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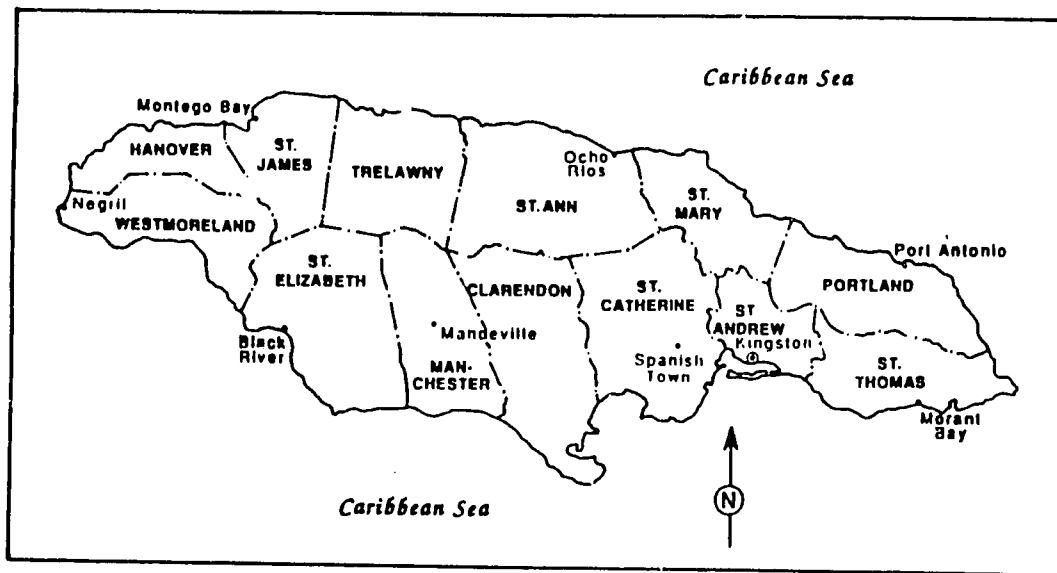
# PRIVATE SECTOR PARTICIPATION IN THE ENERGY/POWER SECTOR OF JAMAICA

Sponsored by:

MINISTRY OF MINING AND ENERGY  
OF JAMAICA

Cosponsored by:

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U.S. Agency for International Development



Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

Sponsored by the Private Sector Energy Development Program  
of the Office of Energy, U.S. Agency for International Development  
and the  
Petroleum Corporation of Jamaica

FOR FURTHER INFORMATION ON PRIVATE SECTOR PARTICIPATION IN -

"THE POWER SECTOR"

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SEMINAR ON  
PRIVATE SECTOR PARTICIATION  
IN THE ENERGY/POWER SECTOR OF JAMAICA

*Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990*

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- TAB 9 *Herbert A. Phillips*  
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Jamican Private Sector
- 

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United States
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Pakistan
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United Kingdom
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Vice President System Operation, National Power Corporation  
Philippines
- 

#### IMPLEMENTING REQUIREMENTS FOR PRIVATE POWER

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- TAB 17 Regulatory and Pricing Issues:  
*Dr. Pirooz Sharafi*  
Principal, RCG/Hagler, Bailly, Inc.
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Partner, Olwine, Connelly, Chase, O'Donnell & Wehyer
- TAB 19 Jamaican Legal Framework:  
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Attorney General, Government of Jamaica

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*Bernays T. Barclay*  
Vice President, Senior Banker Project Finance  
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*Elon Beckford*  
President, Banker's Association of Jamaica
- TAB 22 936 Financing:  
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Senior Group Director, Services Industries  
Jamaica Promotion Ltd.
- 

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- TAB 23 Zia Mian  
Energy Policy Advisor, Ministry of Mining & Energy

*Seminar on*

**PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER  
SECTOR OF JAMAICA**

Sponsored by:

**MINISTRY OF MINING AND ENERGY  
OF JAMAICA**

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**The World Bank  
U.S. Agency for International Development**

**Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990**

Supported by the Private Sector Energy Development Program  
of the Office of Energy, U.S. Agency for International Development  
and the  
Petroleum Corporation of Jamaica

**REGISTRATION FORM**  
**SEMINAR ON PRIVATE SECTOR PARTICIPATION**  
**IN THE ENERGY/POWER SECTOR OF JAMAICA**

Please print or type and complete a separate form for each person planning to attend.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone and Facsimile \_\_\_\_\_

The Government of Jamaica has begun the implementation of a long-term programme of economic recovery and development, which, because of the relationship between economic growth and energy, will inevitably lead to a high rate of increase in the demand for energy. Given the constraints upon government expenditure, however, neither the expansion necessary to meet the present shortfall in generating capacity nor to satisfy the anticipated increase in demand can be financed by the public sector.

We are therefore examining how increased involvement of the private sector can help remedy the problem of power shortages. The Government has given a commitment to ensuring that there will be opportunities for private sector participation in the development of the energy sector and its infrastructure.

This two day seminar will discuss major institutional and technical issues of private sector involvement in energy/power projects, describe the financing options available for such projects, and present the experience of other countries (e.g., United States, United Kingdom, Pakistan and the Philippines).

The seminar will also highlight private sector project opportunities in Jamaica.

