



**SOCIETY OF
PROFESSIONAL
ENGINEERS
THAILAND**



**SPET Monthly
Members Meeting**
Thursday 15th February
2018,
6:30pm at the British Club
Soi 18, Silom Road,
Bangkok



**“Process performance improvement
through Balance Plus control concept”**

By
Antti Toivonen



Gheco-One 660 MWe power plant in Rayong Thailand, owned by Glow Energy part of ENGIE

Advanced controls offer cost-effective means to improve the performance of energy generation processes. Balance Plus is an adaptive control concept developed to improve process performance on power plants, far exceeding capabilities of conventional PID-controllers. AF-Consult has implemented over 40 process performance improvement projects with this method. In Asian, the solution has been implemented on 5 coal fired units in Thailand as well as four units in South Korea.

Balance Plus control concept can be implemented either when a new boiler is being built or as a control system upgrade at a later phase. Implementation can be done directly in the DCS system or on an external platform that is linked with the main DCS. In this paper we present the basic principles of the Balance Plus control concept as well as actual experiences and achieved benefits for different plants in Thailand. The first case plant selected is the 660 MWe Supercritical once-through PC-boiler and the second case plant is the 127 MWe drum CFB boiler, both located in Rayong Thailand.

Balance Plus has had impact on both plants heat rates and combustion efficiencies, emission levels, optimizing production, increasing boiler availability and decreasing unplanned shutdowns and boiler downtime. Economic and environmental benefits are remarkable.

Antti Toivonen has a Master of Science in the field of Process automation and Power Plant technology from Tampere University of Technology in Finland. Toivonen started his career in Metso Automation. In AF-Consult he has experience in power plant process control systems and in Balance Plus (Adaptive Control Concept) for power plants. He has been involved in several projects in Europe, South-East Asia and Asia Pacific. Main roles have been related to design, implementation, commissioning, project management, international sales, business development and technical consultancy. His main expertise is boiler controls but he is experienced also with several combustion technology Grate, BFB, CFB and different PC-boilers, with boilers using a variety of fuels. Toivonen is also specialized in different processes and familiar with drum units, OTU units as well as combined cycle units.

Entry fee is Baht 200 for Members of SPET and Baht 400 for all others.

About 90 members and guests enjoyed the SPET Annual Dinner and talk by Collin Hastings on 18th January 2018 at the Rembrandt Hotel.

Forthcoming events

Shall be informed later by Flyer.

The Committee is always seeking new topics for the Monthly SPET Meetings to ensure a continuous schedule of talks for our Members and guests. If any member can suggest possible technical, professional engineering or other topics that might be of interest please contact Mr. Chris Moore on 081-824-1648.

Membership subscriptions for 2018 are now due.

Renewal and new membership forms are available at all meetings,
and renewed members will receive a membership card

Please enquire at the reception desk,
or email chris@lasanne.com.