

Demonstration Projects with the Aim of Developing
Joint Crediting Mechanism FY2013

JCM Demonstration and Verification Project

Energy Saving By Optimum Operation At Oil Refinery In Indonesia

New Energy and Industrial Technology Development Organization (NEDO)
Yokogawa Electric Corporation

JCM demonstration project

Energy Saving By Optimum Operation At Oil Refinery



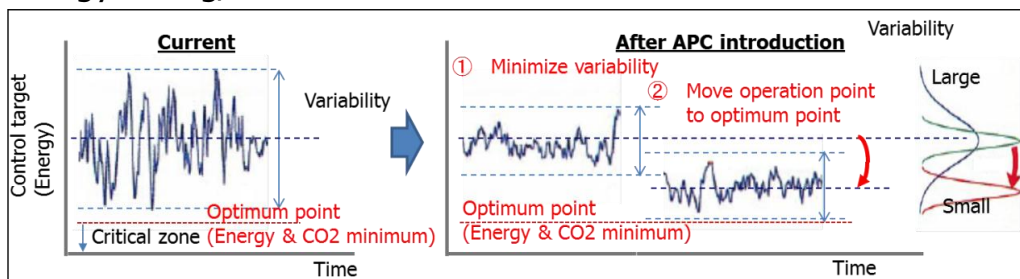
Summary

- Multivariable model predictive control (MMPC), a kind of advanced optimization control at oil refinery plants, is added on existing DCS (Distributed Control System) and realizes the automatic operation control for the optimum production in terms of energy efficiency, and keeps the production in the optimum range.
- This project aims for introduction of Advanced Process Control (APC) system equipped with MMPC proven at Japan's and global oil majors; customization to meet local environment; verification of effectiveness of the function and sustainable CO2 emission reduction by fossil fuel reduction.

Country	Indonesia
Implementing Company (JAPAN)	Yokogawa Electric Corporation
Project Site	PT. Pertamina, Balikpapan Refinery (Kalimantan)
Counterpart Ministry	Ministry of Energy and Mineral Resources
Expected Fuel reduction	47 TJ/Y
Targeted GHG Emission Reduction	3,400t-CO2/Y (quantity of limited part of the plant facilities)

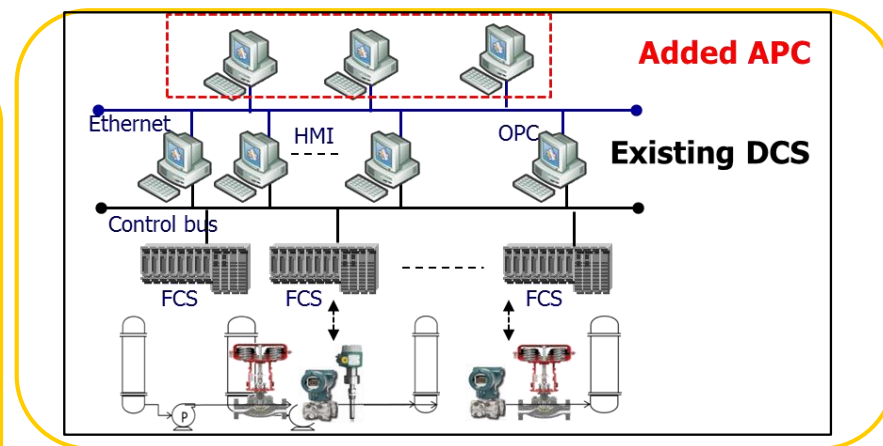
Project overview

Energy saving/CO2 emission reduction: Basic scenario



Process with large operation variability will be improved by APC

1. To minimize the variability
2. To transfer the operation point to an optimum point (minimum energy and CO2 emission)



Summary of Introduced Technology

- ① Key technology is APC added on DCS (Distributed Control System).
- ② APC embedded multivariable model predictive control which enables optimum operation for energy saving and minimizes CO2 emissions.
- ③ No process modification to the existing system is required in this introduction.
- ④ APC can be installed during the process operation.
- ⑤ APC will enhance the return on investment. Most of Japanese oil refineries have adopted it.