For more information, or to register for the seminar, contact:

Ms. Olive Wilson, Petroleum Corporation of Jamaica,  
36 Trafalgar Road, Box 579 Kingston 10, Jamaica, W.I.  
phone (809) 929-5380/9  
fax (809) 929-2404

Ms. Marjorie Martin, Private Sector Energy  
Development Program/THI, 1611 N. Kent Street Suite  
200, Rosslyn, VA 22209  
phone (703) 524-4400  
(703) 524-3164

For hotel reservations, contact:

The Jamaica Pegasus, 81 Knutsford Blvd. (5), Kingston,  
Jamaica, W.I.  
phone (809) 926-3690

# SEMINAR ON PRIVATE SECTOR PARTICIPATION IN THE ENERGY/POWER SECTOR OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

## SEMINAR OBJECTIVES

The objectives of the seminar are:

- 1) To identify key policy issues, constraints, solutions, opportunities and the potential for private sector participation in the energy/power sector in Jamaica;
- 2) To attract private energy/power project developers and potential investors; and
- 3) To provide information on the financing of, and implementation requirements for, private power projects; and to learn from the private power experience of other countries.

## PARTICIPANTS

Expected participants of the seminar include:

- Representatives of Petroleum Corporation of Jamaica & Jamaica Public Service Company
- Government representatives
- Multilateral & bilateral development agencies
- Jamaican private companies
- Private financial institutions & investment groups
- Equipment & fuel suppliers
- Project developers
- Engineering Companies
- Energy/power service companies

## SEMINAR AGENDA

### Monday September 10, 1990

6:30 p.m. RECEPTION  
*Hosted by the Minister of Mining and Energy  
Honourable Hugh Small, Q.C., M.P.*

### Tuesday September 11, 1990

8:00 a.m. REGISTRATION

9:00 a.m. WELCOMING REMARKS AND SEMINAR OVERVIEW  
*Seminar Chairman  
Dr. Keith Panton  
CEO, Alcan Jamaica Co., Ltd.*

9:10 a.m. KEYNOTE ADDRESS  
*Minister of Mining and Energy  
Honourable Hugh Small, Q.C., M.P.*

9:30 a.m. COFFEE BREAK

9:45 a.m. OVERVIEW OF PRIVATE SECTOR ROLE IN JAMAICAN ENERGY/POWER SECTOR  
Potential Role of the Private Sector in the Energy/Power Sector of Jamaica: An Overview  
Presenter: *Dr. Vin Lawrence  
Deputy Chairman, Petroleum Corporation of Jamaica*  
Presenter: *Earl A. Richards  
Chairman, Jamaica Public Service Company*  
Panelist Perspective:  
• *World Bank: Graham Smith  
Chief, Infrastructure & Energy Operations Division  
Latin American & the Caribbean Regional Office,*  
• *InterAmerican Development Bank: Herbert A.  
Phillips, Energy Economist, Project Analysis  
Department, Energy Division*  
• *U.S. Development Assistance: John R. Hammond  
Director, Private Sector Energy Development  
Program/T. Head & Co, Inc.*  
• *Jamaican Private Sector: Douglas Orane  
Vice President, Private Sector Organization of  
Jamaica*

12:00 noon LUNCH

1:30 p.m. PRIVATE POWER EXPERIENCE IN OTHER COUNTRIES  
*Moderator: Dr. James B. Sullivan  
Director, Office of Energy, USAID/Washington*  
Panelists:  
• *United States: John A. Whippen  
Vice President, J. Makowski Associates, Inc.*  
• *Pakistan: Daud Beg  
Additional Secretary, Ministry of Water & Power*  
• *United Kingdom: Speaker to be identified*  
• *Philippines: Jose T. Ramas  
Vice President for System Operation, National Power  
Corporation*

5:00 p.m. ADJOURN

7:30 p.m. PRE-DINNER COCKTAILS

8:00 p.m. DINNER  
*Hosted by Minister of Mining and Energy  
Honourable Hugh Small, Q.C., M.P.  
Speaker: H.E. The Honourable Glen Holden  
United States Ambassador to Jamaica*

### Wednesday September 12, 1990

9:00 a.m. SPECIFIC OPPORTUNITIES FOR PRIVATE SECTOR INVESTMENT 'N JAMAICA  
*Ibrahim I. Elwan  
Manager Private Sector Financial Operations Group  
The World Bank  
Discussion*

10:00 a.m. COFFEE BREAK

10:15 a.m. IMPLEMENTING REQUIREMENTS FOR PRIVATE POWER  
*Moderator: Seminar Chairman, Dr. Keith Panton*  
Panelists:  
• *Regulatory and Pricing Issues: Pirooz M. Sharafi  
Principal, RCG/Hagler, Bailly, Inc.*  
• *Contractual and Legal Issues: John L. Sachs,  
Partner, Olwine, Connelly, Chase, O'Donnell & Wehner*  
• *Jamaican Legal Framework: The Honourable Carl  
Rattray, Attorney General, Government of Jamaica*  
• *Trade Unions' Perspective: Senator Lloyd Goodleigh  
Chairman, Joint Trade Union Research Development  
Centre (JTURDC), Jamaica*

12:00 noon LUNCH

1:30 p.m. FINANCING PRIVATE ENERGY/POWER PROJECTS: RISKS & SOLUTIONS  
*Moderator: Seminar Chairman, Dr. Keith Panton*  
Panelists:  
• *Structuring Security Agreements: Suman Babbar  
Senior Power Engineer, The World Bank*  
• *Arranging Debt Financing: Bernays T. Barclay  
Vice President, Senior Banker Project Finance,  
Citibank, N.A.*  
• *Arranging Equity: Elon Beckford  
President, Banker's Association of Jamaica*  
• *936 Financing: Winston Gooden  
Senior Group Director, Service Industries  
Jamaica Promotion Ltd.*

