THE 9TH ASEAN SMART GRID CONGRESS

ASGC9

ASGC9

HANOI, VIETNAM

November 05 - 07, 2026

Hanoi University of Science and Technology

- **Location:** International Conference Chamber (10th Floor) and Lecture Hall Rooms
- **Address:** 1 Dai Co Viet, Bach Mai, Hanoi, Vietnam

asgc9.hust.edu.vn

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CONFERENCE VENUE



Hanoi University of Science and Technology

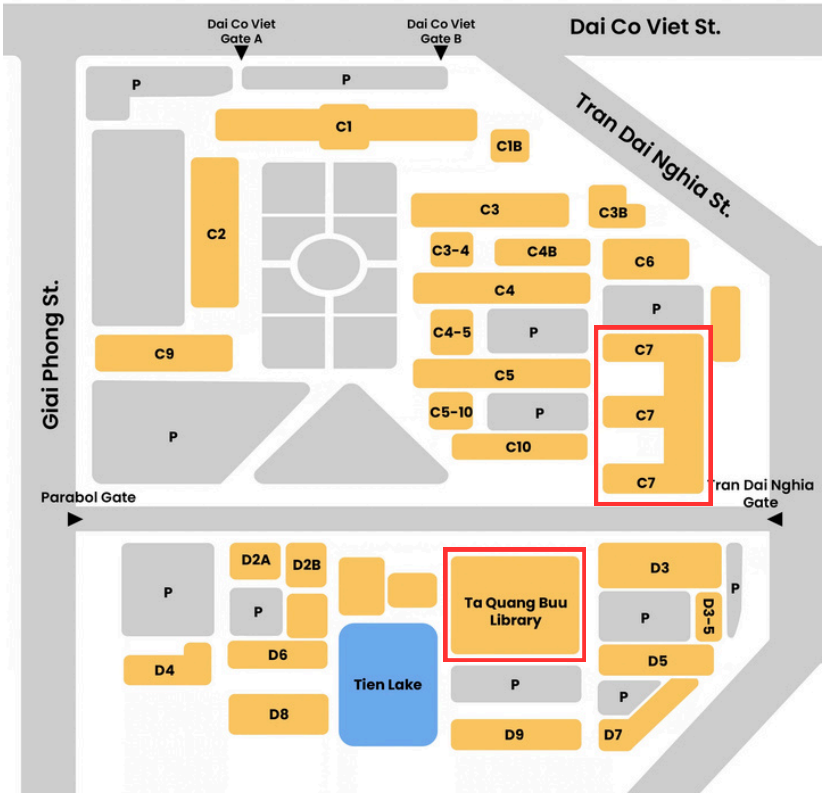
Location: International Conference Chamber and Lecture Hall Rooms
Address: 1 Dai Co Viet, Bach Mai, Hanoi, Vietnam

Campus Map:
Directions: HUST is centrally located and easily accessible by various modes of transportation:

1. **From Noi Bai International Airport (HAN):**
It takes approximately 45-60 minutes by taxi or ride-hailing services (Grab) to reach the campus. Alternatively, you can take public Airport Bus No. 86 to the city center and transfer to the campus.

2. **By Taxi / Ride-Hailing:**
Simply search for "Ta Quang Buu Library HUST" or "Hanoi University of Science and Technology" on Grab or tell your taxi driver to go to "Cong Parabol, Dai hoc Bach khoa Hanoi" (Parabol Gate, Dai Co Viet St).

3. **By Public Bus:**
Several bus routes pass directly by HUST gates on Dai Co Viet Road and Tran Dai Nghia Road, including routes 08, 21, 26, 28, and 31.



CONFERENCE VENUE

Conference Rooms (Ta Quang Buu Library)

Location: International Conference Chamber and Lecture Hall Rooms
Address: 1 Dai Co Viet, Bach Mai, Hanoi, Vietnam





ATTENDANCE GUIDELINE

Time Zone
UTC +7

Schedule

- **November 5:** Registration, Welcome Reception
  ➔ Room 509, Ta Quang Buu Library
- **November 6:** Keynote, Sponsor Business Networking, Roundtable & Plenary Discussion
  ➔ International Conference Chamber (10th Floor) and Lecture Hall Rooms.
- **November 7:** Gathering & Departure, Technical Visit – Smart Grid, Substation and Battery Energy Storage
  ➔ 10th-Floor Hall, Ta Quang Buu Library

Language
Please make presentation and discuss in English.

Oral Presentation

- Keynote Speech: 25 mins (including Q&A).
- Roundtable & Plenary Discussion: 40 mins

- Please make sure your presentation is well timed. Please keep in mind that the program is full and that the speaker after you would like their allocated time available to them.
- Each speaker is required to meet her/his session chair in the corresponding session rooms 10 minutes before the session starts and copy the slide file (PPT or PDF) to the conference computer.
- Please note that each session room will be equipped with a LCD projector, screen, point device, microphone, and a laptop with general presentation software such as Microsoft PowerPoint and Adobe Reader. Please make sure that your files are compatible and readable with our operation system by using commonly used fronts and symbols. If you plan to use your own computer, please try the connection and make sure it works before your presentation.
- Videos: If your PowerPoint files contain video clips, please make sure that they are well formatted and connected to the main files.

Poster Presentation
Poster Size: A1, 594mm×840mm, upright/portrait format
(Please prepare the poster, paste and introduce the poster in the poster session.)

