

# CONFERENCES, WORKSHOPS, AND SEMINARS

## I Third Symposium on Pacific Energy Co-operation

The theme of the Symposium organized in Tokyo, Japan from 23–27 January 1989 was “Towards Global Harmonization of Economy, Energy and Environment”. The symposium was sponsored by the Ministry of Foreign Affairs, Ministry of International Trade and Industry, Committee for Energy Policy Promotion, Japan Cooperation Center for Petroleum Industry Development, New Energy and Industrial Technology Development Organization, Institute of Energy Economics, and Japan Institute of International Affairs. The symposium chairman was Mr Toyoaki Ikuta, President, Institute of Energy Economics, Japan. The programme was as follows:

23 January 1989

### Opening Address

1. Mr Sohsuke Uno  
Minister for Foreign Affairs, Japan
2. Mr Hiroshi Mitsuzuka  
Minister for International Trade and Industry, Japan
3. Mr Gaishi Hiraiwa  
Chairman  
Committee for Energy Policy Promotion, Japan

### Keynote Speeches

1. Mr Bong-Suh Lee  
Minister of Energy and Resources, Republic of Korea

2. Mr Prachuab Chaiyasan  
Minister of Science, Technology and Energy, Thailand
3. Mr Peter F. S. Cook  
Minister for Resources, Australia
4. Mr Hidezo Inaba  
Chairman of the Board of Directors  
Institute of Energy Economics, Japan
5. Mr Lu Youmei  
Vice Minister of Energy Resources, China
6. Mr Suyitno Patmosukismo  
Director General of Oil and Gas  
Ministry of Mines and Energy, Indonesia

### PLENARY SESSION

1. “Role and Tasks of Energy for Economic Development and Improvement of Living Standards — Development of Pacific Energy Co-operation Respecting Diversity and Independence”

Reporter:

Mr Yoshiro Kamata  
Director-General  
Agency of Natural Resources and Energy,  
Ministry of International Trade and Industry,  
Japan

Commentator:

Dr Anthony A. Churchill  
Director  
Industry and Energy Department, World  
Bank, USA

2. “Energy Co-operation in the Pacific Age— A Japanese View”

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Reporter:  
Mr Hidetoshi Ukawa  
Ambassador for International Economic  
Affairs, Japan

Reporter:  
Dr A. E. Safarian  
Professor of Economics, Dept. of Economics  
University of Toronto, Canada

3. "Current Situation of Energy Demand and  
Supply in the Pacific Region"

Reporter:  
Mr Mitsuru Miyata  
Senior Managing Director  
Institute of Energy Economics, Japan

Commentator:  
Dr V. V. Desai  
Energy Advisor  
Asian Development Bank, Philippines

*24 January 1989*

#### SESSION 1

"Demand and Supply of Oil and Gas in the  
Pacific Region and Co-operation: Current  
Situation, Problems, and Prospects"

Chairmen:  
Mr Keiichi Ito  
Executive Director  
Japan Cooperation Center for Petroleum,  
Japan

Mr Tan Boon Teik  
Chairman  
Singapore Petroleum Co., Singapore

1. "Demand and Supply of Petroleum in the  
Pacific Region — Today and Tomorrow"

Dr D. J. O'Brien  
Chief Economist  
Caltex Petroleum Corp., USA

2. "Current Situation and Tasks for Develop-  
ment and Utilization of Oil and Gas in  
Malaysia"

Dr Abdul Aziz Haji Mahmud  
Vice President  
Petroleum Nasional Berhad (Petronas),  
Malaysia

3. "Current Situation and Prospects for De-  
velopment, Production, and Export of Oil in  
Mexico"

Mr Eduardo Martinez Del Rio  
General Manager, International Market  
Analysis  
Petroleos Mexicanos (PEMEX), Mexico

4. "Current Situation and Prospects for Pro-  
duction and Export of Oil and Gas in Brunei  
Darussalam"

Mr Awang Abdul Kani bin Hj Mohd Salleh  
Director of the Petroleum Unit  
Prime Minister's Office, Brunei Darussalam

5. "Petroleum Policy of Japan"

Mr Yoshihiro Sakamoto  
Director-General, Petroleum Department  
Agency of Natural Resources and Energy  
Ministry of International Trade and Industry,  
Japan

#### SESSION 2

"Development, Production, and Utilization of  
Coal in the Pacific Region and Co-operation:  
Current Situation, Problems, and Prospects"

Chairmen:  
Mr Ikuya Takase  
Executive Vice-Chairman  
Japan Coal Association, Japan

