# PROCONTROL P

## Komotini 476 MW Combined Cycle Power Plant

## The Plant

The Komotini combined cycle power plant (CCPP) has been ordered by Public Power Corporation (P.P.C.) in Greece on a turnkey basis with a consortium of ABB, ANSALDO, and AEGEK. Commercial operation started in september 2002.
The plant mainly consists oftwo GT13E2 gas turbines including bypass stack with diverter damper, two heat recovery steam generators (HRSG) and one steam turbine.
The plant is designed to run at continuous full or part load operation with the possibility of weekly steam turbine start ups and shut downs. Gas turbine 1 and 2 will be overnight shut down alternatively
Peak load operation of the gas turbines is permitted on Single Cycle and on fuel gas only.
In case of a grid breakdown island mode operation of the plant is possible. Black start capability is foreseen
On gas fuel (design fuel) the combined cycle module generates 476.3 MW net electrical power output for the grid at plant design conditions, in aged condition. The power is generated as 50 Hz AC current at a nominal voltage of 150 kV and a power factor of 0.85.at the generator terminals.

## The Task

ABB was to deliver a control system of the latest design, allowing a wide range of operating features.
Control and supervision of the unit should be performed from a central control room equipped with VDUs. The client asked for a high degree of automation.
The control systen should handle the following amount of process elements per unit:

| | |
|---|---|
| Inputs analog | 2100 |
| Inputs binary | 4413 |
| Outputs analog | 329 |
| Outputs binary | 1410 |
| Drive controls | 785 |
| Closed loop control | 137 |
| Function groups | 143 |

## The Solution

All the described tasks of the control system are performed by ABB`s power plant control system PROCONTROL P which has been already installed and operated to the full satisfaction in many power plants world-wide.
The units are controlled fom PROCONTROL P operator stations POS 30 which present informations on all the operating status of the unit in a logically graphical form. All measuring, binary control and analog control loops are displayed and also controlled in process mimics on the screen. More detailed information is provided by plant overview diagrams, bar charts, curves, characteristics and profiles.

Fast navigation around the plant dispays – especially in critical situations - can significantly influence power plant efficiency and availability.
The mimics are the main instruments of control. They present up-to-date process information and the process itself in a form familiar to the operator. The mimics are fully configurable and include many graphic elements and symbols which give a precise and easily assimilated picture of the plant. To illustrate the current status of the process, the display make use of dynamic color-coded symbols, trends, bar charts and numeric values.
The unit is operated fully automatic for starting, stopping and load dispatching. The control levels are hierarchically organised to a clear structure that is essential for optimised process control and sequencing.

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