Reminder
Please attend the conference in formal attire.
Safety Reminder: Secure Valuable Items at All Times.
We remind you to secure your personal belongings at all times.
The conference organizer will not be responsible for the loss or damage to any personal belongings.

Photography and Videography Consent for Conference
By attending this conference, you agree to be photographed and/or videotaped by the event organizers, sponsors, or their designated representatives. The images or videos captured may be used for conference program by the organizers.

Emergency Numbers
Ambulance: 115 Fire department: 114 Police: 113

Hanoi Weather
https://dubaothoitiet.edu.vn/ha-noi

CONFERENCE COMMITTEES

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Nguyen Huu Thanh, Hanoi University of Science and Technology

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Dinh Van Hai, Hanoi University of Science and Technology

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Bui Duc Hung, Hanoi University of Science and Technology

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Le Thi Quyen, Hanoi University of Science and Technology

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Le Anh Tuan, Hanoi University of Industry
Hoang Trung Kien, University of Science and Technology of Hanoi
Vo Ngoc Dieu, Ho Chi Minh City University of Technology
Vu Van Thang, Thai Nguyen University of Technology
Nguyen Nhat Tung, Thuy Loi University
Nguyen Minh Y, Thuy Loi University
Nguyen Van Vinh, Thuy Loi University
Nguyen Phuc Khai, Ho Chi Minh City University of Technology
Truong Hoang Khoa, Ho Chi Minh City University of Technology
Nguyen Duc Hung, Ho Chi Minh City University of Technology
Dang Tuan Khanh, Ho Chi Minh City University of Technology
Phan Quang An, Ho Chi Minh City University of Technology
Ngo Xuan Cuong, Hue University
Tran Anh Thai, Applied Technical Systems Joint Stock Company (ATS JSC)
Tran Viet Thanh, Power Engineering Consulting Joint Stock Company 4 (PECC4)
Dinh Huu Thuan, Hanoi University of Science and Technology
Kato Takeyoshi, Nagoya University
Goro Fujita, Shibaura Institute of Technology
Behrooz Bahrani, Monash Universiy
Ali Moradi Amani, RMIT University
Gary W. Chang, National Chung Cheng University
Syuan-Yi Chen, National Taiwan Normal University

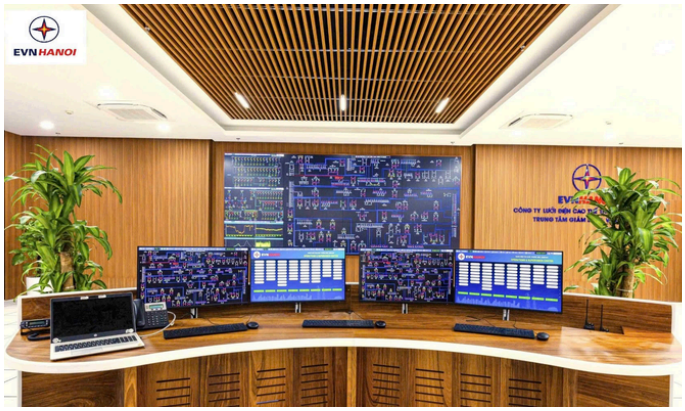
PROGRAM OUTLINE

Day 1 | November 5th , 2026 | Thursday | UTC +7	
Welcome | 15:00 - 20:00 | Room 509 - Ta Quang Buu Library	
Time	Activity
15:00 - 16:00	Tutorial 1 – Dr. Le Thi Thu Yen, School of Chemistry and Life Sciences
16:00 - 17:00	Tutorial 2 – Le Hoai Thanh, Senior Application Engineer, Ansys ASEAN
17:30 - 20:00	Welcome Reception

Day 2 | November 6th , 2026 | Friday | UTC +7	
Opening Ceremony, Keynote Speeches, Sponsor Business Networking | 08:30 - 15:00 | International Conference Chamber (10th Floor)	
Time	Activity
08:30 - 08:40	Opening Ceremony
08:40 - 09:05	Keynote 1 – Prof. Mahdi Jalili, RMIT University, Australia
09:05 - 09:30	Keynote 2 – Assoc. Prof. Baljit Singh a/l Bhathal Singh, UiTM, Malaysia
09:30 - 09:55	Keynote 3 – Mr. Weerayut Srithiam, EGAT, Thailand
Coffee Break | 09:55 - 10:15	
10:15 - 10:40	Keynote 4 – Assoc. Prof. Nguyen Duc Tuyen, HUST, Vietnam
10:40 - 11:05	Keynote 5 – Ms. Munlika Sompranon, Ministry of Energy, Thailand
11:05 - 11:45	Roundtable & Plenary Discussion
Luncheon | 11:45 - 13:30	
Sponsor Business Networking & Industry Exchange | 13:30 - 15:00	
15:00 - 15:15	Move to C7 Building
15:15 - 17:00	Parallel Paper Presentation Sessions
17:00 - 17:30	Free Time
18:00 - 20:30	Gala Dinner

