



# JGSEE

The Joint Graduate School of Energy and Environment



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Consortium involving five leading institutions

CENTER OF EXCELLENCE ON ENERGY TECHNOLOGY AND ENVIRONMENT



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MINISTRY OF ENERGY

## Outstanding Achievement

### Prof Shabbir H Gheewala receives the 2016 NSTDA Chair Professor Grant



JGSEE-CEE is pleased to congratulate Prof Shabbir H Gheewala and his LCSAL team for receiving the 2016 NSTDA Research Chair Grant for the project entitled "Network for Research and Innovation for Trade and Production of Sustainable Food and Bioenergy". This research grant aims at 1) Strengthening teamwork between students, researchers and senior researchers; 2) Collaboration between academic sector and productive, service or society; and 3) Research study with high impact on economy and society.

On 14 October 2016, NSTDA representatives led by Prof Prasit Palittapongarnpim visited JGSEE for further discussions and exchange of ideas. On this occasion, Prof Shabbir presented the plan of the project. This was followed by a visit of the LCSAL lab. The Research Grant Ceremony was held on 28 December 2016 at NSTDA, presided by the Honorable Minister of Science and Technology, Dr Atchaka Sibunrueng.



## Contribution to International Forum

### JGSEE Contributes to LCS-RNet in Germany



The 8th Meeting of the International Research Network for Low Carbon Societies (LCS-RNet) was organised in Wuppertal, Germany back to back with the 7th International Sustainability Transitions (IST) Conference and the Wuppertal Institute 25th anniversary event during 6-7 September 2016. The meeting was of particular importance in the context of the follow-up to the COP21 in Paris, as well as the G7 meeting in Elmau, G7 EMM in Toyama and in the preparation process for the IPCC's AR6. JGSEE was represented by Prof Gheewala who gave a presentation on "Life Cycle Thinking for Sustainable Consumption and Production".

## SEE 2016, ICGSI 2016 and CTI 2016



**6<sup>th</sup> International Conference on Sustainable Energy and Environment**

2016

In conjunction with

**ICGSI 2016**  
6<sup>th</sup> International Conference on Green and Sustainable Innovation

and

**CTI 2016**  
1<sup>st</sup> International Conference on Climate Technology and Innovation

JGSEE-CEE in collaboration with its consortium partners and Kyoto University, jointly organised the 6th International Conference on Sustainable Energy and Environment (SEE 2016) on the theme of “Energy & Climate Change: Innovating for a Sustainable Future”. It was held in conjunction with the 6th International Conference on Green and Sustainable Innovation (ICGSI 2016) jointly organised with Kasestart University and the 1st International Conference on Climate Technology and Innovation (CTI 2016) jointly organised with KMUTT. The events were held during 28-30 November 2016 at the Dusit Thani Hotel, Bangkok, Thailand.

The conferences attracted over 250 participants from academia, research organisations, government agencies and businesses to present their research work and attend technical sessions in which 135 papers from around 15 countries worldwide were presented. His Excellency Dr Pichet Durongkaveroj, Minister of Science and Technology, presided over the opening ceremony and delivered a keynote address on “Science, Technology and Innovation Policies to Foster the Implementation of Thailand’s Sustainable Energy and Climate Change Goals”.

The conferences also featured 11 prominent scientists, all well recognised internationally, as keynote speakers, including, Prof Hidetoshi Nishimura, President of the Economic Research Institute for ASEAN and East Asia (ERIA), Japan; Dr Martin Keller, Director of National Renewable Energy Lab (NREL), US Department of Energy; Prof Ralph Sims of Massey University, New Zealand (former Coordinating Lead Author with the Intergovernmental Panel on Climate Change (IPCC) and former Senior Analyst with the International Energy Agency (IEA)); Prof Nouredine Hadj-Said, Chair of the Scientific Council of Think Smart Grids, France; and Dr Twarath Sutabutr, Director-General of the Energy Policy and Planning Office (EPPO), Thailand.

A number of invited speakers and chairpersons also contributed to the 28 technical sessions organised during the overall event on topics covering: renewable energy, energy efficient buildings, energy systems and policy, green and sustainable production and conversion systems and certification, air pollution and climate related technology and innovation. Two side events were also organised, including: a “Franco-Thai Workshop on Smart Grids” supported by EPPO and the French embassy, and a Sustainable Energy and Environment Forum (SEE Forum) meeting. Special concurrent sessions were also held as part of SEE 2016 and CTI 2016 on the following topics: (1) Bioenergy System Analysis (BESA), (2) Urban Climate & Urban Air Pollution, and (3) Mitigating Air and Climate Pollutants in the Transport Sector and their Co-benefits to Air Quality and Climate.

