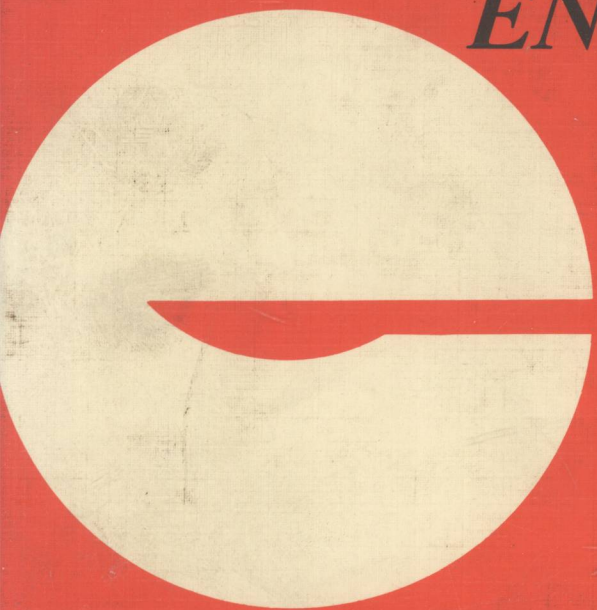


# *CHANGING ENERGY USE FUTURES*



*Edited by*

**Rocco A. Fazzolare  
Craig B. Smith**

*Volume II*

Pergamon Press

15

***CHANGING  
ENERGY USE  
FUTURES***

**Proceedings of the  
Second International Conference on  
Energy Use Management**

**Los Angeles, California  
October 22-2, 1979**

**ORGANIZED BY**

The Interdisciplinary Group for Ecology, Development and Energy (EDEN), Los Angeles and Paris, France

**SPONSORED BY**

The U.S. Department of Energy

**IN COOPERATION WITH**

University of Arizona  
The Alliance to Save Energy  
Los Angeles Council of Engineers & Scientists (LACES)  
University of California, Los Angeles

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# ***CHANGING ENERGY USE FUTURES*** *Volume II*

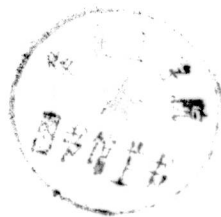
Second International Conference on  
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October 22-26, 1979  
Los Angeles, California

*Edited by*



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**Rocco A. Fazzolare  
Craig B. Smith**



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# PREFACE

ICEUM-II has been planned as a result of the success of the First International Conference on Energy Use Management (ICEUM-I) held in Tucson, Arizona, in October 1977. Now in 1979; we must focus on the future— the next ten to twenty-five years, and explore changing lifestyles, economic, institutional, and environmental issues, and technological approaches related to more efficient use of energy resources.

How will current and future energy constraints affect our lives and those of our children? What are Society's options for improved energy utilization? Why and how does energy flow in the world's economic and social system? How can we provide for an equitable distribution and preservation of natural resources for our generation as well as those of the future?

These and related questions are the issues which have been chosen as the focal point of the Second International Conference on Energy Use Management. This conference has been planned to examine the issues, problems, and perspectives of energy utilization. It will be unique because it will focus on the progression and evolution of Society faced with resource limitations. Ways of minimizing undesirable socio-economic impacts will be a major point of discussion in the more than sixty conference sessions.

It is the goal of ICEUM-II to approach all issues in an objective fashion by bringing together a multidisciplinary group of concerned individuals from all areas of the world. To complement the action-oriented approach of ICEUM-II, the conference results will be summarized and documented in the form of pragmatic recommendations for change. These recommendations will be submitted to major decision-makers as well as the general public throughout the world.

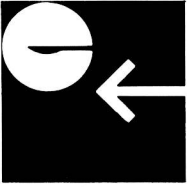
Thus, the organizers of ICEUM-II and all individuals involved in planning this international forum are hopeful that it will serve as an impetus toward a new evolution of life in a world where energy constraints will not signify despair. Instead, we can work toward our goal with a positive spirit and envision a secure future for generations to come.

