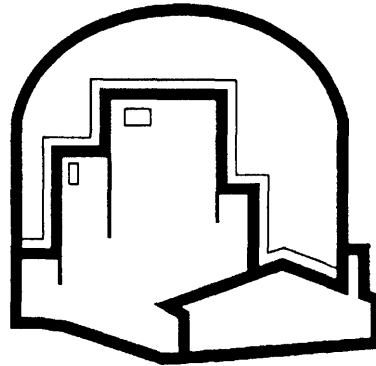


P R O C E E D I N G S

Subject and Author Index



*ACEEE 1994 Summer Study on
Energy Efficiency in Buildings*

American Council for an Energy-Efficient Economy 

1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036 (202) 429-8873
2140 Shattuck Avenue, Suite 202, Berkeley, CA 94704 (510) 549-9914

Copyright © 1994 All rights reserved.
American Council for an Energy-Efficient Economy

No portion of this publication may be reproduced, by any process or technique,
without the express written consent of the publisher.

Foreword

From August 28 through September 3, 1994 the American Council for an Energy-Efficient Economy sponsored its Summer Study on Energy Efficiency in Buildings entitled “Building Tomorrow.” This week-long conference attracted over 700 people and contained over 300 research papers relating to all aspects of energy efficiency in buildings.

These Proceedings are divided into ten volumes reflecting the ten panels that convened at the Summer Study. Each volume was edited by the appropriate panel leaders who were responsible for ensuring the quality of the papers by subjecting them to an academic-style peer-review. Without their efforts these Proceedings would not have been possible.

The ten volumes contained in the Proceedings are as follows:

Volume 1— Human Dimensions of Energy Consumption

Volume 2— Demand and Load Shapes

Volume 3— Technology Research, Development, and Evaluation

Volume 4— Global and Environmental Issues

Volume 5— Commissioning, Operation, and Maintenance

Volume 6— Policy

Volume 7— Resource Planning Methodologies

Volume 8— Measurement and Evaluation

Volume 9— Demonstrations and Retrofits

Volume 10— Program Design

Index— Subject and Author Index

Although every effort has been made to ensure the quality of the papers by the volume editors and ourselves, the views expressed in the articles are those of the authors and do not necessarily reflect the views of ACEEE, the Summer Study sponsors, or the editors.

Max Sherman
Lawrence Berkeley Laboratory

John Stoops
Pacific Northwest Laboratory

Series Editors and Conference Chairs

Acknowledgments

Organizing Committee

Max Sherman, Conference Co-Chair
Lawrence Berkeley Laboratory

John L. Stoops, Conference Co-Chair
Pacific Northwest Laboratory

Carl Blumstein
University of California, Berkeley

Linda Schuck
Management Consultant

Glee Murray and Katherine Gallagher
American Council for an Energy-Efficient Economy

Advisory Committee

Sharyn Barata, *Florida Power and Light*

Morton H. Blatt, *Electric Power Research Institute*

James M. Fay, *Gas Research Institute*

Shel Feldman, *Wisconsin Center for Demand-Side Management Research*

Gary B. Fernstrom, *Pacific Gas and Electric Company*

Kenneth R. Gudger, *Southern California Edison Company*

Gregory W. Haddow, *San Diego Gas and Electric Company*

Elizabeth G. Hicks, *New England Power Service Company*

Eric A. Hirst, *Oak Ridge National Laboratory*

John Hoffman, *U.S. Environmental Protection Agency*

Kenneth M. Keating, *Bonneville Power Administration*

Scott Matthews, *California Energy Commission*

John P. Millhone, *U.S. Department of Energy*

Guy R. Nelson, *Western Area Power Administration*

Vicky J. Sharpe, *Ontario Hydro*

Robert Skinner, *International Energy Agency*

Glen Skovholt, *Honeywell, Inc.*

Gunnar Walmet, *New York State Energy Research and Development Authority*

Conference Staff

Glee Murray, *Director*

Katherine Gallagher, *Conference Manager*

Liz Burke

Adele Ferranti

Debbie Giallombardo

Judy Hardin

Jennifer Hughes

Carol Stoker

Proceedings Cover Design

Chuck Myers

Karen Ohmans

Production, Pacific Northwest Laboratory

Lila Andor

Karen Chase

April Daniel

Kimberly Gibby

Jamie Gority

Barb Halka

Mary Heid

Sharon Johnson

Darla Kennedy

Joanne Moore

Sallie Ortiz

Debbie Schulz

Janet Tarantino

Sheryl Thomas

Margaret White

Building Tomorrow: The Path to Energy Efficiency

Panel 1 – Human Dimensions of Energy Consumption

Conservation Advertising Campaigns and Advertising Effectiveness Research: The Right Combination to Solidify the Conservation Ethic	1.1
Lynn Auch, O'Neill & Company, Inc. Mike McDonald, Puget Sound Power & Light Company, Inc.	
Modeling Technology Adoption and DSM Program Participation Decisions	1.9
Susan Buller, Pacific Gas and Electric Company Glen Weisbrod, HBRS, Inc. Kenneth Train and Richard Barnes, XENERGY Inc.	
Measuring the Rebound Effect as a Result of a Residential Fuel-Switching Program	1.19
Meng Chi and Jeff K. Magouirk, Public Service Company of Colorado	
Developing the Supply Side of Existing State Controlled Energy Consultancy	1.27
Inger-Marie Christensen, AKF, Institute of Local Government Studies	
Are Investments in Energy Efficiency Over or Under?: An Analysis of the Literature	1.37
William H. Golove, Lawrence Berkeley Laboratory	
Forecasting Needs for the Emerging Cultural/Social Energy Paradigm	1.45
Lana A. Greening, The University of Alabama	
An Organizational Culture Perspective on the Role of Swedish Energy Utilities in Promoting Energy-Efficient End-Use Technologies	1.53
Leif G. W. Gustavsson, University of Lund	
Barriers to Non-Compressor Cooling: Air Conditioners in Social Context	1.59
David R. Hall, David G. Hungerford, and Bruce Hackett, University of California, Davis	
Do Savings from Energy Education Persist?	1.65
Merrilee S. Harrigan, Alliance to Save Energy Judith M. Gregory, Applied Energy Research	
Bounded Decision Making and Analytical Biases in Demand Side Management	1.75
Kathryn B. Janda, Lawrence Berkeley Laboratory	
Expanding the Human Dimensions Research Agenda	1.85
Willett Kempton, University of Delaware Lee Schipper, Lawrence Berkeley Laboratory	
Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings	1.91
Kurt Kiefer, Wisconsin Power & Light William LeBlanc, Barakat & Chamberlain, Inc. Shel Feldman, Wisconsin Center for Demand-Side Research	

Institutional Change or Spare Change: A Case Study of the Persistence of Utility DSM Behavior Produced by Regulatory Incentives	1.101
Martin G. Kushler, <i>Michigan Public Service Commission</i>	
Why Isn't the Housing Stock More Efficient?: Organizational Networks and Technology Transfer	1.109
Loren Lutzenhiser, <i>Washington State University</i>	
Finding Methods to Estimate Social Benefits of Low-Income Energy Efficiency Programs	1.119
Lori M. Megdal, <i>Cambridge Systematic, Inc.</i> Melissa Piper, <i>Niagara Mohawk Power Coloration</i>	
When the Straight Line Is Not the Fastest Route: Counterintuitive Approaches to improving Energy Efficiency in Buildings	1.133
John H. Morrill, <i>American Council for an Energy-Efficient Economy</i>	
Moving a Residential Saturation Retrofit Program from Low-Income to Higher-Income Neighborhoods	1.145
Ilene Obstfeld, Kevin W. Moore, and Brian A. Weiner, <i>XENERGY Inc.</i> Victor E. Espinosa, Jr., <i>Los Angeles Department of Water and Power</i>	
The Conservation Potential of Lifestyle Changes	1.153
Mickey Rockwell, B.C. <i>Hydro</i> Matthew F. Rose, <i>Synergic Resources Coloration</i>	
The Detroit Edison Low-Income Customer Service Program: Effective Methods to Reduce High Non-Heating Electric Use	1.159
Mitchell Rosenberg and Jill Feblowitz, <i>XENERGY Inc.</i>	
American Multi-Family Conservation in Kraków	1.169
Cheryl A. Samson, <i>Lakeland Utility Conservation, Inc.</i>	
Consumer Rationality and Energy Efficiency	1.175
Alan H. Sanstad, <i>Lawrence Berkeley Laboratory</i> Richard B. Howarth, <i>University of California</i>	
Is Market Transformation Happening Right Under Our Eyes?	1.185
Rebecca Vories, <i>Infinite Energy</i> Mitchell Rosenberg, <i>XENERGY Inc.</i>	
Market Signals Fall Short as Policy Instruments to Encourage Energy Savings in the Home	1.193
Harold Wilhite, <i>Ressurskonsult (Oslo) and Jyukanhyo Research Institute (Tokyo)</i>	
Innovativeness, Predisposition, and Freeridership	1.201
Phillip A. Windell, Jane S. Peters, and Matei Perussi, <i>Barakat & Chamberlain, Inc.</i>	

Panel 2 – Demand and Load Shapes

A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities	2.1
H. Akbari, J. Eto, S. Konopacki, A. Afzal, K. Heinemeier, and L. Rainer, <i>Lawrence Berkeley Laboratory</i>	
More Data Is Better, but How Much Is Enough for Impact Evaluations?	2.11
Taghi Alereza, <i>ADM Associates, Inc.</i> Ramin Faramarzi, <i>Southern California Edison Company</i>	
Voluntary Time-of-Use Rates Induced Load Shifting and Peak Load Reduction	2.21
S. Mostafa Baladi, <i>Christensen Associates</i> Joseph A. Herriges, <i>Iowa State University</i> Thomas J. Sweeney, <i>Midwest Power Systems</i>	
Turning Lead into Gold: Trends in Metering for Studies of Load and Load Impacts	2.31
Mark Bowman, <i>Measuring and Monitoring Services</i> Miriam L. Goldberg, <i>XENERGY Inc.</i>	
Photovoltaics in a Demand-Side Management Role	2.43
John Byrne, Young-Doo Wang, Ralph Nigro, and Steven E. Letendre, <i>University of Delaware</i>	
Pricing Energy Services in a Competitive Market	2.51
John H. Chamberlain, <i>Barakat & Chamberlain, Inc.</i>	
End Use Load Data Transferability: A Report from the Frontier	2.57
Marisha E. Chilcott and Nancy E. Ryan, <i>Quantum Consulting Inc.</i> Richard Gillman, <i>Center for Electric End-Use Data</i>	
Can Dispatchable Pricing Options Be Used to Delay Distribution Investments? Some Empirical Evidence	2.67
Robert L. Cruz, <i>Pacific Gas and Electric Company</i> Dennis M. Keane and Michael J. Sullivan, <i>Freeman, Sullivan & Co.</i>	
Large Scale Residential Refrigerator Field Metering	2.77
Gautam S. Dutt, John P. Proctor, and Michael S. Blasnik, <i>Proctor Engineering Group</i> Andrew A. Goett, <i>HBRS, Inc.</i> Elsia O. Galawish and Dan C. Quigley, <i>Pacific Gas and Electric Company</i>	
Measured Performance of Variable Speed Drives on Injection Molding Machinery	2.87
Scott L. Englander, <i>New England Power Service Company</i> Carl H. Remley, <i>Energy Management Consulting & Equipment Inc.</i>	
Exploring Energy and Demand Impacts of a Controllable Rates Program	2.95
Miriam L. Goldberg, <i>XENERGY Inc.</i>	
Domestic Hot Water Loads, System Sizing and Selection for Multifamily Buildings	2.105
Fredric S. Goldner and David C. Price, <i>Energy Management & Research Associates</i>	

Impacts of Performance Factors on Savings from Motor Replacement and New Motor Programs	2.117
<p>Frederick M. Gordon, <i>Pacific Energy Associates, Inc.</i> Jack S. Wolpert and Jerry W. Deal, <i>E-Cube Engineering, Inc.</i> Scott L. Englander, <i>New England Power Service Company</i></p>	
How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin	2.127
<p>Richard Hackner and Shel Feldman, <i>Wisconsin Center for Demand-Side Research</i> Jim LeClair, <i>Wisconsin Public Service Corporation</i> Bedig Margossian, <i>Quantum Consulting, Inc.</i> Michael Ozog, <i>RCG/Hagler, Bailly, Inc.</i> Dan Wallen, <i>Wisconsin Power & Light Company</i></p>	
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building	2.137
<p>Mark A. Halverson, John L. Stoops, John R. Schmelzer, William D. Chvála, Jr., and John M. Keller, <i>Pacific Northwest Laboratory</i> Louis R. Harris, Jr., <i>U.S. Department of Energy</i></p>	
Energy and Peak Demand Impact Estimates for DSM Technologies in the Residential and Commercial Sectors for California: Technical and Regulatory Perspectives	2.145
<p>Ed H. Hamzawi, <i>NEOS Corporation</i> Michael Messenger, <i>California Energy Commission</i></p>	
Evaluation of the PG&E Ceiling Insulation Rebate Program: An Application of the California Evaluation Protocols..	2.157
<p>Forest Harrison and Susan Buller, <i>Pacific Gas and Electric Company</i> Michael Ozog, Robin Calhoun, and Kathleen McElroy, <i>RCG/Hagler, Bailly, Inc.</i></p>	
An Approach to the Establishment of Load Research Metering to Support the Design and Evaluation of Natural Gas DSM Programs	2.167
<p>Timothy P. Hennessy and Curt D. Puckett, <i>RLW Analytics, Inc.</i> Susan K. Nathan, <i>Minnegasco</i></p>	
Characterization of Energy Conservation Measure End-Use Cross-Effects	2.175
<p>Curt Hepting and James Peterson, <i>ERG International Consultants, Inc.</i> Anthony Lo, <i>B.C. Hydro</i></p>	
The Day the Engineers Were Right: Confirming the Peak Demand Reductions of FPC's Air Conditioner Duct Test and Repair Program	2.185
<p>Mike Jacob, <i>Florida Power Coloration</i> Allan A. Zebedee, <i>XENERGY Inc.</i></p>	
Customer Response to Real-Time Pricing in Great Britain	2.195
<p>Kathy King and Peter Shatrawka, <i>Christensen Associates</i></p>	
Refrigerator Monitoring System Development and Field Testing Results	2.205
<p>Laurence F. Kinney and Michael R. Stiles, <i>Synertech Systems Coloration</i></p>	

Energy Consumption by End-Use: Introducing a New Technique for Advanced Monitoring	2.211
Benoît Lebot and François Moisan, <i>Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME)</i>	
Herve Laffaye, <i>Electricity de France</i>	
Didier Mayer and Thierry Dumont, <i>Ecole des Mines de Paris</i>	
Paul Frey and Jerome Gilbert, <i>Landys & Gyr Energy Management</i>	
Deriving End-Use Load Profiles Without End-Use Metering: Results of Recent Validation Studies	2.217
Bedig Margossian, <i>Quantum Consulting Inc.</i>	
Using Data Visualization to Better Understand Electric Load and End-Use Data	2.225
Jedd L. Parker, <i>RLW Analytics, Inc.</i>	
Potential for Feeder Equipment Upgrade Deferrals in a Distributed Utility	2.229
R. G. Pratt, Z. T. Taylor, L. A. Klevgard, and A. G. Wood, <i>Pacific Northwest Laboratory</i>	
Non-Intrusive Load Monitoring Systems: Considerations for Use and Potential Applications	2.241
Terry R. Sharp, <i>Oak Ridge National Laboratory</i>	
Producing More with Less: Evaluating the Impact of a T&D Agricultural DSM Program	2.249
Scott D. Sparks, <i>Idaho Power Company</i>	
Andrew Goett and Lorna Stucky, <i>HBRS, Inc.</i>	
Scott Dimetrosky, <i>Barakat & Chamberlain, Inc.</i>	
Energy Consumption of Personal Computer Workstations	2.257
Richard F. Szydlowski and William D. Chvála, Jr., <i>Pacific Northwest Laboratory</i>	
Acquiring T&D Benefits from DSM: A Utility Case Study	2.269
Richard O. Weijo and Linda Ecker, <i>Portland General Electric</i>	
Impact Evaluation Using Load Research Data	2.277
Dan Wilcox, <i>RLW Analytics, Inc.</i>	

Panel 3 – Technology Research, Development, and Evaluation

Residential Lighting Efficiency in Mexico: The Road to ILUMEX	3.1
Andrés Blanc, <i>PAESE-CFE</i> Odón de Buen, <i>DEPFI, UNAM</i>	
Energy Savings and Field Experiences with Dual Integrated Appliances	3.9
David L. Bohac, Mark W. Hancock, and Timothy S. Dunsworth, <i>Center for Energy and Environment</i> Sue Makredes, <i>Minnegasco</i>	
A Combined Refrigerator-Electric Water Heater (CREWH)	3.19
Richard C. Bourne and Willard Dakin, <i>Davis Energy Group, Inc.</i>	
An Overview of Cool Storage Technologies for Commercial Buildings	3.29
James E. Braun, <i>Purdue University</i>	
The Sine-US Super-Efficient Refrigerator Project	3.41
Jeanne Briskin and H. Alan Fine, <i>U.S. Environmental Protection Agency</i>	
Performance Evaluations of Compact Fluorescent Lamps: What Does “Equivalent” Really Mean?	3.45
Robert G. Davis and Yunfen Ji, <i>Rensselaer Polytechnic Institute</i> Xiaowei Luan, <i>EUA Cogenex</i>	
ACT² Project: Maximizing Residential New Construction Energy Efficiency	3.57
Lance E. Elberling, <i>Pacific Gas and Electric Company</i> Richard C. Bourne, <i>Davis Energy Group, Inc.</i>	
Super Efficient Refrigerators: The Golden Carrot® from Concept to Reality	3.67
John W. Feist, <i>Super Efficient Refrigerator Program, Inc.</i> Ray Farhang, <i>Southern California Edison Company</i> Janis Erickson, <i>Sacramento Municipal Utility District</i> Elias Stergakos, <i>Long Island Lighting Company</i> Paul Brodie, <i>Pacific Gas and Electric Company</i> Paul Liepe, <i>Atlantic City Electric Company</i>	
Laboratory Accreditation for Testing Energy Efficient Lighting	3.77
Lawrence Galowin and Walter Rossiter, Jr., <i>National Institute of Standards and Technology</i> Ron Runkles, <i>National Electrical Manufacturers Association</i> Raymond Brown, <i>Brown Proficient Testing, Inc.</i>	
Measured Loading of Energy Efficient Motors: The Missing Link in Engineering Estimates of Savings	3.89
Roger O. Hill and Scott L. Englander, <i>New England Power Service Company</i> Scott Judson, <i>Savage Engineering Inc.</i> Andrew P. Parece, <i>XENERGY Inc.</i>	
Gas Heat Pumps Are Coming: But by a Different Name	3.97
Patrick J. Hughes, <i>Oak Ridge National Laboratory</i>	
Design of a High-Efficiency Rooftop Air Conditioner	3.103
William L. Kopko, <i>U.S. Environmental Protection Agency</i> Douglas Hibberd, <i>Conservation Through Innovation Ltd.</i>	

Wooden Concrete–High Thermal Efficiency Using Waste Wood	3.109
<i>Jan Kosny, Oak Ridge National Laboratory</i>	
A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings	3.117
<i>Eleanor S. Lee, Stephen E. Selkowitz, Francis M. Rubinstein, Joseph H. Klems, Liliana O. Beltrán, and Dennis L. DiBartolomeo, Lawrence Berkeley Laboratory</i>	
Commercial Gas Cooking Appliances: Current Status and Future Directions	3.129
<i>Mary Sue Lobenstein and Martha J. Hewett, Center for Energy and Environment Susan K. Nathan, Minnegasco, Inc.</i>	
Gas-Fired Residential Heat Pump Water Heaters: An Exploration and Evaluation of Potential Technologies	3.141
<i>James D. Lutz, Lawrence Berkeley Laboratory</i>	
Driving the Market for New Metering Equipment	3.151
<i>Richard P. Mazzucchi, SBW Consulting, Inc.</i>	
Advanced Heat Pump Cooling and Heating Energy Savings	3.159
<i>C. Leon Neal, NC Alternative Energy Corporation</i>	
High Efficiency Evaporative Condensers for Air Conditioning, T. E. S., and Refrigeration	3.165
<i>Dennis Nugent, TGK Consulting, Inc.</i>	
Measured Efficiency of Forced-Air Distribution Systems in 24 Homes	3.177
<i>Larry Palmiter and Paul W. Francisco, Ecotope, Inc.</i>	
Solar Photovoltaic Air Conditioning of Residential Buildings	3.189
<i>Danny S. Parker and James P. Dunlop, Florida Solar Energy Center</i>	
Awash in Energy Efficiency: Overcoming Barriers to Market Penetration of Horizontal Axis Clothes Washing Machines	3.199
<i>Edward C. Pope, Seattle City Light Matthew I. Slavin, Washington State Energy Office</i>	
Field Measurement and Evaluation of Indirect-DX Air-Conditioning Systems	3.205
<i>Nicolas Puga, Resource Management International, Inc. Henry Lau, Southern California Edison Company</i>	
Energy Savings from an Active Daylighting Retrofit and Impact on Building practices	3.217
<i>John Reed, Chris Pinkowski, and Bernadette Caldwell, Wisconsin Demand-Side Demonstrations Jim Mapp, State of Wisconsin Energy Bureau Stanley White, State of Wisconsin Department of Administration Nick Hall, RCG/Hagler, Bailly, Inc.</i>	
Lighting/HVAC Interactions and Their Effects on Annual and Peak HVAC Requirements in Commercial Buildings	3.229
<i>A. Osman Sezgen and Y. Joe Huang, Lawrence Berkeley Laboratory</i>	

Office Equipment Energy Efficiency: Taking the Next Few Bytes 3.241
 Loretta A. Smith, *American Council for an Energy-Efficient Economy*
 Jeffrey P. Harris, *Lawrence Berkeley Laboratory*
 Morton H. Blatt, *Electric Power Research Institute*

**Daylighting Commercial and Educational Rooms to 750 Lux with Stationary Projecting
 Reflector Arrays (SPRA): A Simulation** 3.251
 Michael R. Stiles, *Synertech Systems Corporation*
 Ross McCluney, *Florida Solar Energy Center*

Retrofitting Natural Gas Service into Existing Multifamily Buildings. 3.263
 Robert Torbin and Paul Belkus, *Foster-Miller, Inc.*

Panel 4 – Global and Environmental Issues

Environment, Distributive Equity and Energy Savings: Capturing the Benefits Where They Are Needed	4.1
Scott Bernstein, <i>Center for Neighborhood Technology</i>	
IRP Applied to District Heating in Eastern Europe	4.15
Michael Bull, <i>Bonneville Power Administration</i>	
Tom Secrest, <i>Pacific Northwest Laboratory</i>	
Jiri Zeman, <i>SEVEn</i>	
Andrew Popelka, <i>Tecogen</i>	
Energy Efficiency and Renewable Energy Options for China’s Economic Expansion	4.25
John Byrne and Bo Shen, <i>University of Delaware</i>	
Xiuguo Li, <i>Chinese Academy of Sciences</i>	
Reforming Energy Assistance to the Post-Planned Economies	4.37
William U. Chandler, <i>Battelle, Pacific Northwest Laboratories</i>	
Energy, Productivity, and Economic Implications of Resource and Environmental Policy in Southern California	4.49
Ishtiaq A. Chisti, <i>Southern California Edison Company</i>	
Prospects for Using Non-traditional Methods to Finance Energy Efficiency Projects in the Czech Republic	4.57
Martina Didušková <i>SEVEn</i>	
Ivo Slavotínek, <i>EPS CR</i>	
Opportunities Found (and Taken): SMUD’s Refrigerator Program	4.65
Janis Erickson, <i>Sacramento Municipal Utility District</i>	
Saving Electricity in Mexican Homes: Potential and Accomplishments to Date	4.71
Rafael A. Friedmann, <i>University of California, Berkeley</i>	
Energy Savings in Residential Multifamily Buildings – Demonstration Project in Kraków, Poland	4.81
Adam Gula, <i>Fundacja na rzecz Efektywnego Wykorzystania Energii</i> (Polish Foundation for Energy Efficiency—FEWE)	
George Reeves, <i>George Reeves Associates, Inc.</i>	
Lawrence Markel, <i>Electrotek Concepts</i>	
Richard F. Szydlowski, <i>Battelle, Pacific Northwest Laboratories</i>	
The Reality: Externality Requirements Do Little for DSM	4.87
Julie Hashem, Erik Haites, and Dave Vanderhoff, <i>Barakat & Chamberlain, Inc.</i>	
Residential DSM Program Design in the United Kingdom	4.93
David C. Hewitt, <i>Pacific Energy Associates, Inc.</i>	
Armond Cohen, <i>Conservation Law Foundation</i>	
Environmental Policies and Their Effects on Utility Planning and Operations	4.101
Benjamin F. Hobbs, <i>Case Western Reserve University</i>	
Paul A. Centolella, <i>Science Applications International Corporation</i>	

Using DSM to Help Meet Clean Air Act Requirements: A Case Study	4.113
Christopher J. Holmes and Kevin Neal, <i>PSI Energy</i>	
Steve Nadel, <i>ACEEE</i>	
Environmental Impacts of Long Distance Energy Transport: Additional Benefits of Efficiency,	4.123
Ivo H. Knoepfel, <i>Swiss Federal Institute of Technology</i>	
Stephen S. Bernow, <i>Tellus Institute</i>	
Michael Lazarus, <i>Stockholm Environment Institute</i>	
Are Clean Air Act Bonus SO₂ Allowances Worth the Hassle?	4.137
Philip E. Koebel, <i>Southern California Edison</i>	
The Limits of Efficiency: Policy Impacts and Implications for Sustainable Development	4.147
Craig R. Kuennen, <i>University of Delaware</i>	
The Potential for Reducing Urban Air Temperatures and Energy Consumption Through Vegetative Cooling	4.155
Dan M. Kurn, Sarah E. Bretz, and Hashem Akbari, <i>Lawrence Berkeley Laboratory</i>	
Benson Huang, <i>Capital Environmental Eng. Corp.</i>	
Four Experiments with Electricity Conservation in Denmark and National Implications	4.167
Anders Larsen, <i>Institute of Local Government Studies</i>	
Evaluation of the Environmental Impacts of the Espanola Power Savers Program	4.177
Gillian MacLeod, <i>Ontario Hydro</i>	
Erik Haites, <i>Barakat & Chamberlain, Inc.</i>	
Energy Efficiency in the Czech Republic: From an Energy-Intensive Economy to Sustainable Development	4.185
Jaroslav Maroušek, <i>SEVEN</i>	
Utility Approaches to PCB Ballast and Mercury Lamp Disposal	4.193
Benjamin D. Milakofsky, <i>Synergic Resources Coloration</i>	
Consumer Non-Energy Benefits as a Motivation for Making Energy-Efficiency Improvements	4.201
Evan Mills and Art Rosenfeld, <i>Lawrence Berkeley Laboratory</i>	
OECD Household Energy Use Efficiency After the Oil-Price Crash: End of an Era?	4.215
Lee Schipper and Claudia Sheinbaum, <i>Lawrence Berkeley Laboratory</i>	
Developing Energy and Environmental Reporting Protocols	4.231
Derek W. Schrock and John L. Stoops, <i>Pacific Northwest Laboratory</i>	
Alan K. Meier and Edward L. Vine, <i>Lawrence Berkeley Laboratory</i>	
Barry D. Solomon, <i>U.S. Environmental Protection Agency</i>	
Cost-Effective Energy Efficiency in the Czech Republic	4.241
Tom Secrest and Steve A. Shankle, <i>Pacific Northwest Laboratory</i>	
Zirka Zemen, <i>SEVEN</i>	
Andrew Popelka, <i>Tecogen</i>	
Life-Cycle Assessments: Linking Energy, Economics, and the Environment	4.253
Steve A. Shankle, <i>Pacific Northwest Laboratory</i>	

The Chilling Truth About Appliance Recycling Programs	4.259
Debra L. Steckel, <i>XENERGY Inc.</i>	
Eric W. Hildebrandt, <i>RCG/Hagler, Bailly, Inc.</i>	
CFCs in Foam Insulation: The Recovery Experience	4.269
Bruce J. Wall, <i>Appliance Recycling Centers of America, Inc.</i>	
A Cooperative Approach to Resource Conservation in Public Schools	4.277
Roberta M. Watson and Yvonne C. Coleman, <i>Bonneville Power Administration</i>	
Jerry L. Bingold, <i>North American Energy Services</i>	
Energy Price Incentives in a Planned Energy Economy	4.289
Ross Wisnewski and George Reeves, <i>George Reeves Associates, Inc.</i>	
Jacek Markiewicz, <i>Fundacja na rzecz Efektywnego Wykorzystania Energii</i> (Polish Foundation for Energy Efficiency)	

Panel 5 – Commissioning, Operation, and Maintenance

Short-Term Energy Monitoring for Commercial Buildings	5.1
J. Douglas Balcomb, Jay D. Burch, and Robert Westby, <i>National Renewable Energy Laboratory</i> Kris Subbarao and C. Edward Hancock, <i>Macrodyne Energy International</i>	
Investigation into Operation and Maintenance Practices	5.13
Nancy Benner, Deborah Dodds, and Tudi Haasl, <i>Portland Energy Conservation, Inc.</i> Tracy Narel, <i>U.S. Environmental Protection Agency</i> Mark Bailey, <i>U.S. Department of Energy</i>	
Facts and Fiction of HVAC Motor Measuring for Energy Savings	5.17
William D. Biesemeyer and Jeffrey Jowett, <i>Arizona Department of Commerce Energy Office</i>	
Building Commissioning: The Path to Nirvana or the Woods of Ichabod Crane?	5.25
Diana Bjornskov, Nancy Benner, Deborah Dodds, and Tudi Haasl, <i>Portland Energy Conservation, Inc.</i>	
ACT² Agricultural Irrigation Pumping Demo	5.37
Kent G. Bouma, <i>Pacific Gas and Electric Company</i>	
Commissioning the ACT² Project Pilot Demonstration	5.47
Grant J. Brohard and George R. Hernandez, <i>Pacific Gas and Electric Company</i>	
The Long Term Thermal Performance of Radiation Control Coatings	5.59
Aaron R. Byerley, <i>Mercer University</i> Jeffrey E. Christian, <i>Oak Ridge National Laboratory</i>	
Can You Achieve 150% of Predicted Retrofit Savings? Is It Time for Recommissioning?	5.73
David E. Claridge, Jeff Haberl, Mingsheng Liu, John Houcek, Aamer Athar, <i>Texas A&M University</i>	
How Much Does Commissioning Cost and How Much Does It Save?	5.89
Deborah Dodds and Tudi Haasl, <i>Portland Energy Conservation, Inc.</i> Cathy Chappell, <i>ADM Associates, Inc.</i> Christie Kjellman, <i>Southern California Edison Company</i>	
Infiltration and Ventilation Measurements on Three Electrically-Heated Multifamily Buildings	5.97
Paul W. Francisco and Larry Palmiter, <i>Ecotope, Inc.</i>	
Commercial Building/System Characteristics Sensitivity Analysis	5.105
Dianne M. Griffiths, <i>SBW Consulting, Inc.</i> Kenneth J. Anderson, <i>PacifiCop</i>	
Short-Term Measurements to Support Impact Evaluation of Commercial Lighting Programs	5.113
Peter C. Jacobs, Stuart S. Waterbury, and Donald J. Frey, <i>Architectural Energy Corporation</i> Karl F. Johnson, <i>Electric Power Research Institute</i>	
Energy Efficient HVAC Systems in Office Buildings—With Emphasis on Air Distribution Systems	5.123
Lennart Jagemar, <i>CASU—CADET Analysis Support Unit</i>	

Adjusting Airflow in Office Buildings According to Outdoor Temperature	5.133
Per Levin, <i>Royal Institute of Technology</i>	
Per Wickman, <i>AIB Consulting Eng.</i>	
Are Heating-System Retrofit and Tune-Up Programs Really Increasing the Efficiency of Oil-Fired Systems	5.143
William P. Levins and Mark P. Terries, <i>Oak Ridge National Laboratory</i>	
Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings	5.153
Mingsheng Liu, John Houcek, Aamer Athar, Agami Reddy, David Claridge, and Jeff Haberl, <i>Texas A&M University</i>	
Restaurants—Opportunities for Energy Efficiency	5.167
Karen C. Miller, <i>University of Florida</i>	
Alexander Othmer, <i>University of South Florida</i>	
The Business of Running Buildings: Whose Business Is It?	5.175
Tracy Narel, <i>U.S. Environmental Protection Agency</i>	
Tudi Haasl, <i>Portland Energy Conservation, Inc.</i>	
Advantages of Staged Implementation of Efficiency Upgrades	5.181
Christopher O’Brien and Drury B. Crawley, <i>U.S. Environmental Protection Agency</i>	
Automating the Commissioning Process—Information Management in Building Design Through Occupancy	5.193
Patrick O’Neill and Kathleen Radke, <i>Honeywell Technology Center</i>	
A Commissioning Cost-Effectiveness Case Study	5.201
Janice C. Peterson and Tudi Haasl, <i>Portland Energy Conservation, Inc.</i>	
Case Study in Building Commissioning and Savings Verification Applied to a 311,000 ft² Office Tower Retrofit	5.209
Howard S. Reichmuth, <i>Lambert Engineering</i>	
Kevin C. Fish, <i>Microgrid, Inc.</i>	
A Novel Method for Resetting Duct Static Pressure for Variable Air Volume Systems	5.219
Robert J. Rose and William L. Kopko, <i>U. S, Environmental Protection Agency</i>	
Measured and Predicted Energy Savings from an Industrialized House	5.225
Armin Rudd, Srinivasa Katakarn, and Subrato Chandra, <i>Florida Solar Energy Center</i>	
Powered Attic Ventilators, Another Applied Building Science Nightmare and Treasure Trove	5.233
John J. Tooley Jr., <i>Natural Florida Retrofit</i>	
Bruce Eugene Davis, <i>AEC Applied Building Science Center</i>	
Commissioning Through Digital Controls and an Advanced Monitoring System - A Project Perspective	5.237
Paul C. Tseng, Dale R. Stanton-Hoyle, and William Withers, <i>Montgomery County Government</i>	

Commercial Building Performance Evaluation System for HVAC Diagnostics and Commissioning	5.249
Stuart S. Waterbury and Donald J. Frey, <i>Architectural Energy Coloration</i>	
Karl F. Johnson, <i>Electric Power Research Institute</i>	
Performance of Energy Management Systems	5.257
Greg Wheeler , <i>Oregon State University</i>	
Capturing Lost Opportunity in the High-Tech Building Market Through Commissioning	5.267
Paul Williamson and Bill Koran, <i>Portland Energy Conservation, Inc.</i>	
Glen Wallace, <i>United Energy Engineers, Inc.</i>	
Walt Stamper, <i>ShinEtsu America, Inc.</i>	
Cost-Effective Commissioning: Getting the Job Done Within Utility Guidelines	5.275
Rachel A. Yoder, <i>Pacific Power</i>	
Michael B. Kaplan, <i>Kaplan Engineering</i>	

Panel 6 – Policy

Environmental Implications Associated with Integrated Resource Planning by Public Utilities in the Western United States	6.1
Michael C. Baechler, Gordon S. Haber, Janet N. Cothran, and M. Maureen Hand, <i>Pacific Northwest Laboratory</i>	
Potential Issues and Problems in Using DSM Programs to Address the Electric Power Demand Crisis in Ghana (West Africa)	6.11
Kofi Berko, Jr., <i>University of Delaware</i>	
Energy-Efficiency Improvements and Remaining Opportunities in the DOE Low-Income Weatherization Program	6.19
Linda G. Berry and Marilyn A. Brown, <i>Oak Ridge National Laboratory</i>	
Utility Sponsored Low-Income Weatherization as a DSM Option	6.29
G. Chandrasekar, Young-Doo Wang, John Byrne, and Kyunghee Ham, <i>University of Delaware</i>	
Models of Public and Private Investment in Energy Efficiency for Low-Income Housing	6.39
Roger D. Colton, <i>Fisher, Sheehan & Colton</i> Beth Sachs, <i>Vermont Energy Investment Corporation</i> Janice DeBarros, <i>Citizens Conservation Corporation</i>	
Minimum Cost Model Energy Code Envelope Requirements	6.47
Craig C. Conner and Robert G. Lucas, <i>Pacific Northwest Laboratory</i> Stephen J. Turchen, <i>U.S. Department of Energy</i>	
Lighting Code Compliance in New Small Commercial Construction in Minnesota	6.59
Laurie A. Czeschin, Michael W. Sachi, Martha J. Hewett, David D. Vavricka, and Patrick McKellips, <i>Center for Energy and Environment</i>	
Commercial Building Code Development in Australia	6.67
Charles Eley and John Kennedy, <i>Eley Associates</i> Linton Parker, <i>SRC Australia</i> Ian Porter, <i>Department of Energy and Minerals</i>	
Exporting Integrated Resource Planning to Poland	6.81
Wallace R. Gibson, <i>Northwest Power Planning Council</i> Ewaryst Hille, <i>Polish Foundation for Energy Efficiency (FEWE)</i>	
Market Transformations to Super Efficient Products: The Emergence of Partnership Approaches	6.91
David B. Goldstein, <i>Natural Resources Defense Council</i>	
DSM and Deregulation: Experiences from Norway	6.101
Hans Otto Haaland, <i>The Norwegian Federation of Energy Utilities</i> Harold Wilhite, <i>Ressurskonsult (Oslo) and Jyukankyo Research Institute (Tokyo)</i>	

