

# WEBINAR TALK ON SEISMIC ASSESSMENT OF FIXED FACILITIES FOUNDATION IN MALAYSIAN WATER

**SPEAKER :**

**MR. LAI TZE KHAI**



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**6 MAY 2025,  
TUESDAY**



**4.00PM – 6:00PM**

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# SYNOPSIS

Offshore platforms, which are traditionally used for the exploitation of oil and gas, have recently expanded to renewable energy such as wind. Many existing fixed offshore platforms in Malaysian waters are ageing but with the demand for enhancement due to further oil recovery and additional development in the adjacent field.

Besides that, installation of offshore wind turbines to power up the fleet is also widely discussed for Malaysian waters. The previous ISO 19901-2, 1st Edition, 2004 indicated that the offshore structures installed in Malaysian waters were falling in the no seismic zone. Hence, offshore structures in Malaysia were not normally designed for seismic forces. However, a Probabilistic Seismic Hazard Assessment (PSHA) study for the Sabah, Sarawak and peninsular Malaysia offshore in the South China Sea concluded that the structures in Malaysian waters are falling in the seismic zone. Latest ISO 19901-2, 3rd Edition, 2022 indicates that South China Sea, Malaysian water falls in the seismic zone. Hence, structures shall be designed and assessed for seismic.

PETRONAS has established a general framework for the seismic design criteria by developing a new seismotectonic model applicable to Malaysian waters. Albeit low, the three (3) operating regions reside in seismically active areas, which leads PETRONAS to reinvestigate the upgraded status and develop a guideline for the seismic design procedure applicable to both the existing fixed platforms and new constructions, including wind turbine supporting structures.

This lecture shares the relevant features included in the guideline for the new design as well as existing fixed structures in Malaysian waters. Implementation of which will also ensure the fitness-for-service (FFS) of the offshore structures is in line with the ISO requirements and minimization of associated risk.

## SPEAKER'S BIODATA

Lai Tze Khai, Staff Engineer of PETRONAS Technical Services Sdn. Bhd. (PTSSB) with more than 15 years' experience in the field of structural engineering, structural integrity, and reliability engineering for fixed offshore structures. He is familiar with International Standards: API RP and ISO series for offshore structures design and structural integrity management. Mr Lai graduated from UTM in the Bachelor Degree of Civil Engineering in 2007, Mr. Lai has vast experience working with Operators such as SHELL, EnQuest, HESS, PetroFac, IPC etc. Familiar with PETRONAS Technical Standard (PTS) / SHELL DEPs for Structural Integrity Management (SIM).