Mr Richard L. Lawson  
President  
National Coal Authority, USA

1. "The Pacific Coal Flow Expansion Initiative  
and the Japanese Role"

Mr Hideki Osada  
Director-General  
Coal Mining Department, Agency of Natural  
Resources and Energy

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Ministry of International Trade and Industry,  
Japan

2. "Role of Coal Development and Utilization  
for the Economic Development and Improve-  
ment of Living Standards"

Mr Rufino B. Bomasang  
General Manager, PNOG Coal Corporation,  
Philippines

3. "Role of Coal for Stabilization of Energy  
Demand and Supply in the Pacific Region"

Dr Peter Drysdale  
Executive Director, Australia-Japan Re-  
search Center  
Professorial Fellow, Australian National Uni-  
versity, Australia.

4. "Current Situation and Prospects for De-  
velopment and Utilization of Coal in In-  
donesia"

Ir. Achmad Prijono  
President Director  
Perum Tambang Batubara (PTB), Indonesia

5. "Current Situation and Prospects for De-  
velopment and Utilization of Coal in China"

Dr Wang Jiancheng  
Vice-Chief Engineer, Senior Researcher  
Energy Research Institute of State Planning  
Commission Academia Sinica, China

### SESSION 3

"Current Situation, Problems and Prospects for  
Cooperation for Electrification in the Pacific  
Region"

Chairmen:

Mr Ichiro Fujiwara  
President  
Electric Power Development Company, Japan

Mr Ernesto M. Aboitiz  
President  
National Power Corporation, Philippines

1. "Prospects for Japan's Co-operation in  
Electrification"

Mr Masaji Takahashi  
Deputy Director-General of the Economic  
Cooperation Bureau,  
Ministry of Foreign Affairs, Japan

2. "Current Situation and Tasks of Co-  
operation for Electrification in ASEAN"

Mr Charmon Shuthiphongchai  
Deputy General Manager  
Electricity Generating Authority of Thailand,  
Thailand

3. "Electrification as a Basis for Industrial De-  
velopment and Better Living Conditions"

Mr Tokio Kanoh  
Executive Member  
Japan National Committee on Pacific Eco-  
nomic Cooperation, Japan

4. "Training and Tasks of Engineers of Elec-  
trification"

Mr Hoesni bin Nasaruddin  
Director  
Sultan Ahmad Shah Training Institute  
National Electricity Board of the State of  
Malaya, Malaysia

5. "Significance and Future Tasks of Japan's  
International Co-operation for Electrifica-  
tion in Developing Countries"

Mr Tomio Tsutsumi  
Director-General  
Public Utilities Department  
Agency of Natural Resources and Energy  
Ministry of International Trade and Industry,  
Japan

### SESSION 4

"Current Situation, Problems, and Prospects  
for Co-operation for Development and Utiliza-  
tion of New and Renewable Energy and En-  
ergy Conservation in the Pacific Region"

Chairmen:

Mr Yukio Kurabe  
Executive Vice-President  
New Energy and Industrial Technology De-  
velopment Organization, Japan

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Dr Hoesung Lee  
President  
Korea Energy Economics Institute  
Republic of Korea

1. "Current Situation and Tasks of Development and Utilization of New Energy in Japan"

Mr Satoshi Uematsu  
Deputy Director-General  
Agency of Natural Resources and Energy  
Ministry of International Trade and Industry,  
Japan

2. "Progress of Technology for Development and Utilization of New and Renewable Energy and Tasks of Co-operation"

Dr J. C. Mora  
Chairman, Energy Technology Division  
Asian Institute of Technology, Thailand

3. "Current Situation and Prospects for Development and Utilization of Methanol in the Pacific Region"

Mr William J. Falconer  
Managing Director  
Petroleum Corporation of New Zealand Ltd.  
(Petrocorp.)  
New Zealand

4. "Development of Energy Conservation Technologies in Japan and International Co-operation"

Mr Kunikazu Aisaka  
Vice President  
Energy Conservation Center, Japan

SESSION 5

"Increase of Energy Use and Environmental Issues in the Pacific Region"

Chairmen:

Dr Yoichi Kaya  
Professor  
Department of Electrical Engineering  
Faculty of Engineering  
University of Tokyo, Japan

Dr Nay Htun  
Director and Representative for Asia and the Pacific United Nations Environment Programme (UNEP), Thailand.

