



TALK ON
THERMODYNAMICS APPLIED TO PALM OIL MILLS

(Organised by Seniors Special Interest Group, IEM)

BEM Approved CPD/PDP: 2 hours Ref No: IEM16/HQ/385/T

Date : **24 September 2016 (Saturday)**
 Time : **9.00 am to 11.00 am** (Refreshments will be served at 8.30 am)
 Venue : **TUS and C&S Lecture Rooms, 2nd Floor, Wisma IEM, Petaling Jaya**
 Speaker : **Ir. N. Ravi Menon (P. Eng)**

SYNOPSIS

Palm oil mills in Malaysia or elsewhere have been operating for nearly one century now using renewable energy as the energy source for fueling the boilers. During its infancy stage the huge volume of biomass produced by the palm oil mills were seen to be an obstacle for the mill operation as there was an urgent necessity to evacuate them continuously. One of the solutions was to have inefficient boilers and steam turbines to enable the mission of efficient disposal of steam!

Today, the situation has changed and mills are displaying keen interest to operate the power plants efficiently. But unfortunately, the pattern of power plant operation was and still is based on the requirements of a situation that was prevalent a century ago. The present boilers still generate saturated steam at 21 to 30 bar with slight superheat and steam turbine still operate with a single Curtis wheel. A paradigm shift is what is desired. The mills have to shift the focus on the power plant rather than the mill. A 60 ton per hour palm oil mill it can easily generate 6MW instead of 1.5 MW, if fundamental thermodynamic principles are applied. The mill owners and engineers do not seem to recognize that increased power output from the same palm oil mill can be easily done by raising the steam pressure to say 65 bar with high superheat and a condensing turbine. The surplus power can give birth to a number of industries in its vicinity without spending any money for the grid connection. So there is a power purchaser next door. The additional cost for the HP boiler & turbines should be viewed as an investment for a power station for which the palm oil mill will only serve as the fuel supplier. The focus should shift from palm oil mill to RE power plant. If the CPO price drops the power supply business will make both sustainable. This will also serve as an EXIT STRATEGY.

BIODATA OF SPEAKER

Ir. N. Ravi Menon P.Eng has more than 49 years of experience in Lembaga Letrik Negara (Power Station), Kumpulan Guthrie (Processing) and Malaysian Palm Oil Board (Senior Research fellow). He was also seconded to Pusat Tenaga Malaysia by MPOB to work for UNDP-GEF as the RE project manager. He also worked as Energy Expert in PTM for CDM projects. In addition he is also MPOB's COP auditor and lecturer for MPOB Mill Engineer's Diploma course. Holds a Master's Degree in Wet steam and Power plants (University of Liverpool) as well as 1st grade Steam Engineer's Competency certificate. He is currently continuing in MPOB as Senior Research fellow

Ir. Khor Hock Keat
 Chairman
 Seniors Special Interest Group, IEM

ANNOUNCEMENTS TO NOTE:

- Preferential admission to talk shall be accorded to IEM members (pre-registration and online registration are NOT required). Telephone and/or fax reservation will NOT be entertained.
- **Non members** may also attend the talk but will need to pay a registration fee of **RM50** and an administrative fee of **RM15**. GST is inclusive.
- For members of affiliated organisations, there will be no registration fee payable. However, they are requested to produce their membership card as proof of membership. For the list of affiliated organisations, please refer to IEM website at www.myiem.org.my under International/MoU.
- Limited seats are available on a "first come first served" basis (maximum 100 participants).
- IEM members are required to produce membership cards for confirmation of attendance (CPD purpose).
- Latecomers will not be allowed to enter if the lecture hall is full nor be entitled to CPD.
- **IEM members who fail to produce their membership cards will be charged a fee of RM25.00. GST is inclusive.**

ADMINISTRATIVE FEE

- Kindly be informed that an administrative fee of **RM15** is payable for talks organized by IEM. GST is inclusive.
- The fee would be used to cover overhead costs, building maintenance expenses as well as contribute to Wisma IEM Building Fund.
- All contributions will be deeply appreciated by IEM.
- Student Members are however exempted.

ATTENDANCE CONFIRMATION

Name:

Membership No:

Signature:

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