Gas Collaborative Issues in Maryland: Implementation of Gas Demand-Side Management (Gas Conservation) Programs by Local Gas Distribution Companies Subject to the Jurisdiction of the Public Service Commission of Maryland	6.111
<i>Mary Ellen Fitzpatrick Hopkins, Battelle, Pacific Northwest Laboratories</i>	
<i>Henry Einhorn, Maryland Public Service Commission</i>	
Trends in IRP Development—Where Are We Heading	6.119
<i>Mary C. Lang and Juanita M. Haydel, ICF Resources Incorporated</i>	
Thomas A. Edison Will Finally Smile: The Pricing of Energy Services, Not Kilowatt-Hours	6.127
<i>William LeBlanc, Barakat & Chamberlain, Inc.</i>	
The Washington State Non-Residential Energy Code: A New Model Process for Code Development	6.139
<i>Kevin Madison, Utility Code Group</i>	
<i>Tony J. Usibelli, Washington State Energy Office</i>	
<i>Jeffrey P. Harris, Northwest Power Planning Council</i>	
How Well Is Our Energy Code Working? An Evaluation of the Tacoma, Washington Model Conservation Program	6.149
<i>Jim Perich-Anderson, Tacoma Public Utilities</i>	
<i>Linda Dethman, Dethman and Associates</i>	
DSM Resource Acquisition and Market Transformation: Two Inconsistent Policy Objectives?	6.157
<i>Ralph Prah, Public Service Commission of Wisconsin</i>	
<i>Jeff Schlegel, Wisconsin Energy Conservation Corporation</i>	
Bridging the Gap Between Research and Market Acceptance: One State Agency’s Commercialization Program	6.167
<i>Sam Rashkin, California Energy Commission</i>	
Performance Contracting for Low Income Conservation	6.175
<i>Anthony F. Riordan, Jr., SESCO, Inc.</i>	
Persistence of Savings in New Multifamily Buildings	6.185
<i>Marc A. Schuldt, SBW Consulting, Inc.</i>	
<i>Pamela Brandis, Bonneville Power Administration</i>	
<i>David I. Lerman, Tacoma Public Utilities</i>	
The Future of Integrated Resource Planning in Competitive Energy Markets	6.191
<i>Connie Smyser, Electric Power Research Institute</i>	
Barriers and Incentives for Utility Energy Efficiency Programs in Deregulated Markets	6.201
<i>Joel N. Swisher, UNEP Collaborating Centre, Risø National Laboratory</i>	
Regulation Versus Competition: Which Leads to the Most Energy Efficiency?	6.213
<i>Rick Tempchin, Edison Electric Institute</i>	
<i>William LeBlanc, Barakat & Chamberlain, Inc.</i>	
<i>Steven Wu, Stanford University</i>	
Incentives and Standard to Promote Economic and Energy Efficiency	6.221
<i>Bruce N. True, California Energy Commission</i>	

Addressing Uncertainty and the Value of Flexibility in the Second Generation of IRP	6.231
Daniel M. Violette and Linda K. Olsson, <i>XENERGY Inc.</i>	
Will Retail Competition “Kill” IRP and DSM?	6.241
W. Michael Warwick, <i>Pacific Northwest Laboratory</i>	
Susan V. Bailey, <i>Bonneville Power Administration</i>	
The Impact of Power Sector Restructuring on Building Energy Efficiency: The Roles of IRP and DAM	6.251
Stephen Wiel, <i>Lawrence Berkeley Laboratory</i>	
Utility Deregulation and Retail Wheeling: The Stakes for IRP and DSM	6.263
Dan W. York, <i>MSB Energy Associates, Inc.</i>	
Armond Cohen, <i>Conservation Law Foundation</i>	

Panel 7 – Resource Planning Methodologies

A Model of Appliance Efficiency Choice Using Stated and Revealed Preference Data	7.1
Terry J. Atherton, <i>Cambridge Systematic, Inc.</i>	
Caroline Chen, <i>Southern California Edison Company</i>	
Rick Ridge, <i>Pacific Consulting Services, Inc.</i>	
Kenneth Train, <i>University of California, Berkeley</i>	
Validation of Conditional Demand Estimates: Does It Lead to Model Improvements?	7.13
Stephanie J. Battles, <i>Energy Information Administration</i>	
Recent Program Evaluations: Implications for Long-Run Planning	7.23
Lester W. Baxter, <i>Oak Ridge National Laboratory</i>	
Donald K. Schultz, <i>California Public Utilities Commission</i>	
Analysis of U.S. Commercial Building Energy Use Trends, 1972-1991	7.35
David B. Belzer, Thomas L. Marsh, and Ronald D. Sands, <i>Pacific Northwest Laboratory</i>	
Hourly Conditional Demand Analysis of Residential Electricity Use	7.45
John C. Blaney and Mark R. Inglis, <i>ICF Resources Incorporated</i>	
Asa M. Janney III, <i>Applied Statistical Associates Incorporated</i>	
Estimates of the Achievable Potential for Electricity Efficiency Improvements in U. S. Residences	7.55
Richard Brown, <i>Lawrence Berkeley Laboratory</i>	
Impact of DSM on U.S. Electrical Usage, 1990-2000: An Update	7.65
Ahmad Faruqui, Gregory A. Wikler, and Kenneth Seiden, <i>Barakat & Chamberlain, Inc.</i>	
Paul Meagher, <i>Electric Power Research Institute</i>	
Misconceptions, Mistakes and Misnomers in DSM Cost Effectiveness Analysis	7.73
Mark Fulmer and Bruce Biewald, <i>Tellus Institute</i>	
Regulatory and Tax Treatment of Electric Resources	7.85
Stan Hadley and Eric Hirst, <i>Oak Ridge National Laboratory</i>	
Incorporating DSM Uncertainty and Flexibility into Integrated Resource Planning	7.95
Eric W. Hildebrandt, <i>RCG/Hagler, Bailly, Inc.</i>	
Robert M. Wirtshafter, <i>University of Pennsylvania</i>	
The Effect of Efficiency Standards on Water Use and Water Heating Energy Use in the U. S.: A Detailed End-Use Treatment	7.103
Jonathan G. Koomey, Camilla Dunham, and James D. Lutz, <i>Lawrence Berkeley Laboratory</i>	
Applying Financial Option Theory to Utility Resource Planning	7.113
Jonathan B. Lowell, <i>New England Electric</i>	
Energy Efficiency Capital Requirements for Buildings in the United States	7.121
J. Michael MacDonald, <i>Oak Ridge National Laboratory</i>	
Mutual Exclusivity and Rank Ordering of Interactive DSM Measures	7.131
Mary M. McNally and Gary Cullen, <i>NEOS Corporation</i>	
Andrea Horwatt, <i>Southern California Edison Company</i>	

Just How Flexible Is DSM as a Resource?	7.141
Harvey Michaels, <i>XENERGY Inc.</i>	
Using the Long-Term Industrial Energy Forecasting (LIEF) Model to Assess Core Industrial DSM Potential for Southern California Gas Company	7.147
Robert J. Mowris, <i>Robert Mowris and Associates</i>	
Marc Ross, <i>University of Michigan</i>	
Ron Kent, <i>Southern California Gas Company</i>	
Critical Thinking and Program Evaluation	7.159
David R. Narum and Scott K. Pigg, <i>Wisconsin Energy Conservation Coloration</i>	
Valuing Flexible Resources in an Uncertain Future	7.169
Ken W. Nichols, <i>Barakat & Chamberlain, Inc.</i>	
Miscellaneous Residential Electrical End Uses: U.S. Historical Growth and Regional Differences	7.179
Daniel P. Nore and Michael R. Roberts, <i>Regional Economic Research, Inc.</i>	
Measuring New-Construction DSM Program Net Energy Savings: A Type-Casting Approach	7.189
Michael Parti, Cynthia B. Parti, and Georgia Villafior, <i>Applied Econometrics, Inc.</i>	
Athena Besa, <i>San Diego Gas and Electric Co.</i>	
Integrated Water, Wastewater, and Energy Conservation: Enhanced Benefits Through Multi-Resource Planning	7.197
Robert Y. Redlinger, <i>Synergic Resources Corporation</i>	
Steven Van Horssen, <i>Sacramento Municipal Utility District</i>	
U.S. Electricity Forecast: Results and Decomposition	7.205
Ingrid Rohmund, J. Stuart McMenamin, Frank A. Monforte, and Daniel P. Nore, <i>Regional Economic Research, Inc.</i>	
A Monte Carlo Based Comparison of Techniques for Measuring the Energy Impacts of Demand-Side Management Programs	7.213
Dean A. Schiffman, <i>San Diego Gas & Electric Company</i>	
Technical and Economic Potential - A New Method	7.223
David F. Shipley, <i>Wisconsin Center for Demand-Side Research</i>	
David B. Iliff, <i>Public Service Commission of Wisconsin</i>	
Ilze Rukis, <i>Wisconsin Public Service Corporation</i>	
Calculating the Uncertainty of Building Simulation Estimates	7.233
Franklin D. Stern, Robert E. Ciliano, and William Kallock, <i>RCG/Hagler, Bailly, Inc.</i>	
Estimation of Net Savings for Rebate Programs: A Three-Option Nested Logit Approach	7.239
Kenneth Train, <i>University of California, Berkeley</i>	
Susan Buller, <i>Pacific Gas and Electric Company</i>	
Bruce Mast and Kirtida Parikh, <i>Pacific Consulting Services</i>	
Eric Paquette, <i>Cambridge Systematic, Inc.</i>	

Peak Demand Impacts of Residential Air-Conditioning Conservation Measures	7.249
Burke Treidler and Mark Modera, <i>Lawrence Berkeley Laboratory</i>	
Evaluating the Risks and Returns of the Resource Portfolio Using the Investment Theories of Portfolio Planning..	7.259
Janet Walrod, <i>The Resource Planning Group</i>	

Panel 8 – Measurement and Evaluation

Household Appliance Replacement Program - Impact and Tradeoffs	8.1
Peter Benenson, <i>Cambridge Systematics, Inc.</i>	
Glen Weisbrod, <i>HBRS, Inc.</i>	
Andrew Hub, <i>Cambridge Systematic, Inc.</i>	
William Gavelis, <i>Pacific Gas and Electric Company</i>	
The Application of Survival Analysis to Demand-Side Management Evaluation	8.9
Robert D. Bordner and Mark Siegal, <i>Synergic Resources Corporation</i>	
Lisa A. Skumatz, <i>Skumatz Economic Research Associates</i>	
Elements of Residential Efficient Lighting Savings	8.19
Leslie A. Carlson and John M. Mulligan, <i>RLW Analytics, Inc.</i>	
Carmel M. Gondek, <i>Northeast Utilities</i>	
PG&E Residential New Construction Program Impact Evaluation	8.29
Timothy O. Caulfield, <i>Quantum Consulting Inc.</i>	
Anne Gummerlock Lee, <i>Pacific Gas and Electric Company</i>	
Market Transformation: Hot Topic or Hot Air?	8.37
Shel Feldman, <i>Wisconsin Center for Demand-Side Research</i>	
Model Selection Guidelines for PRISM (Or: Now That HC PRISM Is Coming, How Will I Know When to Use It?)	8.49
Margaret F. Fels, J. Kelly Kissock, and Michelle A. Marean, <i>Princeton University</i>	
Estimating the Level of Free Riders in the Refrigerator Buy-Back Program	8.63
Diane M. Fielding, <i>B.C. Hydro</i>	
Dispatch from the Gas War Front: Issues in Calculating Fuel-Switching Cost-Effectiveness	8.71
Sean A. Foley and Edward M. Weaver, <i>Barakat & Chamberlain, Inc.</i>	
From Theory into Practice: One Utility’s Experience with Applying the Value Test	8.77
Patricia Herman, <i>Barakat & Chamberlain, Inc.</i>	
Elizabeth G. Hicks, <i>New England Power Service Company</i>	
Cleaning Up: An Efficient Approach for Estimating Showerhead Savings	8.89
Curtis Hickman, <i>Bonneville Power Administration</i>	
W. Michael Warwick, <i>Pacific Northwest Laboratory</i>	
Emerging issues in Evaluation..	8.97
Elizabeth G. Hicks, <i>New England Power Service Company</i>	
Beyond Bill History: Evaluating Commercial Sector Energy Impacts Through a Multiple Approach Strategy	8.105
William S. Hopkins, <i>Puget Sound Power & Light Co.</i>	
Glen E. Weisbrod, <i>HBRS, Inc.</i>	
Lori M. Megdal, <i>Cambridge Systematics, Inc.</i>	

Measured Performance of Thermal Storage Systems: One Utility’s Experience	8.115
David I. Jacobson, Hale Powell, and Joseph G. Dolengo, <i>New England Power Service Company</i>	
Leslie K. Norford, <i>Massachusetts Institute of Technology</i>	
Establishing a Baseline in Commercial New Construction DSM Impact Evaluation — Comparison of Three Approaches.	8.123
Douglas E. Mahone, <i>Heschong Mahone Group</i>	
Taghi Alereza, <i>ADM Associates, Inc.</i>	
Athena Besa, <i>San Diego Gas and Electric Company</i>	
Anne G. Lee, <i>Pacific Gas and Electric Company</i>	
Sharon K. Noell, <i>Portland General Electric</i>	
Uncertainty Analysis of Life-Cycle Cost: Residential Electric Heat Pump Water Heaters	8.131
James E. McMahon and Xiaolin Xi, <i>Lawrence Berkeley Laboratory</i>	
Measurable Spillover (Free Drivers): The Search Continues	8.141
Dennis J. Nelson, <i>B.C. Hydro</i>	
Evaluating Educational Effects in Pacific Gas & Electric’s Energy Savings Plan	8.151
Kevin P. O’Meara, <i>Quantum Consulting Inc.</i>	
Jim A. Flanagan, <i>Pacific Gas and Electric Company</i>	
Lighting Hours of Operation: Building Type versus Space Use Characteristics for the Commercial Sector	8.157
Leslie D. Owashi, <i>XENERGY Inc.</i>	
Dean A. Schiffman and Andrew D. Sickels, <i>San Diego Gas and Electric Company</i>	
A Unified Approach to the Estimation of the Free Ridership and Spillover Components of Net Savings	8.163
R. Eric Paquette, <i>Cambridge Systematic, Inc.</i>	
Kenneth Train, <i>University of California, Berkeley</i>	
Susan Buller, <i>Pacific Gas and Electric Company</i>	
The Treatment of Outliers and Influential Observations in Regression-Based Impact Evaluation	8.171
Jeremy M. Schutte and Daniel M. Violette, <i>XENERGY Inc.</i>	
Building Reliable DSM Resources with Program Evaluation	8.177
Michael Sedmak, Robert Uhlener, and Bruce Smith, <i>Quantum Consulting Inc.</i>	
An Assessment of the Decision-Making Process Within the Industrial Sector	8.187
Peggy E. Seratt, Robin E. Way, Jr., and Jane S. Peters, <i>Barakat & Chamberlain, Inc.</i>	
Tim Newcomb and Robert W. Stolarski, <i>Puget Sound Power & Light</i>	
Effective ECM and Equipment Lifetimes in Commercial Buildings: Calculation and Analysis	8.193
Lisa A. Skumatz, <i>Skumatz Economic Research Associates</i>	
Curtis Hickman, <i>Bonneville Power Administration</i>	
Uncertainty in Site Inspection and Tracking Database Estimates of Savings	8.205
Richard Sonnenblick and Joseph Eto, <i>Lawrence Berkeley Laboratory</i>	

PGE Drive Power Program Evaluation: The Accuracy of Customer-Provided Operating Hours and Motor Loading Assumptions	8.215
Mark E. Thompson, <i>Forefront Economics</i> Chris L. Dent, <i>Pacific Science and Technology</i>	
Integrated Impact and Market Evaluation of Multiple Residential Programs at Florida Power and Light	8.225
Robert Uhlener and Michael Sedmak, <i>Quantum Consulting Inc.</i> Sharyn Barata, <i>Florida Power & Light Co.</i>	
Evaluation of Commercial Lighting Programs: A DEEP Assessment	8.235
Edward L. Vine, Joseph Eto, Leslie Shown, Richard Sonnenblick, and Christopher Payne, <i>Lawrence Berkeley Laboratory</i>	
Appropriate Treatment of Free Riders in Impact Evaluations: What Is a Free Rider Anyway?	8.247
Edward M. Weaver and Andrew Hourigan, <i>Barakat & Chamberlain, Inc.</i> Sue A. Franz, <i>Midwest Power</i>	
Separating DSM Program Impacts from Technology Trends: A Comparison of National and State Surveys of Manufacturers and Distributors	8.253
Glen Weisbrod, <i>HBRS, Inc.</i> Andrew Hub, <i>Cambridge Systematic, Inc.</i> Michael Kelleher, <i>Niagara Mohawk Power Corp.</i>	
Double Ratio Analysis: A New Tool for Cost-Effective Monitoring	8.263
Roger L. Wright, <i>RLW Analytics</i> Marvin Horowitz and Ilene Obstfeld, <i>XENERGY Inc.</i> Susan Buller, <i>Pacific Gas and Electric Company</i>	

Panel 9 – Demonstrations and Retrofits

Critical Questions in Structuring Energy Technology Organizations	9.1
Keith Aldridge, <i>AEC</i> Neal Elliott, <i>ACEEE</i>	
Detailed Instrumentation of a Building Bake-Out Procedure	9.11
Gregg D. Ander, Henry Lau, and Francis J. Offerman, <i>Southern California Edison Company</i>	
New Technology Field Evaluation of Gas-Engine-Driven Rooftop Air-Conditioning Equipment at the Willow Grove (PA) Naval Air Station	9.17
Peter R. Armstrong, Srinivas Katipamula, and David R. Conover, <i>Pacific Northwest Laboratory</i>	
Assessing the True Cost of Energy Efficiency in New Buildings	9.29
Ronald J. Balon, <i>Montgomery County Government</i>	
Greening the White House: A Comprehensive Energy and Environmental Retrofit	9.35
Dianna Lopez Barnett and William D. Browning, <i>Rocky Mountain Institute</i> Mark Ginsberg and Anne Sprunt-Crawley, <i>U.S. Department of Energy</i>	
Field Measurement of Load Availability and Load Control Switch Effectiveness in presidential AC Cycling Pilot	9.41
Terry A. Baxter and Patrick M. McCarthy, <i>Aspens Systems Coloration</i> Tony Chiodini, <i>Union Electric Company</i> Kenneth Prevatte, <i>Schlumberger Industries, Inc.</i>	
The Triple-E House - Energy Efficient, Economical, and Ecological	9.51
Robert Borsch-Laaks and Ralf Pohlmann, <i>Lundesbausparkasse Nordrhein-Westfalen</i>	
Durability of High-Albedo Roof Coatings	9.65
Sarah E. Bretz and Hashem Akbari, <i>Lawrence Berkeley Laboratory</i>	
Friendly Fusion: Integrating Energy Efficiency with Renewable Technologies	9.77
Nancy C. Carlisle and Gary L. Nakarado, <i>National Renewable Energy Laboratory</i>	
Wisconsin's Performance Optimization Service: Utilities and Trade Allies Delivering a Service to Improve Industrial Motor-Driven System Performance	9.85
Edward M. Carroll, Barbara J. McKellar, and Ronald G. Wroblewski, <i>Wisconsin Demand-Side Demonstrations, Inc.</i>	
Beyond the Tank Wrap - Field Experience Implementing Domestic Hot Water Fuel Substitution in an Electric Utility DSM Program	9.93
David R. Cawley, L. Blair Hamilton, <i>Vermont Energy Investment Coloration</i> Joseph A. Bongiovanni, <i>Washington Electric Cooperative</i>	
Transferring New Technologies Within the Federal Sector: The New Technology Demonstration Program	9.101
David R. Conover and David M. Hunt, <i>Pacific Northwest Laboratory</i>	

Sealing Crawl Space Exterior Walls and Soil Floor to Save Energy and Reduce Moisture of Floor Joists	9.109
Matthew Custer, <i>Atlantic Electric</i>	
Lynn Stiles, <i>Richard Stockton College of New Jersey</i>	
Evaluating Benefits for an Industrial DSM Program	9.121
Paul S. Delaney, <i>Southern California Edison Company</i>	
The U.S. Department of Energy’s In-House Energy Management Program: Meeting the Challenges of Federal Energy Management	9.129
Steve Greenberg, Evan Mills, Doug Lockhart, and Dale Sartor, <i>Lawrence Berkeley Laboratory</i>	
William Lintner, <i>U.S. Department of Energy</i>	
Radon in Institutional Buildings: The Impacts of Conservation Strategies	9.137
Daniel E. Hadlich and David T. Grimsrud, <i>University of Minnesota</i>	
Brian Krafthefer, <i>Honeywell Inc.</i>	
New Smart Protocols to Avoid Lost Opportunities and Maximize Impact of Residential Retrofit Programs	9.147
L. Blair Hamilton, Ken Tohinaka, and Chris Neme, <i>Vermont Energy Investment Corporation</i>	
FEMP’s BEST Program Champions Federal Push to Showcase Energy-Saving Technologies in Federal Facilities	9.159
Louis R. Harris, Jr., and Mark Ginsberg, <i>U.S. Department of Energy</i>	
On the Road Again: Delivering Energy Efficiency Education to the Construction Community—Successes and Failures	9.165
Lisa Heschong and Douglas E. Mahone, <i>Heschong Mahone Group</i>	
Residential Indirect/Direct Evaporative Cooler Performance in Sacramento	9.175
Marc A. Hoeschele, <i>Davis Energy Group, Inc.</i>	
Projected and Measured Results from an Energy-Efficient Small Commercial Office Building	9.187
David J. Houghton, <i>E SOURCE</i>	
Energy Impacts of Attic Duct Retrofits in Sacramento Houses	9.195
David A. Jump and Mark Modera, <i>Lawrence Berkeley Laboratory</i>	
Measured Energy Savings of an Energy-Efficient Office Computer System	9.205
P. Lapujade and D. S. Parker, <i>Florida Solar Energy Center</i>	
What Is a Low-Energy House?.. . . .	9.213
Barbara R. Litt and Alan K. Meier, <i>Lawrence Berkeley Laboratory</i>	
SAVEnergy Action Plans	9.221
Katherine H. Mayo, <i>National Renewable Energy Laboratory</i>	
Sharon deMonsabert, <i>George Mason University</i>	
Mark Ginsberg, <i>U.S. Department of Energy</i>	
Robert Westby, <i>National Renewable Energy Laboratory</i>	
Promoting Equipment Energy-Efficiency Through Public/Private Cooperation	9.227
Aimee T. McKane, <i>New York State Energy Office</i>	

Field Comparison of Conventional HVAC Systems with a Residential Gas-Engine-Driven Heat Pump	9.235
James D. Miller, <i>Pacific Northwest Laboratory</i>	
Over the Energy Edge: Results from a Seven Year New Commercial Buildings Research and Demonstration Project	9.243
Mary Ann Piette, Bruce Nordman, Odon de Buen, and Rick Diamond, <i>Lawrence Berkeley Laboratory</i> Bruce Cody, <i>Bonneville Power Administration</i>	
Strategies for Improving the Market for Energy-Efficient Technologies	9.251
Diane Pirkey, <i>U.S. Department of Energy</i> John Rivera and Ned Ormsby, <i>D&R International, Ltd.</i>	
Greening the Building and the Bottom Line: Increasing Productivity Through Energy-Efficient Design	9.259
Joseph J. Romm, <i>U.S. Department of Energy</i> William D. Browning, <i>Rocky Mountain Institute</i>	
Building Technology Transfer Meetings: A Collaborative Model for Transferring DOE Research Results to Potential Users	9.269
Diana L. Shankle, <i>Pacific Northwest Laboratory</i> Donna M. Hawkins, <i>U.S. Department of Energy</i> Pat M. Love, <i>Oak Ridge National Laboratory</i> G. Michael Wilde, <i>Lawrence Berkeley Laboratory</i>	
Design and Development of an Energy Efficient Livable Office Building	9.277
Elia M. Sterling, <i>Theodor D. Sterling & Associates Ltd.</i>	
HVAC Synergy: Engineering Performance Studies of Chiller Refrigerant Conversion Strategies	9.283
Jack S. Wolpert and Jay Stein, <i>E-Cube, Inc.</i> Bob Wayne, <i>York International</i> Chris Robertson, <i>Chris Robertson Associates</i>	

Panel 10 – Program Design

DSM Benefit-Cost Tests—The Next Generation	10.1
Steven D. Braithwait, <i>Christensen Associates</i>	
Applying Cost Allocation Principles to Demand-Side Resources: A Case Study of Industrial Opt-Out Proposals	10.11
Paul A. Centolella, <i>Science Applications International Corporation</i>	
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs	10.21
John DeCicco and Loretta Smith, <i>American Council for an Energy-Efficient Economy</i>	
Rick Diamond, <i>Lawrence Berkeley Laboratory</i>	
Steve Morgan, Janice Debarros, Sandra Nolden, and Theo Lubke, <i>Citizens Conservation Corporation</i>	
Tom Wilson, <i>Synertech Systems Corporation</i>	
Compressed Air Efficiency—Moving Beyond Custom Programs	10.35
Nikhil Gandhi, <i>Strategic Energy Technologies</i>	
Michael DiGiacomo, <i>Wisconsin Electric Power Company</i>	
Seeing the Light: Effective Strategies for Promoting Compact Fluorescent Lighting to Residential Customers	10.41
Andrew A. Goett, <i>HBRS, Inc.</i>	
Demand-Side Bidding: Six Years Later and the Results Are Coming In	10.49
Charles A. Goldman and M. S. Kite, <i>Lawrence Berkeley Laboratory</i>	
A National Residential and Small Commercial High Efficiency Lighting Initiative	10.61
Christopher Granda, <i>The Consortium for Energy Efficiency</i>	
Charles Stephens, <i>Oregon Department of Energy</i>	
Chris Calwell, <i>Natural Resources Defense Council</i>	
William Grimm, <i>Southern California Edison Company</i>	
William VonNeida, <i>U.S. Environmental Protection Agency</i>	
Report on a Successful Initiative in Residential Lighting Program Design	10.71
William Grimm, <i>Southern California Edison</i>	
Christopher Granda, <i>The Consortium for Energy Efficiency</i>	
Why Compact Fluorescent Lamps Are Not Ubiquitous: Industrial Organization, incentives, and Social Convention	10.77
Brent M. Haddad, <i>University of California, Berkeley</i>	
DSM Potential Studies and Innovative Long-Range DSM Planning	10.85
Ann M. Hatcher and Dorothy A. Conant, <i>New England Power Service Company</i>	
Fred Sebold, <i>Regional Economic Research, Inc.</i>	
Demand-Side Management Strategies for Commercial and Industrial Refrigeration	10.93
Martha J. Hewett and Russell W. Landry, <i>Center for Energy and Environment</i>	
Sharon Scheckel, <i>Northern States Power Company</i>	

David and the Goliaths: How a Small Environmental Group Helps Reform Electric-Utility Regulation	10.107
Eric Hirst, <i>Oak Ridge National Laboratory</i> Sam Swanson, <i>New York Department of Public Service</i>	
Combining Efforts: The Joint-Utility Regional Marketing Campaign	10.115
Sabrina L. Karl and Paul I. Berkowitz, <i>Wisconsin Energy Conservation Corporation</i> Barbara J. McKellar, <i>Wisconsin Demand-Side Demonstrations, Inc.</i>	
Garnering the Industrial Sector: A Comparison of Cutting Edge Industrial DSM Programs	10.123
Peter Kyricopoulos, Ahmad Faruqui, and Gregory A. Wikler, <i>Barakat & Chamberlain, Inc.</i>	
Bridging the Gap: Designing DSM Programs Based on the Difference Between Utility and Consumer Economic Perspectives	10.133
Allen D. Lee and Romi Chin, <i>Pacific Northwest Laboratory</i> Stephen A. Onisko, <i>Bonneville Power Administration</i>	
Barriers and Incentives for Third Party Developers of Performance Based Demand Side Management	10.141
William D. Machold, <i>New York Energy Efficiency Council, Inc.</i>	
The Roles of Incentives and Information in DSM Programs	10.145
Bruce Mast and Patrice Ignelzi, <i>Pacific Consulting Services</i>	
DSM Technology Forecasting: Market Transformation and the Dynamic Baseline	10.155
J. Stuart McMenarnin, Frank A. Monforte, and Ingrid Rohmund, <i>Regional Economic Research, Inc.</i>	
integrated Resource Planning in 2004?	10.163
Cynthia Melendy, <i>Barakat & Chamberlain, Inc.</i> Jack Russ, <i>San Diego Gas and Electric Company</i>	
Barriers to the Adoption of Energy Efficiency in Low-Cost Housing Production	10.173
Barbara A. Miller, <i>National Affordable Housing Network</i>	
Utility Multifamily DSM Programs and Public and Assisted Housing: Fitting Program Designs to Emerging Opportunities	10.181
Steve Morgan, <i>Citizens Conservation Corporation</i>	
Market Transformation Programs: Past Results, Future Directions	10.187
Steven Nadel and Howard Geller, <i>American Council for an Energy-Efficient Economy</i>	
DSM's Best Kept Secret: The Process, Outcome, and Future of the Pepto-Maryland Collaborative	10.199
Robert D. Obeiter, <i>XENERGY Inc.</i> John Plunket, <i>Resource Insight, Inc.</i> E. R. Mayberry, <i>Pepto</i>	
Market Research—The Essential First Step to Market Transformation	10.211
Kim Johnson Oswald, <i>Oswald Energy Associates</i> Angela Sorrentino, <i>The Data Group, Inc.</i> Robert M. Wirtshafter, <i>The University of Pennsylvania</i>	

The Free Market and Freeriders: Freeridership in DSM Bidding Programs	10.221
Jane S. Peters and Sharon Baggett, <i>Barakat & Chamberlain, Inc.</i>	
Meng Chi, <i>Public Service of Colorado</i>	
Incentives and Fuel Switching in Multifamily Residential Construction	10.229
Kenneth H. Tiedemann, <i>B.C. Hydro</i>	
Acceptance of Customer Contributions for DSM Among Small Commercial/Industrial Companies	10.235
Elizabeth M. Tolkin, <i>New England Power Service Company</i>	
Ellen Ford, <i>HBRS, Inc.</i>	
Delivering DSM to the Small Commercial Market: A Report from the Field on What Works and Why	10.241
Kellogg L. Warner, <i>XENERGY Inc.</i>	
Design and Implementation of PG&E's DSM Pilot Bidding Program	10.249
William W. Washburn, <i>Pacific Gas and Electric Company</i>	
Steven R. Schiller, <i>Schiller Associates</i>	
Proving Causality in Market Transformation Programs: Issues and Alternatives	10.259
Robert M. Wirtshafter, <i>University of Pennsylvania</i>	
Angela Sorrentino, <i>The Data Group, Inc.</i>	

Author Index

A. Afzal

A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities 2.1

Hashem Akbari

A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities 2.1

The Potential for Reducing Urban Air Temperatures and Energy Consumption Through Vegetative Cooling 4.155

Durability of High-Albedo Roof Coatings 9.65

Keith Aldridge

Critical Questions in Structuring Energy Technology Organizations 9.1

Taghi Alereza

More Data Is Better, but How Much Is Enough for Impact Evaluations? 2.11

Establishing a Baseline in Commercial New Construction DSM Impact Evaluation—Comparison of Three Approaches 8.123

Gregg D. Ander

Detailed Instrumentation of a Building Bake-Out Procedure 9.11

Kenneth J. Anderson

Commercial Building/System Characteristics Sensitivity Analysis 5.105

Peter R. Armstrong

New Technology Field Evaluation of Gas-Engine-Driven Rooftop Air-Conditioning Equipment at the Willow Grove (PA) Naval Air Station 9.17

Aamer Athar

Can You Achieve 150% of Predicted Retrofit Savings? Is It Time for Recommissioning? 5.73

Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings 5.153

Terry J. Atherton

A Model of Appliance Efficiency Choice Using Stated and Revealed Preference Data 7.1

Lynn Auch

Conservation Advertising Campaigns and Advertising Effectiveness Research: The Right Combination to Solidify the Conservation Ethic 1.1

Michael C. Baechler

Environmental Implications Associated with Integrated Resource Planning by Public Utilities in the Western United States 6.1

Sharon Baggett

The Free Market and Freeriders: Freeridership in DSM Bidding Programs 10.221

Mark Bailey

Investigation into Operation and Maintenance Practices 5.13

Susan V. Bailey

Will Retail Competition “Kill” IRP and DSM? 6.241

S. Mostafa Baladi

Voluntary Time-of-Use Rates Induced Load Shifting and Peak Load Reduction 2.21

J. Douglas Balcomb

Short-Term Energy Monitoring for Commercial Buildings 5.1

Ronald J. Balon

Assessing the True Cost of Energy Efficiency in New Buildings 9.29

Sharyn Barata

Integrated Impact and Market Evaluation of Multiple Residential Programs at Florida Power and Light 8.225

Richard Barnes

Modeling Technology Adoption and DSM Program Participation Decisions 1.9

Dianna Lopez Barnett

Greening the White House: A Comprehensive Energy and Environmental Retrofit 9.35

Stephanie J. Battles			
Validation of Conditional Demand Estimates: Does It Lead to Model Improvements?	7.13		
Lester W. Baxter			
Recent Program Evaluations: Implications for Long-Run Planning	7.23		
Terry A. Baxter			
Field Measurement of Load Availability and Load Control Switch Effectiveness in a Resi- dential AC Cycling Pilot	9.41		
Paul Belkus			
Retrofitting Natural Gas Service into Exist- ing Multifamily Buildings	3.263		
Liliana O. Beltrán			
A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings	3.117		
David B. Belzer			
Analysis of U.S. Commercial Building Energy Use Trends, 1972-1991	7.35		
Peter Benenson			
Household Appliance Replacement Program- Impact and Tradeoffs	8.1		
Nancy Benner			
Investigation into Operation and Main- tenance Practices	5.13		
Building Commissioning: The Path to Nirvana or the Woods of Ichabod Crane?	5.25		
Kofi Berko, Jr.			
Potential Issues and Problems in Using DSM Programs to Address the Electric Power Demand Crisis in Ghana (West Africa)	6.11		
Paul I. Berkowitz			
Combining Efforts: The Joint-Utility Regional Marketing Campaign	10.115		
Stephen S. Bernow			
Environmental Impacts of Long Distance Energy Transport: Additional Benefits of Efficiency	4.123		
Scott Bernstein			
Environment, Distributive Equity and Energy Savings: Capturing the Benefits Where They Are Needed	4.1		
Linda G. Berry			
Energy-Efficiency Improvements and Remain- ing Opportunities in the DOE Low-Income Weatherization Program	6.19		
Athena Besa			
Measuring New-Construction DSM Program Net Energy Savings: A <i>Type-Casting</i> Approach	7.189		
Establishing a Baseline in Commercial New Construction DSM Impact Evaluation— Comparison of Three Approaches	8.123		
William D. Biesemeyer			
Facts and Fiction of HVAC Motor Measuring for Energy Savings	5.17		
Bruce Biewald			
Misconceptions, Mistakes and Misnomers in DSM Cost Effectiveness Analysis	7.73		
Jerry L. Bingold			
A Cooperative Approach to Resource Conservation in Public Schools	4.277		
Diana Bjornskov			
Building Commissioning: The Path to Nirvana or the Woods of Ichabod Crane?	5.25		
Andrés Blanc			
Residential Lighting Efficiency in Mexico: The Road to ILUMEX	3.1		
John C. Blaney			
Hourly Conditional Demand Analysis of Residential Electricity Use	7.45		
Michael S. Blasnik			
Large Scale Residential Refrigerator Field Metering	2.77		
Morton H. Blatt			
Office Equipment Energy Efficiency: Taking the Next Few Bytes	3.241		
David L. Bohac			
Energy Savings and Field Experiences with Dual Integrated Appliances	3.9		
Joseph A. Bongiovanni			
Beyond the Tank Wrap - Field Experience Implementing Domestic Hot Water Fuel Substitution in an Electric Utility DSM Program	9.93		

