, until the final output layer completes the specific task (e.g., determining whether an image contains a cat or a dog). This layer-by-layer refinement is somewhat similar to how the visual cortex in the human brain organises raw pixels into meaningful concepts.

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What makes deep models powerful is that their feature representations are learned automatically from data, without the need for manual design. In the past, traditional approaches required experts to handcraft features – such as colour and texture descriptors for images, or audio characteristics for speech – which were then fed into machine learning classifiers.

Deep learning, by contrast, learns end-to-end: it goes directly from raw data to output predictions, and all the intermediate features are self-optimized within the model. Although these internal features may not always be intuitive or interpretable to humans, in practice, this “let the data speak” approach has proven to be incredibly powerful.

Of course, training deep learning models requires massive computational and data resources. Before the rise of modern computing power and big data, deep models existed in theory but were difficult to apply in practice. For this reason, some humorously describe deep learning as “cooking with cannons (GPUs) and rocket fuel (big data),” meaning that it can only succeed under the specific conditions of the modern era.

The Glorious Achievements of Deep Learning

The year 2012 is regarded by many as the starting point of the deep learning revolution. That year, Alex Krizhevsky, a graduate student at the University of Toronto, under the supervision of Geoffrey Hinton, trained a deep convolutional neural network (later known as AlexNet) to compete in the annual ImageNet image recognition competition. AlexNet made a stunning debut, winning the competition with an error rate far lower than the runner-up – reducing the error rate by over 10 percentage points compared to traditional methods! This was an unprecedented leap in the field of computer vision and caused a worldwide sensation. From then on, the paradigm for visual recognition rapidly shifted from manually designed features and SVM-based approaches to deep convolutional neural networks (CNNs). The 2012 ImageNet competition is considered a milestone moment for deep learning, marking its transition from the lab to real-world industry applications.

In the following years, deep learning continued to deliver remarkable results, setting new records across various AI tasks:

Speech Recognition

Around 2011, Microsoft and Google introduced deep neural networks into speech recognition systems, greatly improving the accuracy of speech-to-text conversion. For the first time, deep learning models outperformed traditional GMM-HMM models in complex scenarios such as telephone conversations. By 2016, Microsoft announced that its speech recognition system had achieved a word error rate comparable to human transcription on standard benchmarks – a historic breakthrough.

Natural Language Processing (NLP)

In 2014, the Google Brain team proposed the Sequence-to-Sequence (Seq2Seq) model, using LSTM networks at both ends for machine translation, which significantly improved performance across various language pairs. In 2018, the introduction of the Transformer architecture (based on the self-attention mechanism) brought NLP into a new era. Transformer-based models such as BERT and

the GPT series achieved unprecedented performance in tasks like reading comprehension, question answering, and dialogue.

Game Intelligence

In 2016, DeepMind's AlphaGo defeated world Go champion Lee Sedol, attracting global attention. AlphaGo combined deep neural networks with Monte Carlo Tree Search and reinforcement learning, demonstrating AI's potential in extremely complex strategic games. Later versions, such as AlphaZero, were even able to teach themselves to play Go, chess, and shogi at superhuman levels without human game data.

Content Generation

The Generative Adversarial Network (GAN), introduced in 2014, opened a new frontier in AI-generated content. Using two neural networks in adversarial training, GANs could produce realistic images that were almost indistinguishable from real ones. In 2021, OpenAI's DALL·E, and later DALL·E 2 in 2022, amazed the world with their ability to generate images from text descriptions. Deep learning also enabled multimodal generation in areas like music, text, and code, showcasing the emerging creativity of AI.

Most notably, at the end of 2022, OpenAI's ChatGPT was released, allowing the general public to experience first-hand the power of AI in generative dialogue, sparking global discussion and widespread interest.

Deep learning has achieved overwhelming success, flourishing across AI subfields such as computer vision, speech, language, and robotics, leading to order-of-magnitude performance improvements. This phenomenon greatly boosted confidence in AI within both the industry and capital markets, triggering a new wave of investment. Starting in 2012, major tech companies around the world rushed to establish AI research labs and recruit top talent; AI start-ups emerged in large numbers, and industries across the board embraced AI-driven transformation. It can be said that deep learning led the “AI revival” of the 2010s, truly bringing artificial intelligence out of the lab and into everyday life.

However, the explosion of deep learning also brought new challenges, such as its black-box nature (difficulty in interpreting internal mechanisms), its hunger for data (relying heavily on large amounts of labelled data), and its dependence on computational resources. Researchers are working on optimising deep models while also exploring how to make them more efficient and interpretable. These efforts have led to the development of techniques such as transfer learning, few-shot learning, and model distillation, aimed at reducing reliance on data and compute. Additionally, how to combine deep learning with symbolic logic to equip AI with reasoning and common sense capabilities has become a new research frontier.

The deep learning revolution has enabled artificial intelligence to achieve a qualitative leap. With deep neural networks trained on massive datasets, machines have reached or even surpassed human-level performance in many perceptions and cognitive tasks. This not only placed AI back at the forefront of the technological wave, but also compelled humanity to seriously reflect on both the broader potential and the risks of AI.

