

# Table of Contents

---

## Panel 9 - Sustainable Development, Climate Change, Energy Planning, and Policy

<b>Foreword</b> .....	9.iii
<b>Acknowledgments</b> .....	9.v
<b>Introduction</b> .....	9.xi
<b>Greenhouse Gas Emission from Building Construction in a Life-Cycle Perspective —Wood or Concrete Buildings?</b> .....	9.1
<i>Pål Börjesson, Lund University, Sweden</i>	
<i>Leif Gustavsson, Lund University, Sweden</i>	
<b>The Power Content Label: A Tool for Building a Consumer-Driven Market for Renewable Power</b> .....	9.11
<i>Cheri L. Davis, California Energy Commission</i>	
<i>Timothy N. Tutt, California Energy Commission</i>	
<b>Air Pollution Prevention Through Urban Heat Island Mitigation: An Update on the Urban Heat Island Pilot Project</b> .....	9.23
<i>Virginia Gorsevski, U.S. Environmental Protection Agency</i>	
<i>Haider Taha, Lawrence Berkeley National Laboratory</i>	
<i>Dale Quattrochi, National Aeronautics Space Administration</i>	
<i>Jeff Luvall, National Aeronautics Space Administration</i>	
<b>Energy Efficiency and the Theory of the Firm</b> .....	9.33
<i>Brent M. Haddad, University of California, Santa Cruz</i>	
<i>Richard B. Howarth, Dartmouth College</i>	
<i>Bruce Paton, University of California, Santa Cruz</i>	
<b>Understanding the Economic Benefits of Climate Change Commitments</b> .....	9.43
<i>Adam W. Hinge, Sustainable Energy Partnerships</i>	
<i>Thomas G. Bourgeois, Pace University Energy Project</i>	
<b>Community Energy Planning for Revelstoke BC: A Case Study</b> .....	9.55
<i>Innes Hood, Sheltair Scientific Ltd.</i>	
<i>Sebastian Moffatt, Sheltair Scientific Ltd.</i>	
<i>Craig Edwards, Sheltair Scientific Ltd.</i>	
<i>Mike Wiggin, Natural Resources Canada</i>	
<b>Protection of Energy Efficiency and Public Goods in Electric-Utility Restructuring in Brazil</b> .....	9.67
<i>Gilberto De Martino Jannuzzi, State University of Campinas, Brazil</i>	
<i>Ashok Gadgil, Lawrence Berkeley National Laboratory</i>	
<i>Mark Chao, Institute for Market Transformation</i>	

**Combined Heat and Power (CHP or Cogeneration) for Saving Energy and Carbon in Commercial Buildings** ..... 9.77  
*Tina Kaarsberg, Northeast-Midwest Institute*  
*Ronald Fiskum, U.S. Department of Energy*  
*Joseph Romm, U.S. Department of Energy*  
*Arthur Rosenfeld, U.S. Department of Energy*  
*Jonathan Koomey, Lawrence Berkeley National Laboratory*  
*W. Peter Teagan, Arthur D. Little, Inc.*

**A Policy Analysis of Voluntary Agreements for Energy Efficiency in Industry** ..... 9.93  
*Anders Larsen, AKF, Institute of Local Government Studies, Denmark*  
*Signe Karup, AKF, Institute of Local Government Studies, Denmark*  
*Trine Pipi Kroemer, AKF, Institute of Local Government Studies, Denmark*

**Global Carbon Impacts of Using Forest Harvest Residues for District Heating in Vermont** .... 9.105  
*Howard A. McLain, Oak Ridge National Laboratory*

**Comprehensive Energy Services at Competitive Prices: Building Efficiency and Energy for Small Consumers Through a Retail Buyers’ Cooperative** ..... 9.119  
*John Plunkett, Optimal Energy, Inc.*  
*Beth Sachs, Vermont Energy Investment Corp.*

**Cooler Paving Materials for Heat Island Mitigation** ..... 9.135  
*Melvin Pomerantz, Lawrence Berkeley National Laboratory*  
*Hashem Akbari, Lawrence Berkeley National Laboratory*