1. "Acid Rain: Current Situation and Mitigating Measures"

Dr George M. Hidy  
Vice-President  
Environment Division, EPRI, USA

2. "Forest Resources of Tropical Asia"

Dr Y. S. Rao  
Regional Forestry Economist  
Regional Office for Asia and the Pacific  
Food and Agriculture Organization of the United Nations  
Thailand

3. "Present Status and a View of Environment Problems in Japan"

Mr Osayuki Yomoyama  
Deputy Director  
National Research Institute for Pollution and Resources  
Agency of Industrial Science and Technology  
Ministry of International Trade and Industry,  
Japan

4. "The Greenhouse Effect and Increasing Energy Use"

Dr William U. Chandler  
Senior Scientist  
Batelle, Pacific Northwest Laboratories, USA

PANEL DISCUSSION

"Tasks and Prospects for Pacific Energy Co-operation under the Relatively Stable Price of Oil"

Chairman:

Mr Mitsuru Miyata  
Senior Managing Director  
Institute of Energy Economics, Japan

Reporter:

Dr Hoesung Lee

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President  
Korea Energy Economics Institute, Republic  
of Korea

Panelists:

1. Mr Tan Boon Teik  
Chairman  
Singapore Petroleum Co., Singapore
2. Mr Richard L. Lawson  
President  
National Coal Authority, USA
3. Mr Ernesto M Aboitiz  
President  
National Power Corporation, Philippines
4. Dr Hoesung Lee  
President  
Korea Energy Economics Institute  
Republic of Korea
5. Dr Nay Htun  
Director and Representative for Asia and  
the Pacific  
United Nations Environment Programme  
(UNEP)  
Regional Office for Asia and Pacific,  
Thailand
6. Mr Kazuo Ogura  
Deputy Director-General of the Economic  
Affairs Bureau  
Ministry of Foreign Affairs, Japan

**Summary by Symposium Chairman**

**Closing Address**

**II. Energy Development in Southeast Asia  
and Co-operation with the European Com-  
munity**

This international seminar was jointly spon-  
sored by the Centre International de Forma-

tion en Politique Energetique (CIFOPE), Paris  
and the Energy Technology Division of the  
Asian Institute of Technology (AIT), with the  
co-operation of the Commission of European  
Communities. The meeting was held in  
Pattaya, Bangkok from 27 February to  
3 March 1989. The seminar was organized  
as follows:

**Demand**

“Energy Demand Perspectives in the ASEAN  
Countries”

B. W. Ang, National University of Singapore  
(NUS)

“The Importance of Traditional Fuels”

G. U. Dang, Asian Institute of Technology  
(AIT)

“Energy Demand and Pricing Policies in  
ASEAN Countries”

N. Lucas, European Community/ASEAN  
Center for Energy Management Training and  
Research (EC/ASEAN Center)

Panel:

“Perspectives of Energy Demand Management  
Policies with Low Oil Prices”

Chairman:

Prathes Sutabutr  
National Economic Administration (NEA),  
Thailand

Panelists:

P. Desprairies  
International Training Center for Energy Pol-  
icy (CIFOPE), Paris

A. Glmenez  
Energy Managers Association of Philippines  
(ENMAP), Philippines

N. Lucas  
EC/ASEAN Center

B. Chateau  
French Agency for Energy Management  
(AFME), France

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Panel:  
"Industrial Changes and Energy Choices up to 2000 in Southeast Asia"

Chairman:  
M. Jonchere  
Office of Industrial Studies and Cooperation of the French Petroleum Institute (BEICIP)

Panelists:  
B. Chateau, AFME

B. W. Ang, NUS

C. Tiengchai,  
Thailand Development and Research Institute (TDRI)

Y. Carett, ALSTHOM DCE (ALSTHOM), France

#### Oil/Gas

"Energy Supply in Southeast Asia"

S. Torok  
Economic and Social Commission in Asia and the Pacific (ESCAP)

"Oil and Gas Production Prospects in ASEAN Countries"

U. Said  
Indonesian Oil and Gas Institute (LEMIGAS)

"The Development of the Oil and Gas International Markets in Southeast Asia: Role of ASEAN and European Companies and OPEC"

J. P. Cueille  
French Petroleum Institute (IFP)

Panel:  
"Consequences for Europe and ASEAN Countries of the Growing Oil and Gas Demand in Asia"

Chairman:  
J. Masseron, IFP

Panelists:  
M. Ascari

Institute of Energy Policy and Economics (IEFE), Italy

S. Sharma  
Institute of Southeast Asian Studies (ISEAS), Singapore

Pala Sookawesh  
Petroleum Authority of Thailand (PTT)