Rocco Fazzolare

Craig B. Smith

1981 2002

ICEUM-III



**ANNOUNCING**

**THE THIRD INTERNATIONAL CONFERENCE  
ON ENERGY USE MANAGEMENT**

**OCTOBER 26-30, 1981  
BERLIN, WEST GERMANY**

**CONFERENCE HEADQUARTERS WILL  
BE THE MAGNIFICENT INTERNATIONAL  
CONGRESS CENTER IN BERLIN,  
WEST GERMANY**

**ICEUM WILL BE ORGANIZED BY  
THE INTERDISCIPLINARY GROUP FOR  
ECOLOGY, DEVELOPMENT AND  
ENERGY (EDEN)**





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Santa Monica, California

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Laurel Parker, Southern California  
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Princeton University, New Jersey

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Cosenza-Universita  
Rome, Italy

# INTERNATIONAL CONFERENCE ON ENERGY USE MANAGEMENT

## Highlights

*Sunday, October 21*

2 PM to 5 PM      Registration

*Monday, . October 22 through Friday, October 26*

7:00-8:15 AM      Speaker's Breakfast

8:15-9:30 AM      Plenary Session

10:00-12:30 PM

2:00-5:45 PM      Simultaneous Technical Sessions

6:00-6:30 PM      Review of Day's Activities

*Tuesday, October 23*—ENERGY-LA DAY AND CITIZENS WORKSHOP

*Saturday, October 27*—Topical Coordinators & Conference Chairmen Forum

### DAILY PLENARY SESSION THEMES

*Monday, October 22*—INTERNATIONAL PERSPECTIVES

*Tuesday, October 23*—COMMUNITY ASPECTS OF ENERGY MANAGEMENT

*Wednesday, October 24*—ENERGY, ECONOMICS AND INTERNATIONAL  
DEVELOPMENT

*Thursday, October 25*—TECHNICAL INNOVATIONS

*Friday, October 26*—ENERGY & SOCIETY

### RECEPTIONS

*Sunday, October 21*—5-7 PM— Registrars' Reception

*Monday, October 22*—6-7:30 PM— Chairmens' Reception

*Thursday, October 25*—8-11 PM— "Una Noche en California Antigua"

*Friday, October 26*—8-11 PM— "Regency Disco"

# TECHNICAL PROGRAM AND ORGANIZERS

## A. STRATEGIES AND ALTERNATIVES

James Dyer, Mechanical Engineering, Long Beach State University, Long Beach, California

G. Melese— d'Hospital, Senior Technical Advisor, General Atomic, San Diego, California

### *A.1 Effective Resource Utilization*

Craig B. Smith, ANCO Engineers, Santa Monica, California

A.F. Beijdorff, Shell International Petroleum Company, Ltd., London, England

### *A.2 International Comparisons*

Lee Schipper, Lawrence Berkeley Laboratory, University of California, Berkeley

### *A.3 Future Supply/Demand Options*

Fritz Kalhammer, Electric Power Research Institute, Palo Alto, California

Bernhard Stoy, Rheinisch-Westfalisches Electrizitatswerk, Esses, FRG

### *A.4 Appropriate Paths to Development*

Paul P. Craig, University of California, Davis

### *A. 5 Energy and Economic Growth*

John Landis, Senior Vice President, Stone and Webster Engineering Corp., Boston, Massachusetts

### *A.6 Research and Development Priorities*

R. Stephen Berry, Department of Chemistry, University of Chicago, Chicago, Illinois

Geoffrey Heal, School of Social Science, University of Sussex, Falmer, Brighton, UK

### *A.7 Global Strategies and Policies*

Daniel Hickey, International Affairs, US Department of Energy, Washington, D.C.

Peter Kelly, International Energy Agency, Organization for Economic Cooperation and Development, Paris, France

### *A.8 Energy Use Pattern—2001*

Frank Kreith, Solar Energy Research Institute, Golden, Colorado

### *A.9 Evaluation of Conservation Programs*

Eric Hirst, Minnesota Energy Commission, St. Paul, Minnesota (on leave from Oak Ridge National Laboratory, Oak Ridge, Tennessee)

## **B. MODELS, ANALYSIS, AND ASSESSMENT**

David Pilati, Brookhaven National Laboratory, Upton, Long Island, New York

### *B.1 Assessing the Future: Models and Scenarios*

Bertrand Chateau, Institut Economique et Juridique de l'Énergie, CNRS, Université des Sciences Sociales de Grenoble, France