Robert D. Bordner		Marilyn A. Brown	
The Application of Survival Analysis to Demand-Side Management Evaluation	8.9	Energy-Efficiency Improvements and Remaining Opportunities in the DOE Low-Income Weatherization Program	6.19
Robert Borsch-Laaks		Raymond Brown	
The Triple-E House - Energy Efficient, Economical, and Ecological	9.51	Laboratory Accreditation for Testing Energy Efficient Lighting	3.77
Kent G. Bouma		Richard Brown	
ACT ² Agricultural Irrigation Pumping Demo	5.37	Estimates of the Achievable Potential for Electricity Efficiency Improvements in U.S. Residences	7.55
Richard C. Bourne		William D. Browning	
A Combined Refrigerator-Electric Water Heater (CREWH)	3.19	Greening the White House: A Comprehensive Energy and Environmental Retrofit	9.35
ACT ³ Project: Maximizing Residential New Construction Energy Efficiency	3.57	Greening the Building and the Bottom Line: Increasing Productivity Through Energy-Efficient Design	9.259
Mark Bowman		Michael Bull	
Turning Lead into Gold: Trends in Metering for Studies of Load and Load Impacts	2.31	IRP Applied to District Heating in Eastern Europe	4.15
Steven D. Braithwait		Susan Buller	
DSM Benefit-Cost Tests—The Next Generation	10.1	Modeling Technology Adoption and DSM Program Participation Decisions	1.9
Pamela Brandis		Evaluation of the PG&E Ceiling Insulation Rebate Program: An Application of the California Evaluation Protocols	2.157
Persistence of Savings in New Multifamily Buildings	6.185	Estimation of Net Savings for Rebate Programs: A Three-Option Nested Logit Approach	7.239
James E. Braun		A Unified Approach to the Estimation of the Free Ridership and Spillover Components of Net Savings	8.163
An Overview of Cool Storage Technologies for Commercial Buildings	3.29	Double Ratio Analysis: A New Tool for Cost-Effective Monitoring	8.263
Sarah E. Bretz		Jay D. Burch	
The Potential for Reducing Urban Air Temperatures and Energy Consumption Through Vegetative Cooling	4.155	Short-Term Energy Monitoring for Commercial Buildings	5.1
Durability of High-Albedo Roof Coatings	9.65	Aaron R. Byerley	
Jeanne Briskin		The Long Term Thermal Performance of Radiation Control Coatings	5.59
The Sine-US Super-Efficient Refrigerator Project	3.41	John Byrne	
Paul Brodie		Photovoltaics in a Demand-Side Management Role	2.43
Super Efficient Refrigerators: The Golden Carrot [®] from Concept to Reality	3.67		
Grant J. Brohard			
Commissioning the ACT ² Project Pilot Demonstration	5.47		

John Byrne (contd)		William U. Chandler	
Energy Efficiency and Renewable Energy Options for China's Economic Expansion . . .	4.25	Reforming Energy Assistance to the Post-Planned Economies	4.37
Utility Sponsored Low-Income Weatherization as a DSM Option	6.29	Subrato Chandra	
Bernadette Caldwell		Measured and Predicted Energy Savings from an Industrialized House	5.225
Energy Savings from an Active Daylighting Retrofit and Impact on Building Practices . . .	3.217	G. Chandrasekar	
Robin Calhoun		Utility Sponsored Low-Income Weatherization as a DSM Option	6.29
Evaluation of the PG&E Ceiling Insulation Rebate Program: An Application of the California Evaluation Protocols	2.157	Cathy Chappell	
Chris Calwell		How Much Does Commissioning Cost and How Much Does It Save?	5.89
A National Residential and Small Commercial High Efficiency Lighting Initiative	10.61	Caroline Chen	
Nancy C. Carlisle		A Model of Appliance Efficiency Choice Using Stated and Revealed Preference Data . .	7.1
Friendly Fusion: Integrating Energy Efficiency with Renewable Technologies	9.77	Meng Chi	
Leslie A. Carlson		Measuring the Rebound Effect as a Result of a Residential Fuel-Switching Program	1.19
Elements of Residential Efficient Lighting Savings	8.19	The Free Market and Freeriders: Freeridership in DSM Bidding Programs	10.221
Edward M. Carroll		Marisha E. Chilcott	
Wisconsin's Performance Optimization Service: Utilities and Trade Allies Delivering a Service to Improve Industrial Motor-Driven System Performance	9.85	End Use Load Data Transferability: A Report from the Frontier	2.57
Timothy O. Caulfield		Romi Chin	
PG&E Residential New Construction Program Impact Evaluation	8.29	Bridging the Gap: Designing DSM Programs Based on the Difference Between Utility and Consumer Economic Perspectives	10.133
David R. Cawley		Tony Chiodini	
Beyond the Tank Wrap - Field Experience Implementing Domestic Hot Water Fuel Substitution in an Electric Utility DSM Program .	9.93	Field Measurement of Load Availability and Load Control Switch Effectiveness in a Residential AC Cycling Pilot	9.41
Paul A. Centolella		Ishtiaq A. Chisti	
Environmental Policies and Their Effects on Utility Planning and Operations	4.101	Energy, Productivity, and Economic Implications of Resource and Environmental Policy in Southern California	4.49
Applying Cost Allocation Principles to Demand-Side Resources: A Case Study of Industrial Opt-Out Proposals	10.11	Inger-Marie Christensen	
John H. Chamberlain		Developing the Supply Side of Existing State Controlled Energy Consultancy	1.27
Pricing Energy Services in a Competitive Market	2.51	Jeffrey E. Christian	
		The Long Term Thermal Performance of Radiation Control Coatings	5.59

William D. Chvála, Jr.			
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building	2.137		
Energy Consumption of Personal Computer Workstations	2.257		
Robert E. Ciliano			
Calculating the Uncertainty of Building Simulation Estimates	7.233		
David Claridge			
Can You Achieve 150% of Predicted Retrofit Savings? Is It Time for Recommissioning?	5.73		
Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings	5.153		
Bruce Cody			
Over the Energy Edge: Results from a Seven Year New Commercial Buildings Research and Demonstration Project	9.243		
Armond Cohen			
Residential DSM Program Design in the United Kingdom	4.93		
Utility Deregulation and Retail Wheeling: The Stakes for IRP and DAM.....	6.263		
Yvonne C. Coleman			
A Cooperative Approach to Resource Conservation in Public Schools	4.277		
Roger D. Colton			
Models of Public and Private Investment in Energy Efficiency for Low-Income Housing	6.39		
Dorothy A. Conant			
DSM Potential Studies and Innovative Long-Range DSM Planning	10.85		
Craig C. Conner			
Minimum Cost Model Energy Code Envelope Requirements	6.49		
David R. Conover			
New Technology Field Evaluation of Gas-Engine-Driven Rooftop Air-Conditioning Equipment at the Willow Grove (PA) Naval Air Station	9.17		
David R. Conover (contd)			
Transferring New Technologies Within the Federal Sector: The New Technology Demonstration Program	9.101		
Janet N. Cothran			
Environmental Implications Associated with Integrated Resource Planning by Public Utilities in the Western United States	6.1		
Drury B. Crawley			
Advantages of Staged Implementation of Efficiency Upgrades	5.182		
Robert L. Cruz			
Can Dispatchable Pricing Options Be Used to Delay Distribution Investments? Some Empirical Evidence	2.67		
Gary Cullen			
Mutual Exclusivity and Rank Ordering of Interactive DSM Measures	7.131		
Matthew Custer			
Sealing Crawl Space Exterior Walls and Soil Floor to Save Energy and Reduce Moisture of Floor Joists	9.109		
Laurie A. Czeschin			
Lighting Code Compliance in New Small Commercial Construction in Minnesota	6.59		
Willard Dakin			
A Combined Refrigerator-Electric Water Heater (CREWH)	3.19		
Bruce Eugene Davis			
Powered Attic Ventilators, Another Applied Building Science Nightmare and Treasure Trove	5.233		
Robert G. Davis			
Performance Evaluations of Compact Fluorescent Lamps: What Does "Equivalent" Really Mean?	3.45		
Jerry W. Deal			
Impacts of Performance Factors on Savings from Motor Replacement and New Motor Programs	2.117		
Janice Debarros			
Models of Public and Private Investment in Energy Efficiency for Low-Income Housing	6.39		

Janice Debarros (contd)	
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs	10.21
Odón de Buen	
Residential Lighting Efficiency in Mexico: The Road to ILUMEX	3.1
Over the Energy Edge: Results from a Seven Year New Commercial Buildings Research and Demonstration Project	9.243
John DeCicco	
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs	10.21
Paul S. Delaney	
Evaluating Benefits for an Industrial DSM Program.	9.121
Sharon deMonsabert	
SAVEnergy Action Plans	9.221
Chris L. Dent	
PGE Drive Power Program Evaluation: The Accuracy of Customer-Provided Operating Hours and Motor Loading Assumptions	8.215
Linda Dethman	
How Well Is Our Energy Code Working? An Evaluation of the Tacoma, Washington Model Conservation Program	6.149
Rick Diamond	
Over the Energy Edge: Results from a Seven Year New Commercial Buildings Research and Demonstration Project	9.243
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs	10.21
Dennis L. DiBartolomeo	
A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings	3.117
Martina Didušková	
Prospects for Using Non-traditional Methods to Finance Energy Efficiency Projects in the Czech Republic,	4.57
Michael DiGiacomo	
Compressed Air Efficiency-Moving Beyond Custom Programs	10.35
Scott Dimetrosky	
Producing More with Less: Evaluating the Impact of a T&D Agricultural DSM Program	2.249
Deborah Dodds	
Investigation into Operation and Maintenance Practices	5.13
Building Commissioning: The Path to Nirvana or the Woods of Ichabod Crane?	5.25
How Much Does Commissioning Cost and How Much Does It Save?	5.89
Joseph G. Dolengo	
Measured Performance of Thermal Storage Systems: One Utility's Experience	8.115
Thierry Dumont	
Energy Consumption by End-Use: Introducing a New Technique for Advanced Monitoring	2.211
Camilla Dunham	
The Effect of Efficiency Standards on Water Use and Water Heating Energy Use in the U. S.: A Detailed End-Use Treatment	7.103
James P. Dunlop	
Solar Photovoltaic Air Conditioning of Residential Buildings	3.189
Timothy S. Dunsworth	
Energy Savings and Field Experiences with Dual Integrated Appliances	3.9
Gautam S. Dutt	
Large Scale Residential Refrigerator Field Metering	2.77
Linda Ecker	
Acquiring T&D Benefits from DSM: A Utility Case Study	2.269
Henry Einhorn	
Gas Collaborative Issues in Maryland: Implementation of Gas Demand-Side Management (Gas Conservation) Programs by Local Gas Distribution Companies Subject to the Jurisdiction of the Public Service Commission of Maryland	6.111

Lance E. Elberling		Ahmad Faruqui	
ACT ² Project: Maximizing Residential New Construction Energy Efficiency	3.57	Impact of DSM on U.S. Electrical Usage, 1990-2000 : An Update	7.65
Charles Eley		Garnering the Industrial Sector: A Comparison of Cutting Edge Industrial DSM Programs	10.123
Commercial Building Code Development in Australia	6.67	Jill Feblowitz	
Neal Elliott		The Detroit Edison Low-Income Customer Service Program: Effective Methods to Reduce High Non-Heating Electric Use	1.159
Critical Questions in Structuring Energy Technology Organizations	9.1	John W. Feist	
Scott L. Englander		Super Efficient Refrigerators: The Golden Carrot [®] from Concept to Reality	3.67
Measured Performance of Variable Speed Drives on Injection Molding Machinery	2.87	Shel Feldman	
Impacts of Performance Factors on Savings from Motor Replacement and New Motor Programs	2.117	Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings	1.91
Measured Loading of Energy Efficient Motors: The Missing Link in Engineering Estimates of Savings	3.89	How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin	2.127
Janis Erickson		Market Transformation: Hot Topic or Hot Air?	8.37
Super Efficient Refrigerators: The Golden Carrot [®] from Concept to Reality	3.67	Margaret F. Fels	
Opportunities Found (and Taken): SMUD's Refrigerator Program	4.65	Model Selection Guidelines for PRISM (Or: Now That HC PRISM Is Coming, How Will I Know When to Use It?)	8.49
Victor E. Espinosa, Jr.		Diane M. Fielding	
Moving a Residential Saturation Retrofit Program from Low-Income to Higher-Income Neighborhoods	1.145	Estimating the Level of Free Riders in the Refrigerator Buy-Back Program	8.63
Joseph Eto		H. Alan Fine	
A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities	2.1	The Sine-US Super-Efficient Refrigerator Project	3.41
Uncertainty in Site Inspection and Tracking Database Estimates of Savings	8.205	Kevin C. Fish	
Evaluation of Commercial Lighting Programs: A DEEP Assessment	8.235	Case Study in Building Commissioning and Savings Verification Applied to a 311,000 ft ² Office Tower Retrofit	5.209
Ramin Faramarzi		Jim A. Flanagan	
More Data Is Better, but How Much Is Enough for Impact Evaluations?	2.11	Evaluating Educational Effects In Pacific Gas & Electric's Energy Savings Plan	8.151
Ray Farhang		Sean A. Foley	
Super Efficient Refrigerators: The Golden Carrot [®] from Concept to Reality	3.67	Dispatch from the Gas War Front: Issues in Calculating Fuel-Switching Cost-Effectiveness	8.71

Ellen Ford		
Acceptance of Customer Contributions for DSM Among Small Commercial/Industrial Companies	10.235	
Paul W. Francisco		
Measured Efficiency of Forced-Air Distribution Systems in 24 Homes....	3.177	
Infiltration and Ventilation Measurements on Three Electrically-Heated Multifamily Buildings	5.97	
Sue A. Franz		
Appropriate Treatment of Free Riders in Impact Evaluations: What Is a Free Rider Anyway?	8.247	
Donald J. Frey		
Short-Term Measurements to Support Impact Evaluation of Commercial Lighting Programs	5.114	
Commercial Building Performance Evaluation System for HVAC Diagnostics and Commissioning	5.249	
Paul Frey		
Energy Consumption by End-Use: Introducing a New Technique for Advanced Monitoring	2.211	
Rafael A. Friedmann		
Saving Electricity in Mexican Homes: Potential and Accomplishments to Date	4.71	
Mark Fulmer		
Misconceptions, Mistakes and Misnomers in DSM Cost Effectiveness Analysis	7.73	
Elsia O. Galawish		
Large Scale Residential Refrigerator Field Metering	2.77	
Lawrence Galwin		
Laboratory Accreditation for Testing Energy Efficient Lighting	3.77	
Nikhil Gandhi		
Compressed Air Efficiency-Moving Beyond Custom Programs	10.35	
William Gavelis		
Household Appliance Replacement Program - Impact and Tradeoffs	8.1	
Howard Geller		
Market Transformation Programs: Past Results, Future Directions	10.187	
Wallace R. Gibson		
Exporting Integrated Resource Planning to Poland	6.81	
Jerome Gilbert		
Energy Consumption by End-Use: Introducing a New Technique for Advanced Monitoring	2.211	
Richard Gillman		
End Use Load Data Transferability: A Report from the Frontier	2.57	
Mark Ginsberg		
Greening the White House: A Comprehensive Energy and Environmental Retrofit	9.35	
FEMP's BEST Program Champions Federal Push to Showcase Energy-Saving Technologies in Federal Facilities	9.159	
SAVEnergy Action Plans	9.221	
Andrew A. Goett		
Large Scale Residential Refrigerator Field Metering	2.77	
Producing More with Less: Evaluating the Impact of a T&D Agricultural DSM Program	2.249	
Seeing the Light: Effective Strategies for Promoting Compact Fluorescent Lighting to Residential Customers	10.41	
Miriam L. Goldberg		
Turning Lead into Gold: Trends in Metering for Studies of Load and Load Impacts	2.31	
Exploring Energy and Demand Impacts of a Controllable Rates Program	2.95	
Charles A. Goldman		
Demand-Side Bidding: Six Years Later and the Results Are Coming In	10.49	
Fredric S. Goldner		
Domestic Hot Water Loads, System Sizing and Selection for Multifamily Buildings	2.105	

- David B. Goldstein**
Market Transformations to Super Efficient Products: The Emergence of Partnership Approaches 6.91
- William H. Golove**
Are Investments in Energy Efficiency Over or Under?: An Analysis of the Literature 1.37
- Carmel M. Gondek**
Elements of Residential Efficient Lighting Savings 8.19
- Frederick M. Gordon**
Impacts of Performance Factors on Savings from Motor Replacement and New Motor Programs 2.117
- Christopher Granda**
A National Residential and Small Commercial High Efficiency Lighting Initiative 10.61

Report on a Successful Initiative in Residential Lighting Program Design 10.71
- Steve Greenberg**
The U.S. Department of Energy's In-House Energy Management Program: Meeting the Challenges of Federal Energy Management . . 9.129
- Lorna A. Greening**
Forecasting Needs for the Emerging Cultural/Social Energy Paradigm 1.45
- Judith M. Gregory**
Do Savings from Energy Education Persist? . . 1.65
- Dianne M. Griffiths**
Commercial Building/System Characteristics Sensitivity Analysis 5.105
- William Grimm**
A National Residential and Small Commercial High Efficiency Lighting Initiative 10.61

Report on a Successful Initiative in Residential Lighting Program Design 10.71
- David T. Grimsrud**
Radon in Institutional Buildings: The Impacts of Conservation Strategies 9.137
- Adam Guts**
Energy Savings in Residential Multifamily Buildings—Demonstration Project in Kraków, Poland 4.81
- Leif G. W. Gustavsson**
An Organizational Culture Perspective on the Role of Swedish Energy Utilities in Promoting Energy-Efficient End-Use Technologies 1.53
- Hans Otto Haaland**
DSM and Deregulation: Experiences from Norway 6.101
- Tudi Haasl**
Investigation into Operation and Maintenance Practices 5.13

Building Commissioning: The Path to Nirvana or the Woods of Ichabod Crane? 5.25

How Much Does Commissioning Cost and How Much Does It Save? 5.89

The Business of Running Buildings: Whose Business Is It? 5.175

A Commissioning Cost-Effectiveness Case Study 5.201
- Gordon S. Haber**
Environmental Implications Associated with Integrated Resource Planning by Public Utilities in the Western United States 6.1
- Jeff Haberl**
Can You Achieve 150% of Predicted Retrofit Savings? Is It Time for Recommissioning? . . . 5.73

Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings 5.153
- Bruce Hackett**
Barriers to Non-Compressor Cooling: Air Conditioners in Social Context 1.59
- Richard Hackner**
How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin 2.127

Brent M. Haddad			
Why Compact Fluorescent Lamps Are Not Ubiquitous: Industrial Organization, Incentives, and Social Convention	10.77		
Stan Hadley			
Regulatory and Tax Treatment of Electric Resources	7.85		
Daniel E. Hadlich			
Radon in Institutional Buildings: The Impacts of Conservation Strategies	9.137		
Erik Haites			
The Reality: Externality Requirements Do Little for DAM	4.87		
Evaluation of the Environmental Impacts of the Espanola Power Savers Program	4.177		
David R. Hall			
Barriers to Non-Compressor Cooling: Air Conditioners in Social Context	1.59		
Nick Hall			
Energy Savings from an Active Daylighting Retrofit and Impact on Building Practices . . .	3.217		
Mark A. Halverson			
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building	2.137		
Kyunghee Ham			
Utility Sponsored Low-Income Weatherization as a DSM Option...	6.29		
L. Blair Hamilton			
Beyond the Tank Wrap - Field Experience Implementing Domestic Hot Water Fuel Substitution in an Electric Utility DSM Program	9.93		
New Smart Protocols to Avoid Lost Opportunities and Maximize Impact of Residential Retrofit Programs	9.147		
Ed H. Hamzawi			
Energy and Peak Demand Impact Estimates for DSM Technologies in the Residential and Commercial Sectors for California: Technical and Regulatory Perspectives	2.145		
C. Edward Hancock			
Short-Term Energy Monitoring for Commercial Buildings	5.1		
Mark W. Hancock			
Energy Savings and Field Experiences with Dual Integrated Appliances	3.9		
M. Maureen Hand			
Environmental Implications Associated with Integrated Resource Planning by Public Utilities in the Western United States	6.1		
Merrilee S. Harrigan			
Do Savings from Energy Education Persist?	1.65		
Jeffrey P. Harris			
Office Equipment Energy Efficiency: Taking the Next Few Bytes	3.241		
The Washington State Non-Residential Energy Code: A New Model Process for Code Development	6.139		
Louis R. Harris, Jr.			
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building	2.137		
FEMP's BEST Program Champions Federal Push to Showcase Energy-Saving Technologies in Federal Facilities	9.159		
Forest Harrison			
Evaluation of the PG&E Ceiling Insulation Rebate Program: An Application of the California Evaluation Protocols	2.157		
Julie Hashem			
The Reality: Externality Requirements Do Little for DAM	4.87		
Ann M. Hatcher			
DSM Potential Studies and Innovative Long-Range DSM Planning	10.85		
Donna M. Hawkins			
Building Technology Transfer Meetings: A Collaborative Model for Transferring DOE Research Results to Potential Users	9.269		
Juanita M. Haydel			
Trends in IRP Development—Where Are We Heading	6.119		

-
- K. Heinemeier**
A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities 2.1
- Timothy P. Hennessy**
An Approach to the Establishment of Load Research Metering to Support the Design and Evaluation of Natural Gas DSM Programs . . . 2.167
- Curt Hepting**
Characterization of Energy Conservation Measure End-Use Cross-Effects 2.175
- Patricia Herman**
From Theory into Practice: One Utility's Experience with Applying the Value Test . . . 8.77
- George R. Hernandez**
Commissioning the ACT* Project Pilot Demonstration 5.47
- Joseph A. Herriges**
Voluntary Time-of-Use Rates Induced Load Shifting and Peak Load Reduction 2.21
- Lisa Heschong**
On the Road Again: Delivering Energy Efficiency Education to the Construction Community-Successes and Failures 9.165
- Martha J. Hewett**
Commercial Gas Cooking Appliances: Current Status and Future Directions 3.129
- Lighting Code Compliance in New Small Commercial Construction in Minnesota 6.59
- Demand-Side Management Strategies for Commercial and Industrial Refrigeration 10.93
- David C. Hewitt**
Residential DSM Program Design in the United Kingdom 4.93
- Douglas Hibberd**
Design of a High-Efficiency Rooftop Air Conditioner 3.103
- Curtis Hickman**
Cleaning Up: An Efficient Approach for Estimating Showerhead Savings 8.89
- Curtis Hickman (contd)**
Effective ECM and Equipment Lifetimes in Commercial Buildings: Calculation and Analysis 8.193
- Elizabeth G. Hicks**
From Theory into Practice: One Utility's Experience with Applying the Value Test . . . 8.77
- Emerging Issues in Evaluation 8.97
- Eric W. Hildebrandt**
The Chilling Truth About Appliance Recycling Programs 4.259
- Incorporating DSM Uncertainty and Flexibility into Integrated Resource Planning 7.95
- Roger O. Hill**
Measured Loading of Energy Efficient Motors: The Missing Link in Engineering Estimates of Savings 3.89
- Ewaryst Hille**
Exporting Integrated Resource Planning to Poland 6.81
- Eric Hirst**
Regulatory and Tax Treatment of Electric Resources 7.85
- David and the Goliaths: How a Small Environmental Group Helps Reform Electric-Utility Regulation 10.107
- Benjamin F. Hobbs**
Environmental Policies and Their Effects on Utility Planning and Operations 4.101
- Marc A. Hoeschele**
Residential Indirect/Direct Evaporative Cooler Performance in Sacramento 9.175
- Christopher J. Holmes**
Using DSM to Help Meet Clean Air Act Requirements: A Case Study 4.113
- Mary Ellen Fitzpatrick Hopkins**
Gas Collaborative Issues in Maryland: Implementation of Gas Demand-Side Management (Gas Conservation) Programs by Local Gas Distribution Companies Subject to the Jurisdiction of the Public Service Commission of Maryland 6.111

William S. Hopkins	
Beyond Bill History: Evaluating Commercial Sector Energy Impacts Through a Multiple Approach Strategy	8.105
Marvin Horowitz	
Double Ratio Analysis: A New Tool for Cost-Effective Monitoring	8.263
Andrea Horwatt	
Mutual Exclusivity and Rank Ordering of Interactive DSM Measures	7.131
John Houcek	
Can You Achieve 150% of Predicted Retrofit Savings? Is It Time for Recommissioning?	5.73
Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings	5.153
David J. Houghton	
Projected and Measured Results from an Energy-Efficient Small Commercial Office Building	9.187
Andrew Hourigan	
Appropriate Treatment of Free Riders in Impact Evaluations: What Is a Free Rider Anyway ?	8.247
Richard B. Howarth	
Consumer Rationality and Energy Efficiency	1.175
Benson Huang	
The Potential for Reducing Urban Air Temperatures and Energy Consumption Through Vegetative Cooling	4.155
Y. Joe Huang	
Lighting/HVAC Interactions and Their Effects on Annual and Peak HVAC Requirements in Commercial Buildings	3.229
Andrew Hub	
Household Appliance Replacement Program - Impact and Tradeoffs	8.1
Separating DSM Program Impacts from Technology Trends: A Comparison of National and State Surveys of Manufacturers and Distributors	8.253
Patrick J. Hughes	
Gas Heat Pumps Are Coming: But by a Different Name	3.97
David G. Hungerford	
Barriers to Non-Compressor Cooling: Air Conditioners in Social Context	1.59
David M. Hunt	
Transferring New Technologies Within the Federal Sector: The New Technology Demonstration Program	9.101
Patrice Ignelzi	
The Roles of Incentives and Information in DSM Programs	10.145
David B. Iliff	
Technical and Economic Potential - A New Method	7.223
Mark R. Inglis	
Hourly Conditional Demand Analysis of Residential Electricity Use	7.45
Mike Jacob	
The Day the Engineers Were Right: Confirming the Peak Demand Reductions of FPC's Air Conditioner Duct Test and Repair Program	2.185
Peter C. Jacobs	
Short-Term Measurements to Support Impact Evaluation of Commercial Lighting Programs,	5.114
David I. Jacobson	
Measured Performance of Thermal Storage Systems: One Utility's Experience	8.115
Lennart Jagemar	
Energy Efficient HVAC Systems in Office Buildings—With Emphasis on Air Distribution Systems	5.123
Kathryn B. Janda	
Bounded Decision Making and Analytical Biases in Demand Side Management	1.75
Asa M. Janney III	
Hourly Conditional Demand Analysis of Residential Electricity Use	7.45

-
- Yunfen Ji**
Performance Evaluations of Compact Fluorescent Lamps: What Does “Equivalent” Really Mean? 3.45
- Karl F. Johnson**
Short-Term Measurements to Support Impact Evaluation of Commercial Lighting Programs 5.114

Commercial Building Performance Evaluation System for HVAC Diagnostics and Commissioning 5.249
- Jeffrey Jowett**
Facts and Fiction of HVAC Motor Measuring for Energy Savings 5.17
- Scott Judson**
Measured Loading of Energy Efficient Motors: The Missing Link in Engineering Estimates of Savings 3.89
- David A. Jump**
Energy Impacts of Attic Duct Retrofits in Sacramento Houses 9.195
- William Kallock**
Calculating the Uncertainty of Building Simulation Estimates 7.233
- Michael B. Kaplan**
Cost-Effective Commissioning: Getting the Job Done Within Utility Guidelines 5.275
- Sabrina L. Karl**
Combining Efforts: The Joint-Utility Regional Marketing Campaign 10.115
- Srinivasa Katakam**
Measured and Predicted Energy Savings from an Industrialized House 5.225
- Srinivas Katipamula**
New Technology Field Evaluation of Gas-Engine-Driven Rooftop Air-Conditioning Equipment at the Willow Grove (PA) Naval Air Station 9.17
- Dennis M. Keane**
Can Dispatchable Pricing Options Be Used to Delay Distribution Investments? Some Empirical Evidence 2.67
- Michael Kelleher**
Separating DSM Program Impacts from Technology Trends: A Comparison of National and State Surveys of Manufacturers and Distributors 8.253
- John M. Keller**
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building 2.137
- Willett Kempton**
Expanding the Human Dimensions Research Agenda 1.85
- John Kennedy**
Commercial Building Code Development in Australia 6.67
- Ron Kent**
Using the Long-Term Industrial Energy Forecasting (LIEF) Model to Assess Core Industrial DSM Potential for Southern California Gas Company 7.147
- Kurt Kiefer**
Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings 1.91
- Kathy King**
Customer Response to Real-Time Pricing in Great Britain 2.195
- Laurence F. Kinney**
Refrigerator Monitoring System Development and Field Testing Results 2.205
- J. Kelly Kissock**
Model Selection Guidelines for PRISM (Or: Now That HC PRISM Is Coming, How Will I Know When to Use It?) 8.49
- M. S. Kito**
Demand-Side Bidding: Six Years Later and the Results Are Coming In 10.49
- Christie Kjellman**
How Much Does Commissioning Cost and How Much Does It Save? 5.89
- Joseph H. Klems**
A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings 3.117

L.A. Klevgard	Potential for Feeder Equipment Upgrade Deferrals in a Distributed Utility	2.229	Martin G. Kushler	Institutional Change or Spare Change: A Case Study of the Persistence of Utility DSM Behavior Produced by Regulatory Incentives	1.101
Ivo H. Knoepfel	Environmental Impacts of Long Distance Energy Transport: Additional Benefits of Efficiency	4.123	Peter Kyricopoulos	Garnering the Industrial Sector: A Comparison of Cutting Edge Industrial DSM Programs	10.123
Philip E. Koebel	Are Clean Air Act Bonus SO ₂ Allowances Worth the Hassle?	4.137	Herve Laffaye	Energy Consumption by End-Use: Intro- ducing a New Technique for Advanced Monitoring	2.211
S. Konopacki	A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities,	2.1	Russell W. Landry	Demand-Side Management Strategies for Commercial and Industrial Refrigeration	10.93
Jonathan G. Koomey	The Effect of Efficiency Standards on Water Use and Water Heating Energy Use in the U. S.: A Detailed End-Use Treatment	7.103	Mary C. Lang	Trends in IRP Development—Where Are We Heading	6.119
William L. Kopko	Design of a High-Efficiency Rooftop Air Conditioner	3.103	P. Lapujade	Measured Energy Savings of an Energy- Efficient Office Computer System	9.205
	A Novel Method for Resetting Duct Static Pressure for Variable Air Volume Systems	5.219	Anders Larsen	Four Experiments with Electricity Conservation in Denmark and National Implications	4.167
Bill Koran	Capturing Lost Opportunity in the High- Tech Building Market Through Commissioning	5.267	Henry Lau	Field Measurement and Evaluation of Indirect-DX Air-Conditioning Systems	3.205
Jan Kosny	Wooden Concrete—High Thermal Efficiency Using Waste Wood	3.109		Detailed Instrumentation of a Building Bake- Out Procedure	9.11
Brian Krafthefer	Radon in Institutional Buildings: The Impacts of Conservation Strategies	9.137	Michael Lazarus	Environmental Impacts of Long Distance Energy Transport: Additional Benefits of Efficiency	4.123
Craig R. Kuennen	The Limits of Efficiency: Policy Impacts and Implications for Sustainable Development	4.147	William LeBlanc	Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings	1.91
Dan M. Kurn	The Potential for Reducing Urban Air Temperatures and Energy Consumption Through Vegetative Cooling	4.155		Thomas A. Edison Will Finally Smile: The Pricing of Energy Services, Not Kilowatt- Hours	6.127

- William LeBlanc (contd)**
Regulation Versus Competition: Which Leads to the Most Energy Efficiency? 6.213
- Benoît Lebot**
Energy Consumption by End-Use: Introducing a New Technique for Advanced Monitoring 2.211
- Jim LeClair**
How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin 2.127
- Allen D. Lee**
Bridging the Gap: Designing DSM Programs Based on the Difference Between Utility and Consumer Economic Perspectives 10.133
- Anne G. Lee**
PG&E Residential New Construction Program Impact Evaluation 8.29

Establishing a Baseline in Commercial New Construction DSM Impact Evaluation—Comparison of Three Approaches 8.123
- Eleanor S. Lee**
A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings 3.117
- David 1. Lerman**
Persistence of Savings in New Multifamily Buildings 6.185
- Steve E. Letendre**
Photovoltaics in a Demand-Side Management Role 2.43
- Per Levin**
Adjusting Airflow in Office Buildings According to Outdoor Temperature 5.133
- William P. Levins**
Are Heating-System Retrofit and Tune-Up Programs Really Increasing the Efficiency of Oil-Fired Systems 5.143
- Xiuguo Li**
Energy Efficiency and Renewable Energy Options for China's Economic Expansion 4.25
- Paul Liepe**
Super Efficient Refrigerators: The Golden Carrot® from Concept to Reality 3.67
- William Lintner**
The U.S. Department of Energy's In-House Energy Management Program: Meeting the Challenges of Federal Energy Management 9.129
- Barbara R. Litt**
What Is a Low-Energy House? 9.213
- Mingsheng Liu**
Can You Achieve 150% of Predicted Retrofit Savings? Is It Time for Recommissioning? 5.73

Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings 5.153
- Anthony Lo**
Characterization of Energy Conservation Measure End-Use Cross-Effects 2.175
- Mary Sue Lobenstein**
Commercial Gas Cooking Appliances: Current Status and Future Directions 3.129
- Doug Lockhart**
The U.S. Department of Energy's In-House Energy Management Program: Meeting the Challenges of Federal Energy Management 9.129
- Pat M. Love**
Building Technology Transfer Meetings: A Collaborative Model for Transferring DOE Research Results to Potential Users 9.269
- Jonathan B. Lowell**
Applying Financial Option Theory to Utility Resource Planning 7.113
- Xiaowei Luan**
Performance Evaluations of Compact Fluorescent Lamps: What Does "Equivalent" Really Mean? 3.45
- Theo Lubke**
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs 10.21
- Robert G. Lucas**
Minimum Cost Model Energy Code Envelope Requirements 6.49

James D. Lutz		Michelle A. Marean	
Gas-Fired Residential Heat Pump Water Heaters: An Exploration and Evaluation of Potential Technologies	3.141	Model Selection Guidelines for PRISM (Or: Now That HC PRISM Is Coming, How Will I Know When to Use It?)	8.49
The Effect of Efficiency Standards on Water Use and Water Heating Energy Use in the U. S.: A Detailed End-Use Treatment	7.103	Bedig Margossian	
Loren Lutzenhiser		How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin	2.127
Why Isn't the Housing Stock More Efficient?: Organizational Networks and Technology Transfer	1.109	Deriving End-Use Load Profiles Without End-Use Metering: Results of Recent Validation Studies	2.217
J. Michael MacDonald		Lawrence Markel	
Energy Efficiency Capital Requirements for Buildings in the United States	7.121	Energy Savings in Residential Multifamily Buildings—Demonstration Project in Kraków, Poland	4.81
William D. Machold		Jacek Markiewicz	
Barriers and Incentives for Third Party Developers of Performance Based Demand Side Management	10.141	Energy Price Incentives in a Planned Energy Economy	4.289
Gillian MacLeod		Jaroslav Maroušek	
Evaluation of the Environmental Impacts of the Espanola Power Savers Program	4.177	Energy Efficiency in the Czech Republic: From an Energy-Intensive Economy to Sustainable Development	4.185
Kevin Madison		Thomas L. Marsh	
The Washington State Non-Residential Energy Code: A New Model Process for Code Development	6.139	Analysis of U. S. Commercial Building Energy Use Trends, 1972-1991	7.35
Jeff K. Magouirk		Bruce Mast	
Measuring the Rebound Effect as a Result of a Residential Fuel-Switching Program	1.19	Estimation of Net Savings for Rebate Programs: A Three-Option Nested Logit Approach	7.239
Douglas E. Mahone		The Roles of Incentives and Information in DSM Programs	10.145
Establishing a Baseline in Commercial New Construction DSM Impact Evaluation—Comparison of Three Approaches	8.123	E. R. May berry	
On the Road Again: Delivering Energy Efficiency Education to the Construction Community—Successes and Failures	9.165	DSM's Best Kept Secret: The Process, Outcome, and Future of the Pepto-Maryland Collaborative	10.199
Sue Makredes		Didier Mayer	
Energy Savings and Field Experiences with Dual Integrated Appliances	3.9	Energy Consumption by End-Use: Introducing a New Technique for Advanced Monitoring	2.211
Jim Mapp		Katherine H. Mayo	
Energy Savings from an Active Daylighting Retrofit and Impact on Building Practices	3.217	SAVEnergy Action Plans	9.221

- Richard P. Mazzucchi**
Driving the Market for New Metering Equipment 3.151
- Patrick M. McCarthy**
Field Measurement of Load Availability and Load Control Switch Effectiveness in a Residential AC Cycling Pilot 9.41
- Ross McCluney**
Daylighting Commercial and Educational Rooms to 750 Lux with Stationary Projecting Reflector Arrays (SPRA): A Simulation 3.251
- Mike McDonald**
Conservation Advertising Campaigns and Advertising Effectiveness Research: The Right Combination to Solidify the Conservation Ethic 1.1
- Kathleen McElroy**
Evaluation of the PG&E Ceiling Insulation Rebate Program: An Application of the California Evaluation Protocols 2.157
- Aimee T. McKane**
Promoting Equipment Energy-Efficiency Through Public/Private Cooperation 9.227
- Barbara J. McKellar**
Wisconsin's Performance Optimization Service: Utilities and Trade Allies
Delivering a Service to Improve Industrial Motor-Driven System Performance 9.85

Combining Efforts: The Joint-Utility Regional Marketing Campaign 10.115
- Patrick McKellips**
Lighting Code Compliance in New Small Commercial Construction in Minnesota 6.59
- James E. McMahon**
Uncertainty Analysis of Life-Cycle Cost: Residential Electric Heat Pump Water Heaters 8.131
- J. Stuart McMenamin**
U.S. Electricity Forecast: Results and Decomposition 7.205

