



Universiti Tenaga Nasional, Malaysia

Research & Innovation

From Research to Reality

NEC
NATIONAL ENERGY CENTRE 2022

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Engage with UNITEN Research & Innovation



Welcome to the inaugural issue of the UNITEN Research & Innovation Newsletter, sharing recent research grants, international engagements, facility spotlights, industry-sponsored projects, and upcoming events from across the UNITEN research community. To learn more about Universiti Tenaga Nasional (UNITEN), please visit www.uniten.edu.my.

IN THIS ISSUE

- › International Research Grant from Taiwan
- › PERL Research Facility Spotlight
- › EIC Podcast at NEC, UNITEN
- › Research That Drives Real-World Impact
- › Postdoctoral Fellowship Opportunity
- › Upcoming Conference: ICSEIE-CT 2026
- › International Delegations

FEATURE SPOTLIGHT

UNITEN Secures International Research Grant from Taiwan



Assoc. Prof. Dr. Zuraidah Ali, from the College of Continuing Education and Institute of Energy Research and Policy, has secured an international research grant from Ming Chi University of Technology (MCUT), Taiwan. The project is structured under the University Social Responsibility (USR) framework, combining applied research with community-centred outcomes.

INDUSTRY ENGAGEMENT

Podcast with the Energy Industries Council (EIC) at NEC, UNITEN



On 10 April 2026, the National Energy Centre (NEC), UNITEN hosted a podcast session with the Energy Industries Council (EIC), moderated by EIC CEO Stuart Broadley. The discussion brought together a distinguished panel: Prof. Ir. Dr. Khairul Salleh Mohd Sahari (Vice Chancellor), Prof. Ir. Dr. Vigna Kumaran (Deputy Vice Chancellor, Research & Innovation), and Prof. Emeritus Dato' Dr. Halimah Badioze Zaman (NEC Advisor and holder of the Tan Sri Leo Moggie Distinguished Chair).

The conversation centred on deepening collaboration between NEC, UNITEN and EIC, and positioning NEC as a regional hub for energy innovation and industry engagement. Also present were Ts. Syed Saggaf (EIC Regional Director) and directors from the Institute of Power Engineering (IPE), Institute of Sustainable Energy (ISE), Institute of Energy Infrastructure (IEI), Institute of Energy Policy and Research (IEPRE), and the Renewable Energy Chair, bringing a breadth of expertise to the table.



POSTDOCTORAL OPPORTUNITY

We Are Looking for World-Class Research Talent

The National Energy Centre (NEC), UNITEN invites applications from qualified postdoctoral researchers to join its expanding research programme. Successful candidates will contribute to high-impact projects across the following areas:

- › **Sustainable Energy**
- › **Power Engineering**
- › **Energy Infrastructure**
- › **AI, Computing & Informatics**
- › **Energy Research & Policy**

The programme offers a 2-year fellowship including airfare, medical, visa, and work permit support. Remote arrangements are available. To apply, send your CV to: research@uniten.edu.my

APPLY NOW, Send Your CV ›

INTERNATIONAL DELEGATIONS

Global Partners Explore Cooperation with NEC, UNITEN

INTERNATIONAL DELEGATION

China Power Explores Cooperation with NEC, UNITEN



A delegation from China Power visited NEC, UNITEN on 9 April 2026 to explore potential areas of research and technology cooperation. The delegation was received by directors from the Institute of Sustainable Energy (ISE), Institute of Power Engineering (IPE), Institute of Energy Infrastructure (IEI), and the Renewable Energy Chair, reflecting the breadth of UNITEN's research capacity and its growing profile as a partner of choice for international energy organisations.

INTERNATIONAL ENGAGEMENT

US Embassy Visits NEC, UNITEN to Explore Research Collaboration



NEC, UNITEN hosted Mr. Cameron Millard, Economic Officer at the U.S. Embassy in Kuala Lumpur, on 6 April 2026 for a discussion on potential bilateral collaboration in energy and nuclear research.