J. C. Lot  
Elf Aquitaine Indonesia (ELF)

Panel:  
"Perspectives of Natural Gas Utilization in ASEAN Countries"

Chairman:  
Pierre Perez  
National Gas Company (GDF), France

Panelists:  
Pala Sookawesh, PTT  
M. Jonchere BEICIP  
G. Arib, Petronas, Malaysia

*1 March 1989*

#### Electricity

"Overview of Electrification Policies and Schemes"

V. V. Desai, Asian Development Bank (ADB), Philippines

Case Studies:

"Role of Interconnection"  
E. L'Hermitte, National Electricity Company (EDF), France

"Private Generation and Co-generation Options in Europe and ASEAN Countries"  
Prida Wibulswas, AIT

"Nuclear Prospects in Europe and in Southeast Asia"

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G. Naudet, French Nuclear Energy Agency (CEA)

B. Sudarsono, ESCAP

Panel:

“Meeting the Electricity Demand: Supply and Demand Options”

Chairman:

S. Paes

National Electricity Company of Portugal (EDP)

Panelists:

V. V. Desai, ADB

M. Somboon, Electricity Generating Authority of Thailand (EGAT)

B. Datuin, National Power Corporation (NPC)

Luxo, French Society for Nuclear Energy (SOFRATOME)

B. Sudarsono, ESCAP

*2 March 1989*

### **Technology Transfer**

Chairman:

Shankar Sharma, ISEAS

“Technology Transfer and Energy Policy in Industrializing Countries”

R.M. Bell, Science Policy and Research Unit, University of Sussex, (SPRU)

Case Studies:

“Renewables”

G. Saunier, ESCAP

“Energy Conservation”

Piniy Gritiyaransan

Energy Conservation Center of Thailand (ECCT)

“Coal and Lignite Utilization”

R. Puff French Research Center of the Coal Industry (CERCHAB)

“Nuclear Energy”

G. Neudet, CEA

B. Sudarsono, ESCAP

### **Transfer of Expertise**

“The REDP Programme of UNDP/ESCAP”

F. Harahap, ESCAP

“Electricity Pricing in the Philippines”

J.P. Roux, EDF

D.G.M. Lim

National Economic Development Authority (NEDA), Philippines

### **Financing of Energy Projects**

“Third Party Financing”

D. Levy, AFME

“The B.O.T. Financing Scheme”

B. Sudarsono, ESCAP

Panel: “Financing of Energy Projects”

Chairman:

C. Siddayo, World Bank (IBRD)

Panelists:

Barrett, European Bank of Investment (BEI)

V. V. Desai, ADB

Piyasvasti Amranand, National Energy Policy Office (NEPO) Thailand

B. Sudarsono, ESCAP

*3 March 1989*

### **Training: Co-operation between Europe and Southeast Asia**

“Training Programmes in Europe”

J. Percebois

Institute of Energy Policy and Economics (IEPE), France

D. Winje

University of Berlin

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S. Ascari, IEFÉ

“Training Programmes in Asia

J.C. Mora, AIT

N. Lucas, EC/ASEAN Center

K. V. Ramani

Asian and Pacific Energy Planning Network  
(APENPLAN), Malaysia

K. Krissanapong

Asian Working Group on Non-Conventional  
Energy Resources (AWGNCR)

K. Thongtip Ratanarat

Thailand Petroleum Institute (TPI)

Panel: “What Is Needed for Future Action ?”

### **III. International Symposium on Energy Systems, Management and Economics (ESME 89)**

This Symposium sponsored by the International Federation of Automatic Control, the International Federation of Operational Research Societies, and the International Association for Energy Economics and organized by the Japan Society of Energy and Resources on

Panel Members:

J. C. Mora, AIT

N. Lucas, EC-ASEAN Center

D. Winje, T. U. Berlin

K. Thongtip Ratanarat, TPI

K. Krissanapong, AWGNCR

C. Siddayo, IBRD

### **Co-operation between Europe and Southeast Asia in the Energy Field**

Synthesis

J. Percebois, IEPE

C. Surapong, AIT

Conclusion

P. Desprairies, CIFOPE

behalf of the National Committee of Automatic Control, Science Council of Japan will be held in Tokyo, Japan from 25–27 October 1989. The programme of the Symposium is as follows:

### **WEDNESDAY, 25 OCTOBER 1989**

#### **Prof. Sergio F. Garribba, Director of the Office of Energy Research, Development and Technology Applications, IEA/OECD**

