

CSER Knowledge Base



ASEAN Regional Hydrogen Initiatives

Publication Number: #KB-01-rev1

First Publication by: **Victor Nian**, Centre for Strategic Energy and Resources, Singapore
Beni Suryadi, ASEAN Centre for Energy, Indonesia
Suwanto, ASEAN Centre for Energy, Indonesia

Table 1 Summary of initiatives in ASEAN Member States

Country	Institution	Partner	Year	Project	Description
Brunei Darussalam		Japanese corporations: Chiyoda Corporation, Mitsubishi Corporation, Mitsui & Co., Ltd., Nippon Yusen Kabushiki Kaisha	2017	Advanced Hydrogen Energy Chain Association for Technology Development (AHEAD)	AHEAD was established in Japan
			2020	Pilot H2 export to Japan	In May 2020, AHEAD successfully concluded the first trans-ocean shipment of hydrogen from Brunei to Japan for power generation using MCH as an LOHC hydrogen carrier
Indonesia	Perusahaan Listrik Negara (PLN)	Toshiba Energy Systems & Solutions Corporation (Toshiba ESS)	2019	H2One™ project	To promote the H2One™ system in Indonesia
	PT Pertamina, PT Pupuk Indonesia	Mitsubishi Corporation	2022	MoU establishment	Development of green/blue hydrogen and an ammonia value chain
	PT Pembangunan Jawa-Bali	Japan's IHI Corporation	2022	MoU establishment	R&D of hydrogen and ammonia as alternative fuel for coal-fired power plants
	Pertamina Power Indonesia	Tokyo Electric Power Company Holdings	2022	Joint Study Agreement	Development of green hydrogen and ammonia projects
		Keppel Infrastructure, and Chevron Corporation	2022	Joint Study Agreement	Indonesia and Singapore's collaboration on the development of green hydrogen and ammonia projects in Indonesia
Malaysia	Transport Ministry of Malaysia and Sarawak Economic Development Corporation (SEDC)		2017	Hydrogen bus project	The launch of a hydrogen bus
	SEDC Energy	ENEOS, Sumitomo	2020	MoU establishment	Development of green hydrogen supply networks in Sarawak

		Samsung Engineering, Posco, Lotte Chemical	2022	The Sarawak H2biscus Project	Green hydrogen and ammonia Petronas to be located near the Petronas' LNG Complex and Shell's gas-to-liquids facility
Philippines	Department of Energy (DoE) of the Philippines	Star Scientific Ltd (Australia)	2021	The Hydrogen Energy Release Optimizer (HERO) system project	Initiative to convert coal-fired power plants to using hydrogen
		Hydrogen Technology Inc (Japan)	2021	MoU establishment	To explore hydrogen production in the Philippines
	National Electrification Administration (NEA) of the Philippines	Toshiba Energy Systems & Solutions Corporation (Toshiba ESS)	2018	H2One™ project	The implementation of a renewable hydrogen-based autonomous energy supply system and the use of hydrogen as a fuel for power generation in the Philippines.
Singapore	Keppel	Mitsubishi Power and Jurong Engineering	2022	600 MW Keppel Sakra Cogen Plant project	Final investment decision to use 100% hydrogen
	PSA Corporation, Jurong Port, City Gas, Sembcorp Industries, Singapore LNG Corporation	Chiyoda Corporation, Mitsubishi Corporation	2020	MoU establishment	R&D on hydrogen use in Singapore including for importation, transportation and storage
Thailand	Electricity Generating Authority of Thailand (EGAT)	Hydrogenics Corporation	2016	Lam Takhong Wind Hydrogen Hybrid Project	A wind-hydrogen project to pilot renewable integration through hydrogen
		Enapter (a Thai-German-Italian start-up company)	2019	Green mini-grid sandbox project	Partnership to develop a green mini-grid sandbox project for green hydrogen production
	PTT	Aramco	2022	Blue and Green Hydrogen Project	Downstream partnership in blue and green hydrogen
	German-Thai Chambers of Commerce	German Federal Ministry for Economic Affairs and Climate Action (BMWK)	2022	International Hydrogen Ramp-Up Programme (H2-Uppp)	To further develop markets for green hydrogen technologies through on-site cooperation
		JERA (Japan) and Electricity Generating Public Company Limited (Thailand)	2022	MoU on hydrogen, ammonia and LNG development	To conduct feasibility study on the use of hydrogen and ammonia as an alternative carbon-free fuel for a future low-carbon society.

Vietnam	PetroVietnam	Japan Organization for Metals and Energy Security (JOGMEC)	2021	Partnership agreement	To develop hydrogen, ammonia and carbon capture and sequestration development, and offshore wind and green hydrogen development
		Equinor	2022	Offshore wind and green hydrogen development project in Aug 2022	
		TGS Green Hydrogen	2022	Vietnam's first green hydrogen plant project in May 2022	A USD 840 million in investment with an annual capacity of around 24,000 tonnes of hydrogen, 150,000 tonnes of ammonia, and 195,000 tonnes of oxygen

Biography

Dr Victor Nian is a Co-Founder and Chief Executive Officer of the Centre for Strategic Energy and Resources. His expertise is in energy, sustainability, and net-zero policy and strategies. He is one of the go-to-persons in nuclear energy and the hydrogen economy in Southeast Asia. Dr Nian holds a PhD in Mechanical Engineering and BEng (Hons) in Electrical Engineering with a Minor in Management of Technology, all from the National University of Singapore.

Beni Suryadi is a Manager of Power, Fossil Fuel, Alternative Energy and Storage at the ASEAN Centre for Energy (ACE). He is experienced in managing programs and conducting research on energy and climate change, supporting the governments of the 10 countries in the Association of Southeast Asian Nations to build and develop a climate-friendly energy sector in the region.

Suwanto is a Senior Researcher of Power, Fossil Fuel, Alternative Energy and Storage (PFS) Department at the ASEAN Centre for Energy (ACE). He is an energy enthusiast with a background across both non-renewable and renewable energy issues. He is experienced in managing various complex assignments, ranging from engineering work, techno-economic analysis, policy development and project development and implementation.