

Facility Renewal & Operational Improvement by Utilizing Data - A case of O-tsuka (former Toshiba) branch office, TEPCO -

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TEPCO O-tsuka Branch Office, former Toshiba Branch, was constructed as a prototype of energy saving building in 1979.

A renewal was executed about 20 years after the completion and the energy consumption of the building was reduced to 29% less than that of a standard HVAC system. Main methods of energy saving are as follows;

- Integrated improvement planning for both building and equipment utilizing BEMS data.
- Ice storage system increases the cooling capacity.
- Main ducts are maintained despite of the original plan of replacement due to the increase of thermal load, since the cold air distribution system could increase thermal supply capacity.
- Lifetime commissioning in energy management utilizing BEMS data and IT.

1. Background of the O-tsuka branch renewal

The Tokyo Electric Power O-tsuka branch (formerly called Toshiba branch) is a middle sized office building constructed as an energy-saving model in 1979. In the original plan at the time of construction, about 40 percent of energy consumption cut-down, compared to a standard office building, was pursued by integrating both architectural and equipment planning. However, various changes during about 20 years, such as equipment depletion and the continuous increase of thermal load leading to the increase of energy consumption, which is shown in Fig 1, due to additional personal and system computers, had made it difficult to maintain energy-saving activities effective and indoor environment comfortable.

Therefore, a HVAC (Heating, Ventilating, Air-Conditioning) equipment renewal was carried out in order to revive this building as a cutting-edge energy-saving model.

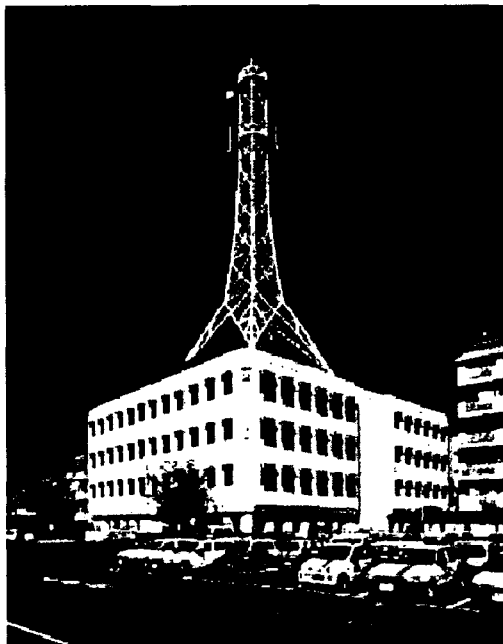


Photo.1 O-tsuka branch office, TEPCO

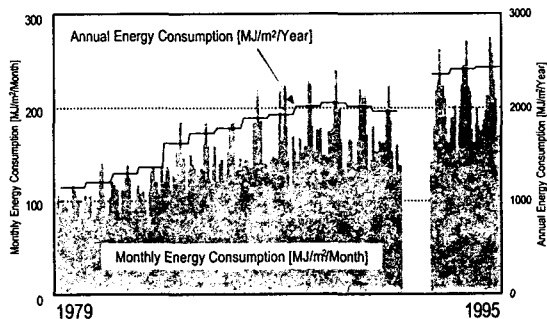


Fig.1 Energy consumption since completion