PROGRAM OUTLINE

Day 3 | November 7th , 2026 | Saturday | UTC +7	
Time	Activity
08:00 - 08:30	Gathering & Departure
09:00 - 09:40	Visit to HANOI HGC Headquarters
09:40 - 09:50	HANOI HGC Headquarters → 220 kV Thanh Xuan Substation
09:50 - 10:30	Visit to 220 kV Thanh Xuan Substation
10:30 - 11:15	220 kV Thanh Xuan Substation → 110 kV Sai Dong 2 Substation (BESS)
11:15 - 11:40	Visit to Sai Dong 2 Battery Energy Storage System (BESS) Station
11:40- 11:45	Closing & Group Photo









KEYNOTE SPEAKER



Prof. Mahdi Jalili

RMIT University, Melbourne, Australia

AI and Optimisation for Integrating Renewable Energy and Electric Vehicles into the Grid

❏ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❏ Time: 08:40 - 09:10, November 6, 2026 (UTC+7)

Abstract:
The transition to a clean economy requires sourcing electricity from renewable energy and decarbonising the energy and transport sectors. Distribution grids face significant challenges in efficiently integrating distributed energy resources, including rooftop solar, batteries and electric vehicles. To avoid voltage and thermal issues, grid enhancements are often required to accommodate excess solar generation and extreme power imports resulting from household and transport electrification. These investments are often passed directly on to customers, making network charges less affordable. In this talk, I will discuss potential solutions and how AI and optimisation technologies can be used to optimise the integration of distributed energy resources at minimal cost. I will also present several Australian case studies.

Biography:
Mahdi Jalili is a Distinguished Professor of AI and Electrical Engineering at RMIT University, Melbourne, Australia. He is an Australian Research Council Fellow and Director of the ARC Industrial Transformation Training Centre in Electrification, a national centre involving four Australian universities and 12 government and industry partners. He is also the Founding Director of the RMIT EV-Grid Integration Lab, which focuses on the integration of electric vehicles, renewable energy, battery storage and other distributed energy resources into electricity grids. His research interests include energy analytics, complex systems, AI, machine learning and optimisation, with a particular focus on their applications to renewable energy integration, electric vehicle charging, energy management and grid flexibility. His research aims to translate advanced AI and optimisation technologies into practical solutions that support Australia's transition to a resilient, affordable and net-zero energy future.

KEYNOTE SPEAKER

Assoc. Prof. Baljit Singh a/l Bhathal Singh

Universiti Teknologi MARA (UiTM), Malaysia

Powering ASEAN's Intelligent Energy Future Through AI and Smart Grids



❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 08:40 - 09:10, November 6, 2026 (UTC+7)

Abstract:
ASEAN's growing energy demand, increasing renewable energy penetration, and rapid electrification are transforming the region's power systems. Smart grids, supported by artificial intelligence, advanced sensing, energy storage, digital platforms, and intelligent control, are becoming increasingly important in ensuring reliable, flexible, efficient, and sustainable electricity networks. This abstract explores how AI-enabled smart grids can accelerate ASEAN's transition towards a cleaner, smarter, and more resilient energy future. Emerging applications of artificial intelligence in renewable energy forecasting, demand prediction, predictive maintenance, fault detection, energy management, and real-time grid optimisation are highlighted. Particular emphasis is placed on the integration of variable renewable energy sources such as solar and wind, together with battery energy storage systems, electric vehicles, distributed generation, and microgrids. The growing roles of digital twins, Internet of Things technologies, and data-driven decision-making in improving grid visibility, system efficiency, and operational reliability are also considered. Key challenges facing ASEAN include ageing infrastructure, cybersecurity risks, interoperability, investment requirements, regulatory readiness, and cross-border electricity integration. Addressing these challenges will require stronger regional collaboration, supportive policies, technological innovation, and continuous workforce development. The transition towards intelligent, interconnected, and adaptive power systems offers ASEAN significant opportunities to strengthen energy security, maximise renewable energy utilisation, enhance grid resilience, and advance towards a low-carbon and digitally enabled energy future.

Biography:
Assoc. Prof. Ir. Ts. Dr. Baljit Singh is an academic and researcher at the Faculty of Mechanical Engineering and a senior research Fellow of Solar Research Institute (SRI), Universiti Teknologi MARA (UiTM), Malaysia, with expertise in renewable energy, thermal systems, energy efficiency, and intelligent energy technologies. His research focuses on solar photovoltaic and solar thermal systems, thermoelectric power generation, waste heat recovery, hybrid energy systems, and the application of artificial intelligence and computational modelling for energy prediction and optimisation. He has led and contributed to research projects involving AI-enhanced solar energy forecasting, photovoltaic performance optimisation, thermal energy recovery, passive cooling, and sustainable energy systems. His work integrates experimental investigation with numerical tools such as ANSYS Fluent and MATLAB to improve the performance, reliability, and efficiency of emerging energy technologies. Beyond research, Dr. Baljit is actively involved in engineering education, professional bodies, technical evaluation, accreditation, and the supervision of undergraduate and postgraduate research. His current interests increasingly address the convergence of renewable energy, artificial intelligence, digitalisation, energy storage, and smart grid technologies. These areas strongly align with ASEAN's transition towards more intelligent, interconnected, resilient, and low-carbon power systems.

