The Study of New energy technology Introduction and Assessment to sewerage works.

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(Purpose)

Recently, countermeasures against environmental and energy problems are becoming more important not only on the global scale but also in the sewerage works. In addition, since a revision of the Rationalization in Energy Use Law including the changes in designation method of a designated energy management factory came into effect in April 2006, reducing energy has been desired further. In order to solve these problems, sewage treatment plants have been tried introducing the new energy technologies such as photovoltaic generation, wind-power generation, micro hydro power generation, power generation using digestion gas by fuel cell or gas engine, and power storage facility, but have not spread yet. As one of the reasons, there are few references about introducing theirs technologies.

This study aims to support optimal selections and basic plan designs about introduction of new energy technologies for sewage treatment plants, and to present technical data about plan designs and maintenances method of them.

(Results)

It's preferable to narrow down the adoptable new energy technologies in initial stage of deliberation for the introduction. This deliberation flow is shown in Figure 1. The present energy consumption is grasped. Then new energy technology introduction is made judgments from the result of requirement validation and the project assessment. As a result, the detailed design is pushed forward about the technologies that have been decided to introduce. Deliberation approaches of main items in Figure 1 are shown below.

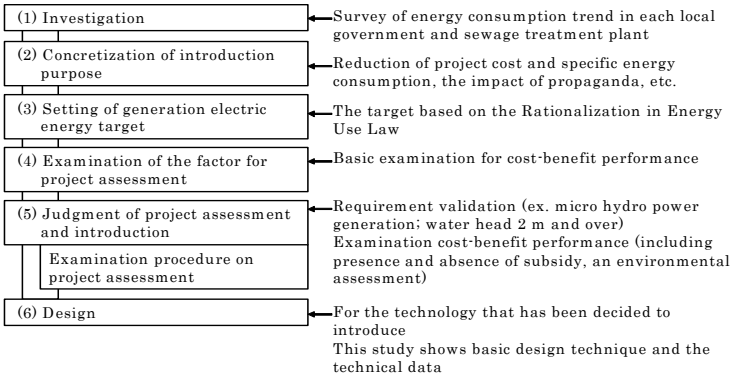

Figure 1 Major deliberation procedure for new energy technology

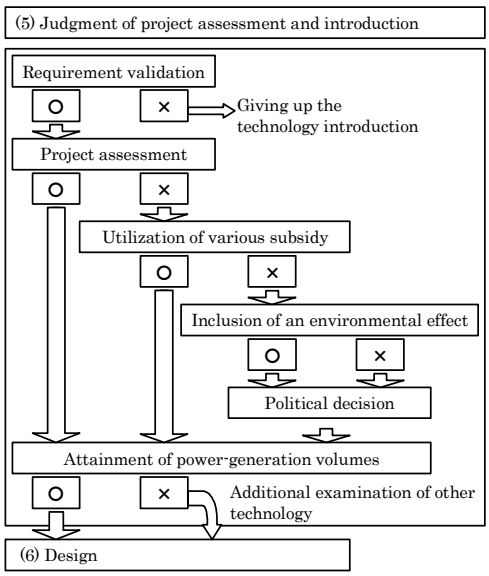

Figure 2 Examination procedure on project assessment

(1) Examination of the factor for project assessment

As basic examination for project assessment, requirement to introduce new energy technologies are organized, and power generation for service life and project cost are calculated.

(2) Judgment of project assessment and introduction

By adequateness of requirement and project assessment for cost-benefit performance based on the assessment factor, introduction of the new energy technologies are decided. This deliberation flow is shown in Figure 2. As the project assessment approach, not only comparisons of benefit of the technologies with the total cost including design, building, maintenance, but also reduction the cost by utilization of various subsidy, or adoption of recent environment accounting are proposed.

(3) Design approach of new energy technology

The technology decided introduction through project assessment is designed detail. Contents of the detail design include system considerations (confirmation of design condition, calculation of capacitances, system configuration, etc.), legal considerations (legal regulation, application data, application deadline, etc.). Furthermore, an interconnect method of new energy and commercial power supply is considered.

(4) Maintenance method of new energy technology

After the introduction, it's necessary to check the facilities daily and regularly, for efficiently and safely management. The method and frequency are considered.

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Key words	photovoltaic generation, wind-power generation, digestion gas power generation, micro hydro power generation, fuel cell power generation, power storage facility