## Contribution to Research Arena

### Visit from School of Remote Sensing of Sarunaree University of Technology



On 20 September 2016, a group of lecturers and international graduate students led by Assoc Prof Dr Songkot Dasananda from the School of Remote Sensing, Sarunaree University of Technology (Nakhon Ratchasima Province), visited the Computational Laboratory of JGSEE-CEE (Bangkhunthian Campus). Assoc Prof Dr Kasemsan Manomaiphiboon welcomed the group and delivered a presentation on “Regional Climate of Thailand”. Mr Phanom Parinya (CSSC-KMUTT researcher) also delivered a talk on “Wind Resource Mapping Research in Thailand”. These presentations were followed by some discussions and a visit of the computing hardware of Dr Kasmsan’s laboratory. The meeting ended with a walk through the clean energy park of the campus.

## Third BESA Project and Stakeholder Meeting



On 1 December 2016, the 3rd Bio-Energy System Analysis (BESA) project and stakeholder meeting was held at KMUTT. The BESA project is a Thai-German collaboration on biomass resources and bioenergy led by KIT-IIP (Germany) and JGSEE-CEE (Thailand). German partners of the project involve: (1) Clausthal Institute of Environmental Technology; (2) the Institute of Environmental Technology and Energy Economics, Technische Universität Hamburg-Harburg; and (3) Trier University of Applied Sciences, Germany. The objectives of the investigations are to determine the availabilities of biomass resources at regional level and analyze via modelling the most appropriate conversion processes. The meeting was composed of 2 parts: (1) a project meeting session during which progress of the work was presented; (2) a stakeholder meeting session during which the knowledge and experiences gained from the project were shared, and discussions on next steps for further collaboration were held.

## Visit of Chinese Delegation from Huazhong University of Science and Technology



A Chinese delegation of researchers led by Prof Hong Yao from the State Key Laboratory on Coal Combustion of Huazhong University of Science and Technology visited JGSEE-CEE on 2 December 2016 to initiate discussions on a project titled “Collaboration Research on Clean and Efficient Thermochemical Conversion Technologies of Biomass and Municipal Solid Waste”. This research work is funded by the National Research Council of Thailand (NRCT) under the Thailand-China joint collaboration research project on renewable energy. On JGSEE side, Assoc Prof Dr Bundit Fungtammasan and Assoc Prof Dr Nakorn Worasuwannarak contributed to the discussions. Further details about this new project and progress made will be posted in the next issue of the newsletter.

## EERS Project: Stakeholder and Professorial Meetings



In December 2016, the Energy Policy and Planning Office (EPPO), Ministry of Energy, Thailand, in collaboration with JGSEE-CEE at KMUTT and with support from the Energy Conservation Fund (EnCon Fund) organised a stakeholder meeting followed by a professorial meeting in Bangkok for the project on “Energy Efficiency Resource Standard (EERS)”. The stakeholder meeting was organised on 19 December 2016 at Asia Hotel and the professorial meeting on 22 December 2016 at Century Park Hotel. The objectives of the meetings were to receive comments on the EERS draft report for its completion. The final version of the report is to serve as guidelines for the Energy Efficiency Resource Standard (EERS) which is one of the measures described in the Energy Efficiency Development Plan (EEDP). The project is expected to benefit electricity end-users for in-house energy savings and decision-makers in planning EERS measures, as well as providing guidelines to establishing and implement energy saving targets.

## Contribution to Knowledge Platform

### KMUTT Auto Dialogue Roadmap for the Implementation of EURO 5/6 Fuel Quality and Emission Standards for Automotive Vehicles in Thailand



The Research Innovation and Partnerships Office (RIPO), KMUTT, successfully organised the KMUTT Auto Dialogue on “Roadmap for the Implementation of EURO 5/6 Fuel Quality and Emission Standards for Automotive Vehicles in Thailand” on 1 November 2016 at the KMUTT Knowledge Exchange for Innovation Center (KX) building in Bangkok. Assoc Prof Dr Bundit Fungtamassan, Senior Vice President for Research and Innovation of KMUTT, and Dr Wicharn Simachaya, Director-General of PCD, delivered the opening addresses. The objective of this dialogue was to provide information on air quality in Thailand and the impacts of air pollutant emissions from automotive vehicles on air quality. A discussion on the guidelines for the roadmap implementation of EURO

5/6 Fuel Quality and Emission Standards for Automotive Vehicles in Thailand was also held during the event, moderated by Assoc Prof Dr Savitri Garvait of JGSEE-CEE.