3:00 p.m. COFFEE BREAK

3:15 p.m. JAMAICA: ISSUES AND OPTIONS  
*Ministry of Mining and Energy presenter*

4:30 p.m. SEMINAR SUMMARY AND CLOSING REMARKS  
*SEMINAR CHAIRMAN, Dr. Keith Panton*

# PRIVATE SECTOR PARTICIPATION IN THE ENERGY/POWER SECTOR OF JAMAICA

*Sponsored by:*  
MINISTRY OF MINING AND ENERGY OF JAMAICA

*Cosponsored by:*  
The World Bank  
U.S. Agency for International Development

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 11-12, 1990

## SEMINAR OBJECTIVES

- 1) To identify key policy issues, constraints, solutions, opportunities and the potential for private sector participation in the energy/power sector in Jamaica;
- 2) To attract private energy/power project developers and potential investors; and
- 3) To provide information on the financing of, and implementation requirements for, private power projects; and to learn from the private power experience of other countries.

## PARTICIPANTS

- Representatives of Petroleum Corporation of Jamaica & Jamaica Public Service Company
- Government representatives
- Multilateral & bilateral development agencies
- Jamaican private companies
- Private financial institutions & investments groups
- Equipment & fuel suppliers
- Project developers
- Engineering companies
- Energy/power service companies

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The seminar will also highlight private sector project opportunities in Jamaica.



SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN  
THE ENERGY/POWER SECTOR OF JAMAICA

JAMAICA PEGASUS HOTEL  
KINGSTON JAMAICA  
SEPTEMBER 11-12, 1990

SEMINAR AGENDA

TUESDAY, SEPTEMBER 11, 1990

8:00 a.m.      **REGISTRATION**

9:00 a.m.      **WELCOMING REMARKS AND SEMINAR OVERVIEW**  
*Seminar Chairman*  
*Dr. Keith Panton*  
*CEO, Alcan Jamaica Co.*

9:10 a.m.      **KEYNOTE ADDRESS**  
*Minister of Mining and Energy*  
*Honourable Hugh Small, Q.C., M.P.*

9:30 a.m.      **COFFEE BREAK**

9:45 a.m.      **OVERVIEW OF PRIVATE SECTOR ROLE IN JAMAICAN  
ENERGY/POWER SECTOR**

Potential Role of the Private Sector in the Energy/Power Sector  
of Jamaica: An Overview

*Presenter: Dr. Vin Lawrence*  
*Deputy Chairman, Petroleum Corporation of Jamaica*

*Presenter: Earl A. Richards*  
*Chairman, Jamaica Public Service Company*

*Panelist Perspective:*

- *World Bank: Graham Smith*  
*Chief, Infrastructure & Energy Operations Division*  
*Latin American & the Caribbean Regional Office*
- *InterAmerican Development Bank: Herbert A. Phillips,*  
*Energy Economist, Project Analysis Department, Energy Division*
- *U.S. Development Assistance: John R. Hammond*  
*Director, Private Sector Energy Development Program/*  
*T. Head & Co., Inc.*
- *Jamaican Private Sector: Douglas Orane*  
*Vice President, Private Sector Organization of Jamaica*

12:00 a.m. **LUNCH BREAK**

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN  
THE ENERGY/POWER SECTOR OF JAMAICA

TUESDAY, SEPTEMBER 11, 1990

SEMINAR AGENDA (Continued)

1:30 p.m. PRIVATE POWER EXPERIENCE IN OTHER COUNTRIES

Moderator: *Dr. James B. Sullivan*  
*Director, Office of Energy, USAID/Washington*

Panelists:

- *Pakistan: Daud Beg*  
*Additional Secretary, Ministry of Water & Power*
- *Philippines: Jose T. Ramas*  
*Vice President for System Operation, National Power Corporation*
- *United Kingdom: Simon Allen*  
*Partner, Price Waterhouse, London*
- *United States: John A. Whippen*  
*Vice President, J. Makowski Associates, Inc.*

5:30 p.m. ADJOURN

WEDNESDAY, SEPTEMBER 12, 1990

8:30 p.m. RISK SHARING AND SECURITY AGREEMENTS FOR  
PRIVATE ENERGY PROJECTS

*Ibrahim I. Elwan*  
*Manager, Private Sector Financial Operations Group*  
*The World Bank*

9:30 a.m. COFFEE BREAK

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN  
THE ENERGY/POWER SECTOR OF JAMAICA

WEDNESDAY, SEPTEMBER 12, 1990

SEMINAR AGENDA (Continued)

9:45 a.m. **IMPLEMENTING REQUIREMENTS FOR PRIVATE POWER**

*Moderator: Seminar Chairman, Dr. Keith Panton*

*Panelists:*

- *Regulatory and Pricing Issues: Pirooz M. Sharafi  
Principal, RCG/Hagler, Bailly, Inc.*
- *Contractual and Legal Issues: John L. Sachs, Partner,  
Olwine, Connelly, Chase, O'Donnell & Wehyer*
- *Jamaican Legal Framework: The Honourable Carl Rattray,  
Attorney General, Government of Jamaica*
- *Trade Union's Perspective: Senator Lloyd Goodleigh  
Chairman, Joint Trade Union Research Development Centre  
(JTURDC), Jamaica*