VI. Modern AI: The Era of Large Models and Generative Artificial Intelligence

Entering the 2020s, artificial intelligence has continued to evolve at high speed, with one of its most prominent features being the emergence of large models. These so-called large models refer to general-purpose AI models trained on massive datasets with billions of parameters. They are typically pre-trained at scale in a broad domain (such as language or vision), and then fine-tuned for a variety of downstream tasks. This approach has achieved remarkable success in natural language processing, with the following milestones:

The GPT Series and Large Language Models (LLMs)

In 2018, OpenAI released the GPT (Generative Pre-trained Transformer) model, which showcased for the first time the powerful generative capabilities of pre-trained Transformers on language tasks. The scale of parameters grew rapidly: GPT-2 (2019) had 1.5 billion parameters, and GPT-3 (2020) soared to 175 billion parameters. These massive models, trained via self-supervised learning on vast text corpora, acquired rich language patterns and knowledge. Upon the release of GPT-3, the industry was stunned by its ability to perform translation, question answering, and essay writing in zero-shot or few-shot settings — far surpassing previous models trained for specific tasks. This marked the beginning of the large language model era.

The Sudden Emergence of ChatGPT

At the end of 2022, OpenAI released ChatGPT, a chatbot based on the GPT-3.5 model. Its smooth conversational flow and detailed responses amazed the public. Within just two months of launch, ChatGPT reached 100 million users, setting the record as the fastest-growing consumer application in history. Its success was due in part to the powerful language understanding and generation capabilities of the underlying large model, and in part to fine-tuning through reinforcement learning with human feedback (RLHF), which made its answers better align with human expectations. The buzz around ChatGPT made “generative AI” a household term overnight, and industries began exploring new use cases to improve productivity through such technologies.

Multimodal Generative Models

Beyond text, large models have also expanded into image, audio, and other modalities. OpenAI's DALL·E and DALL·E 2, for example, can generate vivid images based on text descriptions. In the open-source community, Stability AI's Stable Diffusion sparked a wave of interest in AI-generated art. People were pleasantly surprised to find that AI could now grasp aesthetic styles and creative composition, making “drawing without a designer” a reality. By 2023, AI had begun generating videos and 3D models, opening the door to future possibilities of cross-media content generation. It is foreseeable that generative AI will bring transformative changes to fields such as art, design, and entertainment.

As large models and generative AI continue to flourish, the boundaries of AI capabilities are being constantly extended. Some models exhibit emergent abilities across domains, meaning they can generalize to tasks not explicitly seen during training. For example, GPT-4 is reported to not

only excel in language comprehension but also display impressive performance in problem-solving, coding, and even creative writing. This has reignited academic and industry discussions about Artificial General Intelligence (AGI).

However, we must also soberly recognise that while modern AI is powerful, it is still far from achieving true general intelligence. Today's large models mainly perform passive prediction and generation, and lack real understanding, planning, or common-sense reasoning. Models like ChatGPT may occasionally generate plausible but factually incorrect responses (a phenomenon known as “hallucination”) because they lack robust mechanisms for factual verification. Moreover, the data and computing resources required to train these models are enormous – affordable only to a small number of large institutions – raising concerns about the centralisation of AI power.

Ethical and Societal Impacts

The rapid development of modern AI has also brought unprecedented ethical challenges and societal impacts. Bias and fairness issues are at the forefront – since large models learn from internet data, they inevitably inherit biases in that data. Without safeguards, AI could amplify or perpetuate discrimination.

Privacy and security are also hot topics: AI-generated fake news and deepfakes can mislead the public; autonomous systems going out of control may pose real-world threats. In recent years, the academic and industrial communities have begun to prioritize AI ethics and safety, including discussions on how to ensure that AI systems' goals are aligned with human values – a challenge known as “value alignment.”

Governments around the world are actively exploring regulatory frameworks. The European Union has taken the lead by proposing the AI Act, aiming to regulate high-risk AI applications. It is increasingly clear that technological progress must be accompanied by progress in governance to ensure that AI truly benefits human society.

Modern artificial intelligence has entered the era of large models and generative AI. On one hand, general-purpose large models demonstrate strong adaptability across tasks, bringing us closer to the vision of AGI. On the other hand, challenges such as lack of interpretability, concentration of resources, and potential risks are raising new issues.

AI is changing the world with unprecedented influence – and now, more than ever, we must critically examine and guide the development of this transformative technology.

VII. Conclusion

Starting from Turing's vision of machine intelligence during the Cold War era, AI has now journeyed through more than seventy years of highs and lows. We have witnessed its childhood, where simple rules and models sparked glimmers of intelligence; experienced its adolescence, filled with both enthusiasm and setbacks, plunging into winters more than once; and taken part in its coming of age, marked by breakthroughs in deep learning that allowed AI to truly spread its wings and integrate into every aspect of society.

Looking back at the history of AI, several clear themes emerge:

Interdisciplinary Integration

From its inception, AI has stood at the crossroads of multiple disciplines – mathematics, computer science, biology, psychology, and more. Every major advancement has come from cross-field collaboration: neuroscience inspired neural networks, statistics enriched machine learning theory, and advancements in computer hardware provided the necessary infrastructure for realisation.