DSM Technology Forecasting: Market Transformation and the Dynamic Baseline 10.155
- Mary M. McNally**
Mutual Exclusivity and Rank Ordering of Interactive DSM Measures 7.131
- Paul Meagher**
Impact of DSM on U.S. Electrical Usage, 1990-2000 : An Update 7.65
- Lori M. Megdal**
Finding Methods to Estimate Social Benefits of Low-Income Energy Efficiency Programs 1.119

Beyond Bill History: Evaluating Commercial Sector Energy Impacts Through a Multiple Approach Strategy 8.105
- Alan K. Meier**
Developing Energy and Environmental Reporting Protocols 4.231

What Is a Low-Energy House? 9.213
- Cynthia Melendy**
Integrated Resource Planning in 2004? 10.163
- Michael Messenger**
Energy and Peak Demand Impact Estimates for DSM Technologies in the Residential and Commercial Sectors for California: Technical and Regulatory Perspectives 2.145
- Harvey Michaels**
Just How Flexible Is DSM as a Resource? 7.141
- Benjamin D. Milakofsky**
Utility Approaches to PCB Ballast and Mercury Lamp Disposal 4.193
- Barbara A. Miller**
Barriers to the Adoption of Energy Efficiency in Low-Cost Housing Production 10.173
- James D. Miller**
Field Comparison of Conventional HVAC Systems with a Residential Gas-Engine-Driven Heat Pump 9.235
- Karen C. Miller**
Restaurants-Opportunities for Energy Efficiency 5.167

Evan Mills

Consumer Non-Energy Benefits as a
Motivation forsaking Energy-Efficiency
Improvements 4.201

The U.S. Department of Energy 'sin-House
Energy Management Program: Meeting the
Challenges of Federal Energy Management . . 9.129

Mark Modera

Peak Demand Impacts of Residential Air-
Conditioning Conservation Measures 7.249

Energy Impacts of Attic Duct Retrofits in
Sacramento Houses 9.195

François Moisan

Energy Consumption by End-Use: Intro-
ducing a New Technique for Advanced
Monitoring 2.211

Frank A. Monforte

U.S. Electricity Forecast: Results and
Decomposition 7.205

DSM Technology Forecasting: Market
Transformation and the Dynamic Baseline . . 10.155

Kevin W. Moore

Moving a Residential Saturation Retrofit
Program from Low-Income to Higher-
Income Neighborhoods 1.145

Steve Morgan

Energy Conservation in Multifamily
Housing: Review and Recommendations for
Retrofit Programs 10.21

Utility Multifamily DSM Programs and
Public and Assisted Housing: Fitting
Program Designs to Emerging Opportunities . 10.181

John H. Morrill

When the Straight Line Is Not the Fastest
Route: Counterintuitive Approaches to
Improving Energy Efficiency in Buildings . . 1.133

Robert J. Mowris

Using the Long-Term Industrial Energy
Forecasting (LIEF) Model to Assess Core
Industrial DSM Potential for Southern
California Gas Company 7.147

John M. Mulligan

Elements of Residential Efficient Lighting
Savings 8.19

Steve Nadel

Using DSM to Help Meet Clean Air Act
Requirements: A Case Study 4.113

Market Transformation Programs: Past
Results, Future Directions 10.187

Gary L. Nakarado

Friendly Fusion: Integrating Energy
Efficiency with Renewable Technologies 9.77

Tracy Narel

Investigation into Operation and Maintenance
Practices 5.13

The Business of Running Buildings: Whose
Business Is it? 5.175

David R. Narum

Critical Thinking and Program
Evaluation 7.159

Susan K. Nathan

An Approach to the Establishment of Load
Research Metering to Support the Design and
Evaluation of Natural Gas DSM Programs . . . 2.167

Commercial Gas Cooking Appliances:
Current Status and Future Directions 3.129

C. Leon Neal

Advanced Heat Pump Cooling and Heating
Energy Savings 3.159

Kevin Neal

Using DSM to Help Meet Clean Air Act
Requirements: A Case Study 4.113

Dennis J. Nelson

Measurable Spillover (Free Drivers): The
Search Continues 8.141

Chris Neme

New Smart Protocols to Avoid Lost Oppor-
tunities and Maximize Impact of Residential
Retrofit Programs 9.147

Tim Newcomb

An Assessment of the Decision-Making
Process Within the Industrial Sector 8.187

- Ken W. Nichols**
Valuing Flexible Resources in an Uncertain Future 7.169
- Ralph Nigro**
Photovoltaics in a Demand-Side Management Role 2.43
- Sharon K. Noell**
Establishing a Baseline in Commercial New Construction DSM Impact Evaluation—Comparison of Three Approaches 8.123
- Sandra Nolden**
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs 10.21
- Daniel P. Nore**
Miscellaneous Residential Electrical End Uses: U.S. Historical Growth and Regional Differences 7.179
- U.S. Electricity Forecast: Results and Decomposition 7.205
- Leslie K. Norford**
Measured Performance of Thermal Storage Systems: One Utility's Experience 8.115
- Dennis Nugent**
High Efficiency Evaporative Condensers for Air Conditioning, T.E.S., and Refrigeration 3.165
- Robert D. Obeiter**
DSM's Best Kept Secret: The Process, Outcome, and Future of the Pepto-Maryland Collaborative 10.199
- Christopher O'Brien**
Advantages of Staged Implementation of Efficiency Upgrades 5.182
- Ilene Obstfeld**
Moving a Residential Saturation Retrofit Program from Low-Income to Higher-Income Neighborhoods 1.145
- Double Ratio Analysis: A New Tool for Cost-Effective Monitoring 8.263
- Francis J. Offerman**
Detailed Instrumentation of a Building Bake-Out Procedure 9.11
- Linda K. Olsson**
Addressing Uncertainty and the Value of Flexibility in the Second Generation of IRP . . . 6.231
- Kevin P. O'Meara**
Evaluating Educational Effects In Pacific Gas & Electric's Energy Savings Plan 8.151
- Patrick O'Neill**
Automating the Commissioning Process—Information Management in Building Design Through Occupancy 5.193
- Stephen A. Onisko**
Bridging the Gap: Designing DSM Programs Based on the Difference Between Utility and Consumer Economic Perspectives 10.133
- Ned Ormsby**
Strategies for Improving the Market for Energy-Efficient Technologies 9.251
- Kim Johnson Oswald**
Market Research-The Essential First Step to Market Transformation 10.211
- Alexander Othmer**
Restaurants-Opportunities for Energy Efficiency 5.167
- Leslie D. Owashi**
Lighting Hours of Operation: Building Type versus Space Use Characteristics for the Commercials actor 8.157
- Michael Ozog**
How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin 2.127
- Evaluation of the PG&E Ceiling Insulation Rebate Program: An Application of the California Evaluation Protocols 2.157
- Larry Palmiter**
Measured Efficiency of Forced-Air Distribution Systems in 24 Homes 3.177
- Infiltration and Ventilation Measurements on Three Electrically-Heated Multifamily Buildings 5.97

Eric Paquette	
Estimation of Net Savings for Rebate Programs: A Three-Option Nested Logit Approach	7.239
A Unified Approach to the Estimation of the Free Ridership and Spillover Components of Net Savings	8.163
Andrew P. Parece	
Measured Loading of Energy Efficient Motors: The Missing Link in Engineering Estimates of Savings	3.89
Kirtida Parikh	
Estimation of Net Savings for Rebate Programs: A Three-Option Nested Logit Approach	7.239
Danny S. Parker	
Solar Photovoltaic Air Conditioning of Residential Buildings	3.189
Measured Energy Savings of an Energy-Efficient Office Computer System	9.205
Jedd L. Parker	
Using Data Visualization to Better Understand Electric Load and End-Use Data	2.225
Linton Parker	
Commercial Building Code Development in Australia	6.67
Cynthia B. Parti	
Measuring New-Construction DSM Program Net Energy Savings: A <i>Type-Casting</i> Approach	7.189
Michael Parti	
Measuring New-Construction DSM Program Net Energy Savings: A <i>Type-Casting</i> Approach	7.189
Christopher Payne	
Evaluation of Commercial Lighting Programs: A DEEP Assessment	8.235
Jim Perich-Anderson	
How Well Is Our Energy Code Working? An Evaluation of the Tacoma, Washington Model Conservation Program	6.149
Matei Perussi	
Innovativeness, Predisposition, and Free-ridership	1.201
Jane S. Peters	
Innovativeness, Predisposition, and Free-ridership	1.201
An Assessment of the Decision-Making Process Within the Industrial Sector	8.187
The Free Market and Freeriders: Freeridership in DSM Bidding Programs	10.221
James Peterson	
Characterization of Energy Conservation Measure End-Use Cross-Effects	2.175
Janice C. Peterson	
A Commissioning Cost-Effectiveness Case Study	5.201
Mary Ann Piette	
Over the Energy Edge: Results from a Seven Year New Commercial Buildings Research and Demonstration Project	9.243
Scott K. Pigg	
Critical Thinking and Program Evaluation	7.159
Chris Pinkowski	
Energy Savings from an Active Daylighting Retrofit and Impact on Building Practices	3.217
Melissa Piper	
Finding Methods to Estimate Social Benefits of Low-Income Energy Efficiency Programs	1.119
Diane Pirkey	
Strategies for Improving the Market for Energy-Efficient Technologies	9.251
John Plunket	
DSM's Best Kept Secret: The Process, Outcome, and Future of the Pepto-Maryland Collaborative	10.199
Ralf Pohlmann	
The Triple-E House - Energy Efficient, Economical, and Ecological	9.51
Edward C. Pope	
Awash in Energy Efficiency: Overcoming Barriers to Market Penetration of Horizontal Axis Clothes Washing Machines	3.199

- Andrew Popelka**
 IRP Applied to District Heating in Eastern Europe 4.15
 Cost-Effective Energy Efficiency in the Czech Republic 4.241
- Ian Porter**
 Commercial Building Code Development in Australia 6.67
- Hale Powell**
 Measured Performance of Thermal Storage Systems: One Utility's Experience 8.115
- Ralph Prael**
 DSM Resource Acquisition and Market Transformation: Two Inconsistent Policy Objectives? 6.157
- R.G. Pratt**
 Potential for Feeder Equipment Upgrade Deferrals in a Distributed Utility 2.229
- Kenneth Prevatte**
 Field Measurement of Load Availability and Load Control Switch Effectiveness in a Residential AC Cycling Pilot 9.41
- David C. Price**
 Domestic Hot Water Loads, System Sizing and Selection for Multifamily Buildings 2.105
- John P. Proctor**
 Large Scale Residential Refrigerator Field Metering 2.77
- Curt D. Puckett**
 An Approach to the Establishment of Load Research Metering to Support the Design and Evaluation of Natural Gas DSM Programs 2.167
- Nicolas Puga**
 Field Measurement and Evaluation of Indirect-DX Air-Conditioning Systems 3.205
- Dan C. Quigley**
 Large Scale Residential Refrigerator Field Metering 2.77
- Kathleen Radke**
 Automating the Commissioning Process—Information Management in Building Design Through Occupancy 5.193
- L. Rainer**
 A New Approach to Estimate Commercial Sector End-Use Load Shapes and Energy Use Intensities 2.1
- Sam Rashkin**
 Bridging the Gap Between Research and Market Acceptance: One State Agency's Commercialization Program 6.167
- Agami Reddy**
 Identifying and Implementing Improved Operation and Maintenance Measures in Texas LoanSTAR Buildings 5.153
- Robert Y. Redlinger**
 Integrated Water, Wastewater, and Energy Conservation: Enhanced Benefits Through Multi-Resource Planning 7.197
- John Reed**
 Energy Savings from an Active Daylighting Retrofit and Impact on Building Practices 3.217
- George Reeves**
 Energy Savings in Residential Multifamily Buildings—Demonstration Project in Kraków, Poland 4.81
 Energy Price Incentives in a Planned Energy Economy 4.289
- Howard S. Reichmuth**
 Case Study in Building Commissioning and Savings Verification Applied to a 311,000 ft² Office Tower Retrofit 5.209
- Carl H. Remley**
 Measured Performance of Variable Speed Drives on Injection Molding Machinery 2.87
- Rick Ridge**
 A Model of Appliance Efficiency Choice Using Stated and Revealed Preference Data 7.1
- Anthony F. Riordan, Jr.**
 Performance Contracting for Low Income Conservation 6.175
- John Rivera**
 Strategies for Improving the Market for Energy-Efficient Technologies 9.251

Michael R. Roberts Miscellaneous Residential Electrical End Uses: U.S. Historical Growth and Regional Differences	7.179	Walter Rossiter, Jr. Laboratory Accreditation for Testing Energy Efficient Lighting	3.77
Chris Robertson HVAC Synergy: Engineering Performance Studies of Chiller Refrigerant Conversion Strategies	9.283	Francis M. Rubinstein A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings	3.117
Mickey Rockwell The Conservation Potential of Lifestyle Changes	1.153	Armin Rudd Measured and Predicted Energy Savings from an Industrialized House	5.225
Ingrid Rohmund U.S. Electricity Forecast: Results and Decomposition	7.205	Ilze Rukis Technical and Economic Potential - A New Method	7.223
 DSM Technology Forecasting: Market Transformation and the Dynamic Baseline . . .	10.155	Ron Runkles Laboratory Accreditation for Testing Energy Efficient Lighting	3.77
Joseph J. Romm Greening the Building and the Bottom Line: Increasing Productivity Through Energy- Efficient Design	9.259	Jack Russ Integrated Resource Planning in 2004?	10.163
Matthew F. Rose The Conservation Potential of Lifestyle Changes	1.153	Nancy E. Ryan End Use Load Data Transferability: A Report from the Frontier	2.57
Robert J. Rose A Novel Method for Resetting Duct Static Pressure for Variable Air Volume Systems	5.219	Michael W. Sachi Lighting Code Compliance in New Small Commercial Construction in Minnesota	6.59
Mitchell Rosenberg The Detroit Edison Low-Income Customer Service Program: Effective Methods to Reduce High Non-Heating Electric Use	1.159	Beth Sachs Models of Public and Private Investment in Energy Efficiency for Low-Income Housing	6.39
 Is Market Transformation Happening Right Under Our Eyes?	1.185	Cheryl A. Samson American Multi-Family Conservation in Krakow	1.169
Art Rosenfeld Consumer Non-Energy Benefits as a Motivation for Making Energy-Efficiency Improvements	4.201	Ronald D. Sands Analysis of U.S. Commercial Building Energy Use Trends, 1972-1991	7.35
Marc Ross Using the Long-Term Industrial Energy Forecasting (LIEF) Model to Assess Core Industrial DSM Potential for Southern California Gas Company	7.147	Alan H. Sanstad Consumer Rationality and Energy Efficiency	1.175
		Dale Sartor The U.S. Department of Energy's In-House Energy Management Program: Meeting the Challenges of Federal Energy Management . .	9.129

- Sharon Scheckel**
Demand-Side Management Strategies for Commercial and Industrial Refrigeration 10.93
- Dean A. Schiffman**
A *Monte Carlo* Based Comparison of Techniques for Measuring the Energy Impacts of Demand-Side Management Programs 7.213

Lighting Hours of Operation: Building Type versus Space Use Characteristics for the Commercial Sector 8.157
- Steven R. Schiller**
Design and Implementation of PG&E's DSM Pilot Bidding Program 10.249
- Lee Schipper**
Expanding the Human Dimensions Research Agenda 1.85

OECD Household Energy Use Efficiency After the Oil-Price Crash: End of an Era? . . . 4.215
- Jeff Schlegel**
DSM Resource Acquisition and Market Transformation: Two Inconsistent Policy Objectives? 6.157
- John R. Schmelzer**
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building 2.137
- Derek W. Schrock**
Developing Energy and Environmental Reporting Protocols 4.231
- Marc A. Schuldt**
Persistence of Savings in New Multifamily Buildings 6.185
- Donald K. Schultz**
Recent Program Evaluations: Implications for Long-Run Planning 7.23
- Jeremy M. Schutte**
The Treatment of Outliers and Influential Observations in Regression-Based Impact Evaluation 8.171
- Fred Sebold**
DSM Potential Studies and Innovative Long-Range DSM Planning 10.85
- Tom Secrest**
IRP Applied to District Heating in Eastern Europe 4.15

Cost-Effective Energy Efficiency in the Czech Republic 4.241
- Michael Sedmak**
Building Reliable DSM Resources with Program Evaluation 8.177

Integrated Impact and Market Evaluation of Multiple Residential Programs at Florida Power and Light 8.225
- Kenneth Seiden**
Impact of DSM on U.S. Electrical Usage, 1990 -2000 : An Update 7.65
- Stephen E. Selkowitz**
A Comprehensive Approach to Integrated Envelope and Lighting Systems for New Commercial Buildings 3.117
- Peggy E. Seratt**
An Assessment of the Decision-Making Process Within the Industrial Sector 8.187
- A. Osman Sezgen**
Lighting/HVAC Interactions and Their Effects on Annual and Peak HVAC Requirements in Commercial Buildings 3.229
- Diana L. Shankle**
Building Technology Transfer Meetings: A Collaborative Model for Transferring DOE Research Results to Potential Users 9.269
- Steve A. Shankle**
Cost-Effective Energy Efficiency in the Czech Republic 4.241

Life-Cycle Assessments: Linking Energy, Economics, and the Environment 4.253
- Terry R. Sharp**
Non-Intrusive Load Monitoring Systems: Considerations for Use and Potential Applications 2.241
- Peter Shatrawka**
Customer Response to Real-Time Pricing in Great Britain 2.195

Claudia Sheinbaum			
OECD Household Energy Use Efficiency			
After the Oil-Price Crash: End of an Era? . . .	4.215		
Bo Shen			
Energy Efficiency and Renewable Energy			
Options for China's Economic Expansion . . .	4.25		
David F. Shipley			
Technical and Economic Potential - A New			
Method	7.223		
Leslie Shown			
Evaluation of Commercial Lighting			
Programs: A DEEP Assessment	8.235		
Andrew D. Sickels			
Lighting Hours of Operation: Building Type			
versus Space Use Characteristics for the			
Commercials actor	8.157		
Mark Siegal			
The Application of Survival Analysis to			
Demand-Side Management Evaluation	8.9		
Lisa A. Skumatz			
The Application of Survival Analysis to			
Demand-Side Management Evaluation	8.9		
Effective ECM and Equipment Lifetimes in			
Commercial Buildings: Calculation and			
Analysis	8.193		
Matthew I. Slavin			
Awash in Energy Efficiency: Overcoming			
Barriers to Market Penetration of Horizontal			
Axis Clothes Washing Machines	3.199		
Ivo Slavotínek			
Prospects for Using Non-traditional Methods			
to Finance Energy Efficiency Projects in the			
Czech Republic	4.57		
Bruce Smith			
Building Reliable DSM Resources with			
Program Evaluation	8.177		
Loretta A. Smith			
Office Equipment Energy Efficiency: Taking			
the Next Few Bytes	3.241		
Energy Conservation in Multifamily			
Housing: Review and Recommendations for			
Retrofit Programs	10.21		
Connie Smyser			
The Future of Integrated Resource Planning			
in Competitive Energy Markets	6.191		
Barry D. Solomon			
Developing Energy and Environmental			
Reporting Protocols	4.231		
Richard Sonnenblick			
Uncertainty in Site Inspection and Tracking			
Database Estimates of Savings	8.205		
Evaluation of Commercial Lighting			
Programs: A DEEP Assessment	8.235		
Angela Sorrentino			
Market Research-The Essential First Step to			
Market Transformation	10.211		
Proving Causality in Market Transformation			
Programs: Issues and Alternatives	10.259		
Scott D. Sparks			
Producing More with Less: Evaluating the			
Impact of a T&D Agricultural DSM			
Program.	2.249		
Anne Sprunt-Crawley			
Greening the White House: A Comprehensive			
Energy and Environmental Retrofit	9.35		
Walt Stamper			
Capturing Lost Opportunity in the High-Tech			
Building Market Through Commissioning . .	5.267		
Dale R. Stanton-Hoyle			
Commissioning Through Digital Controls and			
an Advanced Monitoring System - A <i>Project</i>			
<i>Perspective</i>	5.237		
Debra L. Steckel			
The Chilling Truth About Appliance			
Recycling Programs	4.259		
Jay Stein			
HVAC Synergy: Engineering Performance			
Studies of Chiller Refrigerant Conversion			
Strategies	9.283		
Charles Stephens			
A National Residential and Small Commercial			
High Efficiency Lighting Initiative	10.61		

- Elias Stergakos**
Super Efficient Refrigerators: The Golden Carrot® from Concept to Reality 3.67
- Elia M. Sterling**
Design and Development of an Energy Efficient Livable Office Building 9.277
- Franklin D. Stern**
Calculating the Uncertainty of Building Simulation Estimates 7.233
- Lynn Stiles**
Sealing Crawl Space Exterior Walls and Soil Floor to Save Energy and Reduce Moisture of Floor Joists 9.109
- Michael R. Stiles**
Refrigerator Monitoring System Development and Field Testing Results 2.205

Daylighting Commercial and Educational Rooms to 750 Lux with Stationary Projecting Reflector Arrays (SPRA): A Simulation 3.251
- Robert W. Stolarski**
An Assessment of the Decision-Making Process Within the Industrial Sector 8.187
- John L. Stoops**
Lighting Retrofit Monitoring for the Federal Sector - Strategies and Results at the DOE Forrestal Building 2.137

Developing Energy and Environmental Reporting Protocols 4.231
- Lorna Stucky**
Producing More with Less: Evaluating the Impact of a T&D Agricultural DSM Program 2.249
- Kris Subbarao**
Short-Term Energy Monitoring for Commercial Buildings 5.1
- Michael J. Sullivan**
Can Dispatchable Pricing Options Be Used to Delay Distribution Investments? Some Empirical Evidence 2.67
- Sam Swanson**
David and the Goliaths: How a Small Environmental Group Helps Reform Electric-Utility Regulation 10.107
- Thomas J. Sweeney**
Voluntary Time-of-Use Rates Induced Load Shifting and Peak Load Reduction 2.21
- Joel N. Swisher**
Barriers and Incentives for Utility Energy Efficiency Programs in Deregulated Markets 6.201
- Richard F. Szydlowski**
Energy Consumption of Personal Computer Workstations 2.257

Energy Savings in Residential Multifamily Buildings—Demonstration Project in Kraków, Poland 4.81
- Z. T. Taylor**
Potential for Feeder Equipment Upgrade Deferrals in a Distributed Utility 2.229
- Rick Tempchin**
Regulation Versus Competition: Which Leads to the Most Energy Efficiency? 6.213
- Mark P. Terries**
Are Heating-System Retrofit and Tune-Up Programs Really Increasing the Efficiency of Oil-Fired Systems 5.143
- Mark E. Thompson**
PGE Drive Power Program Evaluation: The Accuracy of Customer-Provided Operating Hours and Motor Loading Assumptions 8.215
- Kenneth H. Tiedemann**
Incentives and Fuel Switching in Multifamily Residential Construction 10.229
- Ken Tohinaka**
New Smart Protocols to Avoid Lost Opportunities and Maximize Impact of Residential Retrofit Programs 9.147
- Elizabeth M. Tolkin**
Acceptance of Customer Contributions for DSM Among Small Commercial/Industrial Companies 10.235

John J. Tooley Jr.			
Powered Attic Ventilators, Another Applied Building Science Nightmare and Treasure Trove	5.233		
Robert Torbin			
Retrofitting Natural Gas Service into Existing Multifamily Buildings	3.263		
Kenneth Train			
Modeling Technology Adoption and DSM Program Participation Decisions	1.9		
A Model of Appliance Efficiency Choice Using Stated and Revealed Preference Data	7.1		
Estimation of Net Savings for Rebate Programs: A Three-Option Nested Logit Approach	7.239		
A Unified Approach to the Estimation of the Free Ridership and Spillover Components of Net Savings	8.163		
Burke Treidler			
Peak Demand Impacts of Residential Air-Conditioning Conservation Measures	7.249		
Bruce N. True			
Incentives and Standard to Promote Economic and Energy Efficiency	6.221		
Paul C. Tseng			
Commissioning Through Digital Controls and an Advanced Monitoring System - A Project Perspective	5.237		
Stephen J. Turchen			
Minimum Cost Model Energy Code Envelope Requirements	6.49		
Robert Uhlener			
Building Reliable DSM Resources with Program Evaluation	8.177		
Integrated Impact and Market Evaluation of Multiple Residential Programs at Florida Power and Light	8.225		
Tony J. Usibelli			
The Washington State Non-Residential Energy Code: A New Model Process for Code Development	6.139		
Dave Vanderhoff			
The Reality: Externality Requirements Do Little for DAM	4.87		
Steven Van Horsen			
Integrated Water, Wastewater, and Energy Conservation: Enhanced Benefits Through Multi-Resource Planning	7.197		
David D. Vavricka			
Lighting Code Compliance in New Small Commercial Construction in Minnesota	6.59		
Georgia Villafior			
Measuring New-Construction DSM Program Net Energy Savings: A <i>Type-Casting</i> Approach	7.189		
Edward L. Vine			
Developing Energy and Environmental Reporting Protocols	4.231		
Evaluation of Commercial Lighting Programs: A DEEP Assessment	8.235		
Daniel M. Violette			
Addressing Uncertainty and the Value of Flexibility in the Second Generation of IRP	6.231		
The Treatment of Outliers and Influential Observations in Regression-Based Impact Evaluation	8.171		
William VonNeida			
A National Residential and Small Commercial High Efficiency Lighting Initiative	10.61		
Rebecca Vories			
Is Market Transformation Happening Right Under Our Eyes?	1.185		
Bruce J. Wall			
CFCs in Foam Insulation: The Recovery Experience	4.269		
Glen Wallace			
Capturing Lost Opportunity in the High-Tech Building Market Through Commissioning	5.267		
Dan Wallen			
How Much Load Relief? From Which Households? Engineering Residential Direct Load Control in Wisconsin	2.127		

- Janet Walrod**
Evaluating the Risks and Returns of the Resource Portfolio Using the Investment Theories of Portfolio Planning 7.259
- Young-Doo Wang**
Utility Sponsored Low-Income Weatherization as a DSM Option 6,29
- Kellogg L. Warner**
Delivering DSM to the Small Commercial Market: A Report from the Field on What Works and Why 10.241
- W. Michael Warwick**
Will Retail Competition “Kill” IRP and DSM? 6.241

Cleaning Up: An Efficient Approach for Estimating Showerhead Savings 8.89
- William W. Washburn**
Design and Implementation of PG&E’s DSM Pilot Bidding Program 10.249
- Stuart S. Waterbury**
Short-Term Measurements to Support Impact Evaluation of Commercial Lighting Programs 5.114

Commercial Building Performance Evaluation System for HVAC Diagnostics and Commissioning 5.249
- Roberta M. Watson**
A Cooperative Approach to Resource Conservation in Public Schools 4.277
- Robin E. Way, Jr.**
An Assessment of the Decision-Making Process Within the Industrial Sector 8.187
- Bob Wayne**
HVAC Synergy: Engineering Performance Studies of Chiller Refrigerant Conversion Strategies 9.283
- Edward M. Weaver**
Dispatch from the Gas War Front: Issues in Calculating Fuel-Switching Cost-Effectiveness 8.71

Appropriate Treatment of Free Riders in Impact Evaluations: What Is a Free Rider Anyway ? 8.247
- Richard O. Weijs**
Acquiring T&D Benefits from DSM: A Utility Case Study 2.269
- Brian A. Weiner**
Moving a Residential Saturation Retrofit Program from Low-Income to Higher-Income Neighborhoods 1.145
- Glen E. Weisbrod**
Modeling Technology Adoption and DSM Program Participation Decisions 1.9

Household Appliance Replacement Program - Impact and Tradeoffs 8.1

Beyond Bill History: Evaluating Commercial Sector Energy Impacts Through a Multiple Approach Strategy 8.105

Separating DSM Program Impacts from Technology Trends: A Comparison of National and State Surveys of Manufacturers and Distributors 8.253
- Robert Westby**
Short-Term Energy Monitoring for Commercial Buildings 5.1

SAVEnergy Action Plans 9.221
- Greg Wheeler**
Performance of Energy Management Systems 5.257
- Stanley White**
Energy Savings from an Active Daylighting Retrofit and Impact on Building Practices 3.217
- Per Wickman**
Adjusting Airflow in Office Buildings According to Outdoor Temperature 5.133
- Stephen Wiel**
The Impact of Power Sector Restructuring on Building Energy Efficiency: The Roles of IRP and DAM 6.251
- Gregory A. Wikler**
Impact of DSM on U.S. Electrical Usage, 1990 -2000 : An Update 7.65

Garnering the Industrial Sector: A Comparison of Cutting Edge Industrial DSM Programs 10.123

Dan Wilcox	
Impact Evaluation Using Load Research Data	2.277
G. Michael Wilde	
Building Technology Transfer Meetings: A Collaborative Model for Transferring DOE Research Results to Potential Users	9.269
Harold Wilhite	
Market Signals Fall Short as Policy Instruments to Encourage Energy Savings in the Home	1.193
DSM and Deregulation: Experiences from Norway	6.101
Paul Williamson	
Capturing Lost Opportunity in the High-Tech Building Market Through Commissioning	5.267
Tom Wilson	
Energy Conservation in Multifamily Housing: Review and Recommendations for Retrofit Programs	10.21
Phillip A. Windell	
Innovativeness, Predisposition, and Freeridership	1.201
Robert M. Wirtshafter	
Incorporating DSM Uncertainty and Flexibility into Integrated Resource Planning	7.95
Market Research-The Essential First Step to Market Transformation	10.211
Proving Causality in Market Transformation Programs: Issues and Alternatives	10.259
Ross Wisnewski	
Energy Price Incentives in a Planned Energy Economy	4.289
William Withers	
Commissioning Through Digital Controls and an Advanced Monitoring System - A Project Perspective	5.237
Jack S. Wolpert	
Impacts of Performance Factors on Savings from Motor Replacement and New Motor Programs	2.117
HVAC Synergy: Engineering Performance Studies of Chiller Refrigerant Conversion Strategies	9.283
A. G. Wood	
Potential for Feeder Equipment Upgrade Deferrals in a Distributed Utility	2.229
Roger L. Wright	
Double Ratio Analysis: A New Tool for Cost-Effective Monitoring	8.263
Ronald G. Wroblewski	
Wisconsin's Performance Optimization Service: Utilities and Trade Allies Delivering a Service to Improve Industrial Motor-Driven System Performance	9.85
Steven Wu	
Regulation Versus Competition: Which Leads to the Most Energy Efficiency?	6.213
Xiaolin Xi	
Uncertainty Analysis of Life-Cycle Cost: Residential Electric Heat Pump Water Heaters	8.131
Rachel A. Yoder	
Cost-Effective Commissioning: Getting the Job Done Within Utility Guidelines	5.275
Dan W. York	
Utility Deregulation and Retail Wheeling: The Stakes for IRP and DAM	6.263
Allan A. Zebedee	
The Day the Engineers Were Right: Confirming the Peak Demand Reductions of FPC's Air Conditioner Duct Test and Repair Program	2.185
Jiri Zeman	
IRP Applied to District Heating in Eastern Europe	4.15
Zirka Zemen	
Cost-Effective Energy Efficiency in the Czech Republic	4.241

Subject Index

A

- accreditation** . . . 3.77, 9.85, 9.251, 10.61
- achievable potential** . . . 4.37, 7.55, 7.223
- acid rain**... 1.91, 4.1, 4.25, 4.37, 4.101, 4.113, 4.123, 4.137, 4.147, 4.231, 4.241, 9.65, 9.77, 9.213
- acquisition** . . . 1.1, 1.45, 1.75, 1.91, 2.31, 2.77, 2.167, 2.229, 2.241, 2.257, 3.97, 3.117, 3.151, 3.199, 3.205, 3.241, 4.15, 4.37, 4.49, 4.57, 4.65, 4.93, 4.101, 4.113, 4.123, 4.201, 4.215, 5.1, 5.25, 5.59, 5.167, 5.193, 5.201, 5.249, 5.267, 5.275, 6.91, 6.139, 6.157, 7.85, 7.113, 7.141, 7.169, 7.233, 8.37, 8.141, 8.193, 8.235, 9.17, 9.101, 9.129, 9.147, 9.159, 9.195, 9.205, 9.243, 10.107, 10.133, 10.163, 10.199, 10.221, 10.241
- ACT²**... 1.75, 3.19, 3.57, 5.37, 5.47, 5.193, 9.243
- action plan** . . . 6.1, 7.121, 9.221, 10.163
- agriculture**... 3.217, 4.25, 4.167, 4.201, 4.259, 5.37, 6.47, 7.147, 7.197, 7.205, 9.109, 9.221
- air balancing** . . . 5.237, 9.129
- air compressors** . . . 2.31, 4.113, 5.193, 10.35, 10.187
- air conditioners** . . . 1.59, 1.109, 1.133, 1.145, 1.153, 1.175, 1.185, 1.193, 1.201, 2.21, 2.77, 2.127, 2.157, 2.175, 2.241, 3.97, 3.103, 3.129, 3.141, 3.205, 4.71, 4.113, 4.201, 4.215, 4.253, 4.259, 4.269, 5.233, 6.67, 6.81, 6.157, 6.221, 7.1, 7.13, 7.23, 7.45, 7.55, 7.103, 7.131, 7.141, 7.233, 7.249, 8.1, 8.37, 8.77, 8.131, 8.151, 8.225, 8.247, 8.253, 9.35, 9.109, 9.175, 9.187, 9.227, 9.235, 10.115, 10.145, 10.187, 10.199, 10.211
- air conditioning** . . . 1.45, 1.59, 1.85, 1.109, 1.133, 1.159, 1.185, 1.193, 1.201, 2.21, 2.57, 2.67, 2.77, 2.95, 2.117, 2.127, 2.157, 2.185, 2.241, 2.277, 3.9, 3.29, 3.141, 3.165, 3.189, 3.205, 3.241, 3.251, 3.263, 4.57, 4.71, 4.137, 4.155, 4.215, 4.231, 4.241, 4.269, 5.25, 5.59, 5.73, 5.113, 5.123, 5.153, 5.167, 5.175, 5.193, 5.209, 5.233, 5.237, 5.275, 6.47, 6.59, 6.67, 6.139, 6.167, 6.223, 7.13, 7.23, 7.35, 7.45, 7.189, 7.205, 7.213, 7.233, 7.249, 8.1, 8.29, 8.49, 8.105, 8.115, 8.123, 8.151, 8.171, 8.253, 9.11, 9.17, 9.35, 9.41, 9.65, 9.109, 9.147, 9.175, 9.187, 9.213, 9.251, 9.259, 9.277, 9.283, 10.21, 10.85, 10.93, 10.163, 10.187, 10.199, 10.249
- air distribution** . . . 3.29, 3.117, 3.177, 5.47, 5.105, 5.123, 5.133, 5.181, 5.193, 5.219, 5.225, 5.237, 5.249, 5.267, 6.47, 8.115, 9.17, 9.29, 9.109, 9.129, 9.195, 9.277, 9.283, 10.35
- air handling units** . . . 3.29, 5.47, 5.73, 5.123, 5.153, 5.181, 5.267, 5.275, 9.11
- air infiltration** . . . 1.85, 1.169, 3.9, 4.81, 5.167, 5.225, 6.19, 9.119, 9.257, 10.181, 10.199
- air leakage control** . . . 6.19, 9.147
- air pollution** . . . 1.91, 1.133, 1.169, 2.229, 4.25, 4.37, 4.49, 4.81, 4.101, 4.123, 4.185, 4.201, 4.215, 4.241, 4.289, 5.25, 5.133, 6.81, 6.101, 6.221, 9.77, 9.259, 9.277, 10.107
- air quality (see indoor air quality)** . . . 1.119, 1.133, 2.145, 2.229, 3.177, 4.1, 4.15, 4.25, 4.49, 4.81, 4.101, 4.137, 4.155, 4.177, 4.201, 4.241, 4.289, 5.25, 5.47, 5.73, 5.97, 5.123, 5.133, 5.175, 5.181, 5.193, 5.237, 6.1, 6.29, 6.81, 6.127, 6.149, 6.185, 7.73, 8.97, 9.11, 9.35, 9.51, 9.77, 9.121, 9.147, 9.213, 9.259, 9.277, 10.21, 10.35, 10.133
- air sealing** . . . 3.177, 4.177, 9.147, 10.21, 10.181, 10.187, 10.199
- airtightness**... 5.123, 9.51
- alternative cooling** . . . 1.59, 8.115
- analysis method** . . . 1.9, 2.105, 2.117, 3.9, 3.159, 4.241, 5.1, 7.13, 7.45, 7.179, 7.189, 7.213, 7.239, 8.15, 8.193, 8.253, 9.159
- appliance efficiency standards** . . . 10.163
- appliance saturations** . . . 1.45, 7.179
- appliances** . . . 1.19, 1.37, 1.91, 1.109, 1.133, 1.153, 1.175, 1.185, 1.193, 2.21, 2.57, 2.67, 2.105, 2.127, 2.145, 2.167, 2.185, 2.205, 2.211, 2.217, 2.241, 3.9, 3.41, 3.57, 3.67, 3.129, 3.141, 3.177, 3.189, 3.199, 3.217, 3.241, 3.263, 4.1, 4.49, 4.71, 4.113, 4.167, 4.185, 4.201, 4.215, 4.231, 4.241, 4.253, 4.259, 4.269, 5.167, 5.225, 6.11, 6.29, 6.81, 6.91, 6.101, 6.111, 6.127, 6.149, 6.157, 6.185, 6.191, 6.201, 6.213, 6.241, 6.251, 7.1, 7.13, 7.23, 7.35, 7.45, 7.55, 7.73, 7.103, 7.121, 7.141, 7.179, 7.205, 8.1, 8.37, 8.77, 8.131, 8.141, 8.151, 9.35, 9.51, 9.129, 9.205, 9.213, 9.227, 9.251, 9.269, 9.283, 10.21, 10.115, 10.181, 10.187, 10.259
- architecture**... 1.133, 3.117, 3.241, 4.71, 4.155, 5.193, 5.237, 5.257, 9.51, 9.213, 9.259, 9.277, 10.123, 10.249
- ASEAM**... 9.159
- attics** . . . 4.177, 5.233, 6.47, 9.147, 10.241
- attitudes** . . . 1.1, 1.45, 1.85, 1.91, 1.145, 1.159, 1.185, 1.193, 1.201, 2.21, 2.67, 2.127, 3.67, 3.97, 4.49, 4.167, 4.177, 4.185, 5.25, 6.91, 6.157, 8.29, 9.77, 10.41, 10.115, 10.145, 10.173, 10.211, 10.259
- audits (see energy audits)** . . . 1.1, 1.27, 1.101, 1.185, 1.193, 2.312.95, 2.105, 2.127, 2.175, 2.205, 2.249, 3.1, 3.77, 3.151, 4.65, 4.113, 4.167, 5.73, 5.105, 5.123, 5.153, 5.167, 5.175, 6.11, 6.29, 6.149, 6.185, 7.233, 8.1, 8.97, 8.105, 8.141, 8.151, 8.177, 8.193, 8.235, 9.35, 9.129, 9.159, 9.221, 9.243, 9.269, 10.11, 10.21, 10.93, 10.123, 10.145, 10.199, 10.211