### Director of JGSEE contributes to MBT Seminar in Japan



On 20 December 2016, Assoc Prof Dr Sirintornthep Towprayoon, JGSEE-CEE Director, was invited by the Japan Society of Materials Cycles and Waste Management and NIES to deliver a presentation on “Potential of MBT to Support Waste to Energy in Thailand”. The presentation was delivered as part of a seminar on “Mechanical and Biological Treatment (MBT) of Solid Waste” held at Nihon University in Tokyo. Both Dr Sirintornthep and Prof Lee (University of Seoul, Korea) shared their experiences on the subject in order to encourage the country producing RDF from MSW. The country is known for its high technology development capacity and rapid progress in this area is expected over the next 2 years.

## Contribution to ASEAN Community

### ACE invites Dr Bundit Fungtamassan as Guest Expert to Contribute to AEO5



In order to fulfill its role as ASEAN energy think tank as well as energy data centre and knowledge hub, the ASEAN Centre for Energy (ACE) is working on the 5th ASEAN Energy Outlook (AEO5) as a follow-up to the AEO4 launched in January 2016. In this regard, to prepare for the development of AEO5, a Kick-Off meeting was held during 10-11 October 2016 followed by a 1st Working Group meeting during 12-14 October 2016 in Bali, Indonesia. The events were organised by ACE with support from the Renewable Energy Support Programme for ASEAN (ASEAN-RESP) which is a jointly implemented project by ACE and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of

the Federal Ministry for Economic Cooperation and Development (BMZ). The AEO5 is developed with technical assistance from the Fraunhofer Institute for Systems and Innovation Research (ISI) and aims at providing medium to long-term energy projections in ASEAN (up to 2040).

Assoc Prof Dr Bundit Fungtammasan, KMUTT Senior Vice President for Research and Innovation was invited as a guest expert to contribute to the elaboration of the AEO5. He was also requested to deliver a presentation during the Kick-Off meeting on "Sustainable Low-carbon Energy System Development Trend in ASEAN: the Case of Thailand". This meeting was attended by 13 participants from 7 ASEAN Member States (AMS), 6 international/regional experts, 3 consultants, 4 ACE officers and 2 GIZ officers.

## Head of LCSAL Contributes to ISoLCA 2016 in Indonesia



Prof Shabbir H Gheewala was invited as a keynote speaker to the 2nd ILCAN Conference Series on Life Cycle Assessment 2016 (ISoLCA 2016) held at the University of Pelita Harapan in Jakarta (Indonesia) during 2-3 November 2016. The event was jointly organised by the Indonesia Life Cycle Assessment Network (ILCAN), Industrial Engineering Department University of Pelita Harapan, and the Indonesian Institute of Science, Ministry of Environment & Forestry. Prof Shabbir has been a long-time collaborator with Indonesian counterparts supporting the development of LCA in Indonesia; on this occasion, his talk was on "Sustainability Assessment of Biofuels in a Life Cycle Perspective".

## SATREPS Joint Mid-term Review Report Signing Ceremony



The Joint Mid-term Review Report Signing Ceremony between JGSEE-CEE at KMUTT and JICA on Technical Cooperation (SATREPS) for the project on "Development of Clean and Efficient Utilization of Low Rank Coals and Biomass by Solvent Treatment" was conducted on 25 November 2016 at JGSEE. Assoc Prof Dr Bundit Fungtammasan, Senior Vice President for Research and Innovation of KMUTT, and Mr Hiroshi Tadokoro, leader of the Japanese Mid-term Review Team from JICA, were invited to sign the review report. This project is supported by JST and JICA under the "Science and Technology Research Partnership for Sustainable Development (SATREPS)" program. Its members consist of JGSEE at KMUTT and PTT RTI on the Thai side, and Kyoto University, Akita University, the Central Research Institute for Electric Power Industry (CRIEPI), and Kobe Steel Co.Ltd., on the Japanese side. The project activities started in December 2013 and are expected to be completed by December 2018.

