

POST SHOW REPORT

BOOGAS

UPGRADING & CBG

ROUNDTABLE 2019

ACCELERATING THE COMMERCIALIZATION
OF BIOGAS UPGRADING IN SOUTH EAST ASIA

VENUE

ENERGY RESEARCH AND DEVELOPMENT INSTITUTE – NAKORNPING
CHIANG MAI UNIVERSITY, THAILAND

DATE

14TH - 15TH AUGUST 2019



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Biogas Asia Pacific Forum

EVENT HIGHLIGHTS

BIOGAS UPGRADING & CBG ROUNDTABLE 2019

DAY ONE 14 AUGUST 2019

BIOGAS UPGRADING & CBG ROUNDTABLE 2019

ACCELERATING THE COMMERCIALIZATION OF
BIOGAS UPGRADING IN SOUTH EAST ASIA

ENERGY RESEARCH AND DEVELOPMENT INSTITUTE -
NAKORNPING, CHIANG MAI UNIVERSITY, THAILAND

CONFERENCE & EXHIBITION 14TH - 15TH AUGUST 2019
SITE TOUR 15TH AUGUST 2019

The conference was opened by the CEO of Asia Biogas, Desmond Godson and the Independent Consultant for Electric Power and Renewables, Steve Szymanski, to address the current usages of biogas and CBG in South East Asia, evaluate the economics of biogas/CBG projects as well as uncover the ways to obtain financing for small projects despite the existing challenges.

The **Biogas Upgrading and CBG Roundtable 2019** was held at the Energy Research and Development Institute - Nakhonping, Chiang Mai, Thailand, 14 - 15 August 2019 with a site tour to CMU MSW Management and Biomethane Facility. The event was organised by the International Clean Energy & Sustainable Network (ICESN) of Singapore and the Energy Research and Development Institute - Nakhonping, Chiang Mai University (ERDI-CMU) of Thailand. It was supported by the Thailand Biogas Trade Association (TBTA), the World Bioenergy Association (WBA), the Asia Pacific Biogas Alliance, the Indian Biogas Association (IBA) and the Independent Power Producers Forum (IPPF). We successfully gathered 120+ participants from Asia, Europe and North America to attend the event to network and share their latest projects and technologies. Biogas experts such as Osaka Gas, Xebec, Bireme and Guadrogen were present to showcase their innovative technologies and services to the visitors.



The opening remarks was followed by Rungrudee Chantavit, Ph.D., the Professional Scientist from the Department of Alternative Energy Development and Efficiency, Ministry of Energy, Thailand. She shared key insights into the future of biogas development in Thailand from regulator's perspective and stated that they are in the midway of improving the new AEDP 2018 plan.



After the networking coffee break, an introduction to Evonik's Sepuran membrane biogas upgrading technology was delivered by Micheal Yeong, Senior Business Manager - Sepuran from Evonik. Nelson Chan, the Vice President of Business Development from Quadrogen Power Systems then gave a presentation on **"Pressure Swing Adsorption (PSA) system"**. His presentation was followed by the representatives from Indian Institute of Technology Delhi, Virendra K Vijay, the Head & IREDA Chair Professor and Rimika Kapoor, the Senior Researcher who both presented on Water Scrubbing biogas upgrading technology. There are several upgrading technologies available to date. The selection of the technology always has to be site-specific, case-sensitive and dependent on the biogas utilization requirements and local circumstances.



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A panel session on **"How Do You Commercialize Biogas Upgrading Projects in Different Countries: Addressing the Application Procedures and Regulations Involved"** moderated by Pruk Aggarangsi, the Director of Energy Research and Development Institute (ERDI) was held after lunch. Included in the session were Pajon Sriboonruang, the President of Thailand Biogas Trade Association (TBTA), Yi Liu, the Deputy Director of Research and Development from Biogas Institute of Ministry of Agriculture and Rural Affairs (BIOMA), Abdul Hadi, the Head of Business Development from PT. Energy Global Persada, and Reza Dzulkiflee, the Head of Biomass from FGV Palm Industries to represent Thailand, China, Indonesia and Malaysia respectively. The panelists gave candid replies covering the aforementioned countries to the question **"What are some of the things that the government should add/remove? E.g. Policy, grants, etc."**.