KEYNOTE SPEAKER



Dr. Weerayut Srithiam

Electricity Generating Authority of Thailand (EGAT)

Integration, Application, and National Benefits of Demand Response through the Demand Response Control Center (DRCC)

❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 08:40 - 09:10, November 6, 2026 (UTC+7)

Abstract:
Due to the current economic and environmental conditions, energy consumers are increasingly transforming into Prosumers, who can both consume and produce electricity. At the same time, rapidly developing technologies such as Solar Rooftop, Battery Energy Storage Systems (BESS), and Internet of Things (IoT) are being adopted and applied as energy-saving measures at the individual level. However, not everyone in the general public has sufficient basic knowledge of technology or understands how these technologies can be effectively applied. Furthermore, establishing connectivity among individual energy users is essential to create collaboration and coordination at the regional and national levels. Therefore, appropriate measures, incentives, and mechanisms, including both technical and financial aspects, are necessary. These are also important areas that new-generation energy entrepreneurs and business operators need to understand and develop. The implementation of energy monitoring systems to establish an accurate Baseline is another essential element for initiating energy-saving measures. Connectivity between energy devices and the operating systems used to control energy systems within homes or buildings is also crucial. If such systems are designed as closed systems and are unable to receive commands or signals from external platforms, this may become a significant barrier to further development and to realizing the full benefits of an integrated energy management system. This article introduces the basic infrastructure and essential equipment required to implement Demand Response (DR) for different categories of electricity users. It also presents approaches for establishing connectivity from individual homes and industrial facilities to an Aggregator, and subsequently to a Demand Response Control Center. If the required investment is reasonable and economically worthwhile for electricity users to participate in Demand Response programs, the overall benefits can extend beyond individual users to the country as a whole, as well as to the environment and climate. By reducing energy consumption and improving the efficiency of electricity use, Demand Response can contribute to the transition toward Net Zero. Most importantly, all sectors can participate in this transition through practical implementation, with technology serving as an enabler that provides guidance, automation, and greater convenience for users while supporting more efficient and sustainable energy management.

Biography:
Dr. Weerayut Srithiam is the Chief of the Energy Solutions Department, Business Innovation Management Division at the Electricity Generating Authority of Thailand (EGAT). He has extensive experience in energy systems, smart grids, renewable energy, energy storage, investment analysis, and business development. He holds a Master of Science in Smart Grid (Electrical Engineering) from Heriot-Watt University, UK, a Master of Economics in Project Analysis from the National Institute of Development Administration (NIDA), Thailand, and bachelor's degrees in Electrical Engineering from Kasetsart University and Economics from Sukhothai Thammathirat University. He has been with EGAT since 2010, where he has held various engineering, planning, energy storage, investment analysis, and energy solutions leadership positions.

KEYNOTE SPEAKER

Assoc. Prof. Nguyen Duc Tuyen

School of Electrical and Electronic Engineering,
Hanoi University of Science and Technology

AI-Driven Data Centers: From Massive Electricity Loads to Flexible Energy Resources



❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 08:40 - 09:10, November 6, 2026 (UTC+7)

Abstract:
The rapid growth of Artificial Intelligence (AI), cloud computing, and digital services is transforming data centers into rapidly expanding and highly dynamic electricity loads. AI workloads introduce variable and bursty power demand, creating new challenges for power-system operation, power quality, electricity markets, and decarbonization. At the same time, the computational flexibility of data centers creates an opportunity to transform them from passive consumers into controllable and flexible energy resources. This keynote explores the emerging interaction between AI, data centers, energy storage, renewable energy, and future power systems. A workload–facility–point of common coupling (PCC) framework is introduced to examine how computational events and IT-power variations propagate through servers, power-conversion systems, UPS, cooling, protection, and facility-level controls before reaching the grid. Different modeling approaches are also discussed in terms of physical boundaries, timescales, grid applications, and validation. The presentation then examines how workload scheduling, power capping, geographically distributed computing, renewable energy integration, and Battery Energy Storage Systems (BESS) can be coordinated to improve both data-center efficiency and grid performance. An AI-based energy-management framework combining power capping and BESS operation is presented as an illustrative case, demonstrating the potential to reduce energy costs, mitigate peak demand, and smooth power fluctuations while maintaining Quality of Service (QoS). Finally, the keynote discusses future grid-interactive AI data centers and identifies key research needs in cross-scale modeling, limited-data parameter identification, model validation, and the development of public datasets linking workload, IT, facility, and grid-level measurements. The central message is that AI data centers should not be viewed solely as growing electricity consumers; when properly managed, they can become important sources of flexibility and active participants in future smart energy systems.

Biography:
Assoc. Prof. Nguyen Duc Tuyen is a lecturer at the School of Electrical and Electronic Engineering, Hanoi University of Science and Technology (HUST) and a member of IEEE. He obtained his Ph.D. in Japan and spent the period 2008–2018 studying and working there. Assoc. Prof. Tuyen has established extensive international collaborations with partners in Japan, Australia, Taiwan, South Korea, and the United Kingdom. He has published around 200 scientific papers in reputable international journals and conferences, and has been actively involved in training and supervising graduate and doctoral students in the field of modern energy and power systems. He is also a member of the editorial boards of the Journal of Science and Technology (JST) and the MCA journal in Vietnam. He currently serves as the Chairman of the IEEE Power & Energy Society (PES) Vietnam Chapter.