Prospects of International Energy Policy (tentative)

#### **Mr. Isamu Miyazaki, Chairman, Daiwa Securities Research Institute, Ltd., JAPAN**

Japanese Economy towards 21st Century

Concurrent Sessions-1

#### **Session M-1**

#### **Power Generation**

M-1-1:

#### **Stanisław Góra, Poland**

Optimal Choice of Large Steam Turbosets  
Taking into Account Their Reliability in a  
Great Power System

M-1-2:

#### **Stanisław Góra, Poland**

Economics of Hydro Power Plant Cascade  
Cooperating with a great Power System in the  
Conditions of Synchronous Operation

M-1-3:

#### **Yohji Uchiyama and Yutaka Nagata, Japan**

Economic Analysis of the Energy Storage  
Technologies in the Electric Generation Mix

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M-1-4:

**Minoru Tada, Norihiro Mori, Kazuhito Mizunami and Toshio Shigematsu, Japan**

Development of Redox Flow Battery for Utility Load Leveling

### **Session T-1**

#### **Energy Modelling (I)**

T-1-1:

**Masayuki Ochi and Koichi Osada, Japan**

Japanese Energy Policy Simulation Model

T-1-2:

**Liu Bao and Yan Qinghong, P. R. China**

The Multidivisional Multilevel Programming Problem in the System of Energy Production and Supply

T-1-3:

**Ryuji Matsuhashi and Yoichi Kaya, Japan**

A Flexible Integrated Energy System—toward an integration between economy and environment

T-1-4:

**Azmi Kaya and Marion A. Keyes U.S.A.**

Optimum Coordination of Large Scale Energy Systems with Conflicting Performance Criteria

### **Session S-1**

#### **Energy and Environment (I)**

S-1-1:

**Hermann-Josef Wagner, KfA, FRG (Invited)**

CO<sub>2</sub> Emission Reduction—The Contribution by the FRG

S-1-2:

**Kazuto Okamoto, Japan**

Socio-Economic Impacts of the Greenhouse Effect in Japan

S-1-3:

**Osamu Sato, Takao Nagano and Shigeru Yasukawa, Japan**

A Study on CO<sub>2</sub> Emission Control in Future Energy Systems —The Role of High Temperature Nuclear Heat

S-1-4:

**Toshiharu Suzuki, Japan**

The Green House Warming and the Impact of CO<sub>2</sub> Emission Limitation on Energy Economics

### **Concurrent Sessions-2**

#### **Session M-2**

#### **Renewable Energy**

M-2-1:

**Hideo Kondo, Tomiji Watanabe and Akira Kawamori, Japan**

Wave Power Utilization System toward the Island Community Free from Oil

M-2-2:

**H. Sawai, M. Watanabe, T. Maruyama and T. Tsuji, Japan**

A Solar Photovoltaic System for Marine Ranch

M-2-3:

**Kapil Thukral, India**

Problems and Prospects for Commercialization of Low Grade Solar Water Heating Technologies in India

#### **Session T-2**

#### **Energy Modelling (II)**

T-2-1:

**Patricio del Sol, Chile, and James Sweeney, U.S.A.**

Optimal Control and Time Consistent Equilibria in the Dominant Firm/Competitive Fringe Dynamic Games

T-2-2:

**Anthony O. Adegbulugbe and Felix B. Dayo, Nigeria**

A Synthesis of Monte Carlo and Noise-invariable Techniques for Energy Demand Modelling

T-2-3:

**F. Arakawa, S. Mori and T. Torigoe, Japan**  
Energy Security Model

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T-2-4:  
**Yutaka Nagata, Osamu Kumakura, Yoshifumi Fujii and Isamu Matsukawa, Japan**  
Modelling Inter-fuel Competition in Japan

**Session S-2**  
**Energy and Environment (II)**

S-2-1:  
**Stephen C. Peck, Hung-Po Chao and Thomas J. Teisberg, U.S.A.**

Optimal Control and Learning Strategies When Environmental Control Costs are Cumulative

S-2-2:  
**Brita Bye, Torstein Bye and Lorents Lorentsen, Norway**

Taxation and the Impact on Economic Activity, Energy Markets and Pollution

S-2-3:  
**Yoshitaka Nitta, Kenji Yamaji and Hisashi Kato, Japan**

Possible Effort to Overcome Carbon Dioxide Greenhouse Effect

S-2-4:  
**Yutaka Tonooka and Yoshifumi Fujii, Japan**  
Developing the Air Pollutant Emission Structure Data Base in Japan—Analysis of Relationships Between Emission and Energy Consumption

