
Foreword

Welcome to the 1998 ACEEE Summer Study on Energy Efficiency in Buildings, the tenth in a series of biennial workshops devoted to technology, policy, and implementation issues related to energy use in buildings. This week-long conference brings together a diverse group of professionals from around the world representing the views and expertise of utilities, industry, national laboratories, government agencies, public interest groups, and universities.

The theme of this Summer Study is *Energy Efficiency in a Competitive Environment*, reflecting one of the major trends in the field of energy efficiency—the growing need to strategically position energy-efficient and renewable energy technologies in ways that harness market forces. Restructuring of the electric utility industry and increased retail competition in both electric and gas markets has made it imperative to prove to consumers that energy efficiency improvements in buildings can constitute profitable investments. The need to compete in both domestic and international markets is forcing corporations and nations to focus on energy efficiency as a means of improving productivity and reducing costs. Across the globe, efforts to capture the benefits of energy efficiency are increasingly market-driven and market-based.

Other drivers for energy efficiency are also emerging. Of particular note are the environmental benefits of energy efficiency. Numerous studies have documented that energy efficiency is a highly cost-effective and politically palatable near-term solution for addressing global warming. In many countries, including the U.S., buildings are heated, cooled, lit, and powered primarily by fossil-generated electricity, making the buildings sector an important target for reducing greenhouse gas emissions through improved energy efficiency.

But there are also new and continuing challenges. The first decade of the next century promises to extend the current era of low energy prices. At the same time there is no perceived threat of near-term electricity shortages or oil supply disruption. With much of the public still unaware of how energy efficiency contributes to the environment, it is not surprising to find relatively little interest by citizens, corporations, and the government in saving energy for its own sake.

The downward slide of utility demand-side management investments that was so apparent at the 1996 Summer Study is continuing; however, in a few key states such as California and New York the decline is being offset by market transformation programs funded through public benefits charges. In response to such opportunities presented by electric utility industry restructuring, portions of the industry and its efficiency services subsidiaries are staffing up and forming strategic alliances to offer not only performance contracting, but also commodity sales, maintenance, power quality, load profiling, billing, metering, and other services to its customers.

Set against the backdrop of these trends, noteworthy technology developments and implementation progress have been made since the 1996 ACEEE Summer Study. A growing body of research expertise has been translated into innovative and advanced technologies that are now cutting energy costs in both residential and commercial markets. Examples include gas-driven heat pumps, duct diagnostics and sealing, and low-emissivity windows. The past several years have also heralded the rapidly growing use of information technologies in building construction, energy metering, energy management and control systems, and telecommunications. Another technical development is the expanded scope of energy efficiency activities to include building start-up and operations and maintenance, in addition to installing energy conservation measures. The result has been an improved ability to deliver long-term savings.

These market successes reflect the great progress being made in integrating industry and government research agendas, the growing role of energy service companies, the mainstreaming of performance contracting, and the maturation of market transformation efforts. They have also benefited from better alignment between energy efficiency and diverse goals such as indoor air quality and health; occupant comfort, amenities, and productivity; and peak demand reduction. In addition, recent successes

have capitalized on the growing understanding of how individuals and organizations make decisions that affect energy use (such as choice of building and lighting designs and the purchase of heating and cooling equipment) and the expanding field of knowledge of how energy is used in society.

All of these issues, trends, challenges, and accomplishments are discussed in the ten panels that comprise the 1998 Summer Study. Each panel deals with a particular cluster of issues and presents its papers in a separate volume of the proceedings. The ten volumes are as follows:

Volume 1 — Residential Buildings: Technologies, Design, and Performance Analysis

Volume 2 — Residential Buildings: Program Design, Implementation, and Evaluation

Volume 3 — Commercial Buildings: Technologies, Design, and Performance Analysis

Volume 4 — Commercial Buildings: Program Design, Implementation, and Evaluation

Volume 5 — International Collaborations and Global Market Issues

Volume 6 — Deregulation of the Utility Industry and Role of Energy Services Companies (ESCOs)

Volume 7 — Market Transformation

Volume 8 — Information Technologies, Consumer Behavior, and Non-Energy Benefits

Volume 9 — Sustainable Development, Climate Change, Energy Planning, and Policy

Volume 10 — Building Industry Trends

The 1998 Summer Study repeats the panel devoted to building industry trends, which was introduced in 1996. Several new topics have been introduced this year, including sustainable development, information technologies, non-energy benefits, and global market issues.

In closing, we would like to thank the 22 panel leaders who worked their way through more than 600 abstracts, shepherded nearly 300 papers through the peer-review process, and selected 30 displays. The ACEEE staff also deserve special recognition, in particular Glee Murray and Rebecca Lunetta, for their coordination of a complex of logistical details that must come together to make the conference a success.

Enjoy the conference.

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Acknowledgments

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PANEL 7 INTRODUCTION

Market Transformation

Every few years exciting new ideas start gaining acceptance within the energy efficiency community. Audit programs gave way to incentive programs. Prescriptive programs developed to simplify programs, but customized programs evolved to go deeper. Conservation evolved into demand-side management (DSM). Lost opportunity and market-driven programs gained strong followings among policymakers. Integrated resource planning (IRP) and shareholder incentives caused an explosion of DSM activity. And more recently, market transformation (MT) began to evolve into a recognized strategic approach to leverage energy efficiency. Fittingly, it was the subject of one of the four “Future Directions” plenary sessions at the 1992 Summer Study. Now, as an adolescent paradigm, it is back at the Summer Study with a teenager’s vigor and desire for self-understanding.