KEYNOTE SPEAKER



Ms. Munlika Sompranon

Department of Alternative Energy Development and Efficiency (DEDE),
Ministry of Energy, Thailand

Solar Energy and Smart Grids: Thailand's Journey from Policy to Implementation

❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 08:40 - 09:10, November 6, 2026 (UTC+7)

Abstract:
Thailand's transition towards a low-carbon energy system requires both increased solar energy deployment and a more flexible, intelligent, and resilient electricity grid. This presentation examines Thailand's progress from renewable energy policy formulation to practical implementation across utility-scale, commercial, household, and community applications. It highlights the role of PV, smart grids, energy storage, digital energy management, and other distributed energy resources in integrating higher levels of solar power. The presentation also addresses key challenges, including grid capacity, interconnection procedures, regulatory readiness, financing, technical standards, and workforce development. Drawing on Thailand's experience, the presentation will identify priorities for accelerating solar deployment while maintaining grid reliability and energy security. It will also highlight opportunities for regional cooperation and knowledge exchange to support resilient and interconnected clean energy systems across ASEAN.

Biography:
Ms. Munlika Sompranon serves as Director of the Division of Solar Energy Development at Thailand's Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, where she oversees national solar energy initiatives, drives renewable energy policy implementation, and manages strategic frameworks to support Thailand's clean energy transition. Throughout her career at the department, she has held several key leadership roles, including Director of the Energy Human Resource Development Division and Director of the Energy Cooperation Section. In these positions, she led initiatives in professional training, capacity building, international affairs, and cross-border energy cooperation. She has represented Thailand in regional and international energy forums, collaborating closely with government agencies, international organizations, and development partners. Her expertise spans solar and renewable energy development, energy policy, workforce development, and international relations—all driven by a strong commitment to advancing Thailand's transition toward a secure, sustainable, and low-carbon energy future.

SPONSOR'S KEYTALK



Ms. Le Thi Ngan

Hitachi Energy Vietnam
HUB APMEA Application Engineer

❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 15:00 - 17:00, November 5, 2026 (UTC+7)

Abstract:
The global energy transition is shifting the focus of power-system transformation from generation and transmission to the distribution grid, where electrification is expanding most rapidly. Hitachi Energy introduces Distribution Grid 3.0 as a new operating paradigm for distribution networks, reflecting their evolution from predictable, one-way systems into dynamic, multi-directional platforms capable of connecting, managing, and optimizing distributed energy resources, electric vehicles, battery storage, data centers, industrial loads, and prosumers.
Distribution Grid 3.0 is characterized by five key attributes: multi-directional, dynamic, distributed, resilient, and affordable. As utilities face accelerating demand growth and increasing network complexity, traditional grid expansion alone is no longer sufficient. Modernization requires a combination of digitalization, advanced automation, power-quality solutions, and grid-enhancing technologies to maximize the utilization of existing infrastructure while maintaining reliability and sustainability.
This presentation explores the key drivers, challenges, and opportunities associated with Distribution Grid 3.0. It also highlights potential solutions that can help utilities accelerate electrification while addressing the energy trilemma of security, affordability, and sustainability.

Biography:
Ngan holds a bachelor's degree in electrical engineering from the Hanoi University of Technology, Vietnam and a master's degree in Mechatronics from the Dresden Technical University, Germany.
She has 5 years of experience in Research at Hanoi University of Technology and almost 18 years of expertise in various functions, including Process Automation, Robotics, Transformer at ABB and Hitachi Energy. She has worked with utilities and customers across geography like Asian Pacific, Africa, USA and Europe.
Currently, she is part of Application Engineering team of HUB APMEA (Asia Pacific, Middle East and Africa), Business Unit Transformer in Hitachi Energy and based in Vietnam.

SPONSOR'S KEYTALK



Mr. Truong Xuan Truong

AT Energy JSC
General Director

❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 15:00 - 17:00, November 5, 2026 (UTC+7)

Abstract:
Asset management is becoming increasingly important for power utilities seeking to improve reliability, manage operational risks, and optimize costs throughout the asset life cycle. This presentation introduces an asset management approach based on the principles of ISO 55000 and relevant CIGRE guidance, with particular focus on the selection of maintenance strategies ranging from Run-to-Failure (RtF) and Time-Based Maintenance (TBM) to Condition-Based Maintenance (CBM) and Risk-Based Maintenance (RBM), depending on asset condition, criticality, and risk.
In the context of power system digitalization, the Common Information Model (CIM) provides a standardized information model for representing assets and their relationships, enabling more consistent integration and management of data across both primary and secondary systems. The presentation highlights how standardized data models can support the transition from conventional schedule-based maintenance toward a more data-driven, condition- and risk-based approach to asset management.

Biography:
Mr. Truong Xuan Truong received his Engineer's degree in Electrical Engineering from Hanoi University of Science and Technology in 1997. He has extensive experience working in the electric power industry.
In 2015, he co-founded AT Energy JSC, specializing in testing and commissioning, power systems and smart grid solutions. Driven by a commitment to continuous innovation, AT Energy strives to become a leading Science and Technology enterprise, delivering solutions that support smarter, safer, and more reliable operation of power plants and electrical grids.

SPONSOR'S KEYTALK



Mr. Vu Cong Thuc

VTI JSC
Director

❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 15:00 - 17:00, November 5, 2026 (UTC+7)

Abstract:
Continuous Thermal Monitoring (CTM) is emerging as a core technology that is fundamentally transforming how industrial facilities manage maintenance, prevent failures, and maximize the safety of electrical systems. With the introduction of new standards such as IEEE 2969-2025 and QCVN 26:2025/BCT, implementing CTM is no longer merely an optimization solution, but an increasingly critical requirement for regulatory compliance.
Against this backdrop, VTI has developed a Continuous Thermal Monitoring (CTM) technology based on an IoT-enabled intelligent measurement and monitoring system. Key system capabilities include a wireless communication network, support for operating voltages of up to 500 kV, sensor power capacity of up to 1 A with a self-powered system, and a battery-powered sensor system with a battery life of up to 10 years. This presentation provides an overview of the technology and performance of this temperature monitoring system.