**THURSDAY, 26 OCTOBER 1989**

**Concurrent Sessions-3**

**Session M-3**  
**Energy Management in Production Process**

M-3-1:  
**L. J. Onno Lint, Netherlands**  
Options in Advanced Energy-Related Production Processes

M-3-2:  
**S. Narasaki, H. Kawabe and T. Harada, Japan**  
Overall Energy Control System at a Large Steelworks

M-3-3:  
**Masashi Katsuki, Yukio Mizutani, Tadao Ogawa and Koji Hatta, Japan**  
Non-Oxidation Direct Heating by a Flame for the Annealing Process at Steel Industry

M-3-4:  
**Nalin Kulatilaka, Yoshiki Ogawa and David O. Wood, U.S.A.**  
Value of Fuel Switching Flexibility in Steam Boilers

**Session T-3**  
**Developing Countries and Regional Energy Issues**

T-3-1:  
**R. K. Pachauri, TERI, India (Invited)**  
Energy, Economic Development and the Environment

T-3-2:  
**Takeshi Saito and Yukari Yamasita, Japan**  
Twelve Energy Models for Twelve Pacific Countries: A Comparative Analysis of Energy Demand and Supply

T-3-3:  
**F. B. Dayo and A. D. Adegbulugbe, Nigeria**  
Oil Resource Utilization and Economic Growth in Nigeria An Economy-Wide Optimization Study

T-3-4:  
**Taizo Hayashi, Japan**  
Development and Testing Results of Asian/Pacific Energy Supply-Demand Forecasting Models—Thailand Cases

**Session S-3**  
**Power Systems Planning**

S-3-1:  
**Hideo Tanaka, Susumu Osaka, Hiroshi Suzuki and Junzo Kawakami, Japan**  
Experiences of Expert System for Power System Operation and Planning

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S-3-2:  
**Toshiya Nanahara, Kazuhiro Takahashi and Yuzuru Nonaka, Japan**  
Approach to the Evaluation of the Flexibility of Generation Mix

S-3-3:  
**Takeshi Sutoh, Hiroshi Suzuki, Masanori Ichinohe and Sigeru Yoshida, Japan**  
Simulation Method of Annual Energy Management for Electric Utility

S-3-4:  
**Asbjorn Aaheim, Norway**  
Hydro Power Investments: The Cost of Non-optimal Pricing

#### Concurrent Sessions-4

##### Session M-4 Cogeneration Systems

M-4-1:  
**Shiji Fuji, Hiroo Tarumi and Kazuhiro Yuasa, Japan**  
Energy Estimation of Cogeneration System for Buildings

M-4-2:  
**Koichi Ito and Ryohei Yokoyama, Japan**  
Economic Feasibility Study of Some Cogeneration Plants for A Local Energy Center

M-4-3:  
**Mitsuru Saito and Kazuo Kashiwara, Japan**  
Analysis and Evaluation of an Isolated Cogeneration System at a Golf Clubhouse

M-4-4:  
**Marion A. Keys and Azmi Kaya, U.S.A.**  
Methods of Energy Efficient Control and Optimization for Combined-Cycle Cogeneration

##### Session T-4 Developing Countries and Regional Energy Issues (II)

T-4-1:  
**Leena Srivastava, India**  
Energy Analysis and Modeling in India

T-4-2:  
**Kiichiro Tsuji and Yutaka Suzuki, Japan**  
Spatial Energy Demand Analysis—Electricity and City Gas in Residential Sector

T-4-3:  
**Liu Bao and Kou Jisong, P. R. China**  
Energy Balance Management Information System of China

T-4-4:  
**Etsuo Yamamura, Japan**  
Economic Evaluation on Regional Energy Arising from a Soft Energy Path and Location of High Technology Industries with Reference to Saving Energy

##### Session S-4 Power System Operation

S-4-1:  
**R. G. Kneile, G. L. Stephens and K. S. Vasudeva, U.S.A.**  
Performance Assessment and Statistical Process Control; An Approach to Operation and Maintenance Cost Reduction for Large Utility Power Generating Plants

S-4-2:  
**Jozef B. Lewoc, Klements Misiak and Andrzej Tomczyk, Poland**  
A Complex Automation and Management Network for Power Plants

S-4-3:  
**Bojan Novak, Yugoslavia**  
Quadratic Programming Applied to Short Term Hydro—Termo Scheduling

