



PERFORMANCE EVALUATION OF BOILERS AND TURBO GENERATORS IN THAILAND, MALAYSIA AND INDONESIA

CASE STUDY/INSIGHT

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The European Commission (EC) and the Association of Southeast Asian Nations (ASEAN) Cogeneration Program (EC-ASEAN COGEN Program) promoted the implementation of European technologies in Southeast Asia by introducing modern and energy-efficient technologies. Several projects were implemented under this program. The program office was based in the Asian Institute of Technology (AIT), Bangkok. COGEN Program also provided additional support to the end-users by evaluating the real performance of the projects.

Many performance evaluation testing equipments were bought and the project energy consumption and emission levels were monitored by the program. The program management team visited the implementation sites in Thailand, Malaysia and Indonesia, post the project installations and during commercial operation. The team also arranged meetings between equipment suppliers and end-users in agro-industry complexes and facilitated the smooth implementation of the project.

In case of any disputes between suppliers and the end-users, the program management team ensured that such differences are sorted out and project installations are made properly. Once the project implementation is complete, the management team visited the project sites and assessed the real performance of those projects. Special computer software was developed to assess the project performance by The Energy Program, Asian Institute of Technology. Site data was collected from the project operation every 30 minutes, continuously for three consecutive days and the average data was incorporated into the software to estimate the efficiency of the plant. The country coordinating teams were invited from ASEAN to the project sites and they were given special training to evaluate the performance of boilers, turbines and cogeneration plants.

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Several unique and scientific approaches were chosen to evaluate the plant efficiency since the direct measurement of the key parameters is difficult to obtain from the biomass power plant operation. With that unique approach, the efficiency of the power plants was calculated. The efficiency of the power plants surpassed the industrial averages from the existing plants in Southeast Asia. Apart from modern and energy-efficient equipment, the COGEN Program also introduced automation in power plants operations.

These performance evaluations were conducted in boilers, turbines and cogeneration power plants using different fuel types such as wood processing waste, rice husk waste from rice mills and palm oil waste such as palm shells and fibres. Thus, due to the supports from the EC-ASEAN COGEN program, the agro-industrial sectors in Southeast Asia gained a lot of confidence in using those modern and energy-efficient boiler, turbine and cogeneration technologies within their premises.