Biography:
Mr. Vu Cong Thuc received his Engineer's degree in Electrical Engineering from Hanoi University of Science and Technology in 2015. He is an expert in testing, diagnostics, and the implementation of CBM (Condition-Based Maintenance) programs for electrical equipment. Currently, he and VTI are developing comprehensive solutions for monitoring electrical systems, with a particular focus on continuous temperature monitoring technology.

SPONSOR'S KEYTALK



Mr. Thai Anh TRAN

Applied Technical Systems Joint Stock Company
Chief Strategy and Technology Officer

❑ Venue: International Conference Chamber (10th Floor) and Lecture Hall Rooms
❑ Time: 15:00 - 17:00, November 5, 2026 (UTC+7)

Abstract:
The rapid integration of inverter-based resources (IBRs) is reshaping the dynamic behaviour of power systems across ASEAN. The displacement of synchronous generation reduces system strength and inertia, while converter controls introduce fast dynamics and new interaction phenomena. This challenges real-time operation, where security margins become narrower and less visible, and grid planning studies, whose credibility now rests on the accuracy of dynamic simulation models.
Reliable grid impact and grid code compliance assessment therefore requires models that faithfully represent the actual equipment, from the inverter level up to the complete power plant. In practice a substantial gap remains: vendor models often omit functions implemented in the real firmware, communication delays and controller cycle times are unrepresented, converting model parameters into physical settings is error-prone, and manufacturers validate their own device only, not the integrated plant operating under a real power plant controller. These discrepancies are typically found during commissioning, when non-compliance is most costly to remedy.
This presentation discusses system-level Hardware-in-the-Loop (HIL) testing as a practical means of closing that gap. The grid and the complete power plant are represented in a simulation platform acting as a real-time grid simulator, exchanging data over standard communication protocols with the physical control hardware to be installed on site, including the power plant controller (PPC), energy management system (EMS) and SCADA systems. The integrated plant is then subjected to the full set of model acceptance, compliance and pre-commissioning tests, producing documented evidence of model confirmation and compliance before energisation.
Once plant models are validated against their physical controllers and the network model against measurements, the operator holds an accurate dynamic model of the entire system which is the foundation of a grid digital twin. This enables Online Dynamic Security Assessment, which evaluates credible contingencies against grid code criteria in real time and gives operators quantified operational boundaries and security margins for enhanced grid visibility and security. The presentation closes with lessons learned from applying both technologies in Vietnam and in international markets with stringent connection requirements.

Biography:
Mr. Thai Anh TRAN is Chief Strategy and Technology Officer at Applied Technical Systems Joint Stock Company (ATS JSC). From 1985 to 2005 he worked for Vietnam Electricity (EVN) as Director of Transmission and Distribution Department and Director of National Load Dispatching Center where Mr. TRAN was responsible for Power System Studies, Power System and Power Market standardization, specification, implementation and operation. Mr. TRAN joint Applied Technical Systems as Chief Technology Officer from 2005 up to the present time where he is responsible for Company Strategy and System Architecture of the integrated protection, control and automation, SCADA and PPC systems developed by ATS JSC for Vietnam Power System. Mr. TRAN is also the President & CEO and Founder of Viet Nam Power Resource Partners Corporation (Vietnam PRP Corp.), the company specializes in Power System Study Consulting Services since 2006. He is the founder and Director of AusRE Solutions Pty Limited registered in Melbourne, Victoria, Australia.
Mr. TRAN graduated from Hanoi University of Science and Technologies (Vietnam) in Power System Engineering in 1985 and he is member of IEEE and Cigre since 1997.

PARALLEL PAPER PRESENTATION SESSIONS

6 November 2026 | 15:15–17:00
4 Parallel Rooms | 27 Papers | 15 Minutes per Paper

SESSION: AI AND INTELLIGENT ENERGY SYSTEMS | ROOM E601, C7 BUILDING			
Chair: Assoc. Prof. Tran Thanh Son – Electric Power University		**Co-chair: Dr. Hoang Duc Chinh – Hanoi University of Science and Technology**	
Scheduling note: Each paper is allocated 15 minutes, starting at 15:15. Sessions run continuously with no scheduled breaks between papers.			
Time	**Paper ID**	**Paper Title**	**Authors**
15:15 - 15:30	170	Quantum-Train reinforcement learning for parameter-efficient building energy scheduling	Hoang-Anh Dang*; Nguyen Binh Dang; Gia Huy Nguyen Duc; Van-Dung Dao; Liangzhu Leon Wang
15:30 - 15:45	162	Decomposition-Based Multi-Objective Deep Reinforcement Learning for Constrained Microgrid Energy Management	Hoang-Anh Dang*; Ngoc Nguyen Bich; Gia Huy Nguyen Duc
15:45 - 16:00	156	Robust Deep Reinforcement Learning for Reactive Power Market Dispatch under Telemetry Observation Uncertainty	To Tien Hung*; Le Phuong Hau; Nguyen Tuan Hung
16:00 - 16:15	151	Prediction-Guided Multi-Objective Reinforcement Learning for Microgrid Energy Management System	Hoang-Anh Dang*; Bao An Pham Luong; Gia Huy Nguyen Duc
16:15 - 16:30	150	A Multi-Objective Proximal Policy Optimization for Microgrid Scheduling Considering BESS Degradation	Hoang-Anh Dang*; Son Tran Thanh; Gia Huy Nguyen Duc; Kim Thuy Nguyen Thi; Tuyen Nguyen Duc
16:30 - 16:45	159	Bilevel Time-and-Level-of-Use Pricing for Residential Demand Response with Distributed Energy Resources	Thuy Duong Nguyen Thi; Tuyen Nguyen Duc*; Cuong Duc Dao
16:45 - 17:00	124	Adaptive Sliding Mode Control with Online RBF Neural Network for DC Microgrids	Hung Ly Ba; Anh Nguyen Duy Tuan; Phong Bui The; Hung Nguyen Quang; Nga Thi Vu Thuy*
Session Group Photo			