12:00 noon **LUNCH BREAK**

1:00 p.m. **FINANCING PRIVATE ENERGY/POWER PROJECTS:  
RISKS & SOLUTIONS**

*Moderator: Seminar Chairman, Dr. Keith Panton*

*Panelists:*

- *Structuring Security Agreements: Suman Babbar  
Senior Power Engineer, The World Bank*
- *Arranging Debt Financing: Bernays T. Barclay  
Vice President, Senior Banker Project Finance, Citibank, N.A.*
- *Arranging Equity: Elon Beckford  
President, Banker's Association of Jamaica*
- *936 Financing: Winstor Gooden  
Senior Group Director, Service Industries  
Jamaica Promotion Ltd.*

2:30 p.m. **JAMAICA: ISSUES, OPTIONS AND SPECIFIC OPPORTUNITIES  
FOR PRIVATE SECTOR INVESTMENT**

*Moderator: Seminar Chairman, Dr. Keith Panton*

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN  
THE ENERGY/POWER SECTOR OF JAMAICA

WEDNESDAY, SEPTEMBER 12, 1990

SEMINAR AGENDA (Continued)

- 3:30 p.m. COFFEE BREAK
- 3:45 p.m. DISCUSSION
- 4:30 p.m. SEMINAR SUMMARY AND CLOSING REMARKS

*Seminar Chairman, Dr. Keith Panton*

Attendees

**PRIVATE SECTOR PARTICIPATION IN THE  
ENERGY/POWER SECTOR OF JAMAICA**

**Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990**

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Winston Carr  
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92-20750

Errol Carter  
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57-1-2170200

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Carvel W. Chen  
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Kaiser Jamaica Bauxite Company  
Discovery Bay  
Jamaica  
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Melanie Chen  
Acting Office Director  
Office of Program & Project Development  
United States Agency for International Development  
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Chief, Private Sector Division  
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Paul Crawford  
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Sam Crichton  
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Genco Trading Company Ltd.  
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Paul Crowe  
Director, Office of Economic & Private Enterprise  
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Kingston 5, Jamaica

John J. Cunningham, Jr.  
Director  
Petroleum Company of Jamaica Limited  
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Kingston, Jamaica  
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Ministry of Mining & Energy  
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Kingston  
92-69170 - 9

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## BIOGRAPHICAL SKETCH

### KEITH ST. E. PANTON

Dr. Keith Panton has been President and Chief Executive Officer of Alcan Jamaica Company since 1986. He has worked with Alcan since 1964 in various capacities in the areas of Personnel and Industrial and Employee Relations. He is a Board Member of many institutions and Chairman of several including National Commercial Bank and the University Council of Jamaica.

He holds many awards including the Order of Distinction in the rank of Commander (C.D.) from the Government of Jamaica.

He holds a Ph.D. in Economics from Washington State University.

## BIOGRAPHICAL SKETCH

### VINCENT M. LAWRENCE

Dr. Vincent Lawrence is Chairman/Partner with Jentech Consultants Limited. He has been a Director of this Company since 1972. He is also Chairman and Director of other companies including Petroleum Corporation of Jamaica for which he has served as Deputy Chairman since 1989.

He holds a Ph.D. in Civil Engineering from Queens University.

Ambassador Glen A. Holden  
Capsule Profile

Ambassador Holden was asked to serve as the United States Ambassador to Jamaica in April 1989.

The Ambassador is a long time resident of Los Angeles, California. He holds a Bachelor of Science degree from the University of Oregon. He is an experienced businessman who began his career in the mid-1950's as a life insurance agent in Portland, Oregon. In 1956 he formed and operated Glen Holden Associates (a life insurance general agency) in Oregon, Washington and California until 1963.

From 1964 to 1973 he was President and Director of the Variable Annuity Life Insurance Company (VALIC) of Washington, D.C. and Houston, Texas. Under Ambassador Holden's guidance, VALIC pioneered the variable annuity product in the United States, as well as many other innovative products resulting in most major life insurance companies adopting his new product lines. In 1973, he founded and became Chairman of the Board and CEO of Security First Group, The Holden Group, all of its subsidiaries, including Security First Life Insurance Company and Fidelity Standard Life Insurance Company. These companies are headquartered in Los Angeles, California and administrate over \$4 billion of life insurance assets.

Throughout his career, Ambassador Holden has had a keen interest in Latin America and the Caribbean. has traveled extensively throughout the region, as well as 43 countries around the world.

Ambassador Holden is married to the former Gloria Ann McClintock and has three children -- Glen A. Jr., Georgianne, and Geannie -- who are married and have given the Holdens seven grandchildren.

Ambassador Holden's involvement in numerous civic, cultural and educational activities included membership on the Board of Directors of the California Chamber of Commerce; Founder of the Citizens for America Educational Foundation (CFA); memberships in the Association of Governing Boards of Universities and Colleges, the International Foundation for Learning Disabilities of Los Angeles and Chairman of the Board of Trustees of The Hugh O'Brian Youth Foundation.

Additionally, Ambassador Holden's past and present membership in professional organizations include the Association of Advanced Life Underwriters, The International Association for Financial Planning, The Life Underwriters Association of Los Angeles, Houston and Portland, The Life Underwriters Political Action Committee, The National Association of Insurance Companies, the General Agents and

Managers Association, the National Association of Securities Dealers and the Million Dollar Round Table.

