

Research on Energy Management at Wastewater Treatment Plant

Year of Research

2007•2008

(Purpose)

Wastewater treatment plants which are now designated energy management plants under the Law Regarding the Rationalization of Energy Use (Energy Conservation Law) enacted in April 2006 must, considering the conditions peculiar to wastewater treatment plants, now constantly implement elaborate measures to achieve the goal of reducing their specific energy consumption by an average of more than 1% per year. An examination of fluctuations of energy consumption at wastewater treatment plants throughout Japan reveals that the specific consumption is almost flat, showing that adequate energy conservation effects are not being obtained. The purposes of this research are to clarify efforts to conserve energy and related problems at wastewater treatment plants, to organize common management methods and problem resolution methods to propose technological items for energy conservation measures, and at the same time, to prepare a technical document summarizing the basic specifications of a Wastewater Energy Management System (WEMS) which is used to manage and analyze energy (Figure 1).

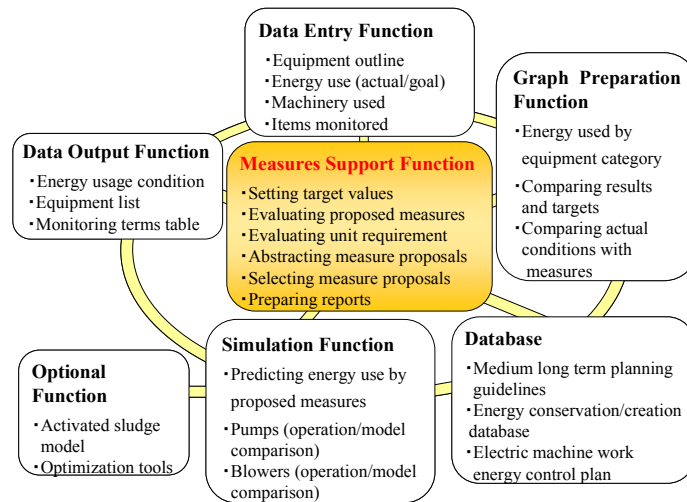


Figure 1 Component of Wastewater Energy Management System

(Results)

The following are the major issues studied through this research.

(1) Organization of energy management methods

The present state of general energy management methods is organized and the existing data bases and simulators provided for use by wastewater treatment plans are surveyed.

(2) Clarifying the present state of energy management

A survey of the state of energy management is carried out, mainly through interviews and the circulation of questionnaires at wastewater treatment plants, in order to clarify its present condition to establish the energy management method.

(3) Establishing the energy management method

Based on the results of step (2), an energy management method for wastewater treatment plants is established. After establishing a provisional method as a partial tool, a case study is conducted and evaluated, and if there are aspects of the method that should be improved, they will be reflected in the WEMS functions and specifications.

(4) Proposing WEMS specifications

The results of the above tasks are organized and developed to propose the functions and specifications required by WEMS for wastewater treatment plants. And recommended data bases and recommended simulators which can be used by WEMS will be screened and proposed.

(5) Preparing the technical document

The results of the research are summarized in a technical document.

2007, interview and questionnaire surveys were carried out as step (1) and step (2) above.

(Schedule)

A case study will be carried out based on 2007's results and a specification proposal and technical document for WEMS will be prepared.

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Key words

Wastewater Energy Management System(WEMS), control of energy, energy conservation