S-4-4:  
**Tatsuro Hayashi, Japan**  
The Computerized Integrated Control System for Electric Power Networks

#### Concurrent Sessions-5

##### Session M-5 Energy and Environment (III)

M-5-1:  
**W. Geysen, Belgium**  
Environmental Problems Using 380 KV Overhead Lines in Highly Populated Areas

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M-5-2:

**P. S. Pak, K. Nakamura and Y. Suzuki, Japan**  
Closed Dual Fluid Gas Turbine Power Plant  
without Emission of CO<sub>2</sub> into the Atmosphere

M-5-3:

**Adam Rose and Robert Filippi, U.S.A.**  
Economic Incentives for Clean Coal Technologies

#### **Session T-5**

##### **Electricity Supply and Demand (I)**

T-5-1:

**Galip Feyzioglu, and Hisham Choueiki, U.S.A.**  
An S-Curve Growth Model Applied to U.S  
Population, Per Capita Peak Load Demand,  
Per Capita Capability, and Reserve Margin  
Trajectories from 1920 to 2008

T-5-2:

**Fabrizio Carlevaro, Tobias Mueller and Gabrielle Antille, Switzerland**  
General Equilibrium Estimates of Economic  
Impact of Nuclear Power Discontinuation in  
Switzerland

T-5-3:

**Shunsuke Mori, Japan**  
A Study on Generation Expansion Planning  
under the Uncertainties on Scale Economies

T-5-4:

**Bhaskar Natarajan and Gopika Bhagat, India**  
Methodology for Forecasting Short Term Peak  
Loads for Electric Utilities

#### **Session S-5**

##### **Load Management (I)**

S-5-1:

**Yoichi Kaya and Akira Maeda, Japan**  
Optimum Operation of Non-Commercial  
Power Plants Under Time-of-Use Pricing

S-5-2:

**Hiroshi Asano, U.S.A.**  
Demand-Side Management by Real-Time Pricing  
for Electric Power Service

S-5-3:

**Joseph B. Wharton, U.S.A.**  
Assessing the Results of An Interruptible Service  
Program

S-5-4:

**Martin L. Baughman and Tatsuhiko Takatsuka, U.S.A.**  
Comparing and Contrasting Electricity Supply  
and Use in the United States and Japan

#### **Concurrent Sessions-6**

#### **Session M-6**

##### **Oil Exploration and Financing**

M-6-1:

**Cutler J. Cleveland, U.S.A.**  
The Response of United States' Oil Supply to  
Changes in the Drilling Rate: A Past and Future  
Look

M-6-2:

**Trond E. Olsen and Gunnar Stensland, Norway**  
Relocation Cost and the Value of Sequential  
Oil Production

M-6-3:

**John E. Parsons, U.S.A.**  
An Incentive Contract Comparison of Alternative  
Financing Packages for a Petroleum Exploration  
Venture

M-6-4:

**Gunnar Stensland, Norway**  
Generating Oil Price Processes from Economic  
Arguments

#### **Session T-6**

##### **Electricity Supply and Demand (II)**

T-6-1:

**Mark Bernstein and Stephen Feldman, U.S.A.**  
Issues in Measuring the Productivity of Electric  
Utilities

T-6-2:

**Akira Konakayama and Suk Kang, Japan**  
An Empirical Analysis of Learning Behavior  
on Electricity Consumption by Information  
Feedback from Electricity Monitors

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T-6-3:  
**Seishi Madono, Yasuo Nakanishi and Jiro Nemoto, Japan**  
Temporary Equilibrium Model and Optimal Capital Stock: An Application to Japanese Electric Utilities

T-6-4:  
**Toshifumi Watanabe, U.S.A.**  
Analysis of Financial Performance in the U.S. Electric Utilities

**Session S-6**  
**Load Management (II)**

S-6-1:  
**Juha Forsström, Seppo Kärkkäinen and Vessa Sorri, Finland**  
Impact of Load Management in Small-Scale Industry and Service Sector on the Demand of Electricity

S-6-2:  
**Vesa Sorri, Lasse Martikainen, Seppo Kärkkäinen and Hannu Pihala, Finland**  
Experiences on Demand-Side-Management Options of Small and Medium Scale Industries in Finland

S-6-3:  
**Yoshikazu Nishikawa, Tetsuo Tetzuka and Hajime Kita, Japan**  
A Study on Energy-Load Management in Residential and Commercial Sectors

S-6-4:  
**Yoshikazu Nishikawa, Tetsuo Tezuka, Hajime Kita and Moon-Sung Kang, Japan**  
Effect of a Photovoltaic Power Generation System on Power Plants Mix

