

Development and case study of Simplified BEMS

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Abstract: Building energy management systems (BEMS) are expected to contribute to a reduction in carbon dioxide emissions and energy costs. However, BEMS installation costs and methods of use have become issues. This paper outlines Simplified BEMS, which was developed to resolve these issues, and reports on a case study of a building where the system has been installed.

1. Introduction

The reduction of carbon dioxide emissions, which are involved in global environment issues, and energy costs incurred during building management are important issues facing building owners and managers. Appropriate energy management is one approach for resolving these issues. Building energy management systems (BEMS) are effective tools for achieving appropriate building energy management and their spread is expected to make a great contribution to the resolution of these issues.

The author of this paper have confirmed the effectiveness of BEMS through his own experience operating the system up until the present day in an energy-conservation office building owned by Tokyo Gas, which was completed and equipped with BEMS in 1996. However, issues have arisen for more widespread use of BEMS; issues which include the cost of installation and difficulty of using the system. The author developed a simplified building energy management system ("Simplified BEMS") with Nikken Sekkei Ltd. and Yamatake Corporation, to attempt to resolve these issues and, in 2000, installed it into an existing Tokyo Gas office building that had undergone energy-conservation modifications.

This paper provides an outline of Simplified BEMS and reports on a case study of the system.

2. Positioning of BEMS in Japan

In preparation for the implementation of the Kyoto Protocol, which was decided upon by the 3rd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3), the Guideline of Measures to Prevent Global Warming was revised in March 2002 and amendments were made to the Energy Conservation Law in April 2003. The Guideline of Measures to Prevent Global Warming cites comprehensive energy