B

- bake-out...** 9.11
- balancing . . .** 1.91, 1.175, 2.31, 3.151.4.25, 4.37, 4.231, 4.241, 5.47, 5.89, 5.193, 5.237, 6.149, 8.77, 9.129, 9.187, 9.277, 10.21, 10.107, 10.249
- ballasts . . .** 2.31, 2.137, 2.145, 3.1, 3.45, 3.57, 3.117, 3.141, 3.151, 3.217, 3.229, 4.113, 4.177, 4.193, 4.201, 4.269, 5.47, 5.73, 5.181, 5.201, 6.59, 6.139, 6.157, 6.167, 6.221, 6.231, 7.103, 7.141, 8.37, 8.131, 8.193, 8.205, 8.235, 8.247, 8.253, 9.29, 9.35, 9.129, 9.159, 9.187, 9.227, 9.259, 9.269, 10.49, 10.61, 10.71, 10.85, 10.93, 10.155, 10.187, 10.221, 10.241
- barriers to adoption...** 1.91, 9.165, 10.173
- baseline...** 1.1, 1.9, 1.75, 1.91, 1.185, 2.21, 2.95, 2.117, 2.137, 2.145, 2.167, 2.175, 2.257, 2.269, 3.41, 3.57, 3.67, 3.129, 3.151, 3.217, 4.1, 4.15, 4.81, 4.101, 4.113, 4.123, 4.155, 4.201, 4.231, 4.241, 4.253, 4.269, 4.277, 4.289, 5.13, 5.25, 5.47, 5.73, 5.89, 5.105, 5.123, 5.153, 5.175, 5.181, 5.201, 5.209, 5.267, 5.275, 6.1, 6.111, 6.127, 6.157, 6.167, 6.185, 6.231, 7.23, 7.55, 7.65, 7.95, 7.103, 7.159, 7.179, 7.197, 7.233, 8.1, 8.29, 8.37, 8.97, 8.123, 8.131, 8.141, 8.225, 8.247, 8.253, 8.263, 9.101, 9.129, 9.159, 9.187, 9.213, 9.235, 9.243, 9.283, 10.41, 10.85, 10.93, 10.123, 10.155, 10.211, 10.229, 10.249, 10.259
- baseline forecast...** 7.65, 10.259
- basements...** 1.109, 1.193, 2.11, 3.177, 4.15, 4.177, 4.241, 6.47
- bidding...** 1.19, 1.109, 4.87, 4.177, 5.25, 5.275, 6.175, 6.191, 6.201, 6.231, 6.251, 8.89, 9.129, 9.147, 9.269, 10.21, 10.49, 10.123, 10.141, 10.145, 10.163, 10.181, 10.187, 10.221, 10.249
- bill payment behavior...** 1.159
- billing information...** 1.193, 2.11, 2.167, 4.277, 6.101, 7.13, 8.151, 9.35, 9.221
- blower door...** 3.177, 4.113, 5.1, 5.97, 5.225, 5.233, 6.19, 6.29, 8.151, 9.51, 9.109, 9.147, 9.195, 9.269, 10.187
- boilers . . .** 1.27, 2.105, 3.9, 3.129, 3.141, 3.263, 4.15, 4.25, 4.37, 4.113, 4.201, 4.241, 4.277, 5.143, 5.181, 5.209, 6.67, 6.81, 9.93, 9.259, 10.21
- building codes (see residential, commercial, or industrial) . . .** 1.75, 1.109, 1.133, 4.71, 4.113, 5.25, 5.113, 5.123, 5.193, 6.47, 6.139, 6.157, 7.55, 9.51, 9.109, 9.165, 9.251, 10.133, 10.187
- building commissioning...** 2.11, 2.241, 5.1, 5.25, 5.47, 5.73, 5.89, 5.175, 5.181, 5.193, 5.201, 5.209, 5.267, 5.275, 8.37, 8.97, 8.141
- building design . . .** 1.59, 1.75, 1.109, 1.169, 2.51, 2.241, 3.117, 4.113, 5.1, 5.25, 5.47, 5.193, 5.267, 6.139, 9.29, 9.51, 9.77, 9.205, 9.259, 9.277, 10.199
- building envelopes . . .** 3.109, 5.97, 5.225, 6.139
- building performance...** 1.109, 2.137, 2.175, 2.241, 3.117, 5.13, 5.25, 5.47, 5.59, 5.89, 5.105, 5.113, 5.181, 5.201, 5.209, 5.249, 7.233, 9.187, 9.277
- building permits...** 3.57, 5.25, 6.47, 6.59, 6.149
- buildings (see existing or new buildings) . . .**

C

- calibrated simulation . . .** 2.167, 5.1, 6.185
- calibrated simulation model . . .** 2.167, 5.1
- capital deferral . . .** 2.269
- carbon dioxide (CO₂)...** 1.27, 1.37, 1.109, 4.25, 4.49, 4.87, 4.93, 4.101, 4.123, 4.147, 4.167, 4.201, 4.215, 4.231, 4.253, 5.133, 5.143, 5.237, 6.1, 6.29, 6.59, 7.197, 8.97, 9.51, 9.65, 9.129, 10.21
- carbon dioxide (CO₂) emissions . . .** 1.37, 4.49, 4.93, 4.101, 4.185, 4.225, 4.231, 4.253, 6.1, 6.29, 6.59, 9.65
- CFC-11...** 3.41, 3.165, 4.65, 4.259, 9.283
- chillers . . .** 1.133, 2.11, 2.241, 3.29, 3.97, 3.141, 3.151, 3.165, 4.259, 5.47, 5.105, 5.123, 5.153, 5.181, 5.193, 5.209, 5.249, 5.267, 5.275, 6.67, 6.213, 7.73, 7.131, 8.115, 9.17, 9.35, 9.101, 9.129, 9.227, 9.259, 9.283, 10.85, 10.187, 10.199
- China...** 3.41, 4.25, 4.37, 4.147, 6.101
- chlorofluorocarbons (CFC)...** 1.45, 1.109, 1.133, 3.41, 3.67, 3.165, 4.65, 4.193, 4.253, 4.259, 4.269, 5.175, 5.181, 6.91, 9.35, 9.129, 9.187, 9.227, 9.251, 9.283, 10.21, 10.93
- choice analysis . . .** 1.9, 1.175, 7.1, 7.131, 7.189, 7.239, 10.156
- clean air act amendments (CAAA)...** 2.43, 4.1, 4.101, 4.113, 4.231, 4.259, 6.191, 8.177
- climate change...** 1.85, 1.91, 1.175, 1.193, 3.41, 3.67, 4.1, 4.37, 4.49, 4.93, 4.147, 4.231, 4.259, 5.175, 6.1, 7.121, 8.97, 9.35, 10.21, 10.187
- climate change action plan...** 3.67, 4.231, 5.175, 8.97, 9.35, 10.21, 10.187
- clothes dryers . . .** 3.199, 4.215, 7.45, 7.55, 7.103, 7.179, 10.187
- clothes washers . . .** 2.57, 2.211, 3.57, 3.199, 4.71, 4.113, 4.201, 4.215, 6.91, 7.13, 7.45, 7.55, 7.103, 7.179, 8.37, 8.71, 8.131, 10.187
- co-pay merit...** 4.193, 9.93
- coatings . . .** 3.117, 4.201, 5.59, 8.193, 9.65, 9.121
- code compliance...** 2.269, 4.277, 6.59, 6.139, 6.149, 8.123, 9.243
- code development...** 6.67, 6.139, 6.185
- code enforcement...** 6.139, 6.149, 9.269

- code implementation** . . . 6.59, 6.139, 6.185, 9.165
- code simplification** . . . 6.149
- coefficient-of performance (COP)** . . . 2.11, 2.77, 2.205, 3.19, 3.177, 3.189, 3.229, 5.1, 5.47, 5.59, 5.123, 5.153, 5.181, 7.249, 8.123, 9.17, 9.235, 10.187
- cogeneration**... 1.101, 2.51, 3.97, 3.141, 3.229, 4.15, 4.25, 4.123, 6.1, 6.81, 6.167, 6.191, 6.201, 8.77, 9.121, 9.159, 9.235, 9.259, 10.155
- collaboration** . . . 1.119, 3.1, 3.117, 4.93, 4.167, 4.277, 5.25, 5.113, 5.249, 6.11, 6.157, 7.197, 8.37, 8.77, 9.129, 9.165, 9.269, 10.141, 10.163, 10.199
- collaborative**... 1.85, 1.101, 1.133, 2.145, 2.195, 3.67, 3.117, 3.217, 4.71, 4.87, 4.93, 4.101, 4.277, 5.175, 6.29, 6.39, 6.111, 6.119, 6.167, 6.231, 7.73, 7.141, 7.197, 7.223, 8.19, 8.105, 8.141, 8.235, 9.17, 9.93, 9.101, 9.165, 9.251, 9.269, 10.21, 10.107, 10.141, 10.163, 10.199, 10.241, 10.249, 10.259
- collaborative planning** . . . 1.153, 10.141, 10.199
- comfort** . . . 1.9, 1.19, 1.59, 1.65, 1.85, 1.101, 1.109, 1.119, 1.133, 1.145, 1.159, 1.169, 1.175, 1.185, 1.193, 2.67, 2.127, 3.29, 3.67, 3.97, 3.117, 3.141, 3.159, 3.205, 4.57, 4.81, 4.93, 4.201, 4.215, 4.241, 4.289, 5.13, 5.47, 5.59, 5.73, 5.133, 5.153, 5.167, 5.193, 5.209, 5.219, 5.225, 5.233, 5.249, 5.267, 6.19, 6.29, 6.39, 6.67, 6.101, 6.127, 6.139, 6.149, 6.167, 6.213, 7.249, 8.29, 8.37, 8.105, 9.17, 9.29, 9.35, 9.51, 9.77, 9.159, 9.175, 9.213, 9.251, 9.259, 9.277, 9.283, 10.21, 10.123, 10.145, 10.241
- commercial appliances** . . . 3.129
- commercial building** . . . 1.75, 1.133, 2.1, 2.11, 2.31, 2.43, 2.105, 2.145, 2.175, 2.241, 2.257, 2.269, 3.9, 3.29, 3.103, 3.117, 3.141, 3.205, 3.229, 3.241, 3.263, 4.15, 4.57, 4.113, 4.177, 4.201, 4.231, 4.259, 5.1, 5.13, 5.47, 5.59, 5.73, 5.89, 5.105, 5.113, 5.123, 5.153, 5.175, 5.181, 5.201, 5.249, 5.257, 5.267, 5.275, 6.47, 6.59, 6.67, 6.139, 6.149, 6.167, 6.185, 6.201, 7.35, 7.65, 7.121, 7.147, 7.205, 7.213, 8.9, 8.37, 8.105, 8.115, 8.157, 8.193, 9.29, 9.77, 9.137, 9.147, 9.187, 9.205, 9.243, 9.251, 9.269, 9.277, 9.283, 10.21, 10.145, 10.155, 10.163, 10.181
- commercial programs**... 2.167, 4.113, 5.89, 5.267, 6.111, 7.23, 7.65, 7.141, 8.141, 10.241
- commercialization** . . . 2.43, 3.1, 3.67, 3.141, 3.189, 4.269, 6.91, 6.167, 6.251, 8.37, 9.251, 9.269, 10.71, 10.93, 10.187, 10.211
- commissioning** . . . 2.11, 2.87, 2.105, 2.241, 3.57, 5.1, 5.13, 5.25, 5.37, 5.47, 5.73, 5.89, 5.133, 5.153, 5.175, 5.181, 5.193, 5.201, 5.209, 5.237, 5.249, 5.267, 5.275, 6.127, 8.37, 8.97, 8.115, 8.141, 9.129, 9.159, 9.187, 9.243, 9.277, 10.41, 10.199
- compact fluorescent** . . . 1.1, 1.91, 1.133, 1.159, 1.185, 1.201, 3.1, 3.45, 3.77, 4.1, 4.37, 4.71, 4.93, 4.113, 4.137, 4.185, 4.215, 4.253, 4.269, 5.47, 5.167, 5.201, 6.29, 6.59, 6.91, 6.157, 6.221, 6.231, 7.23, 7.73, 8.1, 8.9, 8.37, 8.141, 8.151, 8.193, 8.235, 9.29, 9.93, 9.129, 9.147, 9.187, 9.227, 9.269, 10.41, 10.61, 10.71, 10.77, 10.115, 10.187, 10.199, 10.211, 10.235, 10.259
- competition** . . . 1.37, 1.53, 1.75, 1.85, 1.109, 1.133, 2.51, 2.195, 3.67, 3.97, 3.159, 3.199, 4.15, 4.37, 4.57, 4.101, 4.185, 4.215, 4.277, 5.25, 5.37, 6.81, 6.91, 6.101, 6.119, 6.127, 6.157, 6.175, 6.191, 6.201, 6.213, 6.221, 6.231, 6.241, 6.251, 6.263, 7.65, 7.85, 7.113, 7.141, 7.169, 7.205, 7.259, 8.37, 8.77, 8.97, 8.141, 9.35, 9.129, 9.165, 9.227, 9.243, 10.11, 10.49, 10.61, 10.71, 10.77, 10.85, 10.107, 10.141, 10.155, 10.163, 10.187, 10.221, 10.249, 10.259
- competitiveness** . . . 1.119, 1.133, 2.43, 2.229, 3.57, 4.1, 4.25, 4.49, 4.167, 4.201, 6.81, 6.167, 6.175, 6.191, 6.241, 7.259, 9.101, 10.1, 10.123, 10.163, 10.249
- compressors** . . . 1.85, 2.31, 2.211, 3.19, 3.41, 3.67, 3.89, 3.97, 3.103, 3.141, 3.165, 3.205, 4.71, 4.113, 5.47, 5.73, 5.193, 5.275, 7.55, 8.193, 9.17, 9.235, 10.35, 10.93, 10.123, 10.187, 10.199
- computer simulation** . . . 2.269, 5.37, 5.275, 6.139, 7.213, 8.123, 9.65, 9.251, 9.283
- computers** . . . 1.45, 1.109, 1.133, 1.153, 1.175, 2.31, 2.241, 2.257, 3.241, 5.47, 5.73, 5.153, 5.181, 5.193, 5.257, 6.91, 7.35, 7.95, 7.179, 8.37, 9.187, 9.205, 9.269, 10.77, 10.155, 10.187
- condensation** . . . 3.263, 4.81, 4.155, 4.201, 4.269, 5.233, 5.237, 9.51, 9.109, 9.251, 10.93
- condensers** . . . 3.41, 3.103, 3.165, 5.105, 10.93
- conditional demand** . . . 2.31, 2.57, 2.157, 2.217, 2.249, 7.13, 7.45, 7.179, 7.189, 7.213, 7.239, 8.157, 8.171, 9.41
- conditional demand analysis** . . . 2.31, 2.57, 2.157, 2.217, 2.249, 8.157
- conduction** . . . 3.29, 3.109, 3.177, 3.189, 5.1, 5.59, 5.105, 5.225, 7.249, 9.109, 9.195
- conservation potential** . . . 1.75, 1.153, 1.193, 2.257, 3.129, 3.151, 3.199, 5.153, 6.101, 6.111, 6.175, 7.55, 7.197, 7.223, 8.89, 10.21
- conservation program**... 1.1, 1.145, 2.117, 2.205, 2.249, 3.9, 4.113, 4.185, 4.231, 4.277, 4.289, 5.13, 5.153, 5.267, 6.1, 6.111, 6.149, 6.175, 7.189, 7.197, 8.49, 8.77, 8.89, 8.97, 8.105, 8.177, 8.187, 8.193, 9.221, 9.251, 10.21, 10.49, 10.133, 10.145, 10.187
- conservation savings** . . . 1.1, 2.205, 4.277, 8.89, 8.97
- consortia** . . . 1.109, 6.91, 9.251
- construction industry** . . . 1.75, 1.133, 5.225, 5.275, 6.139, 9.213
- consumer behavior**... 1.37, 1.175, 6.111, 6.221, 7.131, 8.131, 10.77, 10.133, 10.187, 10.199, 10.259
- consumer surplus** . . . 6.221, 7.73, 8.77
- consumption patterns** . . . 1.45, 1.59, 1.193, 2.21, 2.105, 2.157, 2.167, 2.211, 5.153, 5.175, 6.11, 6.185

contaminants . . . 4.201, 5.25, 9.11, 9.277

convection . . . 3.29, 3.57, 3.129, 4.49, 5.59, 5.133, 7.55, 9.51, 9.65, 9.121

cooking . . . 1.65, 1.193, 2.10, 2.167, 2.175, 3.9, 3.129, 3.189, 4.49, 4.201, 4.215, 5.167, 6.111, 7.35, 7.45, 7.55, 7.147, 7.213, 8.9, 8.193, 9.51, 9.243

cool storage . . . 2.43, 2.175, 3.19, 3.29, 5.123, 5.237, 10.199

cooling load . . . 2.95, 3.19, 3.29, 3.103, 3.177, 3.189, 3.205, 3.229, 5.1, 5.59, 5.123, 5.133, 5.181, 5.219, 7.45, 7.249, 8.115, 9.17, 9.27, 9.175, 9.187, 9.283, 10.199

cost-allocation . . . 9.93

cost-benefit analysis . . . 1.19, 1.37, 1.175, 3.229, 5.25, 6.47, 6.263, 9.93, 9.147, 10.93

cost-effectiveness . . . 1.37, 1.65, 1.75, 1.101, 1.119, 1.133, 1.159, 2.31, 2.87, 2.127, 2.145, 2.241, 2.257, 3.19, 3.117, 3.129, 3.151, 3.189, 3.199, 3.205, 3.217, 4.1, 4.15, 4.87, 4.93, 4.113, 4.123, 4.137, 4.193, 4.201, 4.231, 4.259, 4.269, 5.17, 5.25, 5.193, 5.201, 5.275, 6.19, 6.29, 6.47, 6.67, 6.119, 6.139, 6.157, 6.167, 6.175, 6.185, 6.191, 6.201, 6.231, 6.251, 6.263, 7.23, 7.55, 7.73, 7.95, 7.197, 8.1, 8.71, 8.77, 8.131, 8.141, 8.151, 8.193, 8.215, 8.225, 8.235, 8.247, 9.35, 9.77, 9.93, 9.129, 9.147, 9.187, 9.213, 9.227, 9.243, 9.283, 10.1, 10.11, 10.21, 10.49, 10.61, 10.85, 10.93, 10.123, 10.133, 10.141, 10.163, 10.187, 10.235, 10.241, 10.249

cost recovery . . . 1.37, 2.51, 2.105, 4.93, 4.137, 6.81, 6.111, 6.119, 6.191, 6.201, 6.231, 6.263, 8.225, 10.1, 10.107, 10.259

cost sharing . . . 10.229

crawlspace... 6.47, 9.109

cross-effects . . . 2.175

cultural factors . . . 1.45, 1.75, 9.35

cultural inefficiencies . . . 1.85

customer contribution . . . 6.29, 9.93, 10.49, 10.235, 10.241

customer programs . . . 2.51

customer satisfaction . . . 1.19, 1.101, 1.145, 1.169, 2.51, 2.67, 2.157, 2.195, 4.259, 5.47, 6.175, 7.103, 8.37, 8.97, 8.177, 8.225, 8.263, 9.147, 10.49, 10.123, 10.145, 10.163, 10.241, 10.249

customer value... 2.51, 6.127, 6.191, 6.213, 6.263, 7.73, 8.77, 9.77, 10.1, 10.163

cycling strategy . . . 2.127, 9.41

Czech Republic . . . 4.15, 4.37, 4.57, 4.185, 4.241

D

data development... 7.45

data quality . . . 2.1, 2.127, 3.9, 4.231, 4.253, 8.9, 8.171, 10.49, 10.259

data transfer... 2.57, 3.217, 5.249

daylighting... 1.75, 1.133, 2.137, 2.145, 2.175, 3.117, 3.217, 3.251, 4.201, 5.47, 5.113, 5.201, 5.237, 5.275, 6.67, 6.167, 9.35, 9.51, 9.77, 9.129, 9.187, 9.243, 9.259, 9.277

decision making . . . 1.9, 1.19, 1.37, 1.45, 1.75, 1.109, 1.133, 1.175, 1.193, 2.51, 3.151, 4.15, 4.49, 4.123, 4.167, 4.201, 5.181, 6.1, 6.81, 6.111, 6.167, 6.191, 6.213, 6.231, 6.251, 6.263, 7.1, 7.73, 7.95, 7.131, 7.141, 7.147, 7.169, 7.197, 7.259, 8.97, 8.163, 8.177, 8.187, 8.93, 9.35, 9.77, 9.85, 9.147, 9.159, 9.221, 10.1, 10.85, 10.93, 10.123, 10.145, 10.163, 10.199, 10.211, 10.221, 10.229

dehumidification . . . 1.133, 4.49, 5.167, 5.267, 5.275, 10.93

demand (see energy demand) . . .

demand savings... 1.145, 2.43, 2.87, 2.117, 2.137, 2.185, 2.249, 2.257, 2.277, 3.89, 3.103, 3.117, 3.165, 3.241, 4.177, 4.231, 5.89, 6.59, 7.23, 7.223, 8.19, 8.29, 8.37, 8.115, 8.141, 8.205, 8.263, 9.93, 9.175, 9.187, 10.49, 10.85, 10.93

demand-side bidding... 10.49, 10.181

demonstration . . . 1.53, 1.75, 1.91, 1.109, 1.169, 2.57, 2.77, 2.105, 2.137, 3.1, 3.57, 3.117, 3.141, 3.151, 3.189, 3.205, 3.217, 3.228, 3.241, 4.15, 4.37, 4.57, 4.81, 4.185, 4.269, 4.277, 5.25, 5.37, 5.47, 5.167, 5.193, 5.201, 6.101, 6.111, 6.139, 6.167, 6.185, 6.221, 7.121, 8.37, 8.77, 8.115, 9.1, 9.17, 9.29, 9.35, 9.77, 9.85, 9.101, 9.129, 9.165, 9.213, 9.221, 9.235, 9.243, 9.251, 9.259, 9.269, 10.21, 10.93, 10.115, 10.133, 10.155, 10.173, 10.187, 10.199, 10.241

repressurization . . . 4.123, 5.97, 5.233, 9.109

deregulation . . . 1.53, 2.229, 3.97, 4.93, 6.101, 6.191, 6.201, 6.241, 6.251, 6.263, 7.169, 10.61, 10.163

design (see building design) . . . 1.1, 1.59, 1.75, 1.91, 1.101, 1.109, 1.119, 1.133, 1.145, 1.153, 1.159, 1.169, 1.175, 1.185, 1.201, 2.11, 2.21, 2.31, 2.43, 2.51, 2.57, 2.67, 2.77, 2.87, 2.105, 2.117, 2.127, 2.157, 2.167, 2.175, 2.185, 2.195, 2.205, 2.211, 2.217, 2.241, 2.257, 3.1, 3.9, 3.19, 3.29, 3.41, 3.57, 3.67, 3.77, 3.89, 3.97, 3.103, 3.109, 3.117, 3.129, 3.141, 3.151, 3.159, 3.165, 3.189, 3.199, 3.205, 3.217, 3.229, 3.251, 3.263, 4.1, 4.37, 4.49, 4.65, 4.81, 4.93, 4.101, 4.113, 4.123, 4.177, 4.185, 4.201, 4.231, 4.187, 4.185, 4.193, 4.253, 4.277, 4.289, 5.1, 5.13, 5.25, 5.37, 5.47, 5.89, 5.113, 5.123, 5.133, 5.143, 5.153, 5.167, 5.175, 5.181, 5.193, 5.201, 5.209, 5.219, 5.237,

- design (contd)...** 5.249, 5.267, 5.275, 6.1, 6.11, 6.19, 6.59, 6.67, 6.81, 6.91, 6.111, 6.119, 6.127, 6.139, 6.149, 6.157, 6.185, 6.191, 6.213, 6.221, 6.231, 6.241, 6.251, 7.1, 7.23, 7.45, 7.55, 7.65, 7.73, 7.103, 7.131, 7.141, 7.159, 7.169, 7.179, 7.233, 7.249, 7.259, 8.9, 8.19, 8.29, 8.37, 8.77, 8.89, 8.97, 8.105, 8.115, 8.123, 8.131, 8.141, 8.171, 8.177, 8.193, 8.225, 8.235, 8.247, 8.253, 8.263, 9.1, 9.17, 9.29, 9.35, 9.51, 9.65, 9.77, 9.85, 9.93, 9.101, 9.109, 9.129, 9.137, 9.147, 9.159, 9.165, 9.175, 9.187, 9.195, 9.205, 9.213, 9.221, 9.227, 9.235, 9.243, 9.251, 9.259, 9.269, 9.277, 9.283, 10.11, 10.21, 10.35, 10.41, 10.49, 10.61, 10.71, 10.93, 10.107, 10.115, 10.123, 10.133, 10.141, 10.145, 10.155, 10.163, 10.173, 10.181, 10.187, 10.199, 10.211, 10.221, 10.229, 10.235, 10.241, 10.249, 10.259
- design guidelines...** 1.59, 1.75, 3.205, 9.29, 9.165
- design inertia...** 9.29
- design integration...** 9.77
- developed countries . . .** 1.45, 1.85, 3.1, 4.15, 4.25, 4.57, 4.147, 6.101, 4.25, 4.37, 4.147, 4.201, 6.11, 6.201
- diagnostics...** 2.77, 3.177, 5.89, 5.193, 5.225, 5.233, 5.237, 5.249, 5.275, 8.115, 8.171, 9.17
- diffusion . . .** 1.109, 1.133, 6.101, 6.157, 7.205, 8.177, 9.11, 9.51, 9.77, 9.137, 10.77, 10.155, 10.187, 10.211
- direct installation...** 1.101, 1.133, 1.145, 1.159, 4.93, 4.113, 4.177, 4.193, 6.231, 7.95, 8.97, 9.93, 9.147, 10.41, 10.145, 10.163, 10.181, 10.199, 10.211, 10.235, 10.241, 10.249
- Direct Digital Control (DDC)...** 5.47, 5.73, 5.209, 5.219, 5.237, 9.29, 9.277
- discrete choice . . .** 1.9, 1.119, 1.175, 2.157, 4.49, 4.259, 6.111, 7.1, 7.131, 7.189, 7.239, 8.163, 10.85, 10.229
- dishwashers . . .** 2.21, 2.57, 2.105, 3.57, 3.199, 4.167, 4.215, 7.13, 7.45, 7.55, 7.103, 7.179, 8.71, 8.131, 10.21, 10.187
- dispatchability...** 2.43, 4.25, 7.259
- dispatchable pricing...** 2.67
- distributed generation...** 2.229, 6.231, 9.77
- distributed utility . . .** 2.229, 2.269, 6.241
- distribution planning...** 2.279, 6.263
- distributors...** 1.37, 1.185, 2.51, 2.157, 3.1, 3.67, 3.97, 3.103, 3.241, 6.81, 6.91, 6.101, 6.127, 6.157, 6.201, 6.251, 7.141, 8.37, 8.97, 8.141, 8.253, 9.17, 9.65, 9.85, 9.227, 10.35, 10.61, 10.71, 10.77, 10.85, 10.115, 10.123, 10.155, 10.211, 10.259
- district heating and cooling...** 2.137, 6.1
- DOE-2...** 2.1, 2.11, 2.145, 3.57, 3.117, 3.229, 5.37, 5.47, 5.73, 5.89, 5.105, 5.181, 5.209, 6.67, 7.233, 8.225, 9.187, 9.243
- DOE-2 Simulations...** 2.1, 2.11, 5.105
- doors...** 1.145, 1.169, 1.185, 1.193, 2.205, 3.41, 3.57, 3.67, 3.177, 4.15, 4.65, 4.81, 4.177, 4.241, 4.269, 5.167, 5.225, 5.233, 5.275, 6.19, 6.29, 6.47, 6.139, 7.35, 9.35, 9.109, 9.137, 9.147, 9.251, 10.93, 10.187
- double ratio estimation...** 2.31, 8.263
- double sampling...** 2.167, 8.263
- drives...** 1.9, 1.109, 2.31, 2.57, 2.87, 2.117, 2.175, 2.229, 2.249, 2.257, 2.277, 3.89, 3.103, 3.165, 3.199, 3.205, 3.241, 4.49, 4.57, 4.201, 5.17, 5.123, 5.153, 5.181, 5.209, 5.219, 5.237, 5.267, 5.275, 6.67, 6.175, 7.65, 7.85, 7.131, 7.205, 7.249, 8.141, 8.193, 9.29, 9.77, 9.85, 9.129, 9.187, 10.35, 10.93, 10.123, 10.141, 10.163, 10.187, 10.199, 10.249
- DSM (demand-side management) . . .** 1.9, 1.19, 1.27, 1.37, 1.53, 1.65, 1.75, 1.85, 1.91, 1.101, 1.109, 1.119, 1.133, 1.145, 1.153, 1.175, 1.185, 1.201, 2.1, 2.11, 2.31, 2.43, 2.51, 2.57, 2.67, 2.77, 2.95, 2.117, 2.145, 2.157, 2.167, 2.175, 2.185, 2.195, 2.205, 2.211, 2.117, 2.225, 2.229, 2.241, 2.249, 2.269, 2.277, 3.1, 3.45, 3.57, 3.67, 3.89, 3.97, 3.117, 3.129, 3.151, 3.205, 3.229, 3.241, 4.1, 4.25, 4.37, 4.49, 4.65, 4.71, 4.87, 4.93, 4.101, 4.113, 4.123, 4.137, 4.147, 4.185, 4.193, 4.201, 4.215, 4.231, 4.253, 4.259, 4.269, 4.277, 5.1, 5.25, 5.37, 5.59, 5.89, 5.105, 5.113, 5.201, 5.249, 5.267, 5.275, 6.1, 6.11, 6.29, 6.39, 6.81, 6.91, 6.101, 6.111, 6.119, 6.127, 6.157, 6.167, 6.175, 6.191, 6.201, 6.213, 6.221, 6.231, 6.241, 6.251, 6.263, 7.1, 7.23, 7.45, 7.55, 7.65, 7.73, 7.85, 7.95, 7.113, 7.121, 7.131, 7.141, 7.147, 7.159, 7.169, 7.189, 7.197, 7.205, 7.213, 7.223, 7.233, 7.249, 7.259, 8.1, 8.9, 8.19, 8.37, 8.49, 8.63, 8.71, 8.77, 8.97, 8.105, 8.115, 8.123, 8.141, 8.151, 8.157, 8.163, 8.171, 8.177, 8.187, 8.193, 8.205, 8.215, 8.225, 8.235, 8.247, 8.253, 8.263, 9.1, 9.17, 9.41, 9.77, 9.85, 9.93, 9.121, 9.129, 9.147, 9.159, 9.165, 9.187, 9.195, 9.205, 9.213, 9.221, 9.227, 9.251, 9.269, 9.227, 9.283, 10.1, 10.11, 10.21, 10.35, 10.41, 10.49, 10.61, 10.71, 10.85, 10.93, 10.107, 10.115, 10.123, 10.133, 10.141, 10.145, 10.155, 10.163, 10.173, 10.181, 10.187, 10.199, 10.211, 10.221, 10.229, 10.235, 10.241, 10.249, 10.259
- DSM bidding...** 6.175, 9.269, 10.49, 10.141, 10.221, 10.249
- DSM broker...** 10.115
- DSM industry . . .** 3.151, 6.157, 6.213, 7.65, 7.141, 8.141, 8.177, 10.211
- DSM portfolio...** 1.101, 6.29, 6.231, 7.73, 7.95, 8.77, 10.181, 10.199, 10.249
- DSM potential...** 2.145, 4.87, 4.93, 5.89, 6.81, 6.111, 6.231, 7.95, 7.131, 7.147, 7.223, 10.35, 10.85, 10.123, 10.241, 10.249
- DSM savings...** 1.91, 1.101, 2.31, 2.269, 3.151, 4.137, 6.231, 7.147, 7.205, 7.213, 7.233, 8.37, 8.263, 9.227, 10.11, 10.49, 10.181, 10.199