PARALLEL PAPER PRESENTATION SESSIONS

6 November 2026 | 15:15–17:00
4 Parallel Rooms | 27 Papers | 15 Minutes per Paper

SESSION: RENEWABLE ENERGY AND FORECASTING | ROOM E603, C7 BUILDING			
Chair: Dr. Bui Duy Linh – National Power System and Market Operator Company		**Co-chair: Dr. Pham Manh Hai – Electric Power University**	
Scheduling note: Each paper is allocated 15 minutes, starting at 15:15. Sessions run continuously with no scheduled breaks between papers.			
Time	**Paper ID**	**Paper Title**	**Authors**
15:15 - 15:30	176	Short-term photovoltaic power forecasting for PV systems using temporal convolutional networks	Nguyen Quang Hung; Do Minh Cuong; An Thi Hoai Thu Anh*
15:30 - 15:45	164	Short-Term Photovoltaic Power Forecasting Using TCN–iTransformer Hybrid Model	Hieu Do Dinh; Tuyen Nguyen Duc*; Son Tran Thanh; Takeyoshi Kato
15:45 - 16:00	153	Short-term wind speed forecasting for microgrid operation at a high-wind coastal site: a leakage-audited methodology	Melissa Cassan; Huong Pham Thi Lan*; Dang Pham Quang; Thanh Bui Dang
16:00 - 16:15	149	Probabilistic Forecasting of Regional-Level Electric Vehicle Charging Demand Using Seasonal Residuals and CatBoost	Nhat An Ho; Duc Minh Trinh; Minh Phuong Le; Thi Anh Nguyet Phan; Thi Lan Huong Pham; Dang Thanh Bui*
16:15 - 16:30	122	An Integrated Geography Information System Framework for Equitable Rooftop Solar Deployment and Distribution Grid Prioritization	Atharva Gujarathi; Sahil Manikshete; Vikram Velankar; Prasidh Shetty; Hai Bui Van*
16:30 - 16:45	155	Sustainability challenges and policy recommendations for solar-powered telecommunication infrastructure in rural Northern Thailand	Pema Rinzin*; Worajit Setthapun; Nuttiya Tantranont
Session Group Photo			

PARALLEL PAPER PRESENTATION SESSIONS

6 November 2026 | 15:15–17:00
4 Parallel Rooms | 27 Papers | 15 Minutes per Paper

SESSION: POWER SYSTEM OPERATION AND SMART GRID | ROOM E613, C7 BUILDING			
Chair: Assoc. Prof. Nguyen Duc Tuyen – Hanoi University of Science and Technology		**Co-chair: Dr. Dang Hoang Anh – Ho Chi Minh City University of Technology**	
Scheduling note: Each paper is allocated 15 minutes, starting at 15:15. Sessions run continuously with no scheduled breaks between papers.			
Time	**Paper ID**	**Paper Title**	**Authors**
15:15 - 15:30	161	Multi-Timescale Coordinated Frequency Control of Battery Energy Storage and Flexible Demand Response Across Microgrids and Low-Inertia Bulk Power Systems	Le Anh Quan; Trinh Xuan Thanh; Nguyen Duc Tuyen*; Ali Moradi Amani
15:30 - 15:45	158	Frequency-Constrained Unit Commitment Using Offline Frequency-Response Screening	Huy Nguyen-Duc; Cuong Hoang-Anh*; Van-Anh Phung; Alexander Vo
15:45 - 16:00	157	Temperature-Dependent Power Flow Based on an Equivalent Thermal Network for Layer-Resolved Transient Analysis of Overhead Transmission Lines	Trung-Son Nguyen*; Hieu Le Minh
16:00 - 16:15	154	Distribution Automation System for Modern Distribution Grids: A Case Study of Software Park No. 2 - International Financial Center in Da Nang City	Thanh Trung Nguyen*; Hong Lam Le
16:15 - 16:30	127	SVC-based solution for mitigating the Zero-missing Phenomenon in offshore HVAC transmission systems	Huu Hieu Nguyen*; Kim Long Huynh; Viet Thanh Tran
16:30 - 16:45	147	Design and Development of a Web-Based Lightweight Digital Twin Architecture for Smart Community Energy Monitoring	Dechawat Plaekmaung*; Hathaithip Sintuya; Worajit Setthapun
16:45 - 17:00	183	Design of a Three-Phase Grid-Connected Inverter With LCL Filter and Active Gate-Drive Concept	Van-Long Pham*; Minh-Quang Nguyen; Thanh-Hoa Nguyen-Thi; Trong-Minh Tran
Session Group Photo			