### *B.2 Energy Information Systems*

Margaret Fulton Fels, Center for Environmental Studies, Princeton University, Princeton, New Jersey

### *B.3 Energy as a Numeraire in Economic Analysis*

Malcolm Slessor, Systems Analysis Division, EURATOM, Ispra, Italy,

Martha Gilliland, Energy Policy Studies, Inc., El Paso, Texas

### *B.4 Building Sector Modeling*

Jerry Jackson, Georgia Institute of Technology, Atlanta, Georgia



### *B.5 Industrial Sector Modeling*

David Reister, Institute for Energy Analysis, Oak Ridge National Laboratory, Tennessee

### *B.6 Transportation Sector Modeling*

James L. Sweeney, Energy Modeling Forum, Stanford University, Stanford, California

### *B.7 Multisectorial Models*

Lester Taylor, Department of Economics, University of Arizona, Tucson

## **C. ECOLOGY AND ENVIRONMENT**

Jeffrey Klopatek, Environmental Sciences, Energy Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

### *C.1 Animal Energetics*

G.J. Kenagy, Department of Zoology, University of Washington, Seattle

### *C.2 Environmental Models*

John Alexander, Urban and Regional Planning, University of Florida, Gainesville

### *C.3 Adaptability of Society to Change*

R. Brooke Thomas, Department of Anthropology, University of Massachusetts, Amherst

### *C.4 Environmental Impact of Technology—The Next Twenty Years*

Jeffrey Klopatek, Environmental Sciences, Energy Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

### *C.5 Environmental Assessment of Technology*

Robert Brocksen, Electric Power Research Institute, Palo Alto, California

### *C.6 Human Needs, Health, and Quality of Life*

Anthony Colucci, Ecology Department, Electric Power Research Institute, Palo Alto, California

## **D. LIFESTYLES, MOTIVATION, AND VALUES**

Rosalyn Barbieri, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California

### *D.1 Education*

Nancy Smith, EDEN, Los Angeles, California

### *D.2 Community Action*

Sandra Bregman, Office of Consumer Affairs, US Department of Energy, Washington, D.C.

### *D.3 Lifestyles and Consumerism*

Albert Fritsch, Appalachia-Science in the Public Interest, Corbin, Kentucky

### *D.4 Energy Transformation and Social Change*

Lewis J. Perelman, Social Sciences Group, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California

### *D.5 Government Intervention and Motivation*

Laurence Martin, Martin, Barker and Croskey, Modesto, California

### *D.6 Attitudes and Behavior*

Brian Kelley, Office of Energy Conservation, Ottawa, Ontario, Canada

### *D.7 Communicating the Energy Urgencies*

Joel A. Strasser, Hill and Knowlton, New York, New York

Howard Westlake, Hill and Knowlton, Los Angeles, California

### *D.8 Energy Impact on Society*

TBA

## **E. INDUSTRY, TECHNOLOGY, AND COMMERCE**

Quentin Looney, Office of Conservation and Solar Applications, Industrial Applications and Commercialization, US Department of Energy, Washington, D.C.

### *E.1 Dual Energy Use Systems*

Byron R. Brown, Jr., Engineering Department, E.I. duPont Company,  
Wilmington, Delaware

### *E.2 Energy Conversion and Distribution*

Jesse Denton, Belton, Texas

Pablo Mulas, Instituto de Investigaciones Electricas, Cuernavaca, Morelos,  
Mexico

### *E.3 Plant and Facility Operation*

Richard Barnes, Conservation Program, Energy Division, Oak Ridge National  
Laboratory, Oak Ridge, Tennessee

### *E.4 New Technologies and Processes*

Ken Gerlach, Energy Technology Department, Stanford Research Institute  
International, Menlo Park, California

Mohamed El Halfawy, Senior Interregional Advisor, Industrial Operations  
Division, United Nations Industrial Development Organization, Vienna,  
Austria

### *E.5 Maintenance Management*

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### *E.6 Recycling and Reclamation*

Michael Henstock, Department of Metallurgy and Materials Science,  
University of Nottingham, Nottingham, England

### *E.7 Technology Transfer and Education*

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of Technology, Cambridge, Massachusetts

## **F. COMMUNITY SYSTEMS AND URBAN AREAS**

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### *F.1 Integrated Community Systems*

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