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## The Thai International Cooperation Agency visits KMUTT



On 9 December 2016, Mr Paisan Rupanichkij, Deputy Director-General of the Thai International Cooperation Agency (TICA), Ministry of Foreign Affairs, and his team visited KMUTT to learn more about overseas students having received support from TICA. The team was welcomed by the KMUTT Vice President for Education, Dr Chaowalit Limmaneevichitr. On this occasion, Assoc Prof Dr Sirintornthep Towprayoon was invited to present the international study programs of JGSEE-CEE. She informed that over 110 international students had been studying at JGSEE over the last two decades with 10 of them having received support from TICA. Nine of these students have already graduated from the following countries: Lao PDR, Nepal, Cambodia, Bangladesh, Myanmar, Kenya and

Tanzania. The last student from Bhutan is in its second semester of Master studies at JGSEE. Dr Sirintornthep also informed that over the next 3 years JGSEE will host with support from TICA annual international training courses (AITC) on "Low Carbon City Scenario Development and Implementation" and "Energy Efficiency & Conservation for Global Warming Mitigation". These activities are expected to contribute enhancing the international visibility of JGSEE.

## MOU Signing Ceremony between JGSEE-CEE and BCP Limited



On 14 December 2016, Mr Chalermchai Udomranu, Senior Executive Vice President of Refinery Business, Bangchak Petroleum Public Company Limited (BCP), and Assoc Prof Dr Sirintomthep Towprayoon, Director of JGSEE-CEE, signed a Memorandum of Understanding (MOU) for the research project collaboration on “The Study on Water Management in the Refinery Process of Bangchak Refinery” (in Thai: โครงการศึกษาการบริหารจัดการน้ำในกระบวนการกลั่นน้ำมัน โรงกลั่นน้ำมันบางจาก). Prof Shabbir H Gheewala (Head of LCSAL) is the project leader. This work aims at identifying water hotspots and enhancing water management efficiency in the refinery process via a water footprint assessment.

## Awards

### Dr Supachita Krerkkaiwan receives i-CIPEC 2016 Award



JGSEE-CEE is pleased to congratulate Dr Supachita Krerkkaiwan for receiving the outstanding oral presentation award for her research work on “Combustion Characteristics and Fouling Tendency of Co-combustion between Sub-bituminous Coal and Thai Biomass”. The presentation was delivered on 21 September 2016 in Japan at the 9th International Conference on Combustion Incineration/Pyrolysis Emission and Climate Change (i-CIPEC 2016).

### FR-Mek receives Certificate of Honour at NIA 2016



FR-Mek (Fire Danger Rating System for Lower Mekong Region in Support of Forest Fire Management and Control) (in Thai: ระบบแจ้งระดับชั้นอันตรายของไฟสำหรับ พื้นที่ลุ่มแม่น้ำโขงตอนล่างเพื่อสนับสนุนการจัดการ และควบคุมไฟป่า) was selected as Top Ten Finalist (Social Category) and received a Certificate of Honour on 5 October 2016 from the National Innovation Awards 2016 Contest (NIA 2016). Since 2005, the event has been held each year by the National Innovation Agency (Public Organization), Ministry of Science and Technology, Thailand.

FR-Mek predicts potential fire risk over the region (covering Thailand, Myanmar, Laos, Cambodia, and Vietnam) on a daily basis for 5 days in advance at a high spatial resolution (see <http://www2.dnp.go.th/gis/FDRS/FDRS.php> for details). The system integrates fire, climate, and biomass sciences together with numerical weather prediction. It has officially been routinely operated by the Department of National Parks, Wildlife and Plant Conservation (DNP) since late 2015. Its development began in 2013 and is still continues today. Its key developers include, Dr Kasemsan Manomaiphobon (JGSEE), Dr Veerachai Tanpipat (independent and adjunct-JGSEE researcher), Mr Prayoonyong Nhuchaiya (DNP) and Mr Narin Jaronrattanapak (DNP). Over the past year, funding to support its development has been received from the National Research Council of Thailand (NRCT) under administration of the Biodiversity-Based Economy Development Office (Public Organization). The Hydro and Agro Informatics Institute (Public Organization) is the major supporter for FR-Mek operations while JGSEE provides general support for the work. In NIA2016, a total of 252 innovations (Economic and Social Categories combined) were submitted for consideration.

## Upcoming Events



ASEAN's Largest International Exhibition and Conference on Renewable Energy, Energy Efficiency and Environmental Technology

**7-10 JUNE 2017**  
BITEC, Bangkok, Thailand

In conjunction with:



### International Conference **Renewable Energy Asia 2017** Moving Towards ASEAN Smart Cities

7 June 2017  
**BITEC, Bangkok, Thailand**

**Thailand's Leading International Exhibition and Conference  
on Water & Wastewater Technology**



**7-10 JUNE 2017**  
BITEC, Bangkok, Thailand

Co-located with:



### International Conference **Water Forum II: Sustainable Water for ASEAN**

8 June 2017  
**BITEC, Bangkok, Thailand**



For further information or assistance please visit : <http://www.asew-expo.com>

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