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Case Studies:

Accelerating Green Hydrogen Deployment Through Strategic Partnerships & Modular EPC

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Abstract

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The global energy transition demands scalable, cost-effective pathways for green hydrogen and electrofuels (e-fuels). Yet the sector remains trapped in a “scale-up bottleneck”: high production costs (USD 4–8/kg for green H₂), demand uncertainty, fragmented regulations, and limited infrastructure continue to delay the pilot-to-gigawatt transition.

This paper presents a case study on how **Malaysia Marine and Heavy Engineering (MHB)**, in strategic collaboration with **FuelCell Energy (FCE)**, is addressing these challenges through modular EPC design and advanced Solid Oxide Electrolysis Cell (SOEC) technology. The collaboration targets two critical barriers: delivering a ready-design for large-capacity hydrogen production facilities and achieving significant capital cost reduction through modular construction.

The presentation details a **160 MW modular hydrogen production system** configured as 8 x 20 MW cluster modules producing 86 MTPD of hydrogen. The modular stacked architecture delivers measurable advantages: **~61% footprint reduction** compared to conventional stick-built plants, **~44% schedule acceleration**, and scalable plug-and-play deployment suitable for remote locations.

Attendees will gain practical insights into how modularization combined with next-generation SOEC electrolysis can break the cost and deployment barriers holding back gigawatt-scale green hydrogen, with direct applicability to e-ammonia, e-methanol, and sustainable aviation fuel (SAF) value chains.

Keywords: Green Hydrogen | Modular EPC | SOEC Electrolysis | E-Fuels | Energy Transition | Scalable Deployment



THANK YOU

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