The Interplay of Technology and Philosophy

AI is not just an engineering endeavour – it is also a quest to explore philosophical questions about intelligence and mind. Thought experiments such as the Turing Test and The Chinese Room have accompanied AI's development, prompting deep reflections on the nature of human cognition. In this sense, AI serves as a mirror, helping us examine what intelligence truly means.

Twists and Turns, Spiral Ascent

The path of AI has not been smooth. It has gone through cycles of hype and disappointment. Yet after each winter, its resurgence began from a higher starting point. From symbolic AI to machine learning, from shallow to deep learning – with each setback, new ideas emerged, propelling the technology to the next stage.

Evolving Human - Machine Relationship

Early AI was largely viewed as a tool or program. But as its capabilities grow, we have begun to see it as a potential collaborator – even a decision-making agent. How we define the role of AI, and how we balance the relationship between humans and machines, has been a subtle but ongoing theme in AI's history. In the future, as AI becomes more intelligent, this question will become even more tangible and urgent.

Just as Turing's original dream – that machines could think – has, in some form, become a reality, the next dream may already be on the horizon. Perhaps it is human-AI collaboration pushing the boundaries of civilisation, or a new co-existence model of intelligent beings on Earth. Whatever it is, it will depend on the choices and efforts we make today.

From Turing's dream, we have journeyed through more than seventy years. Looking ahead to the unknown future, this revolution of intelligence is far from over – and each of us is both a witness and a shaper of this unfolding history.

Ir. Ts. Prof. Dr. Tan Chee Fai is a prominent figure in the Engineering and Manufacturing sectors, renowned for his expertise in Digital Transformation, Smart Manufacturing, Artificial Intelligence (AI), and Robotics. As an Asian Certified Senior Productivity Specialist and Exco Member of the Machinery & Engineering Industries Federation (MEIF), he plays a strategic role in shaping national policies and industry frameworks that drive innovation, productivity, and industrial competitiveness in Malaysia.



At the regional and international levels, Prof. Tan is a Fellow of the Academy of Engineering & Technology of the Developing World (AETDEW) and the ASEAN Academy of Engineering & Technology (AAET). He is actively engaged in advancing engineering excellence across ASEAN and other developing regions through capacity building, strategic collaboration, and policy advisory.

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As a highly sought-after speaker, Prof. Tan has been invited to share insights at leading international platforms including the World Robot Conference, World Artificial Intelligence Conference, and the World Intelligent Manufacturing Conference, amongst others. He has also served as a UNESCO expert, pro-actively contributing to engineering education reforms and digital capacity-building in African and APEC economies. He can be contacted at E-mail: cheefaitan@gmail.com

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Intermittent Fasting: A Comprehensive Guide to Its Benefits and Constructive Considerations

Caleb Masuda Koh

Fasting is not new, but it has been surging in popularity as a phenomenon in recent times. Some fast for religious reasons - to obey or experience their respective deities in a greater measure, while others do it purely for health reasons. Some of those religious motivations are for purification as well as for inculcating humility.

For those individuals, fasting serves as a profound purification ritual, likened to the process and discipline of refining and renewing their minds, attitudes and behaviours. In addition to developing personal growth, fasting embodies a key theme of humility. Many religious traditions employ this practice as a means of standing in solidarity with those who endure involuntary hunger. By willingly experiencing a period of abstinence from food, practitioners cultivate empathy for the less fortunate, thereby enhancing their understanding of the struggles faced by others. This is frequently accompanied by acts of charity, as the spirit of generosity becomes intertwined with the act of fasting itself.

For Muslims, they see fasting as a core act of worship, self-discipline and gratitude and as an obligatory act of obedience, as well as to relate to those who are less fortunate. As such, Muslims forego all food and drink from sunrise to sunset during Ramadan.

Christians believe that fervent fasting, accompanied by prayer, can deepen their connection with God as they seek His will, express humility, and demonstrate a desire for spiritual growth and transformation. Fasting, or abstaining from food, is seen as a way to focus the mind and heart on God, allowing individuals to pray more earnestly and seek His presence more intensely.

Additionally, Christians may fast and pray during crises or circumstances of uncertainty, seeking God's intervention and wisdom to deal with challenging situations. Fasting is a spiritual discipline that helps individuals develop self-control and prioritise spiritual needs over physical desires, strengthening their faith and relationship with God. Lastly, fasting can be a way to express humility and acknowledge one's dependence on God, recognising both personal and societal shortcomings, and seeking His forgiveness and guidance.

Whatever one's justification for engaging in fasting is, there is no doubt that the activity is beneficial.

Believe it or not, there are several varieties fasting comes in. One of them which has seen worldwide recognition and success is none other than intermittent fasting. The primary cause of its widespread fame and

appeal is due to celebrities and popular health and fitness influencers promoting it. They do so through social media channels by documenting their health improvements and weight loss.