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**Session M-7**  
**Oil Products and Refining**

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**Waqar Haider, Pakistan**  
Refining Sector Planning Model

M-7-2:  
**Yoshiki Ogawa, Japan**  
Market Expectations Evident in Crude Oil Futures Options—Volatility Measures since the Opening of the Option Trading in November 1986

M-7-3:  
**Fabrizio Carlevaro, John Gault, Franco Romerio and Charles Spierer, Switzerland**  
Modeling and Forecasting of the World Demand for Oil

M-7-4:  
**Ken Koyama, Japan**  
A Simulation Study Based on the Oil Flow Model

**Session T-7**  
**Energy Modelling (III)**

T-7-1:  
**Bhaskar Natarajan and Gopika Bhagar, India**  
Contribution of Appliances to Domestic Electricity Consumption

T-7-2:  
**Yoshifumi Fujii, Isamu Matsukawa, Yutaka Nagata and Yutaka Tonooka, Japan**  
Sectoral Analysis of Energy Substitution in Japanese Manufacturing Industries Based on Purchase Prices

T-7-3:  
**John Weyant and Thomas Kuczmowski, U.S.A.**  
Energy Modeling: A Survey

T-7-4:  
**Y. Murota and K. Itoh, Japan**  
An Energy Flow Table Approach

**Session S-7**  
**Decision Support System**

S-7-1:  
**Sigeru Omatsu, Masao Imaeda and Yoshitaka Aoyama, Japan**  
Development of Decision Support System for the Environmental and Energy Problem by the Simulation Game

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S-7-2:  
**J. N. Climaco, C. H. Autunes, A. G. Martins,  
J. S. Marta and A. T. Almedia, Portugal**  
A Decision Support System for Power Generation Expansion Planning with a Case Study

S-7-3:  
**Katsuya Ogino, Japan**  
Hierarchical Game Model Incorporation for Electric Generating System Development—Resource Supply and Public Participation

S-7-4:  
**Ma Zheng-Wu, P. R. China**  
Probe of Metallurgical Industry's Developmental Strategic Decision Support System in China

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##### **Session M-8 Oil and Gas; Prospects and Management**

M-8-1:  
**William D. Watson, Saudi Arabia**  
Does Rising Economic Rent Signal an Energy Resource Shortage?

M-8-2:  
**Lulie Aslaksen, Tor Arnt Johnsen and Asbjorn Aaheim, Norway**  
Energy resources and the Management of National Wealth

M-8-3:  
**Paul Holtberg, U.S.A.**  
Natural Gas Markets in the United States: 1988 to 2010

M-8-4:  
**John E. Parsons, U.S.A.**  
Long-Term Contracts: A Model for Assessing Their Importance in Financing Natural Gas Projects

##### **Session T-8 Energy Policy Issues**

T-8-1:  
**Robert E. Marks, Australia**  
Australian Energy Policy and Conservation

T-8-2:  
**Kazuya Fujime, Japan**  
New Outlook for Energy Supply/Demand and Policy Subjects in Japan—With 15 Years Having Passed since the Oil Shock How to Cope with an Age of New Changes?

T-8-3:  
**Naota Sagawa, Japan**  
Long-Term Outlook for World Energy Market

T-8-4:  
**Silvia Pariente-David and Antoine Eizir, France**  
The Outlook for European Energy Demand and Supply to 2010

##### **Session S-8 Nuclear Technology and Strategies**

S-8-1:  
**Tatsujiro Suzuki, U.S.A.**  
The Analysis of U.S. FBR R&D Program Dynamics to Maintain the Technological Capability

S-8-2:  
**Toshiya Nanahara, Tadasu Takuma, Kenji Yamaji and Shirabe Akita, Japan**  
Economic Assessment of Tokamak Fusion Reactor Plants

S-8-3:  
**Kenji Yamaji and Koji Nagano, Japan**  
Long-range Optimal Strategy of Plutonium Utilization

S-8-4:  
**John C. Sheerin, U.S.A.**  
Electricity technology in the next Century: Pondering the Options

##### **Concluding Panel Session**

Panelists:  
**Prof J. L. Sweeney, Stanford Univ., U.S.A.**  
**Prof. D. O. Wood, MIT, U.S.A.**  
**Dr. H. J. Wagner, KfA, FRG**  
**Dr. R. K. Pachauri, TERI, India**  
**Prof. Y. Nishikawa, Kyoto, Univ., Japan**