We are quite pleased with the variety and quality of the papers in this panel. Our sessions span the spectrum from theory through policy and planning, to implementation, and finally to the issues of measurement. Rather than vainly attempting to capture the gist of each paper in this overview, we will instead try to give readers a flavor of the sessions as a whole.

Definitions and History: Setting the Table. The authors join the current debate swirling over the use of the term market transformation. What is MT and how important is it for there to be a commonly accepted definition? Three papers examine this question from various perspectives and offer recommendations on how the energy efficiency community should proceed to advance behind the banner of MT. Taken together, these three papers present an excellent picture of the state of thinking today about what MT is, what makes it a significant change in the approach to energy efficiency, and what will be important to address as its implementation continues to evolve.

Overviews of Market Transformation Activity. In Session 2 we turn to recent experience to learn more about market transformation in the field. We draw upon a range of locations and stages of program evolution. From British Columbia, Canada, there are ten years of Power Smart experience that place MT in an evolutionary context for a large, public utility’s energy efficiency efforts. From the Northwest United States there is the start-up experience of a regional approach that combines all utilities’ efforts through the Northwest Energy Efficiency Alliance. And lastly, from Massachusetts, we learn of the experience of attempting to establish MT programs as a successor to well-established DSM programs, from the perspective of a utility engaged in negotiating the restructuring of the electric industry in Massachusetts.

MT with an Attitude. In a marketing world, the ability to draw conclusions quickly and move to action in a fast-changing world is a valuable asset. It is a risky proposition. If you leave out academic and nonessential caveats, you are professionally vulnerable. Our authors take these risks. They contribute to the dialog with their candor. Manufactured housing programs, the basic marketing paradigm behind market-based energy efficiency, and major shifts in complex commercial lighting markets are the subjects of these interesting and provocative papers.

Market Transformation Starts (and Sometimes Ends) with Information. In Session 4 the authors explore three aspects of the perennial barrier of inadequate information about energy-efficient options in the marketplace. Their papers describe the effectiveness of an energy information center, the measurement of the effectiveness of a customer information

program and audit service, and, lastly, a new collaborative process designed to break the vicious circle of inadequate information about compressed air systems in industry. While all focus on the MT effects of the provision of information, three different approaches were designed and used for the three different markets that are targeted. The measurement paper is a new approach to attributing causality with information programs.

Planning National Market Transformation Initiatives. Three different efforts at national market transformation initiatives are described. Similarities and differences illustrate the range of strategies available and appropriate for planning national MT initiatives: refrigerated vending machines; the national market for customer-side electric transformers; and technology procurement. Each set of authors tries to examine the situations in which their specific approach is most appropriate for MT.

Measurement and Evaluation Issues. Twenty years ago we found conservation programs operating vigorously in many parts of the country, but the field of energy program evaluation was far behind the programs. Today, we may actually have a well thought-out approach to measurement and evaluation that is informing the design of MT programs and is set up to provide useful feedback as the programs progress. Session 6 features a paper on setting appropriate, measurable goals for new MT programs, an overview of an effort to measure the market effects of California DSM acquisition programs, and the outline of an approach to measure MT programs, based on experience in the Pacific Northwest.

Market Transformation Planning Issues. Authors address a range of planning issues in Session 7. The public policy issues on planning MT in the transition from traditional programs to MT programs is discussed in the context of the multi-year debate in Massachusetts on the restructuring of the electric industry in that state. Examining how to rank and screen MT opportunities is also explored in the context of various studies in different regions. Lastly, the planning of a specific initiative for extending the benefits of building codes into the context of public demand for improved building practices in the Northwest United States is also highlighted.

Three Claims for Success—"Don't Be Shy." Nothing sells like success. The authors of three papers are willing to stand up and make their claims for successful MT efforts. More important than whether readers and listeners agree with the claims, these papers provide the opportunity to examine the features of program designs that lead to apparent success. The examples involve a residential new construction program in Arizona, the technology procurement program of NUTEK in Sweden, and the WashWise program in the Pacific Northwest.

Successful Designs: The Key is in the Details. Market transformation doesn't just happen. Laying the groundwork in careful design and planning is essential. These three papers step back and look at the detailed work needed to get joint programs in the field. One paper shows the need for and logic of preparing regulators in multiple jurisdictions regarding the market potential, market hypotheses, and measurement issues related to MT initiatives. A second paper describes the way a multiple party lighting fixture program was established to encompass the entire West Coast. The third paper looks at the lessons derived from doing the market research first, and how those lessons get translated into project tools for the ENERGY STAR® program.

Residential Market Transformation. Most early MT efforts targeted the residential sector. Therefore, it is expected that the residential sector should provide a larger set of potential papers from which to select examples than from other sectors. These three papers describe: (1) the lighting program design process in New England; (2) the evolution of the national ground-source heat pump program; and (3) the use of manufactured housing as a platform for highlighting ENERGY STAR® appliances.

Welcome to the world of market transformation. Browse, question, learn, and buy.

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