

There is a large opportunity of energy saving and cost reduction of the electric power generation unit and the centralized heat source facility.

Current situation of the operation of the heat source facilities

- ① As the distributed power generation unit and the centralized heat source facilities have the large freedom of the engineering and operation there is an opportunity to improve and optimize the operation.
- ② The real situation of annual energy consumption by the heat source facility is not analysed correctly.
- ③ The current operation management is based on the long-term experiences of the operating managers



Data base

- Equipment data (6,000 equipment)
- Environmental load evaluation data
- Power rates data
- Gas rates data
- Weather condition data

Features of Enepro21

- ① Enepro21 can handle the design and analysis of the wide variety of the facility such as electric power generation unit (CCPP, GT, GE), the utilization of the wasted energy and the reusable energy.
- ② Enepro21 can simulate the energy consumption within error of a few percentage for year, based on the actual annual operation data.
- ③ Enepro21 can extract the issues of the heat source facility by analysing the annual operation data.
- ④ Enepro21 can evaluate the save of energy and cost quantitatively by changing the various parameters related to the save of energy and cost
- ⑤ Enepro21 data base is thoughtfully furnished, which everybody can utilize.

Step of a concrete proposal using Enepro21

- Representation of the current operation state
- Study how to operate and the renewal of the existing facility. Enepro21 calculates a running cost, CO2 quantity generated et al.

Step-1

Propose the improved operation scheme without investment (by changing operation parameter)

- Calculate the effect of energy saving and cost reduction by changing the various operation parameters, the priority order of operation of equipment and operation time period of cogeneration unit
- Calculate the quantitative reduction of cost and CO2 by changing the operation load ratio of equipment

Analysis of equipment performance

Case study by comparison table

Step-2

Propose the saving energy, cost reduction and CO2 reduction with small investment

- Introduce the inverter pump, free cooling and pump with excess flow rate et al.,

Step-3

Propose the saving energy, cost reduction and CO2 reduction by installing additional equipment and by the optimized renewal

- Employ the new equipment such as cogeneration + genelink, heat accumulation equipment and reusable energy
- Propose the optimized renewal plan by considering the future load forecast and energy cost

Features of Enepro21 and license record

Features

- Enepro21 is an energy calculation software in which simulation result matches with the operation data of the existing facility within error of 1~2% for year .
 - ① Enepro21 represents the operation state of the existing energy facility accurately by taking a balance between the electric power, heat and flow rate within error of 1~2% for year
Cold water → Warm water → Chilled water → Low pressure steam → High pressure steam
→ Warm water supply → Electric power
The balance of cool water and warm water takes both the heat capacity and flow rate .
 - ② Enepro21 provides the performance data of the equipment and builds the proper simulation model
Performance data for 6,000 equipment and other various data base
- Speed of calculation
The exchange of equipment and the change of operation pattern are rapidly recognized by simulation system and it takes only a few minutes to calculate the annual balance based on new conditions.

License record (total capacity)

- Electric power generation
CCCP: 1,705,245 kW
Gas turbine cogeneration: 441,379 kW
Gas engine cogeneration: 591,431 kW
- District heating and cooling, buildings alone, data center, hotel, industrial district, factories et al
: 681,179 RT

Enepro21 Licensing Structure