RESEARCH FACILITY SPOTLIGHT

Photovoltaic Energy Research Laboratory (PERL), UNITEN



The Photovoltaic Energy Research Laboratory (PERL) at UNITEN, under the Institute of Sustainable Energy (ISE), is a dedicated facility advancing solar energy and sustainable technology research. Equipped with a Class 10,000 cleanroom and advanced fabrication and characterisation tools, PERL supports high-impact work in thin-film solar cells (CIGS and perovskite), photovoltaic performance analysis, and emerging applications such as photoelectrochemical (PEC) hydrogen production.

Beyond the lab, PERL actively engages industry, government agencies, and academic partners through technology development, training, and knowledge exchange, reflecting UNITEN's commitment to renewable energy innovation and building talent for a low-carbon future.



INDUSTRY-SPONSORED PROJECTS

Research That Drives Real-World Impact

A selection of ongoing industry-sponsored projects at UNITEN.

PEOPLE & ORGANISATIONAL EXCELLENCE

Human Capital Return on Investment (HCROI)

Led by Dr. Noraini binti Ismail (IEPRe)

This project develops an HCROI framework for TNB Research Group, quantifying the value generated through talent development and leadership investment. Using financial analysis, cost-benefit evaluation, and qualitative research, the study supports strategic workforce planning and human capital decision-making.

CUSTOMER EXPERIENCE & SERVICE QUALITY

Customer Satisfaction Index (CSI) Initiative

Led by Dr. Mohd Nur Ruzainy bin Alwi (IEPRe)

This initiative implements a Customer Satisfaction Index (CSI) survey for TNB Genco using the Service Consumption Experience (SCE) framework, capturing perceptions and expectations across key service touchpoints. The findings establish a benchmark for continuous improvement aligned with international standards.

INFRASTRUCTURE & GEOTECHNOLOGY

World-Class Geotechnology Laboratory

Led by Assoc. Prof. P.Geol. GS. Dr. Rohayu Che Omar (IEI)

In partnership with Geomapping Technology, UNITEN is establishing a Geotechnology Laboratory under the IEI HiCOE Sustainable Energy Infrastructure niche. The facility will offer capabilities in soil

and rock characterisation, tunnelling simulation, and ground improvement modelling, supporting testing and consultancy services for the regional infrastructure sector.

ARTIFICIAL INTELLIGENCE & FACILITY MANAGEMENT

AI-Based Planned Preventive Maintenance System (AI-PPM)

Led by Assoc. Prof. Ts. Dr. Mohd Ezanee bin Rusli (IICE)

This project develops an AI-driven maintenance system for TNB's Integrated Facility Management division, automating scheduling, resource allocation, and documentation to shift from preventive to predictive maintenance, improving asset reliability and reducing downtime across TNB's building portfolio.

POWER SYSTEMS & INFRASTRUCTURE

Fiber Optic Cable Integrity on High-Voltage Transmission Lines (132kV & 275kV)

Led by Assoc. Prof. Dr. Muhamad Mansor (IPE)

This study identifies safe mounting zones for fiber optic cables on high-voltage lines by verifying electric field and space potential levels, evaluates electromagnetic risks during maintenance and fault conditions, and assesses long-term resilience against electrical erosion and corona discharge.

UPCOMING CONFERENCE

ICSEIE-CT 2026, Join Us in Kuala Lumpur



11 – 14 August 2026 | JW Marriott Hotel, Kuala Lumpur

2nd International Conference on Sustainable Energy, Infrastructure, and Environment, Clean Technology

ICSEIE-CT 2026 brings together researchers, engineers, and industry practitioners from Malaysia, South Korea, Australia, and beyond. Hosted at the JW Marriott Hotel, Kuala Lumpur, the conference covers four thematic areas at the intersection of clean technology and sustainable infrastructure.

PILLAR 1 Sustainable Energy Renewables, grid integration, and carbon-free fuels.	PILLAR 2 Energy Infrastructures Power systems resilience and smart city integration.
PILLAR 3 Environment & Decarbonisation Climate mitigation, carbon capture, and pollutant reduction.	PILLAR 4 Clean Technology Energy efficiency innovations and industrial performance.

Knowledge Exchange International and local experts from multiple countries.

Publication Double-blind peer-review. Top papers featured in JESE and Terra Joule.

Networking Build long-term partnerships between academia and industry.

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UNITEN Research & Innovation

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