Introduction

So what is intermittent fasting and by whom was it conceived? While the practice has had its origins in ancient Greek culture documented by notable Greek physicians and philosophers such as Socrates and Hippocrates as having physiological and/or spiritual benefits, intermittent fasting was believed to have first been brought into the mainstream by British broadcaster and journalist Michael Mosley. He learned about intermittent fasting, particularly the 5:2 diet, from Mark Mattson, a neuroscientist, who researched it for many years.

The long and short of intermittent fasting is that it is an eating pattern that cycles between periods of fasting and eating. By prolonging the period when your body has burned through the calories consumed during your last meal and beginning burning fat, the idea of the concept at a high level is to induce metabolic switching from liver-derived glucose to adipose cell-derived ketones.

Types of Intermittent Fasting

Just as fasting has several varieties, so does intermittent fasting. There is the 16/8 method, the 5:2 diet, the Eat-Stop-Eat and Alternate-Day fasting. The 16:8 Method, known as time-restricted eating, involves fasting for 16 hours, followed by eating within an 8-hour window. An example of this method is to skip breakfast, then eat between noon and 8.00pm.

The 5:2 diet, on the other hand, is a specific type of intermittent fasting that involves eating normally for 5 days and restricting calories to 500-600 for 2 days a week. As its name suggests, alternate day fasting has its practitioner alternating between days of normal eating and days of complete or modified fasting. Last but not least, the fourth and final variety of intermittent fasting is the Eat-Stop-Eat method of fasting for 24 hours once or twice a week, which might be extreme and daunting for some newbies but the consolation of doing so is that it is only required once or twice a week.

Health Benefits and the Science behind Fasting

Dr. Jason Fung, a Toronto-based nephrologist and New York Times bestselling author, has extolled

fasting's significant effects on weight loss and diabetes management. He is widely considered to be a leading expert and advocate for its use. In his book "The Complete Guide to Fasting", Dr. Jason Fung explains that "fasting is not about starving but about voluntarily abstaining from food for certain periods of time". It is controlled and deliberate, not chronic and involuntary.

He goes on to put forth the persuasive argument that fasting can be a powerful tool for weight loss and for improving metabolic health. Apart from assisting in reducing obesity in individuals, fasting also helps to reduce insulin resistance, lower blood sugar, promote fat loss, and more. In particular, for those suffering from type 2 diabetes, fasting can improve insulin sensitivity and help manage type 2 diabetes. It also reduces cholesterol levels, specifically triglycerides, and lowers the risk of cardiovascular diseases.

Furthermore, fasting enhances mental clarity, cognition, and improves concentration, and may extend the longevity of one's life and reverse aging processes and perhaps even prevent Alzheimer's disease! Some of these benefits might be big claims which may require more studies to prove their veracity, but one thing is certain: scientific studies show that fasting and intermittent fasting for that matter induce hormonal changes and processes like autophagy that reduce inflammation and promote cellular cleansing. Autophagy is a cellular cleansing process that removes damaged cells and regenerates new ones.

Intermittent fasting can also aid in detoxification and cleanse the body of toxins, leading to better overall health. However it is important to note that there are potential differences in benefits and considerations between men and women. For men, IF (Intermittent Fasting) can result in hormonal changes in that it can increase levels of hormones like human growth hormone (HGH) and noradrenaline, which can contribute to fat burning and muscle gain. For women, IF can result in hormonal sensitivity. Women are more sensitive to hormonal fluctuations, and IF may affect their menstrual cycles, estrogen and progesterone levels, and reproductive health.

In terms of improved metabolic health, IF may lead to better blood sugar control, reduced insulin resistance, and improved lipid profiles in men and IF can also improve blood sugar control and reduce insulin resistance in women. Some studies suggest that IF may improve menstrual cycle regularity and reduce body fat in women with polycystic ovary syndrome (PCOS). For both men and women, IF can promote weight loss, especially when combined with a healthy diet, although women may need to be more mindful of calorie intake and potential hormonal fluctuations.

Myths Surrounding Intermittent Fasting

It is also critical that we address some myths about fasting that have cropped up and therefore turned away those who were either keen on exploring and learning more about the activity or wanted to start on it straightaway. Some of them are:

1) Intermittent Fasting and Severe Muscle Mass Loss

A groundbreaking 2022 meta-analysis of randomised trials has ignited a collaborative dialogue among health enthusiasts and researchers alike, revealing a fascinating truth: individuals lost similar amounts of lean muscle mass whether they were following traditional calorie-restricted diets or engaging in intermittent fasting. In fact, the findings highlighted that an impressive 75% of weight loss could be attributed to fat tissue, with the remaining 25% encompassing lean mass. Yes, you read that right—regardless of the dietary strategy, the numbers reveal a consistent pattern! At the heart of this discourse is the understanding that resistance training and adequate protein intake play pivotal roles in supporting muscle maintenance.

2) Intermittent fasting negatively impacts diet quality.

This common misconception suggests that engaging in IF might lead to unhealthy eating patterns. However, recent findings challenge this narrative. A 2024 review of randomised control trials highlights that individuals practising intermittent fasting—whether with shorter eating windows of 4 to 6 hours or longer windows of 8 to 10 hours—did not experience significant changes in essential markers of diet quality. These indicators include fibre, protein, cholesterol, total fat, carbohydrates, sugar, saturated fat, sodium, and even caffeine intake.