- dual integrated appliance...** 3.9,3.259,3.265
- duct leakage...** 1.133, 3.177, 3.189, 5.219, 5.225, 7.249, 9.109, 9.129, 9.175, 9.195, 10.199
- ducts...** 1.133, 3.29, 3.57, 3.103, 3.177, 3.189, 3.205, 3.263, 4.113, 5.25, 5.47, 5.123, 5.133, 5.225, 5.237, 5.267, 6.19, 6.47, 6.149, 7.249, 9.51, 9.109, 9.129, 9.175, 9.195, 10.21, 10.187
- durability . . .** 3.41, 3.117, 3.205, 5.59, 5.225, 5.233, 9.51, 9.65, 9.251
- dynamometer...** 5.17
- E**
- Eastern Europe...** 1.169, 1.193, 4.15, 4.37, 4.81, 4.185, 4.241, 4.289, 6.81, 6.191
- economic analysis . . .** 1.75, 1.119, 1.175, 2.43, 2.87, 2.229, 2.257, 3.103, 3.129, 3.205, 4.49, 4.71, 4.241, 5.181, 5.201, 6.47, 6.67, 6.119, 6.127, 7.73, 7.147, 8.247, 9.17, 9.93, 9.121, 9.129, 9.221, 10.1, 10.49, 10.133
- economic development...** 1.119, 1.133, 4.1, 4.37, 4.49, 4.185, 4.193, 4.201, 6.39, 6.119, 6.167, 6.191, 7.65, 8.97, 9.1, 9.159, 10.21
- economic efficiency . . .** 1.37, 1.85, 1.119, 1.175, 4.101, 6.81, 6.127, 6.191, 6.251, 6.263, 8.77, 10.11
- economic impact...** 1.119, 4.65, 4.101
- economic incentives . . .** 1.101, 4.1, 4.87, 4.101, 6.251, 7.147, 9.129
- economic modeling . . .** 1.45
- economic potential . . .** 1.53, 1.133, 4.49, 4.147, 4.215, 6.251, 7.223, 9.85, 10.85, 10.155
- education (see energy education) . . .** 1.1, 1.19, 1.27, 1.45, 1.65, 1.75, 1.85, 1.91, 1.119, 1.133, 1.145, 1.153, 1.159, 1.169, 1.175, 1.185, 2.77, 2.157, 2.185, 2.205, 2.257, 3.1, 3.41, 3.241, 4.1, 4.93, 4.185, 4.253, 4.277, 5.25, 5.167, 6.29, 6.59, 6.111, 6.139, 6.157, 6.251, 7.1, 7.35, 7.189, 7.197, 8.37, 8.97, 8.141, 8.151, 8.157, 8.163, 8.253, 9.1, 9.35, 9.147, 9.159, 9.165, 9.175, 9.227, 9.251, 9.259, 9.269, 10.21, 10.61, 10.77, 10.115, 10.145, 10.155, 10.173, 10.181, 10.187, 10.241
- educational impact...** 9.165
- EER (equipment efficiency rating) . . .** 3.103, 3.189, 3.205, 4.71, 7.55, 9.175, 10.187
- efficiency gap...** 1.37, 1.75, 1.133, 1.175, 6.263
- elasticity . . .** 2.1, 2.21, 2.195, 4.167, 4.215, 7.73, 7.147, 8.77, 10.1, 10.11
- elderly . . .** 1.119, 1.159, 6.19, 7.13, 10.181, 10.211
- electric appliances . . .** 2.21, 2.211, 3.189, 4.71, 4.215, 7.179, 8.1
- electric end-uses . . .** 2.1, 2.175, 4.71, 5.153
- electric equipment...** 2.43, 7.55, 7.205, 9.17, 10.155
- electric heating . . .** 1.19, 1.119, 2.1, 2.157, 2.175, 2.217, 2.241, 3.177, 4.167, 4.215, 5.225, 6.47, 6.213, 8.49, 9.77, 9.147, 10.21, 10.85
- electric utilities . . .** 1.37, 1.45, 1.53, 1.75, 1.91, 1.109, 1.159, 1.185, 1.201, 2.51, 2.127, 2.145, 2.167, 3.45, 3.97, 3.141, 3.159, 3.189, 3.199, 3.205, 3.241, 4.25, 4.49, 4.71, 4.87, 4.93, 4.101, 4.123, 4.137, 4.231, 4.269, 5.59, 5.167, 5.233, 5.249, 6.1, 6.11, 6.19, 6.29, 6.81, 6.101, 6.111, 6.119, 6.127, 6.191, 6.201, 6.231, 6.241, 6.251, 6.263, 7.13, 7.45, 7.73, 7.85, 7.121, 7.141, 7.147, 7.169, 7.189, 7.197, 7.213, 8.49, 8.71, 8.97, 8.123, 8.235, 9.85, 9.227, 9.283, 10.41, 10.61, 10.77, 10.107, 10.115, 10.123, 10.141, 10.163, 10.181, 10.187, 10.259
- electrification . . .** 4.49, 4.71, 6.11, 6.201, 7.65, 7.205
- emerging technologies...** 1.133, 2.145, 3.141, 5.47, 6.167, 7.179, 9.251, 10.155, 10.187
- emission allowances . . .** 4.101, 4.115, 4.137
- emission factors . . .** 4.113, 4.231, 6.1
- empirical data . . .** 2.105, 2.117, 2.137, 3.151, 3.189, 4.259, 6.1, 7.55, 7.95, 9.147
- end-use loads . . .** 2.31, 2.57, 2.175, 2.241, 3.151, 9.251
- end-use metering . . .** 1.9, 2.11, 2.31, 2.57, 2.157, 2.167, 2.185, 2.217, 3.117, 4.231, 5.47, 5.113, 7.13, 7.45, 7.103, 7.189, 7.233, 7.249, 8.19, 8.29, 8.89, 8.115, 8.141, 8.205, 8.225, 8.235, 8.263
- end-use models . . .** 1.45, 6.111, 7.13, 7.179
- end-use pricing . . .** 10.35
- end-uses (see energy end-uses) . . .** 1.9, 1.45, 1.133, 1.175, 1.193, 2.1, 2.31, 2.57, 2.127, 2.145, 2.157, 2.167, 2.175, 2.211, 2.225, 3.97, 4.71, 4.241, 5.113, 5.123, 5.153, 5.181, 6.111, 6.127, 6.157, 6.201, 6.213, 6.241, 7.45, 7.55, 7.103, 7.179, 7.213, 7.233, 8.123, 8.193, 9.147, 10.85, 10.123, 10.187, 10.221
- energy audit...** 1.27, 1.101, 1.145, 1.185, 1.193, 2.105, 2.175, 2.185, 2.249, 3.151, 4.57, 4.113, 4.167, 5.73, 5.123, 5.153, 5.167, 6.29, 6.101, 6.111, 6.185, 8.105, 9.35, 9.221, 9.269, 10.11, 10.21, 10.93, 10.123, 10.145, 10.181, 10.199, 10.211
- energy calculations . . .** 2.1, 5.17, 9.51
- energy demand . . .** 1.45, 1.133, 1.175, 1.193, 2.1, 2.145, 3.41, 3.117, 3.165, 4.15, 4.37, 4.49, 4.71, 4.113, 4.167, 4.215, 6.11, 6.221, 7.147, 7.159, 7.213, 7.249, 9.41, 9.51, 9.277
- energy education . . .** 1.65, 1.85, 1.91, 1.119, 1.145, 1.159, 4.93, 6.29, 9.147, 10.241
- energy efficiency markets . . .** 6.157, 7.121, 8.37, 10.187
- energy efficient design . . .** 1.75, 5.123, 5.181, 6.139, 9.77, 9.109, 9.259, 9.277, 10.93

- energy efficient mortgage...** 4.1, 6.251
- energy end-uses . . .** 1.19, 5.123, 5.181, 6.201
- energy expend inures...** 2.21, 6.39, 9.101, 9.129, 9.147
- energy intensities . . .** 1.85, 4.15, 4.25, 4.215, 7.35, 7.147, 7.205
- energy management...** 1.65, 1.75, 1.159, 1.193, 2.11, 2.87, 2.105, 2.137, 2.211, 2.225, 2.241, 2.257, 2.269, 3.117, 3.151, 3.165, 4.57, 4.167, 4.185, 4.241, 4.277, 5.1, 5.17, 5.25, 5.73, 5.153, 5.167, 5.175, 5.181, 5.201, 5.209, 5.219, 5.237, 5.257, 5.267, 5.275, 6.1, 6.127, 6.175, 6.231, 7.23, 7.35, 7.121, 7.131, 7.147, 7.239, 8.9, 8.89, 8.105, 9.17, 9.29, 9.35, 9.41, 9.77, 9.85, 9.101, 9.129, 9.159, 9.165, 9.221, 9.235, 9.269, 9.277, 10.21, 10.21, 10.35, 10.49, 10.123, 10.145, 10.221, 10.249
- energy performance...** 1.75, 1.133, 2.1, 2.145, 2.205, 2.241, 3.117, 3.159, 3.205, 3.241, 4.57, 4.185, 4.269, 5.1, 5.25, 5.73, 5.89, 5.105, 5.123, 5.153, 5.167, 5.181, 5.201, 5.237, 5.267, 6.67, 6.149, 6.185, 7.121, 8.37, 8.123, 9.129, 9.213, 9.243, 9.251, 9.259, 9.269, 9.277, 9.283, 10.21, 10.181, 10.187
- energy policy . . .** 1.27, 1.37, 1.45, 1.91, 1.133, 1.175, 1.193, 3.67, 3.77, 3.97, 3.217, 3.229, 3.241, 4.1, 4.25, 4.71, 4.101, 4.123, 4.147, 4.167, 4.185, 4.215, 4.231, 6.1, 6.47, 6.101, 6.119, 6.139, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 6.263, 7.23, 7.55, 7.121, 7.169, 7.205, 9.77, 9.129, 9.159, 9.213, 9.221, 9.269, 10.21, 10.133, 10.163, 10.187
- energy research . . .** 1.1, 1.59, 1.65, 1.75, 1.101, 1.119, 2.105, 2.205, 2.257, 3.45, 3.263, 4.25, 4.37, 4.167, 4.215, 4.241, 5.1, 6.201, 6.263, 7.45, 7.55, 7.223, 8.37, 8.253, 9.1, 9.77, 9.473, 9.251, 9.269, 10.93, 10.145
- energy service...** 1.53, 1.75, 1.91, 1.193, 2.51, 2.145, 2.157, 2.241, 3.151, 4.49, 4.57, 4.188, 4.201, 4.215, 4.231, 4.277, 5.175, 5.209, 6.1, 6.39, 6.101, 6.127, 6.175, 6.191, 6.201, 6.213, 6.241, 6.251, 6.263, 7.73, 8.9, 8.71, 8.77, 9.85, 9.291, 9.221, 9.269, 10.1, 10.11, 10.21, 10.49, 10.123, 10.141, 10.163, 10.181, 10.199, 10.221, 10.249
- energy storage . . .** 2.43, 2.229, 3.29, 3.165, 3.189, 5.25, 6.167, 6.241, 8.193, 9.29, 9.65
- energy strategy . . .** 1.133, 4.215, 6.1, 6.263, 9.159
- energy trade...** 4.123, 10.183
- energy utilities . . .** 1.37, 1.53, 1.193, 4.1, 4.185, 6.101
- environmental management...** 4.177
- environmental externalities . . .** 1.37, 1.193, 4.1, 4.87, 4.93, 4.101, 4.123, 4.147, 4.185, 4.201, 4.215, 6.1, 6.29, 6.47, 6.119, 6.191, 6.251, 7.73, 7.121, 8.97, 9.77, 9.93, 10.21, 10.107, 10.141
- environmental impact...** 1.53, 1.109, 3.205, 4.49, 4.93, 4.101, 4.113, 4.123, 4.215, 4.253, 4.259, 4.269, 6.1, 6.201, 8.97, 9.35
- environmental law...** 4.93, 6.263, 10.107, 10.123
- environmental regulation . . .** 4.101, 6.231, 6.263, 7.205
- equipment efficiency . . .** 1.133, 2.145, 3.241, 4.113, 5.73, 6.67, 6.111, 6.139, 7.23, 7.121, 7.205, 7.249, 8.131, 8.193, 8.247, 8.247, 8.253, 9.147, 9.195, 10.187
- ESCO (energy service company) . . .** 1.53, 2.269, 3.151, 4.57, 4.67, 4.185, 5.175, 6.39, 6.127, 6.175, 6.191, 6.201, 6.213, 9.129, 9.221, 9.269, 10.21, 10.49, 10.141, 10.181, 10.187, 10.221, 10.249
- estimation techniques...** 1.9, 2.31, 2.195, 4.231, 7.13, 7.131, 7.189, 8.263, 10.145
- evaluation methods . . .** 1.75, 2.31, 2.117, 3.117, 5.133, 6.111, 8.37, 8.89, 8.205, 8.225, 10.21, 10.107, 10.249, 10.259
- evaluation results . . .** 1.65, 1.75, 1.101, 1.145, 1.159, 4.259, 7.23, 7.55, 7.121, 8.77, 8.97, 8.105, 8.141, 8.171, 8.177, 8.205, 8.225, 8.247, 9.101, 10.21, 10.145, 10.155
- evaluations . . .** 1.19, 1.37, 1.75, 1.91, 1.119, 1.159, 1.185, 2.11, 2.95, 2.117, 2.127, 2.137, 2.157, 2.167, 2.225, 2.277, 3.19, 3.45, 3.77, 3.151, 3.217, 3.241, 4.65, 4.147, 4.167, 4.185, 4.231, 4.259, 5.113, 5.143, 6.29, 6.91, 6.101, 6.111, 6.139, 6.175, 6.191, 7.23, 7.121, 7.159, 8.9, 8.19, 8.29, 8.37, 8.49, 8.71, 8.77, 8.89, 8.97, 8.105, 8.123, 8.141, 8.171, 8.177, 8.187, 8.205, 8.225, 8.235, 8.247, 8.253, 9.93, 9.101, 9.121, 9.159, 9.235, 9.243, 10.1, 10.41, 10.49, 10.61, 10.85, 10.145, 10.187, 10.229, 10.249, 10.259
- evaporative coolers . . .** 1.109, 3.205, 4.71, 4.201, 7.23, 7.131, 7.179, 8.1, 9.175, 9.187
- evaporative cooling . . .** 1.59, 1.109, 3.51, 3.205, 4.155, 5.47, 5.181, 6.167, 9.77, 9.129, 9.175, 9.187, 9.277
- evapotranspiration . . .** 1.59, 4.155
- executive order . . .** 3.241, 5.175, 9.77, 9.129, 9.159, 9.221
- existing buildings . . .** 1.75, 2.175, 3.29, 4.185, 5.89, 5.105, 5.175, 5.181, 5.233, 6.1, 6.127, 6.231, 7.35, 7.121, 8.77, 9.129, 9.195, 9.221, 9.243, 9.259, 10.21
- expenditures (see energy expenditures) . . .** 1.37, 1.75, 1.85, 1.91, 1.101, 1.119, 1.185, 2.21, 2.175, 2.269, 3.141, 4.1, 4.65, 4.81, 4.93, 4.113, 4.123, 4.137, 4.215, 4.259, 4.277, 5.73, 5.181, 6.1, 6.11, 6.19, 6.29, 6.39, 6.81, 6.127, 6.157, 6.191, 7.13, 7.35, 7.95, 7.121, 7.169, 7.179, 7.189, 7.197, 7.233, 7.249, 7.259, 8.9, 8.37, 8.131, 8.151, 8.177, 8.187, 8.235, 9.101, 9.121, 9.129, 9.159, 9.187, 9.251, 10.1, 10.11, 10.49, 10.115, 10.155, 10.199, 10.211, 10.235, 10.259
- experiment . . .** 1.109, 1.159, 2.21, 2.67, 2.195, 2.211, 2.269, 3.205, 3.217, 3.241, 4.93, 4.167, 4.185, 4.289, 5.73, 6.91, 6.263, 8.151, 9.65, 9.259, 10.49, 10.107, 10.145, 10.155, 10.163, 10.211, 10.259

F

- fan...** 1.19, 1.59, 1.133, 1.153, 1.185, 2.1, 2.117, 2.127, 2.137, 2.145, 2.175, 2.241, 2.277, 3.1, 3.19, 3.29, 3.57, 3.67, 3.89, 3.97, 3.103, 3.129, 3.141, 3.151, 3.165, 3.177, 3.205, 3.263, 4.71, 4.113, 4.201, 4.277, 5.1, 5.17, 5.47, 5.59, 5.73, 5.97, 5.105, 5.123, 5.143, 5.153, 5.181, 5.193, 5.201, 5.209, 5.219, 5.225, 5.233, 5.237, 5.249, 5.267, 5.275, 6.67, 6.139, 6.185, 7.13, 7.55, 7.179, 7.429, 8.123, 8.193, 8.215, 9.11, 9.17, 9.29, 9.41, 9.51, 9.85, 9.109, 9.121, 9.129, 9.137, 9.175, 9.187, 9.195, 9.205, 9.235, 9.277, 9.283, 10.93, 10.187, 10.241
- fan pressurization...** 5.97, 5.225, 9.109, 9.195
- federal law...** 4.65, 4.193, 6.251
- federal programs...** 10.21, 10.173
- feedback...** 1.65, 1.75, 1.85, 1.159, 1.169, 1.193, 2.87, 2.117, 2.241, 3.1, 3.117, 3.151, 3.241, 4.101, 4.259, 4.289, 5.25, 5.47, 5.73, 5.153, 5.175, 5.225, 5.237, 6.111, 6.139, 7.73, 8.115, 8.263, 9.159, 9.165, 9.221, 9.243, 10.21, 10.77, 10.93, 10.115, 10.163, 10.187, 10.211
- fenestration...** 3.117, 3.217, 5.237, 6.67, 6.139, 9.251, 10.187
- forecast...** 1.1, 1.45, 1.153, 2.145, 2.195, 2.211, 3.45, 4.15, 4.49, 4.71, 4.113, 4.277, 6.1, 6.81, 6.91, 6.111, 6.167, 6.191, 6.231, 6.241, 6.251
- forecasting ...** 1.45, 1.119, 1.175, 1.201, 2.1, 2.31, 2.57, 2.95, 2.145, 2.175, 2.185, 2.211, 2.217, 2.225, 3.29, 3.117, 3.229, 4.49, 4.201, 5.73, 6.1, 6.119, 6.157, 6.191, 6.251, 6.263
- field demonstration...** 5.167, 7.121, 10.93, 10.173
- field measurement...** 2.31, 2.257, 3.151, 3.177, 3.205, 3.241, 5.105, 5.181, 5.233, 5.275, 8.215, 9.41
- field study ...** 1.53, 2.31, 2.257, 3.9, 5.59, 6.201, 8.89, 8.215, 9.195
- field test...** 1.65, 2.205, 3.41, 3.57, 3.141, 3.205, 4.277, 5.47, 5.59, 5.73, 5.143, 5.153, 6.185, 7.121, 9.101, 10.11, 10.199
- field testing ...** 1.109, 2.205, 3.41, 3.117, 3.141, 3.241, 5.17, 5.193, 5.275, 7.233, 9.85, 9.101, 9.251
- field testing...** 10.21, 10.93
- financial assistance...** 4.37, 6.29, 9.85, 9.221, 9.227, 9.269, 10.21, 10.123, 10.163, 10.199
- financial incentives ...** 1.9, 1.37, 1.75, 1.101, 2.51, 3.129, 4.87, 4.93, 4.259, 5.25, 5.267, 6.81, 6.91, 6.119, 6.149, 6.157, 6.191, 6.263, 7.1, 7.65, 8.19, 8.37, 8.187, 8.235, 8.253, 9.85, 9.93, 9.129, 9.147, 9.159, 9.227, 9.251, 9.283, 10.1, 10.11, 10.21, 10.41, 10.77, 10.123, 10.133, 10.145, 10.163, 10.173, 10.181, 10.187, 10.199, 10.241, 10.249
- financing ...** 1.109, 1.119, 2.43, 2.51, 3.1, 3.205, 4.1, 4.15, 4.37, 4.57, 4.65, 4.71, 4.93, 4.167, 4.185, 4.193, 5.181, 5.201, 5.209, 6.11, 6.39, 6.47, 6.81, 6.127, 6.167, 6.175, 6.191, 6.201, 6.213, 6.251, 6.263, 7.1, 7.73, 7.85, 7.121, 8.97, 9.85, 9.93, 9.129, 9.159, 10.11, 10.21, 10.93, 10.115, 10.123, 10.133, 10.141, 10.145, 10.163, 10.173, 10.181, 10.187, 10.199, 10.241, 10.249
- fireplaces...** 2.167, 5.97, 6.185, 10.229
- flexibility ...** 1.1, 1.109, 1.169, 1.175, 2.51, 2.57, 2.105, 2.145, 2.185, 2.195, 2.211, 3.97, 3.103, 3.129, 3.205, 3.263, 4.1, 4.37, 4.49, 4.101, 4.113, 4.123, 5.37, 5.175, 5.237, 5.249, 5.257, 5.275, 6.29, 6.81, 6.139, 6.185, 6.191, 6.231, 6.241, 7.55, 7.95, 7.103, 7.113, 7.141, 7.169, 7.213, 7.259, 8.177, 8.187, 9.29, 9.147, 10.61, 10.85, 10.93, 10.107, 10.115, 10.123, 10.141, 10.145, 10.163, 10.173, 10.249
- flow hoods...** 3.177
- fluorescent lighting...** 4.93, 4.253, 4.269, 5.113, 5.167, 6.91, 6.157, 7.23, 8.163, 8.253, 9.159, 9.227, 9.277, 10.41, 10.71, 10.155, 10.181, 10.187, 10.211
- flush-out...** 9.11
- forecast...** 7.1, 7.23, 7.35, 7.45, 7.55, 7.65, 7.103, 7.141, 7.147, 7.169, 7.179, 7.205, 7.223, 7.239, 7.259, 8.77, 8.141, 8.205, 9.243, 10.1, 10.77, 10.85, 10.155, 10.163, 10.199, 10.204, 10.259
- forecasting ...** 7.1, 7.23, 7.45, 7.65, 7.95, 7.103, 7.131, 7.147, 7.169, 7.179, 7.205, 7.223, 7.259, 8.9, 8.97, 8.205, 9.251, 10.85, 10.155, 10.163
- formaldehyde...** 1.133, 4.201, 9.11, 9.277
- fossil fuels...** 3.1, 4.25, 4.81, 4.147, 4.155, 4.215, 4.231, 4.289, 10.107
- FRB (flame-retention burner) ...** 5.143
- free driver effects...** 8.19
- free drivers ...** 1.9, 2.157, 8.19, 8.63, 8.141, 8.177, 10.155, 10.211
- free riders ...** 1.9, 1.201, 2.127, 2.157, 3.89, 4.65, 4.137, 4.167, 4.193, 4.259, 7.55, 7.73, 7.113, 7.159, 7.189, 7.259, 8.1, 8.19, 8.37, 8.63, 8.77, 8.105, 8.141, 8.177, 8.205, 8.235, 8.247, 9.41, 9.93, 10.49, 10.93, 10.145, 10.155, 10.187, 10.221, 10.259
- freezers ...** 1.153, 2.77, 2.205, 3.19, 3.165, 4.167, 4.215, 4.259, 7.45, 7.55, 7.179, 7.205, 8.9, 8.151, 9.227, 10.93, 10.115
- fuel oil...** 1.91, 3.263, 4.57, 4.155, 5.143, 6.19, 6.47, 7.13, 7.35, 9.17
- fuel substitution ...** 6.213, 6.241, 7.147, 8.71, 9.93, 9.121, 10.123, 10.163
- furnaces ...** 1.19, 1.27, 1.133, 1.185, 2.167, 3.9, 3.97, 3.129, 3.141, 3.177, 3.263, 4.25, 4.177, 4.201, 5.1, 5.47, 5.143, 5.225, 6.29, 6.47, 6.67, 6.111, 6.213, 7.55, 7.103, 7.179, 8.1, 8.37, 8.131, 9.51, 9.65, 9.195, 9.235, 10.229
- future energy performance...** 5.1

G

gas appliances... 1.185, 3.263, 6.111, 6.213

gas equipment... 5.167, 6.111, 7.73, 8.71

gas furnaces . . . 1.19, 3.97, 3.141, 3.177, 3.263, 5.143, 5.225, 6.213, 8.1, 8.37, 9.195

gas piping... 1.109, 3.263, 4.15, 9.187

gas utilities (see natural gas utilities) . . . 1.91, 1.119, 2.145, 2.167, 3.129, 3.141, 3.263, 4.231, 6.1, 6.29, 6.91, 6.111, 6.119, 6.127, 6.139, 7.197, 8.71, 8.235, 9.251, 10.107, 10.115, 10.181, 10.187, 10.199, 10.229

generation . . . 1.1, 1.53, 1.75, 1.85, 1.91, 1.101, 2.1, 2.31, 2.43, 2.51, 2.195, 2.105, 2.117, 2.127, 2.195, 2.211, 2.229, 2.257, 2.269, 3.41, 3.67, 3.97, 3.141, 3.151, 3.189, 3.205, 3.229, 3.241, 4.1, 4.15, 4.25, 4.37, 4.49, 4.71, 4.87, 4.93, 4.101, 4.113, 4.123, 4.137, 4.177, 4.231, 4.241, 4.253, 4.269, 4.277, 4.289, 5.59, 5.193, 5.201, 5.237, 5.267, 6.1, 6.11, 6.29, 6.67, 6.81, 6.119, 6.127, 6.157, 6.167, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 6.263, 7.23, 7.45, 7.65, 7.85, 7.113, 7.141, 7.159, 7.169, 8.1, 8.37, 8.71, 8.89, 8.97, 8.141, 9.17, 9.41, 9.77, 9.85, 9.121, 9.147, 9.227, 9.251, 10.1, 10.11, 10.35, 10.41, 10.61, 10.77, 10.93, 10.107, 10.123, 10.133, 10.141, 10.145, 10.163, 10.187, 10.199, 10.211, 10.229, 10.241

generator sets . . . 2.229

geographic areas . . . 1.109, 2.229, 2.269, 4.101, 4.123, 10.241

global warming . . . 1.1, 1.85, 1.91, 1.109, 1.133, 1.185, 1.193, 4.37, 4.87, 4.147, 4.253, 4.269, 10.107

Golden Carrot... 1.91, 2.205, 3.67, 4.71, 4.215, 4.259, 6.157, 8.37, 8.141, 8.253, 9.35, 9.227, 10.21, 10.187, 10.259

government regulation... 1.37, 3.67, 4.289, 6.191

Green Investment Fund . . . 2.43

greenhouse gas emissions... 4.37, 4.87, 4.93, 4.101, 4.231, 4.253, 4.259, 6.1, 6.67, 7.223, 9.213

greenhouse gases . . . 4.87, 4.93, 4.101, 4.231, 4.253, 4.259, 6.201

H

Hawthorne Effect . . . 9.259

health . . . 1.59, 1.91, 1.119, 1.113, 1.153, 2.1, 2.51, 2.145, 3.9, 4.1, 4.25, 4.37, 4.49, 4.87, 4.101, 4.113, 4.123, 4.201, 4.253, 4.259, 4.289, 5.13, 5.25, 5.133, 5.143, 5.167, 5.175, 5.225, 5.233, 6.19, 6.29, 6.191, 6.221, 7.131, 7.197, 8.105, 9.11, 9.29, 9.77, 9.129, 9.137, 9.213, 9.221, 9.269, 9.277, 10.21, 10.107, 10.141, 10.173

health impacts . . . 4.123, 4.201

heat exchangers... 3.29, 3.103, 3.141, 3.205, 4.37, 4.81, 4.201, 5.123, 6.149, 6.185, 8.115, 9.129, 9.259, 10.21, 10.93

heat flow... 3.117, 4.81, 5.1, 5.59, 9.29

heat gain . . . 1.59, 2.175, 3.29, 3.117, 4.155, 5.59, 6.67, 6.139, 7.213, 9.35, 9.187, 9.251, 10.187

heat loss . . . 2.205, 3.9, 3.19, 3.57, 4.15, 4.81, 4.241, 4.289, 5.59, 5.225, 5.257, 6.47, 6.59, 6.149, 8.89, 8.131, 10.21

heat pumps . . . 1.19, 1.133, 1.145, 1.193, 2.157, 3.97, 3.141, 3.151, 3.159, 3.165, 3.177, 3.189, 3.205, 3.263, 4.113, 4.253, 5.181, 5.201, 5.275, 6.67, 6.139, 6.167, 6.213, 7.23, 7.45, 7.55, 7.131, 7.205, 7.223, 8.131, 8.193, 9.101, 9.195, 9.227, 9.243, 9.251, 9.269, 10.21, 10.85, 10.187, 10.199

heat recovery . . . 3.57, 3.151, 4.15, 4.57, 4.201, 4.241, 5.123, 6.139, 6.167, 7.147, 8.193, 9.129, 9.213, 9.235, 9.259, 10.35, 10.93, 10.199

heat storage... 2.95, 2.157, 3.19, 3.29, 5.237

heat transfer . . . 2.95, 3.29, 3.97, 3.103, 3.117, 3.129, 3.165, 3.189, 4.15, 4.81, 4.201, 4.269, 7.233, 9.65, 9.77, 9.195, 9.283

heaters . . . 1.19, 1.133, 1.185, 1.201, 2.57, 2.77, 2.105, 2.167, 2.241, 3.9, 3.19, 3.129, 3.141, 3.177, 3.189, 3.199, 3.205, 3.263, 4.71, 4.113, 4.231, 4.277, 5.1, 5.17, 5.97, 5.105, 5.225, 5.237, 5.275, 6.67, 6.81, 6.91, 6.111, 6.167, 6.213, 7.45, 7.73, 7.103, 7.179, 7.197, 7.223, 8.1, 8.37, 8.49, 8.71, 8.89, 8.131, 8.141, 8.151, 8.193, 9.77, 9.93, 9.121, 9.187, 9.227, 9.251, 9.259, 9.269, 10.21, 10.93, 10.115, 10.187

heating load . . . 2.175, 2.217, 3.9, 3.19, 3.177, 3.229, 4.241, 5.59, 5.105, 5.181, 5.225, 7.45, 8.71, 9.51, 9.77

heating seasonal performance factor... 3.97, 3.151

heating systems and ducts . . . 6.19

HERS (home energy rating systems) . . . 3.1, 9.213, 9.251, 9.269, 10.173

high-albedo... 4.155, 5.59, 9.65

hospitals . . . 2.51, 2.145, 2.175, 2.195, 3.89, 3.129, 4.57, 4.201, 5.73, 5.167, 6.127, 6.139, 7.239, 8.123, 9.129, 9.221, 10.181

hot water consumption... 2.105, 4.57, 4.241, 5.73, 7.55, 7.103

hours of operation . . . 1.133, 2.31, 2.229, 2.269, 2.277, 3.129, 3.251, 4.193, 4.231, 5.73, 5.167, 5.233, 6.67, 6.127, 6.221, 7.23, 7.233, 8.19, 8.105, 8.123, 8.157, 8.205, 8.215, 9.85, 9.205, 9.243, 10.41, 10.49

hours of use... 2.31, 3.89, 4.71, 8.19, 8.77, 8.97, 8.263, 9.147, 9.205, 10.61

household energy use... 1.85, 4.215, 6.29

human dimensions... 1.75, 1.85, 1.91, 3.217, 4.277

humidity . . . 1.109, 1.193, 2.57, 2.77, 2.95, 2.127, 2.205, 2.217, 3.29, 3.41, 3.103, 3.151, 3.189, 3.205, 3.263, 4.155, 4.177, 5.1, 5.59, 5.73, 5.133, 5.153, 5.167, 5.201,

- humidity (contd)...** 5.209, 5.225, 6.127, 7.13, 7.249, 9.17, 9.51, 9.65, 9.109, 9.175, 9.187, 9.235, 9.277, 10.93
- humidity control...** 3.103, 7.249, 9.51
- HVAC controls . . .** 1.9, 2.145, 2.175, 5.25, 5.193, 5.219, 7.239, 8.9, 8.193, 9.129, 9.159, 9.187, 10.199
- HVAC equipment...** 1.133, 2.11, 2.145, 3.57, 3.97, 3.189, 4.113, 4.155, 4.201, 4.259, 5.13, 5.47, 5.89, 5.123, 5.175, 5.181, 5.193, 5.201, 5.219, 5.249, 5.257, 6.47, 6.67, 6.149, 6.231, 7.55, 7.103, 8.235, 8.253, 9.65, 9.147, 9.235, 10.21, 10.93, 10.241
- HVAC equipment...** 5, 1.109, 1.133, 2.11, 2.67, 2.105, 2.145, 2.241, 3.29, 3.177, 4.113, 4.201, 5.1, 5.13, 5.25, 5.47, 5.73, 5.89, 5.123, 5.153, 5.181, 5.193, 5.219, 5.237, 5.249, 6.67, 8.115, 8.163, 9.11, 9.35, 9.137, 9.187, 9.235, 9.277, 9.283, 10.163
- hydroelectric . . .** 1.119, 4.71, 4.231, 6.1, 6.11, 6.201, 6.231, 7.197, 10.163
- I**
- impact evaluation . . .** 1.9, 1.19, 1.75, 1.91, 1.101, 1.145, 2.11, 2.31, 2.95, 2.127, 2.157, 2.225, 2.249, 2.277, 3.1, 3.89, 4.201, 5.37, 5.47, 5.113, 5.249, 6.111, 6.157, 6.175, 6.185, 7.23, 7.55, 7.159, 7.233, 8.1, 8.9, 8.29, 8.63, 8.97, 8.105, 8.123, 8.141, 8.157, 8.171, 8.205, 8.225, 8.235, 8.247, 8.263, 9.93, 9.147, 9.243, 10.41, 10.155, 10.221, 10.259
- incandescent lighting . . .** 1.85, 4.71, 4.253, 6.11, 9.187
- incentive mechanisms . . .** 1.101, 4.137, 4.231, 6.91, 6.111, 6.119, 6.157, 6.251, 8.253, 10.141
- incentives . . .** 1.9, 1.27, 1.37, 1.53, 1.75, 1.85, 1.91, 1.101, 1.109, 1.133, 1.159, 1.193, 2.51, 2.77, 2.87, 2.127, 2.211, 2.269, 3.29, 3.67, 3.97, 3.103, 3.129, 3.151, 3.165, 3.205, 3.241, 4.1, 4.25, 4.37, 4.49, 4.65, 4.71, 4.81, 4.87, 4.93, 4.101, 4.113, 4.137, 4.177, 4.185, 4.193, 4.215, 4.259, 4.289, 5.25, 5.59, 5.73, 5.175, 5.181, 5.193, 5.267, 6.11, 6.29, 6.39, 6.81, 6.91, 6.101, 6.111, 6.119, 6.127, 6.139, 6.149, 6.157, 6.167, 6.175, 6.191, 6.201, 6.213, 6.221, 6.231, 6.251, 6.263, 7.1, 7.23, 7.65, 7.73, 7.85, 7.113, 7.141, 7.147, 7.213, 7.239, 8.9, 8.19, 8.29, 8.37, 8.63, 8.77, 8.89, 8.97, 8.105, 8.115, 8.123, 8.141, 8.151, 8.157, 8.187, 8.193, 8.225, 8.235, 8.253, 8.263, 9.85, 9.93, 9.121, 9.129, 9.147, 9.159, 9.165, 9.213, 9.227, 9.251, 9.283, 10.1, 10.11, 10.21, 10.41, 10.49, 10.61, 10.71, 10.77, 10.93, 10.107, 10.115, 10.123, 10.133, 10.141, 10.145, 10.155, 10.163, 10.173, 10.181, 10.187, 10.199, 10.211, 10.229, 10.235, 10.241, 10.249, 10.259
- increased productivity . . .** 1.91, 7.205, 8.187, 9.77, 9.259
- incremental cost . . .** 1.37, 1.75, 2.31, 2.51, 2.105, 2.145, 2.167, 2.257, 3.97, 3.103, 3.141, 3.151, 3.165, 3.189, 4.101, 4.113, 5.17, 5.181, 5.201, 5.267, 6.29, 6.59, 6.91, 6.251, 7.23, 7.73, 7.121, 7.141, 8.77, 8.115, 8.163, 8.235, 8.247, 9.77, 9.213, 9.243, 10.1, 10.93, 10.155, 10.199
- indirect costs . . .** 1.85, 1.133, 5.181, 10.133
- indoor air pollution . . .** 1.133, 4.201, 5.25, 9.277
- indoor air quality . . .** 1.119, 1.133, 3.177, 4.177, 4.201, 4.241, 5.25, 5.48, 5.49, 5.56, 5.73, 5.97, 5.123, 5.133, 5.175, 5.181, 5.193, 5.237, 5.237, 6.29, 6.149, 6.185, 7.73, 8.89, 9.11, 9.35, 9.51, 9.147, 9.213, 9.277, 10.21, 10.133
- industrial buildings . . .** 2.241, 3.109, 4.201, 5.59, 5.89, 7.121, 8.193
- industrial organization . . .** 10.77
- industrial programs . . .** 4.87, 4.113, 7.65, 7.159, 8.77, 8.97, 8.141, 8.187, 10.123
- industrial sector...** 1.27, 1.37, 1.53, 1.153, 2.87, 4.15, 4.49, 4.113, 4.241, 6.39, 7.65, 7.121, 7.147, 7.205, 8.9, 8.141, 8.187, 10.35, 10.93, 10.123, 10.155, 10.211, 10.221
- information transfer . . .** 4.277, 5.13, 5.193, 9.101, 9.235
- innovation . . .** 1.109, 1.201, 3.1, 3.103, 3.129, 3.241, 4.49, 4.185, 6.81, 6.119, 6.157, 6.201, 6.241, 6.263, 7.141, 8.37, 9.29, 9.35, 9.77, 9.159, 9.187, 10.21, 10.77, 10.155, 10.173, 10.187, 10.259
- innovative . . .** 1.75, 1.91, 1.109, 1.201, 2.31, 2.43, 2.51, 2.195, 2.211, 2.269, 3.13, 3.73, 3.109, 3.129, 3.134, 3.135, 3.139, 3.178, 3.261, 4.57, 4.147, 4.253, 4.269, 4.277, 5.25, 5.97, 5.167, 6.29, 6.39, 6.127, 6.139, 6.167, 6.175, 6.191, 6.231, 6.241, 7.45, 7.65, 7.73, 8.63, 8.71, 8.97, 9.35, 9.51, 9.93, 9.121, 9.129, 9.147, 9.213, 9.227, 9.251, 10.1, 10.35, 10.61, 10.71, 10.77, 10.85, 10.93, 10.115, 10.123, 10.133, 10.181, 10.259
- installation cost...** 3.9, 4.113, 5.37, 7.239, 8.131, 9.93, 10.1, 10.235
- institutional . . .** 1.75, 1.85, 1.101, 1.109, 3.1, 3.129, 3.241, 3.263, 4.15, 4.25, 4.37, 4.57, 4.71, 4.177, 5.13, 5.25, 5.89, 5.175, 5.257, 6.11, 6.39, 6.81, 6.91, 6.139, 6.157, 6.167, 6.201, 6.263, 8.123, 9.77, 9.129, 9.137, 9.213, 9.221, 9.283, 10.21, 10.93, 10.141, 10.241, 10.249
- institutional buildings . . .** 5.13, 5.25, 5.175, 5.257, 8.123, 9.77, 9.137, 10.249
- instrumentation . . .** 2.77, 2.205, 3.177, 3.205, 3.217, 5.47, 5.59, 5.209, 5.237, 5.249, 5.275, 7.233, 8.115, 9.11, 9.17, 9.65, 9.205, 9.235
- insulation . . .** 1.1, 1.27, 1.65, 1.75, 1.85, 1.133, 1.169, 1.185, 1.193, 2.57, 2.127, 2.145, 2.166, 2.157, 2.157, 2.205, 3.1, 3.19, 3.29, 3.41, 3.57, 3.67, 3.109, 3.177, 3.189, 4.37, 4.57, 4.65, 4.71, 4.81, 4.93, 4.123, 4.177, 4.185, 4.201, 4.215, 4.241, 4.259, 4.269, 4.289, 5.1, 5.59, 5.73, 5.105, 5.167, 5.181, 5.193, 5.201, 5.225, 5.233, 5.237, 5.257, 6.19, 6.29, 6.39, 6.47, 6.67, 6.81, 6.139, 6.149, 6.157, 6.175, 6.185, 6.191, 7.23, 7.35, 7.121, 7.131, 7.147, 7.233, 7.249, 8.9, 8.29, 8.37, 8.71, 8.105, 8.131, 8.193, 8.225, 9.35, 9.51, 9.77, 9.93, 9.109, 9.129, 9.147, 9.187, 9.195, 9.213, 9.243, 9.259, 9.269, 10.21, 10.85, 10.93, 10.115, 10.133, 10.163, 10.181, 10.199, 10.241