Ambassador Holden has received an Honorary Doctorate of Philanthropy awarded by the Boy Scouts of America in 1987; and, in 1988, an Honorary Doctorate of Laws from the Graduate School of Education and Psychology, Pepperdine University. He was the recipient of the American Humanics Hand to Youth Award in 1985 and the American Humanics Exemplar Award in 1986. In 1990, he received the Oxford Cup, Beta Theta Pi fraternity's most prestigious alumni award.

Ambassador Holden is motivated and lives by his belief that "all obstacles and controversies have reasonable and valuable solutions".

July 1990

JAMAICA CONFERENCE

Name: Graham Smith

Present Position: Chief, Infrastructure and Energy Operations Division, Country Department 3, Latin America and Caribbean Regional Office, World Bank.

Areas of Qualification: Responsible for operations in power, oil and gas, transportation, water supply and sanitation, housing and urban development in the Caribbean and the northern countries of South America.

Education: M.B.A., Harvard Business School  
B.A. (Hons.), University of Cambridge (Trinity College) in Economics and Modern Languages.

Work Experience:

1976 to present World Bank.

1988 to present Chief, Infrastructure and Energy Operations Division, Country Department 3, Latin America and Caribbean Region.

1987-1988 Head of Transportation Unit, Infrastructure and Energy Division, Technical Department, Latin America and Caribbean Region.

1987 Deputy Division Chief, Transportation Division, Latin America and Caribbean Region.

1983-1987 Senior Transportation Economist and ultimately Acting Transportation Policy Advisor, Transportation Department, Operations Policy Staff.

1976-1983 Transportation Economist, Transportation Division, Europe, Middle East and North Africa Region.

1972-1976 Transportation Economist, Louis Berger International, Inc. for preinvestment and organizational studies in South Korea (1972-73), Iran (1973-75), and Algeria (1975-76).

1968-1970 Junior Professional Officer, United Nations Development Programme, Montevideo, Uruguay (1968-69) and El Salvador (1969-70).

Reason for Participation: The World Bank has made the Jamaica Public Service Co. four loans for expanding and upgrading its power system, and has been asked by the Jamaican Government to prepare a fifth, with the possibility of covering other energy investments besides power. The division which Mr. Smith heads is responsible for these loans.



## Biographical Sketch

HERBERT AUSTIN PHILLIPS

Mr. Phillips, an Economist in the Energy Division of the Projects Analysis Department has been employed at the Inter-American Development Bank since 1978. Prior to that, he held senior professional positions in the Trinidad and Tobago Civil Service and the Organisation of American States. He also worked as a consultant for the Economic Development Institute of the World Bank. Mr. Phillips, a national of Trinidad and Tobago was educated at the University of the West Indies and the University of Maryland, College Park.

## RESUME

JOHN R. HAMMOND  
DIRECTOR  
PRIVATE SECTOR ENERGY DEVELOPMENT PROGRAM  
A.I.D. OFFICE OF ENERGY

John R. Hammond directs the Private Sector Energy Development Program of the A.I.D. Office of Energy in Washington, D.C. The purpose of the PSED Program is to assist the private sector to participate in solving the energy/power shortage problems of developing countries. The \$10 million PSED Program supports policy and institutional reforms, and specific electric power projects that lead to private participation in power generation. The PSED Program is currently involved with private power activities in Indonesia, the Philippines, Guatemala, Dominican Republic, Kenya, Costa Rica, Turkey, Morocco and Pakistan.

Prior to directing the PSED Program, Mr. Hammond served as Senior Energy Advisor to the Office of Energy where he coordinated A.I.D.'s report to Congress on **Power Shortages in Developing Countries: Magnitude, Impacts, Solutions, and the Role of the Private Sector**. He also staffed the A.I.D. Administrator's recent Energy Industry Review Group on Power Shortage in Developing Countries.

Before joining A.I.D., he was Executive Assistant for Economic Development to the Mayor of the City of New Orleans. There he was responsible for establishing and administering a cofinancing program that resulted in over \$500 million in project financing. Prior to that, he was an Assistant Professor of Urban and Regional Studies at the University of New Orleans.

Mr. Hammond holds a Masters of Regional Planning from the Maxwell School of Syracuse University and a Bachelors from Hamilton College in New York State.

## BIOGRAPHICAL SKETCH

### DOUGLAS ROY ORANE

Mr. Douglas Orane is Managing Director of Grace, Kennedy & Company Limited where he has served in various senior managerial positions since joining the company in 1981. He serves on the Board of Directors of several business and industrial organizations.

Prior to joining Grace Kennedy he worked with Douglas C. Orane Limited as General Manager.

He holds a Masters in Business Administration from Harvard Business School and a Bachelor of Science (Mechanical Engineering) from Glasgow University.

## Biographical Sketch

JAMES B. SULLIVAN

James B. Sullivan is Director of the Office of Energy, Bureau for Science and Technology, U.S. Agency for International Development (A.I.D.). Dr. Sullivan joined A.I.D. in 1982 as an energy consultant in Pakistan, and assumed his present position in 1986.

Previously he was with the U.S. Environmental Protection Agency. He subsequently joined the U.S. Office of Technology Assessment, continuing to work with innovative energy technologies, economic development, environmental quality, and public participation.