What does this mean for those curious about or currently practising fasting? According to a researcher and world-renowned gastrointestinal surgeon by the name of Frank G. Moody, the implications are still being explored, but some insights can help guide our understanding.

For those entering intermittent fasting with a history of less-than-ideal dietary habits, it appears that IF won't necessarily worsen their eating patterns; it merely modifies the timing of when they consume their nutrient-poor diet. This invites a reflective moment: fasting, in and of itself, isn't a "miracle drug" for better health or improved dietary choices. Instead, it can serve as a catalyst for change in the way we think about food.

Conversely, for individuals who already consume a nutritious diet, the introduction of intermittent fasting may reinforce their commitment to healthy eating. This highlights an encouraging truth: if you have a balanced approach to diet prior to beginning IF, it is unlikely that fasting will steer you toward poor food choices.

While researchers rightly dispel the myth that intermittent fasting inherently affects diet quality, it's vitally important to recognise that simply adopting the fasting practice won't transform a poor diet into a healthy one. As we contemplate our food choices, we must remember that fasting is a tool – one that works best in conjunction with mindful eating habits.

3) Intermittent fasting is ultimately unsustainable

I've noticed and observed that engineers, and specifically E&E engineers in particular, talk a lot about and are concerned with sustainability, especially in relation to electrical and energy applications and considerations like electric vehicles (EVs) and LED lighting. In the same

vein, the thought that crosses one's mind when the subject of intermittent fasting is brought up is whether it is sustainable in the long run since it means being fastidious about when you eat and when you do not and whether doing so devotedly and consistently is at all humanly possible. In her book "Intermittent Fasting for Beginners", Amanda Swaine strongly believes intermittent fasting "gets easier over time" as one adapts to cycling between burning fat and sugar. I've also observed in my own life and my family's life that training yourself to eat less will cause you to desire to eat less and will even result in feeling like you are not able to eat more over time.

Potential Risks and Not a One-size-fits-all Approach for Everyone

It is critical to note and remember that fasting and IF in particular are not for everyone and that the knowledge expounded above (and below) consisting of scientific studies, tips and reflections is not to be construed as a substitute for comprehensive medical advice. Seek a medical professional like a doctor or specialist before embarking on the journey to fasting and even IF.

Consult your doctor before fasting:

If you have thyroid conditions: Entering into fasting while managing thyroid-related issues calls for a thoughtful approach. Medications for these conditions, as well as when and how you take them, may need to be adjusted prior to beginning a fast. Engaging in an open conversation with your healthcare provider can help you navigate this aspect, allowing you to explore the benefits of fasting while ensuring that your thyroid health remains a priority.

If you are a nursing mother: The journey of motherhood is filled with many joys and challenges, and if you are nursing, the importance of proper nutrition cannot be emphasised highly enough. While many shorter fasting windows could be manageable, it's necessary to make sure that the nutrition you receive is substantial and of high quality. Juggling the demands of caring for a new baby can be stressful and exhausting, and adequate rest is also imperative during this time. Reflecting on your overall well-being and nutritional needs will serve you well as you deliberate on the practice of fasting.

If you are a child or adolescent: Fasting for lengthy and prolonged periods of time can result in bodily deprivation of essential nutrients needed for healthy growth and development. In growing children and teenagers, fasting may cause nutrient deficiencies, stunted growth, developmental delays, weaken the immune system, and potentially lead to various other health concerns and complications.

If you are over 70 years old: For older adults, the clinical outcomes associated with intermittent fasting can vary. If you believe that this practice may be beneficial, having a conversation with your doctor is a prudent first step. Should you both agree to proceed, placing emphasis on a protein-rich diet will be fundamental. This focus can help guard against muscle loss, ensuring that your body

remains strong and resilient as you explore the potential benefits of fasting.

If you suffer from digestive issues: Certain digestive conditions, such as irritable bowel syndrome (IBS), inflammatory bowel diseases (like Crohn's disease or ulcerative colitis), and gastroesophageal reflux disease (GERD), may be aggravated by fasting. Extended periods without food can potentially increase symptoms like bloating, gas, abdominal pain, or acid reflux.

If you already struggle with anorexia or bulimia: Focusing on not eating may act as a psychological trigger and lead to potential electrolyte imbalances.

If you are underweight and malnourished: Nutrient Deficiency and Inadequate Energy Supply - Intermittent fasting involves time-restricted eating and periods of calorie restriction, both of which can exacerbate undernourishment in those who require a constant intake of nutrients to maintain or increase their weight.

Fatigue and Lowered Energy Levels - People who are malnourished may already suffer from fatigue, lethargy, and the inability to perform regular daily activities needed to upkeep their health and well-being. This decreased quality of life is due to their nutritional status whereby they experience a significant drop in energy levels.

If you experience adrenal fatigue: Fasting acts as a mild stressor which could hinder recovery from chronic stress and can also lead to electrolyte imbalances.

