

Research Study on Introducing Energy Saving - Creating Technologies into Sewerage System

Year of Research

2007•2008

(Purpose)

For sewerage utilities in Japan, reducing emission of carbon dioxide (CO₂), which originated from consumption of electricity as energy sources, is becoming great concern because of the reason that Japanese government ratified reducing amount of green house gas based on the Kyoto Protocol, but actually nation's total amount of emission is still continuously increasing, and the sewerage utilities account nearly 1% of the total electrical consumption in Japan.

In addition, one of the political policy to create "Passage of Resources", included in the "Sewerage vision 2100" published by Ministry of Land, Infrastructure and Transport in September 2005, makes clear that it will contribute to such as energy sustainability of wastewater treatment plant and preventing global warming by making use of resource recovery - provision functions that sewerage works possessing, and then the measurement of energy saving in sewerage works is growing its necessity to be moved forward.

This study purposed to have mutual information among the local public entities for accelerating further implementation of energy saving - creating actions having been worked by local public entities more efficiently and effectively by providing information such as recent trend of nation and international energy saving related policies, energy saving effects by making use of precedent technologies and latest models of equipment to wastewater treatment plants, examples of commitment for self sustained energy system and unsolved issues for those new technologies from viewpoints of performance and implementation cost.

(Results)

- (1) A questionnaire survey was conducted to the Liaison Board members to research the background of introducing energy saving facilities, problems in operation and actions for solving issues. And information among laws, institutions and examples of projects in regard to energy saving actions in Japan, and moreover, outline of energy savings certificate programs in three European countries was summarized as actions in foreign countries.
- (2) Actual performance of thermal energy contained in treated wastewater and surplus digestion gas was researched and energy potentiality was estimated while these resources are utilized as created energy.
- (3) Technical information among Saving energy technologies which recently developed and actually commenced was collected such as outline of technology, quantitative performance such as reduction of energy consumption, cost effectiveness, problems and points to remember for introduction and conditions of evaluation from independent organization, and finally these information was summarized by a list for each technology.
- (4) Actual performance of energy consumptions and mid - long term energy saving scheme were collected from the board members through inquiry survey, and the target value was set based on energy saving low for the case study which will be carried out on the next year's study.

(Subjects to be studied afterward)

- (1) Conducting case study by selecting target wastewater treatment plants
- (2) Analyzing results from the study and organizing summary of unsolved issues for energy saving technologies

Collaborators: Technical Development Liaison Committee; Sapporo city, Sendai city, Saitama city, Chiba city, Tokyo metropolitan, Kawasaki city, Yokohama city, Niigata city, Shizuoka city, Hamamatsu city, Nagoya city, Kyoto city, Osaka city, Sakai city, Kobe city, Hiroshima city, Kitakyushu city, Fukuoka city and Japan Institute of Wastewater Engineering Technologies

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Key words

Global Warming, Energy Saving, Energy Creating