- integrated appliance...** 3.9, 3.263
- integrated design . . .** 3.57, 3.117, 5.209, 5.237, 9.35, 9.77, 9.259
- integrated planning . . .** 4.123, 6.81, 6.101, 6.213
- integrated resource planning (IRP)...** 1.101, 1.119, 2.1, 2.43, 2.175, 2.184, 3.97, 3.229, 4.1, 4.15, 4.25, 4.37, 4.81, 4.87, 4.93, 4.101, 4.123, 4.185, 6.1, 6.11, 6.29, 6.81, 6.101, 6.111, 6.119, 6.157, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 6.263, 7.23, 7.65, 7.73, 7.85, 7.95, 7.113, 7.141, 7.169, 7.197, 7.205, 7.223, 7.259, 8.9, 8.97, 8.177, 8.235, 10.1, 10.11, 10.49, 10.85, 10.107, 10.133, 10.155, 10.163, 10.199
- integrated systems . . .** 3.117, 3.263, 5.25, 5.193
- integration . . .** 1.54, 1.75, 1.133, 1.159, 2.1, 2.31, 2.175, 2.241, 2.257, 3.29, 3.117, 3.251, 4.15, 4.123, 5.37, 5.193, 5.219, 5.237, 6.81, 6.101, 6.119, 6.191, 6.201, 6.231, 6.241, 6.251, 8.141, 8.225, 9.29, 9.35, 9.77, 9.175, 9.205, 9.251, 9.259, 9.277, 10.85, 10.163, 10.187, 10.249
- intensities (see energy intensities) . . .** 1.85, 2.1, 2.11, 2.145, 3.117, 4.25, 4.215, 7.35, 7.45, 7.147, 7.205, 9.243, 10.41
- interactive savings . . .** 3.57
- interdisciplinary . . .** 1.45, 1.109, 1.133, 1.175, 4.49, 4.277, 5.25, 9.35
- international . . .** 1.1, 1.19, 1.45, 1.59, 1.75, 1.85, 1.109, 1.119, 1.133, 1.159, 1.193, 2.77, 2.137, 2.175, 2.195, 2.205, 2.229, 2.269, 3.1, 3.77, 3.97, 3.109, 3.117, 3.141, 3.189, 3.199, 3.205, 3.241, 4.01, 4.15, 4.25, 4.37, 4.71, 4.81, 4.93, 4.167, 4.185, 4.201, 4.231, 4.241, 4.259, 4.269, 4.289, 5.1, 5.47, 5.153, 5.167, 5.175, 5.233, 6.11, 6.81, 6.91, 6.101, 6.139, 6.157, 6.191, 6.201, 6.263, 7.35, 7.55, 7.121, 7.233, 7.239, 8.37, 8.63, 8.97, 8.141, 8.253, 9.77, 9.85, 9.101, 9.137, 9.213, 9.251, 9.277, 9.283, 10.11, 10.123, 10.163, 10.173, 10.187, 10.211, 10.259
- international cooperation . . .** 4.231
- international programs . . .** 4.231
- interruptible rates . . .** 2.51, 6.241, 7.65
- irrigation . . .** 2.249, 3.151, 4.155, 4.193, 5.37, 6.1, 7.147, 7.197, 9.51, 9.259
- L**
- labelling...** 1.193
- landscaping...** 1.59, 1.109, 4.1, 4.155, 7.103, 7.197, 9.35, 9.259
- leadership . . .** 1.1, 1.53, 1.65, 1.75, 1.91, 1.109, 1.133, 3.97, 3.241, 4.1, 4.37, 4.93, 4.269, 6.81, 6.91, 6.111, 6.167, 9.1, 9.35, 9.77, 9.103, 9.129, 9.221, 9.251, 10.133, 10.173
- least cost utility planning (LCUP)...** 6.231, 7.223
- liability . . .** 3.89, 3.241, 4.37, 4.193, 5.25, 5.181, 6.127, 6.201, 6.263, 8.37, 9.277, 10.35
- life-cycle cost...** 1.175, 2.175, 2.257, 4.253, 5.17, 5.237, 6.47, 6.67, 6.127, 6.213, 8.131, 9.17, 9.101, 9.129, 9.159, 10.133
- lifestyles . . .** 1.85, 1.145, 1.153, 1.197, 4.71, 4.215, 10.173
- lighting control systems . . .** 3.117
- lighting controls...** 1.9, 2.175, 3.117, 3.251, 5.89, 5.113, 5.181, 5.219, 5.275, 6.67, 7.239, 8.235, 9.243, 10.49, 10.199
- lighting equipment...** 3.229, 5.193, 6.59, 6.139, 8.9, 8.37, 8.157, 8.193, 8.235, 9.29, 9.187, 10.241
- life-cycle assessment...** 4.253
- local programs . . .** 4.215
- load control . . .** 1.109, 2.43, 2.67, 2.127, 2.217, 2.229, 2.241, 2.269, 4.101, 6.157, 6.201, 6.241, 7.223, 8.71, 9.41, 9.93, 10.115, 10.199
- load data...** 1.53, 2.1, 2.11, 2.57, 2.67, 2.95, 2.117, 2.167, 2.185, 2.195, 2.217, 2.225, 2.249, 2.277, 3.189, 5.105, 5.113, 6.127, 7.45, 8.29, 8.177, 8.225, 9.41, 9.85
- load management . . .** 1.37, 2.43, 2.67, 2.95, 2.185, 2.195, 3.151, 4.1, 4.113, 4.231, 5.25, 5.257, 6.1, 6.101, 6.191, 6.201, 6.263, 7.141, 7.147, 7.223, 8.71, 8.225, 9.251, 10.1, 10.11, 10.141, 10.145, 10.173, 10.199
- load monitoring...** 2.31, 2.167, 2.241
- load research . . .** 1.45, 2.1, 2.11, 2.21, 2.31, 2.57, 2.95, 2.157, 2.167, 2.185, 2.217, 2.225, 2.229, 2.241, 2.249, 2.277, 4.231, 5.89, 6.111, 6.119, 7.45, 8.177, 8.263, 9.41
- load shapes . . .** 1.45, 1.119, 2.1, 2.11, 2.21, 2.31, 2.57, 2.67, 2.145, 2.167, 2.185, 2.295, 2.205, 2.217, 2.225, 2.229, 2.249, 4.137, 5.47, 5.113, 5.153, 6.127, 7.45, 7.65, 8.115, 9.251, 10.41, 10.249
- loads . . .** 1.45, 2.1, 2.11, 2.21, 2.31, 2.43, 2.57, 2.67, 2.77, 2.87, 2.95, 2.105, 2.117, 2.127, 2.137, 2.145, 2.167, 2.175, 2.185, 2.211, 2.217, 2.225, 2.229, 2.241, 2.249, 2.257, 2.269, 2.277, 3.9, 3.19, 3.29, 3.57, 3.89, 3.97, 3.117, 3.129, 3.141, 3.151, 3.165, 3.177, 3.189, 3.205, 3.229, 3.241, 3.251, 4.15, 4.25, 4.101, 4.155, 4.177, 4.201, 4.231, 4.241, 5.1, 5.17, 5.37, 5.47, 5.59, 5.105, 5.113, 5.153, 5.167, 5.181, 5.193, 5.209, 5.237, 5.267, 6.1, 6.47, 6.59, 6.67, 6.81, 6.111, 6.127, 6.191, 6.241, 7.35, 7.65, 7.85, 7.95, 7.103, 7.141, 7.189, 7.197, 7.223, 7.233, 7.249, 8.71, 8.115, 8.151, 8.215, 8.225, 9.17, 9.29, 9.35, 9.41, 9.65, 9.77, 9.93, 9.101, 9.129, 9.147, 9.175, 9.187, 9.205, 9.235, 9.243, 9.251, 9.259, 9.283, 10.21, 10.41, 10.93, 10.115, 10.163, 10.187, 10.199, 10.241
- loans . . .** 1.37, 1.109, 1.133, 4.37, 4.57, 4.167, 4.185, 6.11, 6.39, 6.47, 6.59, 6.101, 6.127, 6.251, 9.51, 9.85, 9.251, 10.21, 10.77, 10.93, 10.145, 10.163, 10.181, 10.187, 10.199, 10.241

- local programs** . . . 10.173
- lost opportunities** . . . 4.113, 5.209, 6.231, 7.141, 8.235, 9.147, 10.49, 10.85, 10.181, 10.249
- low-flow showerheads...** 1.145, 7.197, 8.71, 8.151, 9.147, 10.21, 10.181
- low-income...** 1.19, 1.59, 1.65, 1.119, 1.145, 1.159, 3.1, 4.1, 4.25, 4.93, 4.113, 5.143, 6.19, 6.29, 6.39, 6.47, 6.111, 6.175, 7.23, 7.121, 8.1, 8.105, 9.93, 9.147, 9.213, 10.21, 10.107, 10.115, 10.145, 10.173, 10.181
- low-income housing** . . . 1.59, 1.119, 4.1, 4.93, 6.19, 6.39, 10.21, 10.173
- low-income weatherization...** 1.19, 1.65, 1.119, 1.159, 4.113, 6.19, 6.29, 6.39, 6.111, 6.175, 7.121, 9.147, 10.115, 10.173
- M**
- maintainability** . . . 3.205
- maintenance...** 1.9, 1.27, 1.37, 1.75, 1.91, 1.101, 1.109, 1.133, 1.185, 1.193, 2.43, 2.51, 2.105, 2.127, 2.137, 2.145, 2.257, 3.77, 3.89, 3.103, 3.129, 3.141, 3.165, 3.205, 3.251, 3.263, 4.1, 4.57, 4.71, 4.123, 4.155, 4.193, 4.201, 4.215, 4.277, 5.1, 5.13, 5.17, 5.25, 5.37, 5.47, 5.59, 5.73, 5.89, 5.153, 5.167, 5.175, 5.181, 5.193, 5.201, 5.219, 5.237, 5.249, 5.257, 5.267, 5.275, 6.39, 6.47, 6.59, 6.67, 6.81, 6.127, 6.175, 6.191, 6.201, 6.213, 6.241, 7.35, 7.121, 7.197, 7.223, 7.239, 8.9, 8.37, 8.97, 8.115, 8.131, 8.163, 8.187, 8.193, 9.17, 9.29, 9.35, 9.41, 9.85, 9.93, 9.101, 9.121, 9.129, 9.147, 9.159, 9.221, 9.235, 9.243, 9.259, 9.277, 10.1, 10.21, 10.35, 10.93, 10.123, 10.133, 10.141, 10.145, 10.163, 10.173, 10.181, 10.187, 10.199, 10.235, 10.241, 10.249
- management (see DSM and energy management)** . . .
- manufactured housing** . . . 6.91, 9.1, 9.269, 10.133, 10.173
- manufacturer incentives** . . . 10.61, 10.187
- manufactures** . . . 4.241, 5.233, 10.77
- marginal cost analysis** . . . 5.123
- market barriers** . . . 1.37, 1.85, 1.133, 1.175, 3.129, 3.199, 6.91, 6.127, 6.157, 6.191, 6.213, 6.251, 7.73, 8.37, 8.77, 8.141, 8.187, 9.85, 9.93, 9.251, 9.283, 10.93, 10.115, 10.123, 10.199, 10.221, 10.229, 10.235, 10.259
- market evaluation** . . . 8.225, 10.229, 10.241
- market failure...** 1.37, 1.91, 1.109, 6.201
- market potential** . . . 2.87, 2.195, 3.117, 3.1293.165, 3.205, 4.49, 5.47, 6.111, 6.127, 7.223, 8.225, 9.17, 9.251, 10.49, 10.85, 10.141, 10.155, 10.163, 10.187
- market-pull** . . . 3.67, 3.241, 10.61
- market research** . . . 1.1, 1.91, 1.133, 1.159, 1.193, 2.51, 2.117, 4.49, 6.19, 6.111, 6.231, 7.73, 7.95, 7.159, 8.37, 8.63, 8.141, 8.235, 10.41, 10.85, 10.123, 10.155, 10.163, 10.259
- market transformation** . . . 1.133, 1.185, 3.67, 4.65, 4.113, 6.91, 6.157, 6.185, 8.9, 8.37, 8.97, 8.98, 8.105, 8.141, 8.253, 9.227, 10.41, 10.61, 10.123, 10.133, 10.155, 10.187, 10.211, 10.259
- marketing** . . . 1.1, 1.9, 1.53, 1.85, 1.91, 1.101, 1.109, 1.133, 1.145, 1.159, 1.175, 1.185, 1.193, 2.67, 2.95, 2.127, 2.157, 2.195, 2.269, 3.1, 3.41, 3.67, 3.97, 3.129, 3.151, 3.199, 3.205, 3.241, 4.01, 4.37, 4.49, 4.71, 4.93, 4.113, 4.193, 4.201, 4.231, 4.269, 4.277, 5.175, 5.181, 6.1, 6.39, 6.91, 6.101, 6.111, 6.127, 6.139, 6.149, 6.157, 6.175, 6.191, 6.231, 6.241, 6.257, 6.263, 7.141, 7.179, 7.205, 8.37, 8.97, 8.105, 8.141, 8.151, 8.177, 8.193, 8.225, 8.235, 8.252, 9.1, 9.77, 9.85, 9.93, 9.101, 9.129, 9.147, 9.165, 9.251, 9.269, 10.21, 10.49, 10.61, 10.71, 10.77, 10.85, 10.93, 10.115, 10.123, 10.133, 10.145, 10.155, 10.163, 10.173, 10.181, 10.187, 10.199, 10.211, 10.229, 10.235, 10.241, 10.249, 10.259
- markets** . . . 1.37, 1.45, 1.91, 1.109, 1.119, 1.175, 1.185, 2.31, 2.51, 2.117, 2.145, 2.195, 3.1, 3.9, 3.67, 3.97, 3.165, 4.01, 4.15, 4.25, 4.37, 4.93, 4.101, 4.113, 4.177, 4.215, 4.231, 4.253, 4.269, 5.13, 6.11, 6.81, 6.91, 6.101, 6.111, 6.127, 6.157, 6.167, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 6.263, 7.65, 7.85, 7.113, 7.121, 7.141, 7.169, 7.197, 7.205, 7.259, 8.37, 8.97, 8.193, 8.225, 8.253, 9.77, 9.227, 9.251, 10.11, 10.35, 10.49, 10.61, 10.77, 10.85, 10.104, 10.111, 10.112, 10.115, 10.123, 10.141, 10.155, 10.163, 10.181, 10.18, 10.199, 10.211, 10.249, 10.259
- measure lifetimes** . . . 4.259, 7.95, 8.9, 8.193, 8.205, 9.243, 10.49
- measure retention** . . . 8.9, 8.105, 8.193, 9.147
- measure risk...** 5.35, 7.169
- measurement and verification** . . . 8.97, 10.49, 10.249
- measurement evaluation** . . . 4.231
- Measurement Protocols** . . . 7.189, 7.213
- mercury** . . . 3.45, 4.193, 4.253, 4.269
- methane (CH₄)...** 4.37, 4.177
- Mexico...** 2.51, 3.1, 3.205, 4.71, 5.73, 6.119, 6.191, 10.107
- mildew...** 3.97, 4.201, 5.25, 9.109
- miscellaneous equipment...** 2.1, 2.257, 3.241, 9.205
- mobile homes** . . . 3.19, 6.19, 7.179
- modeling** . . . 1.9, 1.19, 1.45, 1.75, 1.119, 1.153, 1.175, 1.193, 2.1, 2.21, 2.31, 2.57, 2.87, 2.95, 2.105, 2.127, 2.145, 2.157, 2.175, 2.257, 3.19, 3.29, 3.57, 3.109, 3.117,

- modeling (contd)...** 3.159, 3.189, 3.229, 3.263, 4.1, 4.49, 4.101, 4.253, 5.1, 5.47, 5.89, 5.105, 5.153, 5.181, 5.193, 5.201, 5.209, 5.275, 6.1, 6.67, 6.231, 7.1, 7.13, 7.95, 7.141, 7.147, 7.169, 7.189, 7.213, 7.239, 8.49, 8.105, 8.163, 8.171, 8.253, 8.263, 9.137, 9.175, 9.187, 9.243, 9.251, 10.21, 10.85, 10.93, 10.145, 10.155, 10.211
- moisture ...** 1.59, 2.95, 2.205, 3.19, 3.199, 3.205, 4.93, 4.155, 4.177, 4.269, 5.25, 5.37, 5.133, 5.225, 5.233, 7.197, 7.249, 9.51, 9.65, 9.109, 9.175, 9.235, 9.259, 10.21
- money savings ...** 3.159
- monitoring ...** 1.153, 2.11, 2.31, 2.43, 2.67, 2.77, 2.87, 2.105, 2.127, 2.137, 2.167, 2.175, 2.195, 2.205, 2.211, 2.241, 2.257, 3.1, 3.9, 3.19, 3.29, 3.57, 3.67, 3.77, 3.89, 3.103, 3.117, 3.151, 3.159, 3.205, 3.217, 3.241, 3.263, 4.15, 4.25, 4.57, 4.93, 4.101, 4.147, 4.155, 4.177, 4.201, 4.231, 4.269, 4.277, 5.1, 5.25, 5.37, 5.47, 5.73, 5.89, 5.105, 5.113, 5.153, 5.167, 5.181, 5.193, 5.201, 5.209, 5.219, 5.225, 5.237, 5.249, 5.267, 5.275, 6.111, 6.127, 6.241, 7.73, 7.121, 8.9, 8.89, 8.97, 8.123, 8.157, 8.177, 8.205, 8.215, 8.263, 9.11, 9.17, 9.29, 9.65, 9.88, 9.93, 9.101, 9.129, 9.175, 9.187, 9.195, 9.205, 9.213, 9.221, 9.235, 9.243, 9.251, 9.277, 10.21, 10.35, 10.41, 10.71, 10.85, 10.93, 10.141, 10.181, 10.187, 10.199, 10.211, 10.241
- monitoring protocols ...** 2.31, 3.151
- Monte Carlo methods...** 6.231, 7.169, 7.213, 7.239, 8.205
- motor loading ...** 2.117, 53.89, 3.11, 5.37, 8.215
- motor sizing ...** 3.89
- motors ...** 1.9, 1.133, 1.153, 2.31, 2.87, 2.117, 2.175, 3.89, 3.97, 3.103, 3.129, 3.151, 3.165, 3.205, 4.37, 4.49, 4.65, 4.113, 4.201, 4.215, 5.17, 5.37, 5.47, 5.73, 5.123, 5.153, 5.167, 5.181, 5.201, 5.237, 5.267, 6.67, 6.127, 6.157, 6.201, 6.231, 7.55, 7.65, 7.103, 7.131, 7.205, 8.9, 8.141, 8.193, 8.215, 8.253, 8.263, 9.1, 9.11, 9.77, 9.85, 9.129, 9.175, 9.227, 9.259, 10.35, 10.49, 10.85, 10.93, 10.123, 10.141, 10.155, 10.163, 10.187, 10.199, 10.249, 10.259
- multifamily buildings ...** 1.145, 2.31, 2.105, 3.9, 3.263, 4.81, 4.241, 4.289, 5.97, 6.19, 6.47, 6.185, 9.213, 10.21, 10.181
- ## N
- national programs ...** 3.241
- natural gas...** 1.19, 1.101, 1.109, 1.153, 2.105, 2.145, 2.157, 2.167, 2.229, 3.19, 3.57, 3.97, 3.141, 3.151, 3.189, 3.199, 3.263, 4.1, 4.15, 4.37, 4.49, 4.57, 4.93, 4.101, 4.113, 4.123, 4.137, 4.147, 4.155, 4.177, 4.215, 4.231, 4.241, 4.277, 5.73, 5.225, 5.275, 6.1, 6.11, 6.19, 6.29, 6.47, 6.81, 6.111, 6.119, 6.191, 6.201, 6.213, 6.231, 6.251, 7.13, 7.35, 7.85, 7.103, 7.141, 7.147, 7.169, 7.205, 7.223, 7.259, 8.97, 9.17, 9.77, 9.93, 9.101, 9.121, 9.129, 9.147, 9.213, 9.221, 9.235, 9.243, 9.251, 10.1, 10.163, 10.187, 10.221, 10.229, 10.235
- natural gas utilities ...** 2.167, 4.231, 10.229
- NBECS (Nonresidential Building Energy Consumption Survey) ...** 7.35, 7.213
- needs analysis ...** 5.167
- negotiation ...** 1.65, 1.75, 1.109, 3.67, 4.1, 6.91, 7.116, 9.101, 10.141, 10.245, 10.259
- nested logit...** 1.9, 2.127, 7.1, 7.239, 8.163
- net energy ...** 2.249, 4.155, 5.59, 5.153, 7.23, 7.189, 7.213, 8.1, 8.63, 8.105, 8.141, 8.235
- net savings ...** 1.9, 1.101, 2.167, 2.249, 3.217, 4.71, 4.93, 4.201, 4.231, 4.259, 6.91, 6.127, 6.157, 7.23, 7.121, 7.131, 7.1549, 7.189, 7.233, 7.239, 8.1, 8.37, 8.105, 8.141, 8.163, 8.247, 9.17, 9.93, 9.243, 10.93, 10.145, 10.181, 10.221
- net-to-gross ...** 1.9, 2.157, 4.137, 6.157, 7.23, 7.239, 8.1, 8.29, 8.105, 8.123, 8.163, 8.225, 8.247, 8.253
- new buildings ...** 1.75, 1.133, 2.63, 3.29, 3.217, 4.215, 5.25, 5.123, 5.133, 5.181, 5.219, 5.237, 6.1, 6.139, 6.149, 6.201, 7.35, 7.103, 7.121, 8.77, 9.29, 9.51, 9.129, 9.243, 9.259, 9.277, 10.187
- nitrogen dioxide (NO₂)...** 4.201, 4.185, 6.1, 9.11
- nitrogen oxides (NO_x)...** 4.15, 4.49, 4.81, 4.87, 4.101, 4.123, 4.137, 4.167, 4.177, 4.185, 4.215, 4.231, 4.253, 6.1, 6.81, 8.97, 9.121, 9.227
- nitrous oxide (N₂O)...** 5.133, 6.1
- no cost...** 1.65, 1.145, 4.1, 4.101, 5.37, 5.167, 6.29, 6.201, 7.85, 8.1, 8.77, 8.235, 9.29, 9.35, 9.77, 9.101, 9.129, 9.165, 9.205, 9.221, 10.1
- normalization ...** 2.77, 2.127, 2.157, 5.257, 6.127, 7.13, 8.171, 9.213, 9.235
- ## O
- occupancy ...** 1.19, 1.45, 1.119, 1.159, 1.185, 2.11, 2.77, 2.105, 2.145, 2.175, 2.211, 2.241, 2.277, 3.9, 3.29, 3.89, 3.117, 3.217, 3.251, 4.1, 4.201, 4.241, 4.277, 5.1, 5.25, 5.47, 5.73, 5.89, 5.97, 5.113, 5.153, 5.175, 5.181, 5.193, 5.201, 5.209, 5.225, 5.237, 5.257, 5.275, 6.59, 6.67, 6.139, 6.221, 6.231, 7.35, 7.159, 7.233, 7.239, 8.1, 8.29, 8.37, 8.123, 8.131, 8.225, 9.29, 9.35, 9.129, 9.137, 9.159, 9.187, 9.213, 9.243, 9.259, 9.277, 10.21
- occupant behavior...** 2.157, 3.217, 4.231, 4.241, 5.113, 7.213, 7.249, 9.235
- office buildings ...** 1.45, 1.75, 1.133, 1.153, 1.169, 2.11, 2.257, 3.117, 3.229, 3.241, 4.81, 4.289, 5.13, 5.37, 5.47, 5.89, 5.105, 5.123, 5.133, 5.153, 5.175, 5.181, 5.267, 6.127, 6.139, 7.35, 7.213, 8.193, 9.29, 9.187, 9.205, 9.243, 9.259, 9.277, 10.181
- office equipment...** 1.75, 2.1, 2.145, 2.211, 2.257, 3.241, 5.47, 5.123, 5.133, 5.153, 5.181, 6.127, 7.35, 7.205, 7.213, 8.37, 9.35, 9.129, 9.187, 9.205, 9.277, 10.187

- office tower . . .** 5.209
- offices . . .** 1.75, 1.133, 2.137, 2.195, 3.1, 3.9, 3.67, 3.89, 3.117, 3.205, 3.229, 3.241, 3.263, 4.1, 4.167, 4.201, 4.277, 5.1, 5.47, 5.113, 5.123, 5.133, 5.153, 5.201, 5.237, 5.257, 5.275, 6.1, 6.11, 6.59, 6.67, 6.91, 6.101, 6.127, 6.139, 6.251, 7.131, 7.197, 7.239, 8.37, 8.151, 8.157, 8.193, 9.1, 9.29, 9.35, 9.101, 9.129, 9.159, 9.187, 9.221, 9.243, 9.259, 9.269, 9.277, 10.21, 10.107, 10.133, 10.173, 10.181, 10.187, 10.235, 10.249
- operation and maintenance (O&M)...** 2.43, 2.257, 3.205, 4.49, 4.123, 5.1, 5.13, 5.25, 5.73, 5.89, 5.153, 5.175, 5.193, 5.201, 5.275, 6.39, 6.127, 6.241, 7.85, 7.197, 8.77, 8.97, 9.17, 9.35, 9.101, 9.121, 9.221, 9.243, 10.85
- option . . .** 1.9, 1.19, 1.37, 1.59, 1.91, 1.101, 1.169, 2.43, 2.51, 2.57, 2.67, 2.105, 2.117, 2.125, 2.129, 2.141, 2.257, 3.29, 3.67, 3.97, 3.103, 3.117, 3.129, 3.141, 3.151, 3.189, 3.199, 3.241, 3.251, 4.25, 4.37, 4.49, 4.87, 4.101, 4.123, 4.137, 4.147, 4.193, 4.231, 4.241, 4.269, 5.37, 5.59, 5.175, 5.181, 5.237, 6.29, 6.67, 6.91, 6.111, 6.119, 6.127, 6.167, 6.201, 6.213, 6.221, 6.231, 6.241, 6.251, 6.263, 7.1, 7.35, 7.73, 7.85, 7.113, 7.141, 7.169, 7.239, 8.19, 8.49, 8.163, 8.235, 9.29, 9.85, 9.93, 9.121, 9.147, 9.283, 10.11, 10.21, 10.35, 10.49, 10.61, 10.85, 10.93, 10.115, 10.123, 10.155, 10.181, 10.221, 10.241, 10.249
- option theory . . .** 7.113, 7.169, 10.85
- organizational culture . . .** 1.53, 1.75, 1.101, 1.169
- outreach . . .** 3.241, 5.237, 9.1, 9.35, 9.101, 9.159, 9.269, 10.115
- ozone . . .** 1.45, 1.91, 1.109, 1.193, 2.205, 3.41, 3.67, 3.97, 3.141, 4.1, 4.101, 4.259, 4.269, 6.167, 9.11, 9.121, 10.93, 10.211
- P**
- packaged unit...** 3.103
- participation modeling . . .** 2.127
- participation rate . . .** 1.27, 1.145, 1.185, 2.257, 4.177, 8.235, 9.93, 10.145, 10.241
- partnership . . .** 1.1, 1.65, 1.119, 2.43, 3.1, 3.67, 4.1, 4.37, 4.269, 4.277, 5.25, 5.167, 5.175, 6.29, 6.59, 6.91, 6.139, 6.167, 6.175, 7.197, 8.37, 9.85, 9.101, 9.129, 9.235, 10.123, 10.141, 10.249
- passive solar...** 1.75, 1.133, 3.117, 3.251, 4.71, 6.167, 9.17, 9.51, 9.51, 9.77, 9.147, 9.159, 9.213, 9.259
- pay back...** 1.133, 1.193, 2.87, 2.127, 2.257, 3.103, 3.129, 3.141, 3.165, 3.189, 3.199, 3.251, 4.15, 4.57, 4.185, 4.241, 4.277, 4.289, 5.17, 5.25, 5.73, 5.181, 5.219, 5.257, 6.29, 6.59, 6.91, 6.101, 6.127, 7.147, 7.239, 8.37, 8.105, 8.131, 8.141, 8.187, 8.193, 8.215, 9.85, 9.109, 9.129, 9.159, 9.221, 9.251, 9.259, 9.283, 10.21, 10.35, 10.49, 10.77, 10.85, 10.93, 10.123, 10.145, 10.155, 10.163, 10.173, 10.181, 10.187, 10.235, 10.241
- payback period . . .** 1.133, 3.103, 3.251, 4.57, 4.241, 4.277, 5.17, 5.257, 6.29, 6.127, 7.239, 8.131, 9.109, 9.129, 10.49, 10.77, 10.93, 10.145, 10.241
- PCB...** 4.177, 4.193, 4.269
- peak load . . .** 1.145, 2.21, 2.41, 2.43, 2.67, 2.105, 2.157, 2.217, 2.229, 2.257, 3.89, 3.165, 3.189, 3.229, 4.25, 4.71, 4.101, 4.113, 4.123, 4.155, 5.59, 5.181, 5.237, 6.11, 6.67, 6.81, 6.241, 6.263, 7.23, 7.45, 7.95, 7.113, 7.249, 8.29, 8.177, 8.205, 9.77, 9.175, 9.283, 10.163, 10.187, 10.199, 10.241
- peak-shaving . . .** 2.43
- performance...** 9.35
- performance-based rates . . .** 7.259
- performance contracting . . .** 4.57, 4.185, 6.175, 6.231, 9.159, 9.269, 10.21, 10.49, 10.141, 10.181, 10.187
- performance monitoring . . .** 2.137, 2.241, 5.167, 5.249, 6.127, 9.101, 9.129, 9.175, 9.195, 10.21, 10.181, 10.187
- persistence of savings...** 1.65, 2.87, 4.137, 4.259, 5.13, 5.25, 6.185, 8.9, 8.19, 8.97, 8.193, 8.205, 9.93, 9.147, 9.243, 10.21, 10.49, 10.123, 10.181, 10.187
- personal computer . . .** 1.109, 2.257, 3.151, 7.179, 9.93, 9.205
- photovoltaic cells . . .** 3.141
- policy . . .** 1.27, 1.37, 1.45, 1.53, 1.85, 1.91, 1.109, 1.119, 1.133, 1.175, 1.185, 1.193, 2.21, 2.43, 2.51, 2.211, 2.229, 3.67, 3.77, 3.97, 3.177, 3.229, 3.241, 4.1, 4.15, 4.25, 4.37, 4.49, 4.57, 4.71, 4.93, 4.101, 4.123, 4.137, 4.147, 4.167, 4.185, 4.193, 4.201, 4.215, 4.231, 4.253, 4.269, 4.277, 4.289, 5.59, 5.175, 5.181, 6.1, 6.11, 6.29, 6.47, 6.59, 6.81, 6.91, 6.101, 6.111, 6.119, 6.139, 6.157, 6.167, 6.191, 6.201, 6.213, 6.221, 6.231, 6.241, 6.251, 6.263, 7.13, 7.23, 7.55, 7.73, 7.95, 7.103, 7.121, 7.147, 7.169, 7.205, 7.223, 8.1, 8.97, 8.205, 8.235, 8.263, 9.1, 9.35, 9.77, 9.85, 9.93, 9.129, 9.137, 9.147, 9.159, 9.165, 9.205, 9.213, 9.221, 9.251, 9.269, 10.11, 10.21, 10.49, 10.61, 10.77, 10.107, 10.133, 10.155, 10.163, 10.173, 10.187
- pollution (see air pollution) . . .** 1.85, 1.91, 1.133, 1.169, 1.193, 2.229, 4.1, 4.15, 4.25, 4.37, 4.49, 4.57, 4.81, 4.101, 4.123, 4.147, 4.185, 4.193, 4.201, 4.215, 4.241, 4.253, 4.289, 5.25, 5.97, 5.133, 6.1, 6.81, 6.101, 6.201, 6.221, 6.251, 6.263, 9.1, 9.35, 9.65, 9.77, 9.259, 9.277, 9.283, 10.107, 10.141
- pollution control . . .** 4.15, 4.49, 4.101, 4.123, 4.193, 9.283
- polyurethane foam . . .** 3.141, 4.259, 4.269
- portable heaters . . .** 7.45
- power marketing . . .** 3.151, 6.1, 6.191, 6.241, 9.129, 9.269, 10.173
- power measurement...** 2.31, 2.241, 3.151, 5.113
- power transmission . . .** 2.117, 4.123, 6.241, 6.263

- predisposition** . . . 1.201
- preferences** . . . 1.37, 1.45, 1.59, 1.91, 1.109, 1.133, 1.175, 1.185, 2.67, 2.195, 3.1, 3.117, 4.123, 6.91, 6.157, 6.201, 6.263, 7.1, 7.85, 7.179, 7.249, 8.171, 9.165, 10.77, 10.155, 10.163, 10.211, 10.259
- pressurization** . . . 2.185, 3.177, 5.1, 5.97, 5.209, 5.225, 5.237, 5.275, 9.17, 9.109, 9.137, 9.175, 9.195, 9.277
- price-sensitive thermostats** . . . 2.67
- PRISM** . . . 1.19, 1.65, 1.119, 2.77, 2.157, 3.9, 4.81, 6.19, 8.7, 8.49, 8.171, 9.213
- probability analysis** . . . 8.63
- process evaluation** . . . 1.75, 1.101, 1.145, 2.195, 2.157, 5.275, 6.111, 6.149, 7.23, 8.9, 8.77, 8.97, 8.105, 8.187, 8.225, 9.147, 9.221, 10.149
- productivity** . . . 1.91, 1.133, 2.195, 3.117, 3.129, 3.241, 4.1, 4.25, 4.37, 4.49, 4.123, 4.201, 4.253, 5.25, 5.175, 6.11, 6.81, 6.127, 6.191, 7.65, 7.205, 8.187, 9.29, 9.35, 9.77, 9.121, 9.159, 9.259, 9.277, 10.85, 10.123, 10.145
- proficiency testing** . . . 3.77
- program design** . . . 1.75, 1.101, 1.145, 1.159, 1.175, 1.185, 2.67, 2.127, 2.175, 3.1, 3.67, 3.151, 3.199, 4.93, 4.201, 4.231, 4.277, 5.89, 5.175, 5.275, 6.91, 6.111, 6.119, 6.251, 7.23, 7.65, 7.73, 7.103, 7.233, 8.29, 8.77, 8.89, 8.97, 8.105, 8.123, 8.141, 8.177, 8.193, 8.225, 8.235, 8.253, 8.263, 9.85, 9.93, 9.101, 9.147, 9.195, 10.35, 10.41, 10.49, 10.61, 10.71, 10.93, 10.123, 10.133, 10.141, 10.145, 10.173, 10.181, 10.187, 10.199, 10.211, 10.235, 10.241, 10.249
- program participation**... 1.9, 1.119, 1.145, 1.159, 1.185, 1.201, 2.21, 2.127, 2.157, 2.185, 2.249, 2.277, 4.87, 4.193, 4.259, 6.263, 7.1, 7.23, 7.65, 7.95, 7.189, 7.239, 8.9, 8.29, 8.77, 8.89, 8.123, 8.141, 8.151, 8.163, 8.171, 8.225, 8.235, 9.101, 10.11, 10.107, 10.115, 10.145, 10.155, 10.221, 10.235, 10.241
- project implementation**... 2.269, 9.159, 9.221, 10.141
- project tracking**... 5.275, 9.221
- protocols** . . . 1.9, 1.145, 2.31, 2.127, 2.145, 2.157, 2.205, 3.45, 3.151, 4.123, 4.231, 5.89, 6.91, 7.23, 7.189, 7.213, 8.97, 8.123, 8.171, 8.177, 8.235, 9.147, 10.21, 10.199, 10.241
- public housing** . . . 4.1, 4.93, 4.201, 6.175, 9.147, 10.21, 10.173, 10.181, 10.187, 10.249
- public policy** . . . 1.119, 1.175, 1.193, 2.229, 4.1, 4.123, 4.147, 4.201, 4.215, 4.289, 6.221, 6.241, 7.73, 7.205, 8.1, 10.173
- public/private partnership**... 3.67, 9.101
- public utilities** . . . 1.9, 1.45, 1.101, 1.159, 1.175, 2.67, 2.145, 2.157, 4.1, 4.49, 4.81, 4.87, 4.101, 4.193, 5.267, 6.1, 6.11, 6.29, 6.81, 6.91, 6.119, 6.127, 6.149, 6.157, 6.167, 6.185, 6.191, 6.201, 6.251, 6.263, 7.23, 7.73, 7.85, 7.147, 7.213, 8.49, 8.77, 8.97, 8.141, 8.247, 9.77, 9.121, 9.159, 9.165, 9.269, 10.11, 10.61, 10.71, 10.107, 10.115, 10.155, 10.163, 10.235, 10.249
- public utility commissions**... 4.1, 4.87, 4.101, 4.231, 4.289, 5.25, 6.119, 6.201, 6.213, 9.251
- pumps** . . . 1.19, 1.133, 1.145, 1.193, 2.87, 2.105, 2.117, 2.157, 2.241, 2.249, 3.9, 3.29, 3.89, 3.97, 3.141, 3.151, 3.159, 3.165, 3.177, 3.189, 3.205, 3.263, 4.71, 4.81, 4.113, 4.201, 4.253, 5.1, 5.17, 5.37, 5.73, 5.181, 5.193, 5.201, 5.237, 5.267, 5.275, 6.67, 6.139, 6.167, 6.213, 7.23, 7.45, 7.55, 7.131, 7.179, 7.197, 7.205, 7.223, 8.115, 8.131, 8.193, 9.29, 9.51, 9.85, 9.101, 9.175, 9.187, 9.195, 9.227, 9.243, 9.251, 9.269, 9.283, 10.21, 10.35, 10.85, 10.187, 10.199
- Q**
- quality control** . . . 1.159, 2.31, 4.93, 4.231, 5.25, 5.209, 5.275, 7.141, 8.157, 9.277, 10.145, 10.187, 10.241, 10.249
- R**
- radiators** . . . 1.169, 4.81, 4.289, 5.133, 9.51, 9.259
- radon** . . . 1.133, 4.177, 4.201, 5.47, 5.233, 8.97, 9.137, 9.277
- radon entry** . . . 9.137
- radon survey** . . . 9.137
- rate structure**... 2.21, 2.67, 2.257, 3.29, 6.11, 9.17
- ratio estimation** . . . 2.31, 2.95, 2.167, 4.167, 8.263
- rebates** . . . 1.1, 1.9, 1.19, 1.91, 1.101, 1.133, 1.185, 1.201, 2.77, 2.157, 2.249, 3.1, 3.67, 3.129, 3.165, 3.199, 4.65, 4.81, 4.137, 4.193, 4.231, 4.277, 4.289, 6.59, 6.91, 6.127, 6.149, 6.157, 6.191, 6.213, 6.231, 6.251, 6.263, 7.1, 7.23, 7.55, 7.65, 7.73, 7.95, 7.159, 7.189, 7.239, 8.37, 8.97, 8.105, 8.141, 8.163, 8.215, 8.235, 8.247, 8.253, 9.29, 9.85, 9.129, 9.159, 9.227, 9.251, 9.259, 10.1, 10.11, 10.21, 10.41, 10.61, 10.71, 10.85, 10.93, 10.115, 10.123, 10.133, 10.141, 10.145, 10.155, 10.163, 10.181, 10.187, 10.199, 10.211, 10.229, 10.235, 10.259
- recommissioning** . . . 2.11, 5.47, 5.73, 5.89, 5.153
- recycling** . . . 1.91, 1.133, 3.241, 4.1, 4.65, 4.177, 4.193, 4.253, 4.259, 4.269, 4.277, 6.263, 7.147, 7.197, 9.35, 9.51, 9.259, 10.71, 10.115, 10.149
- reflectance** . . . 3.117, 3.251, 5.59, 9.65
- refrigerant conversions** . . . 9.283
- refrigeration** . . . 1.9, 1.109, 1.133, 2.1, 2.57, 2.95, 2.127, 2.175, 2.205, 3.9, 3.19, 3.41, 3.57, 3.67, 3.97, 3.103, 3.141, 3.165, 3.189, 3.205, 4.25, 4.65, 4.71, 4.113, 4.137, 4.155, 4.215, 4.241, 4.269, 5.25, 5.73, 5.105, 5.113, 5.167, 5.175, 5.219, 5.225, 5.275, 6.127, 6.213, 6.221, 6.241, 7.23, 7.65, 7.205, 8.9, 8.105, 8.115, 8.123, 8.193, 8.263, 9.17, 9.35, 9.85, 9.109, 9.129, 9.213, 9.227, 9.243, 9.269, 9.283, 10.35, 10.93, 10.187, 10.199