Helpful and constructive ways to practise intermittent fasting and ease into the routine

In her wonderfully insightful book about intermittent fasting (which I will share about with as much brevity as possible and paraphrase and expand where necessary), author Amanda Swaine outlines six steps (with a few sub-points for each point) to prepare for intermittent fasting, which are to:

1) Reduce your reliance on sugar for fuel -

- Reduce sugar intake (sweets, chocolate, cake, soft drinks, fruit juice; candy bars, energy bars, or granola bars, etc.).
- Reduce refined carbohydrates (bread, pasta, cereals, etc.). The following point is not from her book but - health experts have documented that popular store-bought cereals by massive food manufacturer conglomerates contain a lot of sugars, preservatives, additives and refined grains, despite misleading customers by adding unnecessary vitamins such as the vitamin B variant known as niacin (and proudly listing them in their list of ingredients) to fortify their products' nutritional content but which can be toxic in large quantities, which is unbeknownst to many people.
- Add fat or protein to meals (eggs, avocado, olive oil, butter and other full-fat dairy; and an assorted variety of nuts, seeds, meat and fish).

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	Kwh	0.2S	0.5S	0.5S
	V/A/P/Q/S/PF/Hz	0	0	0
Measurement	Demand	0	0	0
	Max/Min value	0	0	0
	Neutral current	0	-	-
	Bi-directional energy	0	0	0
Energy Metering	4 Quad kVAR energy	0	0	0
	Tariff energy	0	0	-
	THDi/THDv	0	0	0
	Harmonic V/A	up to 63rd	up to 51st	up to 31st
Power Quality	Voltage sag/dip event	0	-	-
	Unbalance	0	0	0
	Flicker/Transient	0	-	-
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Input/Output	Relay output	2	3	-
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2) Improve the nutrient density of your diet -

- Add more vegetables and fruits to your meals. The NHS and other health organisations suggest aiming for at least five portions of a variety of fruits and vegetables every day.
- Use herbs, spices, sprouts, and seeds as often as you desire.
- Choose natural, unrefined and whole foods when and where possible.

3) Reduce snacking -

- Aim for three meals a day only and try not to indulge in snacking, especially midnight snacking, a major problem for those seeking to lose substantial weight and which I am guilty of if I'll be honest.

4) Aim for six to nine hours of quality sleep per night -

- Turn off or stop using digital devices with blue light-emitting screens at least 30 minutes before you head to sleep.
- Avoid caffeine after 3 pm. For those of us who enjoy coffee and tea, that can unfortunately be a tall order.

5) Try to minimise levels of stress in your lives

- Reduce stress where possible by determining what stresses you out and can be removed from your daily routine.
- Manage stress where possible by practising pilates, mindfulness, or engaging in a hobby or pastime that brings you joy.

6) Resolve any inadequate nutrition

- If you suspect you have any nutrient deficiencies, consider seeing your healthcare provider or engaging the services of a registered nutritionist or certified dietician for a thorough examination and adjusting your diet and lifestyle as needed before starting your regimen.

As for breaking your fast, Swaine advises three things (paraphrased):

- 1) Be picky with what food you choose to eat by being mindful of whether it is nutritious rather than merely being delicious.
- 2) Stick to your diet of choice whether that is the keto diet, low-carb diet, vegan diet, Paleo diet, Mediterranean

diet or if you are a vegetarian for health or religious reasons, pescatarian, or flexitarian.

- 3) Avoid alcohol as much as is humanly possible. If you must consume alcohol, pair it with food or consume it after you've eaten, as drinking it before breaking your fast can increase its intoxicating effects.

Conclusion

In summary, take your time to contemplate whether to start intermittent fasting or to not do so. While I have mentioned earlier that it is not a one-size-fits-all approach to better health and fitness, one simply cannot deny its sizeable and wide-ranging health benefits.

However there are risks that individuals with preexisting health conditions or who fall into certain categories must carefully consider and avoid if intermittent fasting affects them in adverse ways. The same level of caution ought to be applied to any endeavour related to health improvement, such as striving for substantial weight loss or starting a new diet or eating plan.

Clichéd as my saying is, "One man's pursuit can be his poison" if he pushes his pursuit of good health to its extreme. Consequently, "too much of a good thing" then becomes unhelpful and meaningless if one becomes overzealous in his or her pursuit of optimal health. Some wealthy biohackers devote every waking hour of their lives and energies to popping (supplement) pills and to a strict diet, exercise regimen and state-of-the-art but unorthodox and questionable machines but end up losing their enjoyment of life and missing out on the opportunity to interact with nature and other people.

Nevertheless IF has a plethora of myriad benefits which would help any person if he or she also makes it a point to practise it correctly by following proper and established guidelines. At the same time people keen on embarking on the journey of intermittent fasting should also consult a medical professional so that the physician can supervise and monitor its practitioner's progress and changes in health, if any, that may or may not be detrimental to his or her health.