PARALLEL PAPER PRESENTATION SESSIONS

6 November 2026 | 15:15–17:00
4 Parallel Rooms | 27 Papers | 15 Minutes per Paper

SESSION: ENERGY STORAGE AND EMERGING TECHNOLOGIES | ROOM E615, C7 BUILDING			
Chair: Assoc. Prof. Nofri Yenita Dahlan – Universiti Teknologi MARA (UiTM)		**Co-chair: Dr. Nguyen Nhat Tung – Thuyloi University**	
Scheduling note: Each paper is allocated 15 minutes, starting at 15:15. Sessions run continuously with no scheduled breaks between papers.			
Time	**Paper ID**	**Paper Title**	**Authors**
15:15 - 15:30	171	Smart Battery Stock Allocation and Queue Management for Electric Vehicle Swapping Stations	Malik Muhammad Arslan; Abdullah Nawaz*; Ghayoor Abbas; Naveed Arshad
15:30 - 15:45	160	Sensitivity of lithium-ion battery state-of-health estimation from partial charging data to measurement density under cell-wise validation	Son Thanh Le; Tuyen Nguyen-Duc*; Ali Moradi Amani; Ali Syed M. Nawazish
15:45 - 16:00	152	Power Transformer Health Index Prediction with External Inspection Data	Hoang-Anh Dang*; Chi Dung Dang; Tu Pham Minh; Viet Linh Trieu; Dung Dao Van; Quang Nguyen Van
16:00 - 16:15	142	Conversion of Biomass Wastes into Carbon Adsorbents via Hydrothermal Treatment and KOH-Assisted Pyrolysis	Ngoc Khanh Ly Pham; Minh Hung Le; Dinh Quang Ta; Minh Thang Le*
16:15 - 16:30	135	Linear Control of Oxygen Excess Ratio for PEM Fuel Cells	Minh Ngoc Bui; Dinh Hoa Nguyen*
16:30 - 16:45	123	From Energy Poverty to off-grid Smart Energy: Measured Household Air Quality and Willingness to Pay in Skardu, Gilgit-Baltistan	Syed Safiullah Khalid*; Engr Kiran Siraj; Roha Rehan; Naveed Arshad
16:45 - 17:00	134	Biomolecular Characterization and Classification of Human Breast Tissue Pathologies Using Fingerprint Raman Spectroscopy	Van Hung Nguyen; Huu Thuan Mai; Duc Quan Ngo*
Session Group Photo			

DELEGATES

Dr. Bui Van Huy	Hanoi University of Industry
Dr. Tran Thuy Van	Hanoi University of Industry
Dr. Hoang Trung Kien	University of Science and Technology of Hanoi
Assoc. Prof. Nguyen Nhat Tung	Thuyloi University
Dr. Do Tuan Khanh	Hung Yen University of Technology and Education
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Assoc. Prof. Nguyen Thanh Hai	University of Transport and Communications
Assoc. Prof. Tran Van Quan	University of Transport Technology
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HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Founded in 1956, Hanoi University of Science and Technology (HUST) is one of Vietnam's leading universities in science, engineering, and technology. As the first and largest multidisciplinary technical university in Vietnam, HUST has played a significant role in the development of the country's science, technology, and engineering sectors. Located in Hanoi, the capital city of Vietnam, the university is well known for its strong academic tradition, high-quality education, and research-oriented environment. HUST currently has a large and diverse academic community, with thousands of students, faculty members, researchers, and staff working across a wide range of disciplines.

Ta Quang Buu Library is one of the most important academic facilities of Hanoi University of Science and Technology. Located at the heart of the university's campus, the library provides students, lecturers, and researchers with a spacious and modern environment for studying, reading, and conducting research. Named after Professor Ta Quang Buu, a distinguished Vietnamese scientist, educator, and former Minister of Higher Education, the library reflects HUST's long-standing tradition of academic excellence and scientific development. With a large collection of books, academic materials, journals, and digital resources, the library serves as an essential source of knowledge for students from different fields of study. In addition to individual study spaces, Ta Quang Buu Library also provides facilities that support group discussions, academic research, and self-directed learning, making it an important part of student life at HUST.

Further cementing its stature as an intellectual cornerstone, Ta Quang Buu Library has been designated as the official venue for the forthcoming ASGC9 conference. This highly anticipated event auspiciously coincides with the 70th anniversary of the establishment of Hanoi University of Science and Technology. This momentous occasion will convene eminent scholars, distinguished researchers, and outstanding students to commemorate seven decades of the university's academic excellence and technological innovation. The hosting of such a prestigious international assembly at the central library not only showcases its advanced academic infrastructure but also fundamentally reinforces HUST's preeminent position as a premier destination for global scientific collaboration and exchange.

HUST also offers a vibrant student life, with numerous student organizations, clubs, competitions, academic activities, and extracurricular programs. Through its combination of academic excellence, advanced research facilities, and a dynamic learning environment, Hanoi University of Science and Technology provides students with opportunities to develop both professional knowledge and practical skills, preparing them to contribute to Vietnam's future scientific and technological development.



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