Dr. Sullivan founded the Center for Science in the Public Interest and served as its co-director from 1970 to 1976, directing projects on a variety of energy and environmental issues.

Dr. Sullivan graduated from Manhattan College with a degree in civil engineering. He holds a master's degree from New York University, and a doctorate from the Massachusetts Institute of Technology in applied mathematics and hydrodynamics.

MR. DAUD. BEG.

BIOGRAPHICAL PROFILE

Mr. Daud Beg is Additional Secretary (Power) in Ministry of Water and Power of the Government of Pakistan. His responsibilities include policy planning and development of Power Sector including two largest electric utilities, Water and Power Development Authority (WAPDA) and Karachi Electric Supply Corporation (KESC). Private Power Cell of the Government of Pakistan works directly under his supervision.

During his 36 years professional career, he has held appointments of Member (Power) Pakistan Atomic Energy Commission,, Director (Planning) East Pakistan WAPDA and founder Managing Director of Energy Conservation Centre (ENERCON). He has also been a Senior Executive of Electricity Corporation of Nigeria. He has carried out individual consultancy arrangements for the World Bank and Asian Development Bank.

He holds an Honours degree in Electrical Engineering, postgraduate D.I.C. from Imperial College, London, Fellowship of Institution of Electrical Engineers, and Membership of I.Mech.E. and B.I.M.

He has several technical publications in International journals to his credit. He is a keen mountaineer and has climbed extensively in Karakorams and Himalayas.

## BIOGRAPHICAL SKETCH

JOHN A. WHIPPEN

John A. Whippen is a Vice President of J. Makowski Associates, Inc. He was the project manager for Phase Two of the Ocean State Power project, a 500 MW IPP. Currently, Mr. Whippen is project manager of the West Lynn Cogeneration facility.

Before joining JMAI, Mr. Whippen was with Boston Edison Company where he held assignments as Manager of Energy Resource Planning and Forecasting, Chief Economist and Assistant to the President.

Prior to joining Boston Edison, Mr. Whippen was a College Professor and Administrator. He continues this activity as an Adjunct Professor at Bentley College.

Mr. Whippen holds a B.A. and a Ph.D. in Economics.

(August, 1990)

SIMON ALLEN - PARTNER, PRICE WATERHOUSE - PRIVATISATION SERVICES,  
LONDON

Simon Allen, aged 33, and is a partner in the Privatization Services unit in London and he joined Price Waterhouse Houston in 1982, moved to The Hague in 1984 and London in 1986. He was admitted to the partnership on 1 July 1990.

Since 1987, he has been part of the central team advising the electricity distribution companies on privatisation matters including organisational structure, finance and accounting, flotation issues and negotiations with Government.

He is also advising two of the twelve electricity distribution companies, Midland Electricity and SEEBOARD on their individual preparation for privatisation.

Other work includes advising the Government of Malaysia and the state electricity company (LLN) on measures to be taken for corporatisation of the company, prior to the anticipated flotation in Spring 1991 and advising the management of the state electricity company in Hungary on their restructuring proposals, following the moves towards a free market economy.

JAMAICA CONFERENCE

Name JOSE T. RAMAS

Present Position Vice President, Systems Operations and Vice Chairman,  
NPC Private Power Generation Committee  
National Power Corporation

Areas of Qualification

Power Systems Analysis  
Power Generation and Transmission  
Project Management

Education

Master of Science in Electrical Engineering - UP 1971  
Bachelor of Science in Electrical Engineering - Mapua 1955  
Graduate, "Modern Power System Analysis"  
Tutorial Course by Texas University at Arlington

Work Experience

From 1956 to present - with National Power Corporation,  
rose from the ranks, as Electrical Engineer, Senior/  
Principal Engineer, Superintendent/Manager of Engineering  
Projects, Vice President for Engineering and presently  
Vice President-Systems Operations, Trained in Nuclear  
Power Plant Construction and Operations,

Reason for participation

Invited by USAID to participate and present Philippine  
experience in private sector power generation.



## Biographical Sketch

### PIROOZ M. SHARAFI

Dr. Sharafi is a principal at RCG/Hagler, Bailly in Washington, D.C. where he has lead the company's activities related to private sector participation in power supply of developing countries over the past five years. He has evaluated the potential for and impediments to private sector power generation in India, Indonesia, Malaysia, Pakistan, the Philippines, and Thailand and has assisted with the design and implementation of private power policies in some of these countries. Dr. Sharafi has conducted a number of studies evaluating the impact of private power plants on the financial performance and planning requirements of electric utilities and identifying optimum approaches for introducing private sector resources to the power supply of developing countries. He has also assisted the Asian Development Bank in formulating ADB's strategy vis-a-vis private power development.

Prior to joining RCG/Hagler, Bailly, Dr. Sharafi worked as a consultant at the Power Advisory Unit of the World Bank.

Dr. Sharafi holds a Ph.D. in Energy Technology from the Massachusetts Institute of Technology.

JOHN L. SACHS

Mr. Sachs is a partner in the Washington office of Olwine, Connelly, Chase, O'Donnell & Weyher. He specializes in energy law, and he has had extensive involvement in the development of all types of domestic and foreign energy projects, including fossil fuel-fired cogeneration and independent power projects, hydroelectric projects, municipal solid waste projects and other alternative energy projects. In the United States, he represents a variety of corporate developers and the National Independent Energy Producers, the leading trade association in the independent power industry. Overseas, he advises countries such as Pakistan, the Philippines and Thailand on programs to encourage the development of energy projects with private capital. He is currently lead negotiator for the Government of Pakistan with respect to a series of contracts relating to the largest build-own-transfer energy project in the world, a 1200 MW oil-fired project at the mouth of the Hab River. Mr. Sachs previously served as a judicial law clerk to the Honorable Charles R. Richey, a federal district court judge in Washington, D.C., after graduating from Harvard Law School and Yale College.