Hiroshi Tanaka, Assistant Manager of Process Engineering Team from Osaka Gas then gave a valuable case study on **"Osaka Gas' Experience of Biogas Upgrading and CBG Injection to Natural Gas Vehicles in Thailand"** after the coffee break.



Another valuable case study **"Felda Biogas Plant (Methane Recovery and Utilization) at Sungai Tinggi Palm Oil Mill, Malaysia"** was presented by Mohamed Fazil Bin Mohamad Saad, Head of Biogas Utilization Unit, FGV Palm Industries after which wrapped up for day one conference.

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DAY TWO 15 AUGUST 2019



Day 2 opened with a presentation by Sirichai Koonaphapdeelert, Deputy Director of Energy Research and Development Institute (ERDI) - Nakornping, from Chiang Mai University who shared with the audience how to develop the offtake environment for CBG. As the leader of Biogas Upgrading in South East Asia, Dr. Sirichai was invited to give the delegates some perspective into the role of government, academia, and waste owner that encourage the growth of the Biogas Upgrading industry there.

Concord Renewable Energy's Senior Project Manager, Otto Leonardo Banegas Cruz, gave his presentation on **"Key Considerations in Managing a Biogas Upgrading Project"** after Dr. Sirichai. Otto mentioned and elaborated about Design, Adequate Technology, the Role of Stake Holders, different Requirements and Safety.



Otto's presentation was followed by Peter Cheng, the General Manager of Xebec Adsorption Shanghai. Peter shared Xebec's solution to renewable natural gas particularly using their patented rapid-cycle pressure swing adsorption (rPSA) biogas purification technology. Comparison of Xebec rPSA with others upgrading technologies was shown. With that, Xebec has approximately 60 projects worldwide.



After the networking coffee break, Pajon Sriboonruang, President of Thailand Biogas Trade Association (TBTA) gave a presentation on "Tapping Available Financing Options for Biogas Upgrading Projects in Thailand". Mr. Pajon kindly shared a few investors who can actually support Biogas Upgrading projects in Thailand and encouraged project developers interested in developing Biogas Upgrading projects in the region to seek financing for their projects.



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Asia Pacific Natural Gas Vehicles Association (ANGVA)'s Executive Director, Lee Giok Seng, gave a presentation on **"Next Generation Fuel for the Transport Sector: BioCNG / Renewable Natural Gas"** after Mr. Pajon. For ANGVA, to create a successful market for Biomethane / Renewable Natural Gas, there must be clear Government vision, policy and regulatory framework. We can always learn from the experiences of the European (such as Italy) and American (especially the LCFS programme in the state of California).

We wrapped up the conference with a presentation on **"Transporting CBG from Source to Various Today's Applications"** by Tat Chuan Goh, Regional Sales Director of Asia Pacific from Hexagon Group before lunch.



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In the afternoon, about 30 delegates joined the site visit to the CMU MSW Management and Biomethane Facility, which is about a 15-minute drive from the conference venue, that uses CMU general MSW waste as biogas feedstock to produce compressed biomethane. This plant handled 30 tons/day of MSW from Chiang Mai University which produced approximately 400kg/day of compressed biomethane that used to serve 6 -10 vans. Apart from achieving 90% of landfill reduction, 4 tons/day of organic fertiliser is also obtained.

AUDIENCE METRICS



65.1%



10.1%



5.5%



4.6%



71

UNIQUE COMPANIES



35.3%

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Hiroshi Tanaka
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Lee Giok Seng
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Yi Liu
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Micheal Yeong
Senior Business Manager -
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Mohamed Fazil
Head of Biogas Utilization Unit
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Nelson Chan
Vice President
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Otto Leonardo Banegas Cruz
Senior Project Manager
**CONCORD RENEWABLE
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Pajon Sriboonruang
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Peter Cheng
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Rungrudee Chantavit, Ph. D.
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▶▶ OUR **SUCCEEDING EVENT**

BIOGAS ASIA PACIFIC FORUM 2019

ACCELERATING THE DEVELOPMENT OF THE REGIONAL BIOGAS INDUSTRY

CONFERENCE & EXHIBITION • 26TH – 27TH NOVEMBER 2019

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