Technical Visit

TNB High Voltage Direct Current (HVDC) Station, Gurun

15 June 2026 (Mon)

9.30am – 1.00pm

Stesen HVDC Gurun
Kawasan Perindustrian Gurun
08300 Gurun
Kedah Darul Aman

BEM CPD Hours: 3
Ref: IEM26/PG/156/V

Coordinator:
Ir. Dr. Huzein Fahmi B Hawari
Contact No: 019 - 452 5207

Participants are required to:

- **Arrange own transportation.**
- **Bring own safety boots.**

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IEM Member: RM30
Non-IEM Member: RM60

Time	Details
9.30am - 10.00am	Arrival & Registration
10.00am-11.15am	Introduction and HVDC Operation Technical Presentation
11.15am - 12.45pm	Site Visit
12.45pm - 1.00pm	Q&A, round up & souvenir presentation

Synopsis

Tenaga Nasional Berhad (TNB) operates a key High Voltage Direct Current (HVDC) station in Gurun, Kedah, which serves as a critical link between Malaysia's National Grid and Thailand's Electricity Generating Authority of Thailand (EGAT) network. This interconnection supports up to 300 MW of power exchange, enabling efficient cross-border electricity trading. The HVDC system enhances long-distance power transmission with reduced losses and improved stability, playing a vital role in strengthening regional energy cooperation within ASEAN.

Strategically located at Gurun and connected to the Khlong Ngae station in Thailand, this infrastructure allows Malaysia to export electricity during periods of low domestic demand and import power during peak load conditions. The system also supports emergency situations in the event of power shortages in either utility. The system has undergone extensive technical analysis and simulation studies using tools such as PSCAD/EMTDC to ensure system reliability, particularly in handling DC line faults and maintaining grid stability.

TNB continues to expand its HVDC capabilities as part of its long-term vision for the ASEAN Power Grid. Future initiatives include interconnection projects between Peninsular Malaysia and Sumatra, Indonesia, targeting a capacity of up to 600 MW. These developments aim to enhance renewable energy integration, improve regional sustainability, and support secure energy exchange across borders.
Managed under TNB's transmission division, the HVDC infrastructure is continuously upgraded to ensure safe, reliable, and efficient power transmission. This advancement reflects TNB's commitment to modernizing the grid and supporting Malaysia's role in regional energy connectivity and sustainability.

This Event is organized by:

IEM
The Institution of Engineers, Malaysia
Electronic Engineering Technical Division

In collaboration with:

IEM
The Institution of Engineers, Malaysia
(Penang Branch)