## BIOGRAPHICAL SKETCH

### RAPHAEL CARL RATTRAY

The Hon. Carl Rattray, Attorney-At-Law, is Minister of Justice and Attorney-General and has held this position since February 1989. His experience in legal affairs goes back to 1956. He has served in many areas relating to constitutional law and human rights. His political career spans several years during which time he has served as a Member of Parliament as well as Senator, Attorney General and Minister of Justice.

He is a partner in the legal firm of "Rattray, Patterson, Rattray".

He was called to the Bar at Lincoln's Inn in 1946.

BERNAYS T. BARCLAY  
VICE PRESIDENT  
SENIOR BANKER  
CITICORP PROJECT FINANCE GROUP  
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212-659-1616

Mr. Barclay joined Citibank in 1988. He is primarily responsible for Citibank's origination, structuring, and underwriting non-recourse project financing, and providing financial advisory services for project developers and investors. Although his primary focus is the United States, he is currently involved in substantial project finance activities in Canada and in the Caribbean.

Prior to joining Citibank, Mr. Barclay was associated with the New York City law firm of Chadbourne & Parke, where for nine years he specialized in representing developers of cogeneration and other independently-owned projects in all phases of project development. In addition, he represented major energy users, including large pulp and paper manufacturers, in electric rate design cases before numerous state utility regulatory agencies.

Mr. Barclay was raised in Battle Creek, Michigan. He graduated from the University of Michigan (1970), and after serving four years as an officer in the U.S. Army, earned an MBA in financial administration from Michigan State University (1976) and a J.D. from the University of Chicago Law School (1979).

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## BIOGRAPHICAL SKETCH

### WINSTON STERLING GOODEN

Mr. Winston Gooden is Senior Group Director of JAMPRO's Service Industries Division. He was educated in Jamaica at Waulgrove College and in Great Britain, at Kilburn Polytechnic and Ealing Technical College, London, and the Queens College, Oxford University.

Mr. Gooden holds a Higher National Certificate (HNS) in Business Administration and B.A. (Hons.) OXN, degree in Philosophy, Politics and Economics (PPE) from Oxford University.

After leaving Ealing Polytechnic in 1968, Mr. Gooden worked with Forward Trust Financing, in London before going to Oxford University in 1970 where he read for his B.A. (Hon.) PPE.

Mr. Gooden joined the Jamaica Foreign Service in 1974 and was assigned to the Jamaican High Commission in London as Commercial Attache.

In 1979, Mr. Gooden was assigned responsibility for the International Organization Unit of Ministry of Foreign Affairs' Political Division, which deals with matters concerning the United Nation's General Assembly and it Agencies.

In 1981, Mr. Gooden left the foreign Ministry to join Jamaica's economic development agency, the Jamaica National Investment Promotion Limited (JNIP), one of the agencies merged to create JAMPRO.

At the JNIP, Mr. Gooden headed the Secretariat with responsibility for the Prime Minister's Committee on Investment and Employment, as well as the Jamaica Secretariat for President Reagan's U.S. Business Committee on Jamaica which was chaired by Mr. David Rockefeller.

Mr. Gooden came to his present post directly from assignment in Puerto Rico where he established and headed JAMPRO's Office in that U.S. Commonwealth nation. The purpose of the establishment of the Puerto Rico Office was to facilitate the accessing of section 936 Funds.

During his assignment in Puerto Rico he initiated and worked several 936 loan proposals which resulted in 936 loans to Jamaica totalling US\$59.5M. In working on these proposals Mr. Gooden developed close working relationships with Puerto Rico's public and private financial institutions. In 1988 Mr. Gooden was invited to testify before Sub-Committee of the United States House of Representative dealing with section 936 financing in the Caribbean.

Under his guidance, the Service Industries Division initiates activities and programmes which will encourage investment projects in the areas of Information Processing, Tourism and Film.

**OPENING REMARKS**

**K.S. Panton**

**Seminar Chairman & CEO**

**Alcan Jamaica Co.**

**SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR OF JAMAICA**

**Kingston Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990**

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR OF JAMAICA  
SEPTEMBER 11 - 12, 1990

OPENING REMARKS

by

K. S. PANTON

SEMINAR CHAIRMAN

INTRODUCTORY REMARKS

LET ME THANK THE MINISTER OF MINING AND ENERGY, FOR GIVING ME THE OPPORTUNITY TO PARTICIPATE IN THESE PROCEEDINGS. THIS SEMINAR IS BEING HELD AT A MOST APPROPRIATE TIME, GIVEN RECENT EVENTS IN THE PERSIAN GULF AND HERE IN JAMAICA. IT IS GENERALLY ACCEPTED THAT ENERGY IS A KEY INGREDIENT IN ECONOMIC DEVELOPMENT. I AM THEREFORE, VERY DELIGHTED TO BE ABLE TO ASSIST IN ANY WAY POSSIBLE IN HELPING TO MAKE THIS SEMINAR THE SUCCESS IT MUST BE IF JAMAICA'S ENERGY SECTOR IS TO BE DEVELOPED AND OPERATED IN A MANNER WHICH WILL OPTIMIZE THE USE OF ALL AVAILABLE RESOURCES.

