

WEBINAR TALK ON HYDROGEN ECONOMY – CHALLENGES AND OPPORTUNITIES

Prof. Dato Dr. Ahmad Ibrahim



**6 OCTOBER 2026,
TUESDAY**



4.00 PM - 6.00PM

BEM Approved CPD: 2
Ref. No.: IEM26/HQ/410/T(w)

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SYNOPSIS

The hydrogen economy has emerged as a key pillar in the global transition toward a low-carbon and sustainable energy future. As countries strive to achieve net-zero carbon emissions, hydrogen is increasingly recognized as a clean energy carrier capable of decarbonizing sectors that are difficult to electrify, including heavy industry, long-distance transportation, power generation, and chemical manufacturing. Green hydrogen, produced through water electrolysis using renewable energy sources, offers significant potential to reduce greenhouse gas emissions while improving energy security and supporting the integration of renewable energy into existing power systems.

Despite its promising potential, the widespread adoption of a hydrogen economy faces several technical, economic, and regulatory challenges. High production costs, limited infrastructure for storage and transportation, low energy conversion efficiency, and the need for standardized safety regulations remain significant barriers to commercialization. Furthermore, scaling up hydrogen production requires substantial investments in renewable energy capacity, advanced technologies, and supportive government policies.

At the same time, the hydrogen economy presents numerous opportunities for innovation, industrial growth, and job creation. Advances in electrolysis technologies, fuel cells, hydrogen storage materials, and carbon capture for blue hydrogen are continuously improving the feasibility and competitiveness of hydrogen applications. Governments worldwide are introducing national hydrogen strategies, financial incentives, and international collaborations to accelerate market development. For countries such as Malaysia, hydrogen offers opportunities to diversify the energy mix, utilize abundant renewable resources, enhance energy resilience, and establish new export markets, particularly through green hydrogen production.

This presentation explores the fundamental concepts of the hydrogen economy, examines the major technological, economic, environmental, and policy challenges, and highlights emerging opportunities across various sectors. It also discusses current global developments and future prospects, emphasizing the role of hydrogen in supporting sustainable development and achieving long-term climate goals. Through understanding both the challenges and opportunities, stakeholders can better formulate strategies to accelerate the successful implementation of a hydrogen-based energy ecosystem.

SPEAKER'S PROFILE

Dr. Ahmad Ibrahim currently a professor at UCSI. He is also a Senior Advisor Malaysia for the Fraunhofer research Germany. He has been involved with this leading German applied research organization since 2006 where he has helped built collaborations with parties in Malaysia on R&D and consultancies. Fraunhofer offers an extensive network of 67 institutes undertaking R&D in the entire span of scientific technologies including renewable energy, automotive, ICT and nanotechnology.