**The Road from Kyoto: The Evolution of Carbon Dioxide Emissions from Energy Use in IEA Countries** ..... 9.147  
*Lee Schipper, International Energy Agency*  
*Fridtjof Unander, International Energy Agency*  
*Celine Marie, International Energy Agency*  
*Roger Gorham, International Energy Agency*  
*Debra Justus, International Energy Agency*  
*Michael Ting, Lawrence Berkeley National Laboratory*  
*Marta Khrushch, Lawrence Berkeley National Laboratory*  
*Tom Krackeler, Lawrence Berkeley National Laboratory*

**Energy Star® Label for Roof Products** ..... 9.161  
*Rachel S. Schmeltz, U.S. Environmental Protection Agency*  
*Sarah E. Bretz, Lawrence Berkeley National Laboratory*

**The Quest for “Public Purposes” in the Pacific Northwest** ..... 9.173  
*Howard Schwartz, Washington State Department of Community Trade and Economic Development and The Evergreen State College*

**Linking Market-Based Energy Efficiency Programs to Economic Growth, Sustainable Development, and Global Warming** ..... 9.185  
*Peter R. Smith, New York State Energy Research and Development Authority*  
*Paul A. DeCotis, New York State Energy Research and Development Authority*  
*Karl S. Michael, New York State Energy Research and Development Authority*

**Carbon Offset Accounting and Monitoring of Emission Reductions in Energy Efficiency Projects** ..... 9.197  
*Joel N. Swisher, Econergy International Corporation*

**Preliminary Results from a Bottom-Up Analysis to Determine Residential Energy Consumption in the Emerging Economies of the World** ..... 9.209  
*Isaac Turiel, Lawrence Berkeley National Laboratory*  
*Sajid Hakim, Lawrence Berkeley National Laboratory*  
*David Fridley, Lawrence Berkeley National Laboratory*

**Bidding the Green: Incentivizing New Renewable Power Development in California** ..... 9.223  
*Timothy N. Tutt, California Energy Commission*

**Aligning Climate Stabilization with State Policy Priorities: Actions and Issues in Washington State** ..... 9.235  
*Tony Usibelli, Washington State Department of Community, Trade, and Economic Development*  
*K.C. Golden, Washington State Department of Community, Trade and Economic Development*

**The Monitoring, Evaluation, Reporting, and Verification of Climate Change Mitigation Projects** ..... 9.247  
*Edward L. Vine, Lawrence Berkeley National Laboratory*  
*Jayant A. Sathaye, Lawrence Berkeley National Laboratory*

**Meeting the United Kingdom’s CO<sub>2</sub> Emissions Reduction Targets: The Role of Energy Efficiency in Residential Buildings** ..... 9.259  
*Joanne Wade, Association for the Conservation of Energy, London*  
*Matthew A. Leach, University of London*

**Savings Potential of Energy Star® Voluntary Labeling Programs** ..... 9.271  
*Carrie A. Webber, Lawrence Berkeley National Laboratory*  
*Richard E. Brown, Lawrence Berkeley National Laboratory*

**Solving Employment Problems in the European Union: The Role of Energy Efficiency** ..... 9.283  
*Victoria Wiltshire, Association for the Conservation of Energy, London*

**Details, Details...The Impact of Market Rules on Emerging “Green” Energy Markets** ..... 9.295  
*Ryan H. Wiser, Lawrence Berkeley National Laboratory*  
*Steven J. Pickle, Lawrence Berkeley National Laboratory*  
*Joseph H. Eto, Lawrence Berkeley National Laboratory*

**Diverging Developments in Residential Space Heating and Electric Appliances: the Impact on CO Emissions Evidence from Ten OECD-Countries** ..... 9.311  
*Josef Zochling, Vienna University of Technology*  
*Tom Krackeler, Lawrence Berkeley National Laboratory*  
*Reinhard Haas, Vienna University of Technology*  
*Lee Schipper, Lawrence Berkeley National Laboratory*