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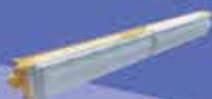


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switch with neon



MD10 T2131-B

Description:
13A British socket with
large SP switch, no neon



MD10 T2131

Description:
13A British socket with SP
switch, no neon



High-Temperature
Resistance



Large space between
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Assembly



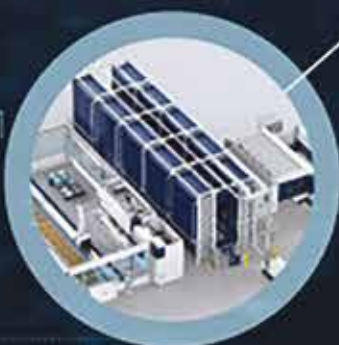
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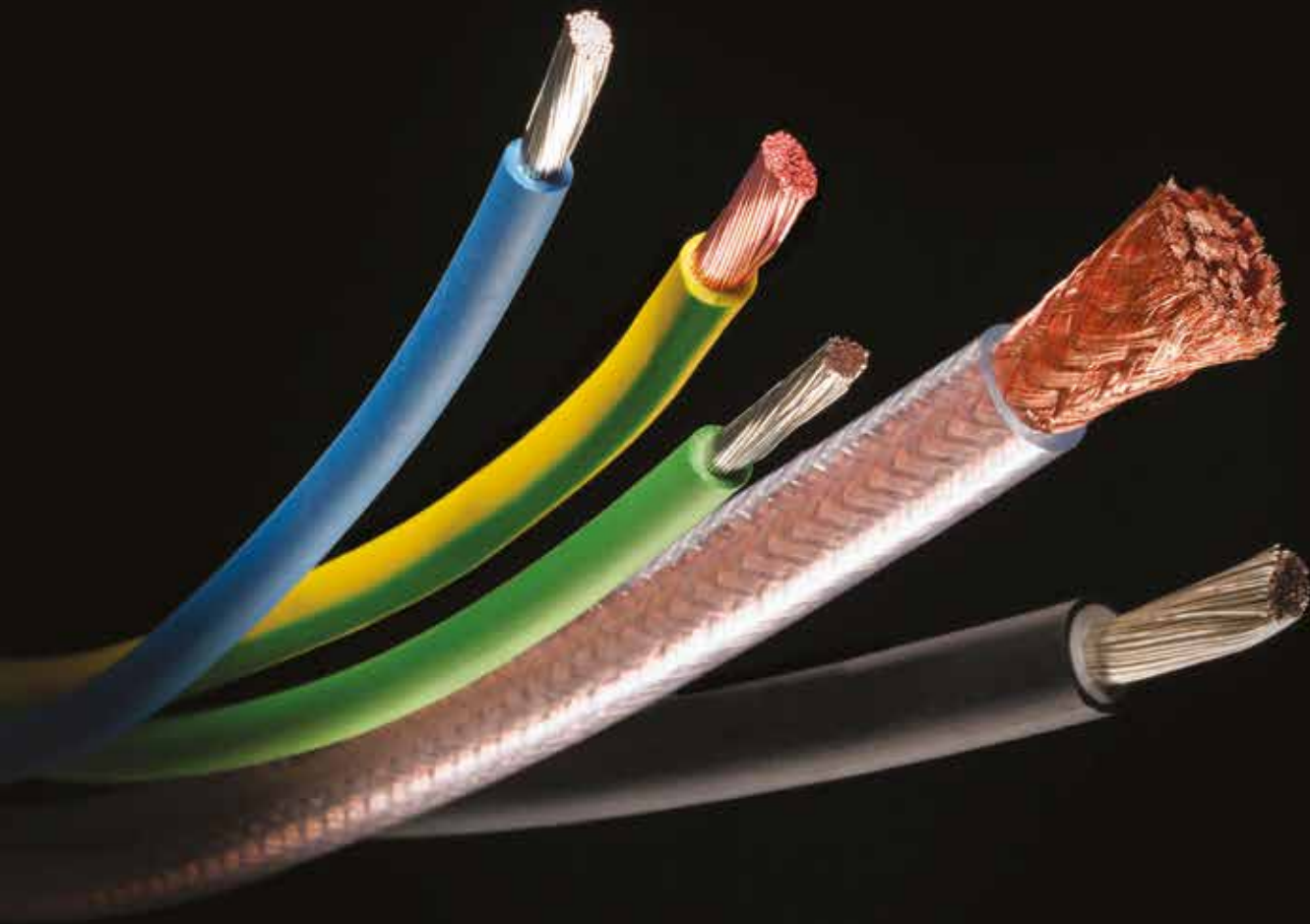
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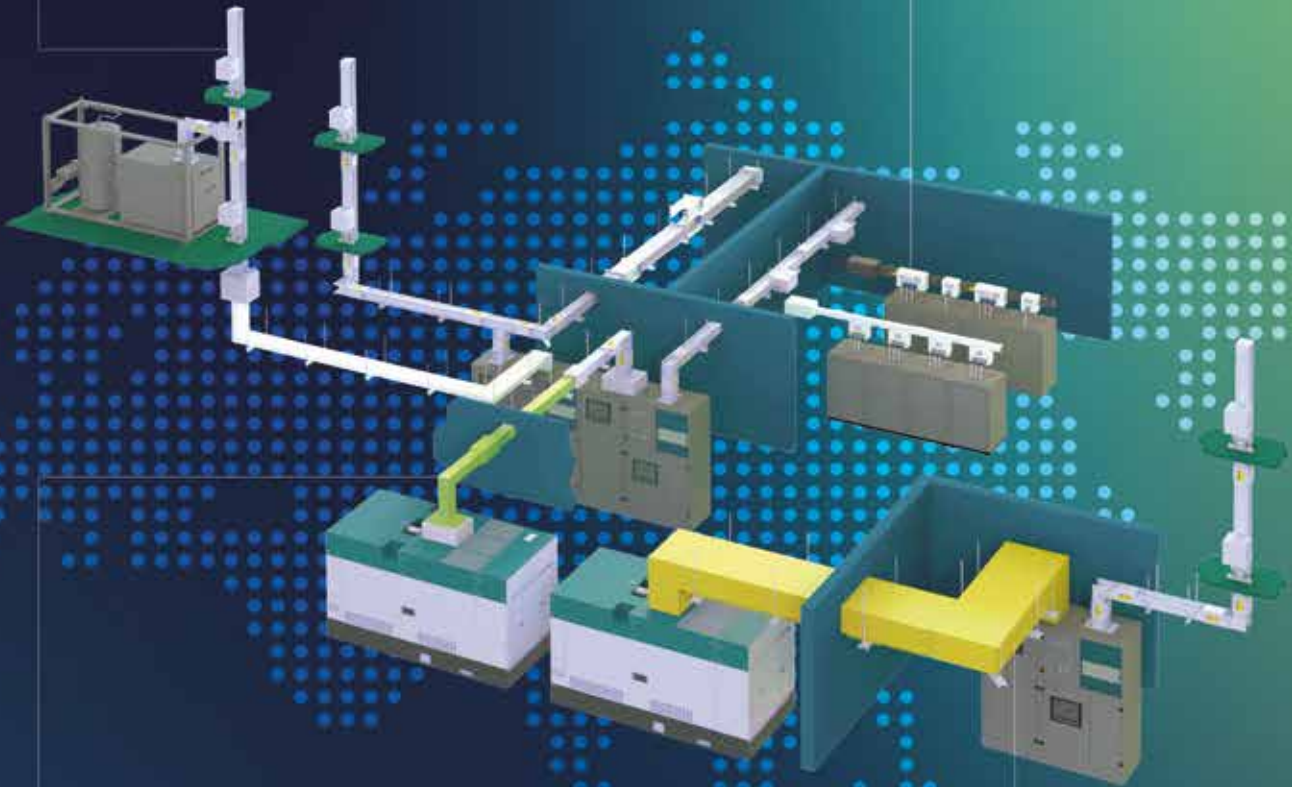
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	MINIMUM		MAXIMUM		MINIMUM		MAXIMUM						MINIMUM		MAXIMUM	
