

Kinematics Implements KMIDam Platform at Bakun Dam in Malaysia



CASE STUDY



Facility map showing the monitored Bakun Dam
(Image: Sarawak Energy).

Catastrophic consequences result from dam failures due to earthquakes, making the reliable assessment of dam safety indispensable. Only with actionable information based on instrumental observation of structural behavior can operators make decisions confidently during seismic events.

Bakun Concrete Faced Rock-fill Dam (CFRD), operated by Sarawak Energy, is the largest hydropower dam in Southeast Asia. Standing over 200m tall, and with a rockfill volume of 16.93 million m³, it is ranked the 41st highest dam by ICOLD. The CFRD holds a reservoir with a surface area of 695km² and a catchment area of 14,750km². The Bakun Hydroelectric Plant is the largest source of electricity generation in Sarawak.

Such a critical structure requires continuous monitoring and an exceptional emergency alert system to protect operational continuity and the surrounding region.

In support of this, Kinematics recently implemented its KMIDam solution at the Bakun CFRD. The system leverages three ETNA2 accelerometers to detect on-site shaking and structural motion during seismic events. With this data, KMIDam provides the operators at the dam with real-time strong-motion response spectra alerts, which provide immediate notification of any exceedance of design performance criteria, which are SSE (Safe Shutdown Earthquake) and OBE (Operating Basis Earthquake). Operators are enabled to make emergency response decisions based on a strong understanding of the earthquake's impact to the dam site, structures, and facilities.

The longer it takes to respond to an emergency, the more costly the impact. The implementation at Bakun Dam delivers the increased situational awareness operators need to facilitate quicker and more appropriate emergency response to protect this critical structure.

