

Energy
Conservation
in
Health Care
Facilities

V. DANIEL HUNT

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Energy Conservation in Health Care Facilities

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OTHER BOOKS BY V. DANIEL HUNT

Energy Dictionary, 1979, Van Nostrand Reinhold, New York, NY.

Windpower—A Handbook on Wind Energy Conversion Systems, 1981, Van Nostrand Reinhold, New York, NY.

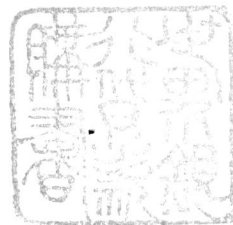
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Foreword

The United States has been a land of abundant energy resources, a fact in large part responsible for the nation's economic preeminence in the global community. Although this abundance still exists, America faces a serious domestic shortage of two key raw energy forms: petroleum and natural gas.

This shortage is not new. The nation's inability to meet demand with domestic supply first occurred in the early 1950s. To meet the shortfall, the United States began importing petroleum from other nations. The dangers inherent in this approach did not gain widespread attention until 1973 when OPEC nations imposed the embargo on petroleum shipments to the United States.

Ever since the oil embargo of 1973, periodic petroleum shortages and rapidly escalating fossil fuel prices have captured the attention of the American public, heightening our awareness of the nation's excessive reliance on foreign oil and the urgent need to conserve energy resources. Almost unnoticed, by comparison, has been the concurrent doubling of energy consumption per hospital patient, as the use of highly energy-intensive treatment techniques, 24 hours a day, continues to increase.

Expenditures for energy in the health care industry have risen dramatically. The American Hospital Association states that for the average hospital, energy costs are rapidly approaching the total cost of all medications and pharmaceutical supplies used in the care and treatment of its patients. *Hospitals* magazine reports that many hospitals now rank energy as their second highest cost item, behind staff salaries and wages. The escalation of fuel prices, particularly for fossil fuels, is likely to exceed the general rate of inflation for some years to come. As energy bills continue to absorb greater and greater portions of hospital budgets, health care facility managers will of necessity have to plan for and implement effective energy cost saving programs.

Research has shown that existing buildings consume far more energy than necessary to achieve the objectives for which they were designed. Hospitals are no exception. In fact, it is estimated that more than 90 percent of the nation's existing 7200 hospitals were built and/or designed prior to 1973-74 and thus are largely energy inefficient by today's standards. Hospital administrators in particular are continually under pressure to reduce energy consumption through energy conservation.

Many health care institutions have incorporated the low-cost and moderate-cost energy conservation initiatives, but have met difficulty undertaking the relatively high-cost capital improvements necessary for significant strides toward energy efficiency. If energy conservation represented the only demand for available funds, health care decisionmakers would face clear and simple choices. However, in an environment of capital constraint, major energy conservation measures often face serious competition from other programs. A hospital administrator may be presented with the dilemma of choosing between an energy-saving retrofit and a more effective medical device—equipment which would allow the hospital to serve its patients better.

This book identifies significant issues that must be considered in order to achieve energy conservation in health care facilities. Comprehensive, factual and practical solutions must be found to help reduce escalating costs in both health care and energy which are moving toward crisis proportions.

The first chapter in this book places the significant energy issues in focus. It does this in three ways. First, it describes the connection between health care and energy conservation. Energy conservation low cost/no cost techniques are effective approaches toward containing health care costs. Second, the section shows that hospitals have a special responsibility to overcome the inertia and indifference that generally afflict energy conservation efforts today. Third, it shows that the challenge to the health care industry is that its "institutions are energy intensive, complex organizations which are faced with the possibility of losing their preferred status as claimants for energy as they (and everyone else) face escalating costs."

The second chapter of the book provides brief overviews of

energy issues in health care. Background information is provided in eight areas; goals, incentives, responsibilities, policies, implementation, legalities, financing, and technology. The last section in Chapter 2 provides a summary of the significant issues facing hospitals in regard to energy conservation. The key issues are:

- Health cost reduction through energy conservation
- Emphasis on near term cost effective programs
- Third-party payers' conservation incentives
- Realistic ventilation standards
- Adequate data collection and information dissemination

The third chapter provides an approach to practical energy management in health care facilities with an emphasis on the energy management team. This chapter stresses that energy conservation in health care facilities is everyone's concern. But the great majority of energy is concentrated in a few functional systems:

- Environmental Control: heating, ventilating, and air conditioning (HVAC) require 40 to 65 percent of all energy used in a hospital.
- Lighting and Wall Receptacles: hospitals operate around the clock seven days a week. Lighting and wall receptacles account for 10 to 20 percent of all energy used in a hospital.
- Laundry: an on-site laundry can use 8 to 15 percent of all energy in a hospital.
- Food Service: kitchen operations account for 5 to 10 percent of all energy in a hospital.
- Medical Equipment: these equipment use about 3 to 5 percent of all energy.
- Sterilization and Incineration: all told, sterilization and incineration account for about 2 percent of all energy used in a hospital.

Chapter 4 describes actual energy conservation projects completed by more than twenty-five health care facilities across the country. Specific projects are described, energy savings are noted, and a point of contact for obtaining more information is provided.

Additional reference information, including a detailing bibliography, glossary of terms, abbreviations, and sources of information are provided at the end of this book.

Increasing numbers of hospital administrators are learning that energy efficiency can be improved significantly through energy-saving operating and maintenance procedures, weatherization, and utilization of new energy technology.

Many hospitals have taken initial steps toward energy conservation efficiency, but are encountering difficulty raising the capital funds required for the higher-cost measures, even though these efforts typically result in sharply reduced energy costs. This book provides supporting information for the Board of Trustees, the health care facility administrator and plant engineers to encourage the evaluation and funding of near- and long-term energy efficient projects that will reduce the facilities' energy costs.

The Energy Institute

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