- refrigerators . . .** 1.133, 1.153, 1.159, 1.175, 1.193, 1.201, 2.57, 2.77, 2.205, 2.211, 2.241, 3.19, 3.41, 3.57, 3.67, 3.141, 4.65, 4.71, 4.113, 4.167, 4.185, 4.201, 4.215, 4.253, 4.259, 4.269, 6.29, 6.91, 6.101, 6.157, 6.213, 6.221, 7.1, 7.13, 7.23, 7.45, 7.55, 7.121, 7.131, 7.141, 7.179, 7.205, 8.1, 8.9, 8.37, 8.63, 8.141, 8.151, 8.193, 8.253, 9.35, 9.227, 9.251, 9.269, 10.21, 10.115, 10.187, 10.199, 10.211, 10.259
- regional cooling . . .** 4.155
- regional marketing . . .** 10.115
- regression analysis . . .** 1.19, 2.57, 2.157, 2.249, 4.25, 4.49, 5.257, 6.67, 7.35, 7.159, 7.197, 7.213, 8.49, 8.171, 8.247, 9.109, 10.229
- regulatory incentives . . .** 1.101, 4.137, 6.11, 6.89, 6.127, 6.251, 7.65, 7.85
- regulatory policy . . .** 4.15, 4.101, 4.123, 4.137, 6.11, 6.157, 6.201, 6.251, 7.73
- rehabilitation . . .** 1.153, 3.263, 4.15, 4.25, 4.215, 6.19, 6.39, 6.111, 9.269, 10.21, 10.173
- reliability . . .** 1.9, 1.37, 1.53, 1.75, 1.91, 1.109, 1.133, 1.153, 1.201, 2.51, 2.67, 2.105, 2.117, 2.127, 2.175, 2.211, 2.229, 2.269, 3.29, 3.41, 3.67, 3.77, 3.103, 3.129, 3.205, 3.217, 3.241, 3.263, 4.15, 4.25, 4.49, 4.87, 4.93, 4.123, 4.167, 4.201, 4.231, 4.259, 5.13, 5.25, 5.73, 5.89, 5.143, 5.209, 5.237, 5.257, 5.267, 6.81, 6.111, 6.127, 6.149, 6.157, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 7.1, 7.23, 7.65, 7.85, 7.121, 7.159, 7.169, 7.189, 7.259, 8.9, 8.29, 8.37, 8.49, 8.71, 8.89, 8.163, 8.187, 8.193, 8.263, 9.41, 9.51, 9.85, 9.159, 9.175, 9.213, 10.21, 10.35, 10.49, 10.93, 10.123, 10.145, 10.155, 10.163, 10.187, 10.249
- reliability and persistence . . .** 5.25, 8.37, 10.49
- renewable energy sources . . .** 4.113, 4.147, 4.231, 6.101, 6.201, 6.251, 6.263, 9.35, 9.77
- renormalization . . .** 5.1
- renovation . . .** 1.193, 2.277, 4.25, 4.93, 4.113, 4.177, 4.193, 4.215, 5.25, 5.193, 5.201, 6.231, 7.121, 8.9, 8.37, 8.115, 8.193, 9.1, 9.11, 9.35, 9.159, 9.259, 10.85, 10.199
- rental housing . . .** 1.109, 3.263, 10.21
- repeatability . . .** 5.17
- research agenda . . .** 1.85, 2.269, 4.123
- research and development (R&D)...** 1.75, 1.91, 1.101, 1.109, 2.43, 2.105, 2.205, 3.29, 3.45, 3.57, 3.67, 3.97, 3.141, 3.241, 3.263, 4.147, 4.215, 4.241, 4.253, 5.25, 5.47, 5.193, 6.91, 6.201, 6.213, 7.55, 7.113, 7.169, 7.223, 8.37, 9.1, 9.17, 9.101, 9.129, 9.137, 9.221, 9.235, 9.251, 9.269, 10.21, 10.61, 10.77, 10.93, 10.123, 10.145, 10.173, 10.187
- research design . . .** 1.75, 2.31, 2.167, 2.185, 2.195, 8.105
- research needs . . .** 4.49, 8.89, 10.21
- residential buildings . . .** 1.75, 2.31, 2.137, 2.241, 3.57, 3.109, 3.189, 4.15, 4.71, 4.81, 4.177, 4.185, 4.241, 5.1, 5.97, 5.123, 5.181, 5.237, 6.47, 6.139, 6.149, 6.201, 7.121, 8.9, 8.235, 9.147, 9.243, 9.277, 10.21, 10.61, 10.133
- residential programs . . .** 1.145, 3.1, 4.71, 4.81, 4.87, 4.93, 4.101, 4.113, 6.175, 7.23, 7.131, 8.151, 8.177, 8.225, 9.93, 10.115, 10.145
- Residential Energy Consumption Survey (RECS)...** 1.185, 1.185, 2.145, 2.195, 3.141, 4.93, 6.29, 6.81, 6.201, 6.263, 7.13, 7.103, 7.179, 8.131, 10.21
- resource acquisition . . .** 1.91, 3.199, 4.15, 4.101, 4.201, 5.25, 5.267, 5.275, 6.157, 6.231, 6.251, 7.85, 7.113, 7.141, 7.169, 8.37, 8.141, 9.147, 10.241
- resource planning . . .** 1.101, 1.133, 2.1, 2.117, 2.175, 3.97, 3.129, 4.1, 4.15, 4.25, 4.37, 4.49, 4.65, 4.87, 4.93, 4.101, 4.123, 4.185, 4.231, 5.13, 6.1, 6.11, 6.29, 6.81, 6.91, 6.101, 6.119, 6.157, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 6.263, 7.23, 7.64, 7.85, 7.95, 7.113, 7.141, 7.159, 7.169, 7.197, 7.205, 7.259, 8.9, 8.77, 8.97, 8.177, 8.225, 8.235, 9.93, 9.251, 9.269, 10.1, 10.11, 10.61, 10.85, 10.107, 10.133, 10.155, 10.163, 10.199
- resource selection . . .** 4.87, 4.101, 6.1, 6.119, 6.251, 6.263, 7.85, 7.141, 8.77, 10.85, 10.163
- restaurants . . .** 1.75, 1.85, 3.129, 3.229, 5.167, 6.127, 7.197, 7.239, 8.235, 9.35, 9.243, 9.259, 10.235
- retail buildings...** 2.145, 5.13, 8.193
- retail competition . . .** 4.101, 6.81, 6.191, 6.201, 6.241, 6.251, 6.263, 7.85, 8.97, 10.11
- retail distribution . . .** 2.195, 8.89, 10.71
- retail wheeling . . .** 2.51, 4.93, 6.81, 6.119, 6.191, 6.201, 6.241, 6.251, 6.263, 7.85, 10.11, 10.163
- retrofit . . .** 1.9, 1.59, 1.65, 1.75, 1.85, 1.145, 1.153, 1.175, 1.193, 2.31, 2.77, 2.87, 2.105, 2.117, 2.137, 2.157, 2.205, 2.217, 2.225, 2.257, 2.277, 3.1, 3.9, 3.29, 3.89, 3.103, 3.117, 3.151, 3.177, 3.217, 3.251, 3.263, 4.15, 4.25, 4.37, 4.49, 4.81, 4.101, 4.113, 4.123, 4.177, 4.193, 4.201, 4.215, 4.277, 4.289, 5.17, 5.25, 5.37, 5.47, 5.73, 5.89, 5.105, 5.113, 5.123, 5.143, 5.153, 5.167, 5.175, 5.181, 5.193, 5.201, 5.209, 5.233, 5.275, 6.1, 6.39, 6.59, 6.81, 6.201, 6.231, 7.23, 7.35, 7.55, 7.65, 7.95, 7.113, 7.121, 7.131, 7.141, 7.197, 7.205, 7.213, 7.429, 8.123, 8.141, 8.205, 8.235, 8.253, 8.263, 8.9, 8.37, 8.49, 8.89, 8.97, 8.105, 8.123, 8.157, 8.163, 8.177, 8.193, 8.235, 8.253, 8.263, 9.1, 9.17, 9.29, 9.35, 9.77, 9.85, 9.93, 9.109, 9.129, 9.147, 9.159, 9.175, 9.187, 9.195, 9.205, 9.243, 9.259, 9.269, 9.283, 10.21, 10.41, 10.61, 10.71, 10.85, 10.93, 10.123, 10.145, 10.155, 10.181, 10.187, 10.199, 10.211, 10.235, 10.241, 10.249
- revolving fund...** 3.1, 4.57, 4.71
- roof coatings . . .** 5.59, 9.65
- roofs . . .** 1.75, 1.193, 2.11, 2.51, 3.109, 4.71, 5.59, 5.181, 6.19, 6.67, 9.65, 9.129

- rooftop unit...** 3.103, 5.249, 9.17
- routing . . .** 4.123
- rural electric cooperative . . .** 9.93
- S**
- sales patterns . . .** 1.9, 6.157, 8.253
- sample design . . .** 1.119, 2.31, 2.77, 2.127, 2.157, 2.167, 2.217, 3.89, 5.113, 6.111, 8.171, 8.263
- savings scenarios . . .** 4.71
- schools . . .** 1.91, 1.133, 2.1, 2.51, 2.95, 3.129, 4.57, 4.123, 4.201, 4.231, 4.277, 5.73, 5.153, 5.257, 6.67, 6.111, 6.127, 6.139, 7.131, 7.239, 8.105, 8.151, 9.77, 9.129, 9.137, 9.221, 9.227, 10.235, 10.249
- scorekeeping...** 1.65, 2.77, 2.157, 3.9, 6.19, 8.37, 8.49
- seasonal efficiency . . .** 3.9, 9.147, 10.21
- seasonal equipment efficiency rating (SEER) . . .** 3.97, 3.159, 3.189, 3.205, 6.213, 6.221, 7.23, 7.233, 7.249, 8.29, 8.37, 8.225, 8.247, 8.253, 9.175, 9.227, 10.187
- seasonal variations . . .** 1.185, 2.105, 2.167, 3.117
- sector overview . . .** 10.21
- segmentation . . .** 1.91, 1.109, 1.153, 1.159, 1.185, 2.127, 5.89, 6.127, 7.197, 8.1, 8.29, 8.37, 8.225, 10.35, 10.123, 10.145, 10.211, 10.229, 10.249
- self selection bias . . .** 2.249
- sensor . . .** 1.159, 2.31, 2.205, 2.211, 2.241, 3.19, 3.29, 3.57, 3.89, 3.117, 3.151, 3.205, 3.217, 3.251, 4.155, 5.37, 5.47, 5.73, 5.113, 5.133, 5.193, 5.201, 5.209, 5.225, 5.237, 5.249, 5.267, 8.115, 8.193, 9.17, 9.137, 9.175, 9.187, 9.195, 9.235, 9.243, 9.259, 9.277, 10.93, 10.241
- service markets . . .** 1.185, 6.241, 6.262
- service sector . . .** 4.57, 4.167, 6.201, 6.251
- shading . . .** 1.75, 1.109, 2.277, 3.117, 4.123, 4.155, 5.1, 5.105, 5.167, 5.201, 6.67, 7.233, 8.29, 8.141, 9.29, 9.187
- short-term monitoring . . .** 2.31, 2.137, 2.205, 5.113, 5.249, 8.263
- showerhead retrofit . . .** 8.89
- showers . . .** 1.153, 1.193, 6.149, 7.13, 7.103, 8.89, 9.77, 9.93
- simulation . . .** 1.9, 1.119, 2.1, 2.11, 2.31, 2.105, 2.145, 2.157, 2.167, 2.175, 2.195, 2.229, 2.269, 3.29, 3.109, 3.117, 3.129, 3.159, 3.189, 3.217, 3.229, 3.251, 4.155, 4.231, 5.1, 5.37, 5.47, 5.59, 5.73, 5.89, 5.105, 5.181, 5.193, 5.201, 5.225, 5.275, 6.1, 6.47, 6.67, 6.127, 6.139, 6.185, 6.231, 7.1, 7.35, 7.85, 7.95, 7.169, 7.213, 7.233, 7.239, 7.249, 7.259, 8.29, 8.71, 8.123, 8.131, 8.141, 9.17, 9.65, 9.129, 9.137, 9.175, 9.187, 9.195, 9.221, 9.235, 9.243, 9.251, 9.269, 9.283, 10.211
- skylights . . .** 1.75, 3.117, 9.251, 9.259
- small businesses . . .** 1.109, 1.133, 3.9, 6.59, 6.101, 6.251, 8.231, 9.221, 10.241, 10.249
- social change...** 1.91, 1.133, 1.201, 4.1
- social context...** 1.59, 1.109
- social impacts . . .** 1.119
- social marketing . . .** 1.85, 1.91, 1.133
- societal benefits . . .** 1.119, 4.101, 7.197, 9.77, 9.93
- socioeconomic factors . . .** 1.75
- so ftware...** 1.109, 1.175, 2.195, 2.105, 2.127, 2.145, 2.167, 2.175, 2.205, 2.241, 2.257, 2.277, 3.117, 3.151, 3.189, 3.205, 3.241, 3.263, 4.49, 4.277, 5.1, 5.47, 5.73, 5.105, 5.123, 5.153, 5.181, 5.193, 5.201, 5.209, 5.219, 5.225, 5.237, 5.249, 5.267, 6.47, 6.59, 6.139, 7.35, 7.141, 7.197, 7.213, 7.223, 7.239, 8.115, 8.171, 8.187, 8.215, 8.225, 8.263, 9.41, 9.159, 9.165, 9.187, 9.221, 9.251, 9.269, 9.283, 10.241
- software points . . .** 5.237
- solar cells...** 4.25, 6.241
- solar collectors . . .** 6.167, 9.51, 9.65
- solar cooling . . .** 3.189, 6.167
- solar heating . . .** 5.59, 6.167, 9.77
- solar water heating . . .** 9.77, 9.213, 9.251
- source fuel efficiency . . .** 9.121
- space conditioning . . .** 1.9, 1.45, 1.133, 1.153, 2.1, 2.167, 2.205, 2.217, 3.19, 3.57, 3.197, 3.117, 3.141, 3.151, 3.159, 3.177, 3.229, 3.241, 3.263, 4.201, 4.269, 5.233, 6.213, 7.13, 7.23, 7.35, 7.55, 7.131, 7.179, 7.233, 8.225, 9.195, 9.213, 10.21, 10.85, 10.173, 10.235
- space cooling . . .** 1.59, 2.157, 2.175, 3.19, 3.141, 3.189, 3.205, 4.155, 6.47, 6.213, 6.221, 7.65, 7.205, 7.213, 9.35, 9.147, 9.187, 9.259, 10.93
- space heating . . .** 1.19, 1.45, 1.159, 1.185, 1.193, 2.1, 2.77, 2.105, 2.157, 2.167, 2.175, 2.211, 2.217, 3.9, 3.19, 3.141, 3.177, 3.263, 4.15, 4.57, 4.177, 4.201, 4.215, 4.241, 5.1, 5.47, 5.105, 5.237, 6.19, 6.39, 6.47, 6.91, 6.111, 6.149, 6.167, 6.185, 6.213, 7.13, 7.35, 7.45, 7.65, 7.205, 7.213, 9.35, 9.51, 9.77, 9.93, 9.147, 9.187, 9.213, 10.21, 10.93, 10.133, 10.187, 10.229
- spillover...** 1.9, 1.185, 6.91, 6.157, 7.1, 7.159, 7.189, 7.239, 8.77, 8.97, 8.105, 8.141, 8.151, 8.163, 8.253, 10.41, 10.259
- steady-state efficiency (SSE)...** 3.141, 5.143, 6.19

- stack effect...** 4.201, 5.97, 5.133, 9.109, 9.137
- standards (see residential, commercial, or industrial) . . .** 1.9, 1.27, 1.45, 1.59, 1.75, 1.85, 1.91, 1.109, 1.119, 1.133, 1.169, 1.175, 1.185, 2.1, 2.31, 2.51, 2.57, 2.77, 2.105, 2.117, 2.137, 2.145, 2.157, 2.175, 2.205, 2.257, 3.29, 3.41, 3.57, 3.67, 3.77, 3.97, 3.109, 3.117, 3.129, 3.141, 3.151, 3.177, 3.199, 3.229, 3.241, 3.263, 4.1, 4.15, 4.49, 4.65, 4.71, 4.87, 4.93, 4.101, 4.113, 4.123, 4.137, 4.167, 4.177, 4.185, 4.193, 4.201, 4.215, 4.241, 4.269, 4.277, 4.289, 5.25, 5.47, 5.59, 5.89, 5.97, 5.105, 5.123, 5.153, 5.181, 5.193, 5.237, 6.1, 6.11, 6.47, 6.59, 6.67, 6.81, 6.91, 6.111, 6.139, 6.149, 6.157, 6.185, 6.191, 6.201, 6.213, 6.221, 6.231, 6.241, 7.23, 7.55, 7.65, 7.103, 7.121, 7.179, 7.189, 7.205, 7.213, 8.29, 8.37, 8.63, 8.77, 8.97, 8.131, 8.141, 8.247, 8.253, 9.17, 9.35, 9.51, 9.65, 9.85, 9.165, 9.187, 9.195, 9.213, 9.221, 9.227, 9.243, 9.251, 9.269, 9.277, 10.21, 10.61, 10.85, 10.107, 10.115, 10.133, 10.155, 10.163, 10.173, 10.187, 10.199, 10.211, 10.259
- standards and DSM...** 6.91
- state programs . . .** 10.21
- stated preferences . . .** 2.67, 7.1
- statistical models...** 4.101, 5.153, 8.171
- storage (see energy storage) . . .** 1.109, 2.31, 2.43, 2.95, 2.105, 2.145, 2.175, 2.205, 2.229, 2.241, 2.257, 3.9, 3.19, 3.29, 3.57, 3.97, 3.141, 3.151, 3.165, 3.189, 3.205, 4.81, 4.113, 4.123, 4.177, 4.193, 4.259, 4.269, 5.25, 5.59, 5.105, 5.123, 5.153, 5.167, 5.201, 5.209, 5.237, 5.249, 6.59, 6.67, 6.81, 6.167, 6.241, 6.251, 7.35, 7.259, 8.37, 8.63, 8.71, 8.97, 8.115, 8.131, 8.151, 8.157, 8.193, 9.29, 9.51, 9.65, 9.77, 9.93, 9.101, 9.137, 9.205, 9.213, 9.221, 9.235, 9.259, 10.35, 10.49, 10.93, 10.141, 10.199
- storm doors . . .** 1.185, 6.29, 7.35
- storm windows . . .** 1.185, 4.15, 4.241, 6.19, 6.29, 7.35, 10.181
- strategic planning . . .** 1.133, 2.175, 4.15, 4.101, 4.193, 6.101, 6.231, 6.241, 7.85, 7.259, 9.251, 10.211
- stringency analysis . . .** 6.67
- structural changes . . .** 1.101, 1.133, 4.215, 4.277, 6.81, 6.157, 6.191
- stud-wall framing . . .** 9.51
- subscription service...** 10.11
- sulfur dioxide (SO₂)...** 1.109, 2.43, 4.15, 4.25, 4.87, 4.101, 4.113, 4.123, 4.137, 4.167, 4.177, 4.185, 4.231, 4.253, 4.269, 6.1, 6.81, 7.73, 7.113, 7.223, 9.227, 7.259, 8.97
- super efficiency . . .** 3.67
- supply curves . . .** 3.57, 4.201, 7.55, 7.147, 8.193, 9.77
- survival analysis . . .** 8.9, 8.193,
- sustainable cities . . .** 4.1
- sustainable development...** 1.153, 1.193, 4.1, 4.147, 4.185, 6.101
- sustainable energy future...** 10.107
- switch performance...** 9.41
- system sizing . . .** 2.105, 6.149, 10.21
- T**
- T&D benefits...** 2.269, 4.123
- takeback effect...** 1.19, 7.59
- targets . . .** 1.91, 1.101, 1.133, 2.31, 2.127, 2.157, 3.89, 3.117, 3.177, 3.241, 4.25, 4.65, 4.87, 4.93, 4.113, 4.215, 4.231, 4.277, 4.289, 5.47, 5.123, 5.167, 5.181, 5.209, 6.19, 6.127, 6.167, 7.23, 7.239, 9.227, 9.243, 9.277, 10.21, 10.93, 10.115, 10.123, 10.173, 10.187, 10.199, 10.259
- tax credits . . .** 1.119, 1.133, 2.43, 6.39, 6.47, 7.73, 9.213
- technical change...** 1.109, 7.147
- technical potential . . .** 1.37, 1.75, 2.229, 3.199, 4.25, 4.49, 4.57, 5.89, 5.209, 6.111, 6.231, 7.55, 7.223, 8.37, 9.85, 10.35, 10.85, 10.93
- technology assessment...** 1.133, 2.57, 3.151, 3.199, 3.241, 4.1, 4.37, 4.123, 4.201, 6.201, 6.213, 9.129, 9.159, 9.205, 9.251, 10.21, 10.93, 10.123
- technology assistance...** 10.173
- technology choice...** 1.109, 1.175, 4.49, 4.253, 8.9
- technology demonstration . . .** 3.205, 3.241, 9.17, 9.77, 9.101, 9.129, 9.235
- technology development...** 1.109, 1.133, 3.241, 4.1, 4.101, 6.167, 6.213, 8.37, 9.101, 10.187
- technology management...** 10.77
- technology transfer . . .** 1.109, 3.41, 3.67, 3.241, 4.25, 5.143, 9.35, 9.85, 9.101, 9.121, 9.251, 9.269, 9.277, 10.21
- tenant metering...** 3.263
- Terminal Regulated Air Volume (TRAV)...** 5.209, 5.267
- thermal analysis . . .** 3.109, 9.213, 10.133
- thermal characteristics...** 3.117, 5.1, 6.47, 6.111
- thermal comfort . . .** 1.59, 3.29, 3.117, 4.201, 5.47, 5.133, 5.225, 6.29, 9.51, 9.213, 9.259, 9.277
- thermal energy storage...** 3.165, 5.25, 6.167, 8.193, 9.29
- thermal mass . . .** 1.59, 1.75, 2.95, 2.105, 3.29, 3.177, 4.81, 5.59, 6.47, 7.233, 7.249, 9.51
- thermostat settings . . .** 1.19, 2.67, 3.229, 4.289, 5.73, 8.1, 9.213

thermostats . . . 1.1, 1.19, 1.65, 1.133, 1.169, 1.175, 1.185, 1.193, 2.67, 2.127, 2.167, 4.15, 4.81, 4.241, 4.289, 5.143, 5.201, 5.219, 5.225, 5.275, 6.241, 7.35, 7.131, 7.239, 8.193, 9.11, 9.17, 9.41, 9.147, 9.187, 9.195, 10.115, 10.181, 10.187, 10.241

time series analysis... 1.45, 8.105

tracer gas... 9.11, 9.195

trade allies . . . 1.101, 1.119, 1.133, 1.185, 2.51, 3.217, 4.49, 4.113, 5.89, 6.127, 6.157, 6.201, 6.213, 5.1, 5.97, 5.133, 5.225, 8.37, 8.123, 8.141, 9.1, 9.85, 9.165, 10.35, 10.93, 10.115, 10.123, 10.145, 10.199, 10.211, 10.221, 10.249

training . . . 1.91, 1.109, 1.133, 1.145, 2.31, 2.67, 2.87, 2.257, 3.1, 3.77, 3.97, 3.177, 4.1, 4.37, 4.81, 4.87, 4.177, 4.269, 4.277, 5.13, 5.25, 5.89, 5.167, 5.175, 5.193, 5.233, 5.249, 5.257, 5.275, 6.29, 6.39, 6.59, 6.111, 6.139, 6.149, 6.157, 6.167, 6.175, 7.23, 7.141, 8.37, 8.97, 8.123, 8.141, 9.1, 9.85, 9.129, 9.147, 9.159, 9.165, 9.221, 9.243, 9.251, 9.259, 9.269, 10.21, 10.93, 10.115, 10.123, 10.173, 10.181, 10.187, 10.241, 10.249

transmission . . . 1.53, 1.93, 2.77, 2.117, 2.195, 2.229, 2.249, 2.269, 3.1, 3.97, 3.109, 3.189, 3.251, 3.263, 4.1, 4.15, 4.49, 4.71, 4.93, 4.123, 4.201, 4.241, 5.59, 5.73, 5.123, 5.225, 6.1, 6.11, 6.67, 6.81, 6.101, 6.119, 6.191, 6.201, 6.241, 6.251, 6.263, 7.147, 7.169, 7.223, 7.249, 8.1, 8.71, 8.97, 8.177, 9.17, 9.41, 9.51, 9.77, 9.85, 9.121, 9.187, 10.11, 10.141, 10.163, 10.187, 10.199

transmission and distribution (T&D)... 2.43, 2.77, 2.117, 2.195, 2.229, 2.249, 2.269, 3.1, 4.15, 4.71, 4.93, 4.123, 6.81, 6.191, 6.201, 6.241, 6.251, 6.263, 7.223, 7.249, 8.1, 8.97, 8.177, 9.17, 9.77, 9.85, 9.121, 10.11, 10.141, 10.163, 10.199

trees . . . 1.59, 4.71, 4.101, 4.155, 5.37, 5.59, 7.13, 7.95, 8.253, 9.35, 9.65

triangulation . . . 1.9, 8.97

U

uncertainty . . . 1.9, 1.37, 1.45, 1.53, 1.75, 1.91, 1.109, 2.31, 2.67, 2.105, 2.117, 2.167, 2.229, 3.9, 3.77, 3.89, 3.103, 4.15, 4.101, 4.123, 4.137, 4.167, 4.177, 4.185, 4.231, 5.1, 5.25, 5.113, 5.181, 5.257, 5.267, 6.81, 6.101, 6.111, 6.149, 6.157, 6.191, 6.201, 6.213, 6.231, 6.241, 6.251, 7.1, 7.65, 7.73, 7.95, 7.113, 7.141, 7.159, 7.169, 7.205, 7.233, 7.239, 7.259, 8.9, 8.37, 8.63, 8.77, 8.105, 8.131, 8.141, 8.177, 8.205, 8.263, 9.165, 9.251, 10.49, 10.77, 10.85, 10.93, 10.145, 10.163, 10.249, 10.259

utility behavior... 1.101

utility planning . . . 2.43, 4.15, 4.101, 4.137, 6.1, 6.29, 6.119, 6.157, 6.201, 6.231, 6.251, 6.263, 7.73, 7.95, 7.113, 7.169, 7.223, 7.259, 8.177, 8.235, 10.1, 10.107, 10.123, 10.163, 10.199

utility programs . . . 1.119, 1.175, 1.185, 2.117, 2.127, 2.269, 3.117, 3.129, 3.177, 3.199, 4.49, 4.113, 4.155,

4.201, 4.231, 4.259, 5.59, 6.11, 6.29, 6.139, 6.157, 6.191, 6.201, 6.221, 7.1, 7.55, 7.103, 7.223, 8.37, 8.77, 8.97, 8.123, 8.141, 8.187, 8.235, 8.253, 9.77, 9.129, 9.147, 9.213, 9.251, 9.269, 10.21, 10.61, 10.93, 10.115, 10.123, 10.133, 10.141, 10.145, 10.155, 10.163, 10.173, 10.181, 10.211

utility regulation . . . 3.97, 6.241, 6.263, 7.169, 10.11, 10.107

V

validation . . . 1.45, 2.95, 2.127, 2.211, 2.217, 1.27, 2.43, 2.229, 2.269, 5.1, 5.193, 7.13, 8.49, 9.235, 9.251, 10.21

valuation . . . 4.87, 4.101, 4.123, 4.167, 4.253, 6.1, 6.39, 6.167, 7.73, 7.113, 7.169, 9.121, 10.49

variable air volume system (VAV)... 2.11, 2.175, 2.241, 3.151, 5.47, 5.73, 5.123, 5.153, 5.181, 5.193, 5.209, 5.219, 5.237, 5.249, 5.267, 5.275, 6.67, 6.139, 8.193, 9.29

variable speed drive... 2.145, 3.151, 5.37, 5.123, 5.181, 5.209, 5.275, 8.193, 10.93

vegetation . . . 4.123, 4.155, 5.59

vent dampers . . . 3.129, 3.263, 10.21

ventilation . . . 1.75, 1.133, 1.153, 1.169, 1.185, 2.1, 2.145, 2.205, 2.277, 3.29, 3.97, 3.165, 3.177, 3.189, 3.205, 4.25, 4.81, 4.93, 4.113, 4.155, 4.177, 4.201, 4.231, 4.241, 4.277, 5.1, 5.25, 5.47, 5.97, 5.123, 5.133, 5.153, 5.167, 5.175, 5.181, 5.193, 5.225, 5.233, 5.237, 5.249, 5.257, 5.275, 6.149, 6.185, 7.35, 7.73, 7.213, 8.9, 8.193, 9.11, 9.51, 9.77, 9.109, 9.121, 9.129, 9.137, 9.147, 9.187, 9.243, 9.259, 9.277, 10.21, 10.93, 10.249

verification . . . 1.9, 2.31, 2.95, 2.175, 2.185, 2.225, 2.269, 3.89, 3.117, 3.151, 3.205, 3.217, 4.71, 4.137, 4.231, 5.1, 5.13, 5.25, 5.47, 5.89, 5.105, 5.113, 5.193, 5.201, 5.209, 5.237, 5.267, 6.91, 6.175, 7.23, 7.189, 8.97, 8.123, 8.177, 9.159, 9.221, 10.49, 10.61, 10.173, 10.187, 10.241, 10.249

W

warranties . . . 5.193, 8.253

waste heat recovery . . . 6.167, 9.213, 10.93

water conservation . . . 1.1, 1.145, 3.189, 3.199, 4.155, 5.175, 6.149, 7.103, 7.197, 8.9, 8.151, 9.147, 9.159, 9.221, 10.21

water heaters . . . 1.19, 1.133, 1.185, 1.201, 2.57, 2.87, 2.167, 2.241, 3.9, 3.19, 3.129, 3.141, 3.189, 3.199, 3.263, 4.71, 4.113, 5.225, 6.67, 6.91, 6.111, 6.167, 6.213, 7.45, 7.73, 7.103, 7.197, 7.223, 8.1, 8.9, 8.37, 8.71, 8.89, 8.131, 8.141, 8.193, 9.77, 9.93, 9.227, 9.251, 9.269, 10.21, 10.115, 10.187

water heating . . . 1.19, 1.45, 1.65, 1.109, 1.153, 2.1, 2.21, 2.57, 2.145, 2.167, 2.175, 2.211, 2.217, 3.19, 3.57, 3.97, 3.141, 3.189, 3.199, 3.263, 4.15, 4.113, 4.177, 4.201, 4.215, 4.231, 5.47, 6.47, 6.111, 6.149, 6.175, 6.213,

water heating . . . 6.241, 7.13, 7.35, 7.55, 7.65, 7.103, 7.179, 7.197, 7.205, 7.213, 7.223, 8.1, 8.9, 8.37, 8.71, 8.89, 8.131, 8.193, 8.225, 9.77, 9.93, 9.101, 9.147, 9.187, 9.213, 9.251, 9.269, 10.21, 10.85, 10.115, 10.199, 10.211, 10.229

weather normalization . . . 2.77, 2.127, 2.157, 5.257, 9.213, 9.235

weathering . . . 5.59, 9.65

weatherization... 1.19, 1.65, 1.119, 1.133, 1.145, 1.159, 1.169, 1.201, 2.205, 4.1, 4.81, 4.113, 4.147, 4.177, 4.201, 4.289, 5.143, 6.19, 6.29, 6.39, 6.111, 6.175, 7.23, 7.65, 7.73, 7.121, 8.9, 8.49, 8.97, 8.235, 9.109, 9.147, 9.269, 10.21, 10.115, 10.173, 10.199, 10.211

weatherstripping . . . 1.169, 1.185, 4.37, 4.81, 4.241, 5.181, 6.175, 9.147

White House... 4.37, 4.231, 5.73, 5.175, 9.35, 10.1, 10.187

willingness to pay... 1.27, 4.123, 4.253, 6.251, 7.1, 8.37, 10.1, 10.41, 10.235, 10.241

windows . . . 1.1, 1.27, 1.85, 1.109, 1.133, 1.153, 1.169, 1.185, 1.193, 2.11, 2.57, 2.127, 2.185, 3.57, 3.117, 3.129, 3.189, 3.217, 3.251, 4.15, 4.37, 4.57, 4.71, 4.81, 4.123, 4.155, 4.177, 4.201, 4.215, 4.241, 4.289, 5.1, 5.47, 5.133, 5.167, 5.181, 5.193, 5.201, 5.225, 5.237, 5.249, 5.257, 6.19, 6.29, 6.39, 6.47, 6.91, 6.167, 7.13, 7.35, 7.249, 8.29, 9.29, 9.35, 9.51, 9.77, 9.109, 9.129, 9.137, 9.147, 9.187, 9.213, 9.221, 9.243, 9.251, 9.259, 9.269, 9.277, 10.1, 10.85, 10.181, 10.187, 10.199

windows and doors . . . 1.169, 4.15, 4.177, 4.241, 6.19, 6.47

wood . . . 1.19, 1.109, 1.133, 1.169, 1.185, 2.195, 2.229, 3.57, 3.109, 3.263, 4.49, 4.81, 4.177, 4.215, 5.225, 5.233, 7.35, 7.147, 9.51, 9.93, 9.109, 9.121, 9.187, 9.213, 9.259, 9.277, 10.187

workshops . . . 3.241, 4.37, 4.277, 5.153, 6.119, 8.235, 9.1, 9.77, 9.101, 9.121, 9.165, 9.269, 10.107, 10.115

Z

zoning . . . 1.109, 4.1, 4.123, 4.277, 5.275, 9.213, 10.77