in	mm	in	mm	in	mm	in	mm	in	kg/m	kg/ft	lb/ft	PER INCH	mm	in	mm	in
¾	18.76	0.7387	19.05	0.7500	1.52	0.060	1.63	0.064	0.713	0.217	0.479	16	12.70	0.5000	14.29	0.5625
1	25.11	0.9887	25.40	1.0000	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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01.FL5M080.00	FL5-080	80W	14,910 lm	200W-36V	25.6V 60AH	2700K-6500K	5-6m	1740x601x50	29.5
01.FL5M100.00	FL5-100	100W	18,486 lm	250W-36V	25.6V 84AH	2700K-6500K	6-7m	1520x795x50	34
01.FL5M120.00	FL5-120	120W	22,281 lm	250W-36V	25.6V 96AH	2700K-6500K	7-8m	1545x788x50	38.6
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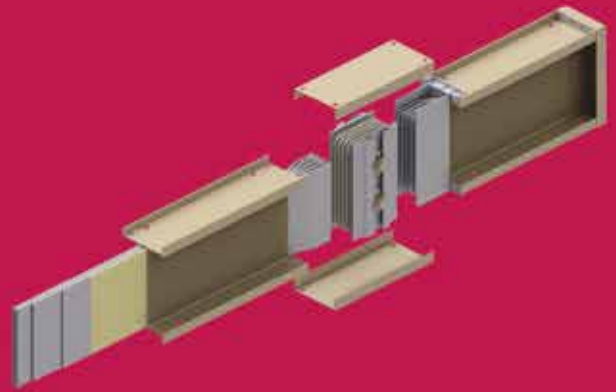
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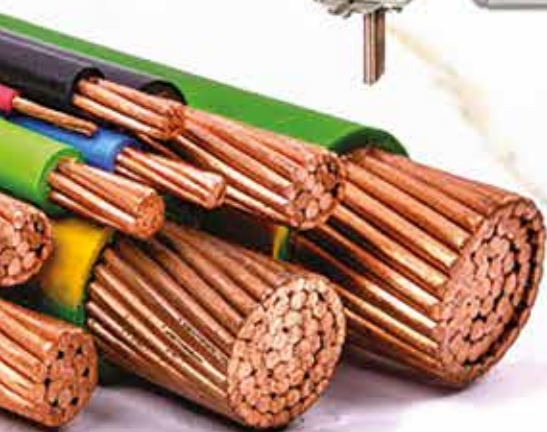
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