JUST OVER 90% OF ALL THE ENERGY CONSUMED IN JAMAICA IS IMPORTED AND ALL THE TECHNOLOGICAL MEANS OF CONVERTING THIS RAW ENERGY



2.

(MAINLY PETROLEUM FUELS) TO THE FORMS REQUIRED FOR FINAL CONSUMPTION, I.E. ELECTRICITY, MOTOR FUELS, COOKING FUELS, ETC., MUST ALSO BE IMPORTED. PROVIDING SUFFICIENT FINANCIAL RESOURCES TO SATISFY THE NEEDS FOR FUEL AND MACHINERY. PLACES A VERY HEAVY DEMAND ON SCARCE HARD CURRENCY WHICH WILL RESTRICT OTHER VITAL SECTIONS OF THE ECONOMY FROM PERFORMING AT A LEVEL NECESSARY TO ACHIEVE SUSTAINED ECONOMIC AND SOCIAL DEVELOPMENT.

THE GOVERNMENT OF JAMAICA OWNS AND OPERATES THE TWO PRINCIPAL ENTERPRISES IN THE LOCAL ENERGY SECTOR, NAMELY, THE OIL REFINERY AND THE JAMAICA PUBLIC SERVICE COMPANY LTD. APART FROM THE BAUXITE AND ALUMINA COMPANIES AND A FEW OTHER MINOR ENERGY USERS WITH INDEPENDENT SUPPLIES, THE GOVERNMENT HAS A VIRTUAL MONOPOLY ON THE ENERGY/POWER SECTOR.

THE MAINTENANCE OF ADEQUATE, RELIABLE AND ECONOMIC SUPPLY OF THE COUNTRY'S ENERGY INPUTS WHICH ARE REQUIRED TO SUPPORT EXPECTED ECONOMIC GROWTH IN JAMAICA IS PROVING TO BE A GROWING AND SERIOUS PROBLEM. THE OIL REFINERY REQUIRES UPGRADING TO MAXIMISE ITS ECONOMIC POTENTIAL, AND FOR THE PAST 15 OR SO YEARS, WITH FEW EXCEPTIONAL YEARS, THE PUBLIC ELECTRICITY SUPPLY HAS NOT BEEN ABLE TO CONSTANTLY SATISFY THE DEMANDS PLACED ON THE SYSTEM. AS A RESULT, THE ECONOMY HAS SUFFERED CONSIDERABLY FROM THE NECESSITY TO RATION ELECTRICAL POWER TO

STAY WITHIN THE SYSTEM'S CAPACITY TO DELIVER.

THE CONSEQUENCES OF POWER RATIONING CANNOT BE OVERSTATED. POWER RATIONING REDUCES POTENTIAL ECONOMIC ACTIVITY BECAUSE OF THE INABILITY TO PLAN WITH THE DEGREE OF CONFIDENCE NECESSARY TO CONVINCING INVESTORS AND CUSTOMERS ALIKE THAT ORDERS WILL BE FILLED AS PROMISED AND THE EXPECTED RETURN ON INVESTMENT CAN BE REALIZED. THUS, BOTH PRODUCTION WITH EXISTING RESOURCES AND NEW INVESTMENTS TO FUEL GROWTH ARE RESTRICTED.

THE GOVERNMENT OF JAMAICA RECOGNIZING THAT THE CRISIS THE ENERGY/POWER SECTOR NOW FACES MAY BE DUE IN PART TO HOW IT IS STRUCTURED, IS, WITH THE HELP OF THE WORLD BANK AND THE U.S. AID, SPONSORING THIS SEMINAR, IN WHICH THE ISSUES CONCERNING PRIVATE PARTICIPATION IN THE SECTOR WILL BE EXPLORED IN DEPTH. THE OBJECTIVES OF THE SEMINAR ARE CLEARLY SPELLED OUT IN THE BROCHURE, AS FOLLOWS:

- i. IDENTIFY THE KEY POLICY ISSUES, CONSTRAINTS AND SOLUTIONS, OPPORTUNITIES AND POTENTIAL FOR PRIVATE SECTOR PARTICIPATION IN THE ENERGY/POWER SECTOR IN JAMAICA;

ii. ATTRACT PRIVATE PROJECT DEVELOPERS AND POTENTIAL INVESTORS;

iii. PROVIDE INFORMATION IN THE FINANCING OF, AND IMPLEMENTATION REQUIREMENTS FOR PRIVATE POWER PROJECTS IN GENERAL; AND TO LEARN FROM PRIVATE POWER EXPERIENCES IN OTHER COUNTRIES.

OVER THE NEXT TWO DAYS, WE SHALL CONSIDER IN DEPTH THE REQUIREMENTS FOR ACHIEVEMENT OF THESE STATED OBJECTIVES.

THE AGENDA HAS BEEN CAREFULLY COMPILED TO HELP US ACHIEVE THESE AIMS AND AN ATTEMPT IS MADE TO STRUCTURE THE SESSIONS SO THAT ONE SET OF INTERRELATED TOPICS IS THOROUGHLY EXPLORED IN EACH SESSION. THE FIRST DAY IS MEANT TO SET THE STAGE BY PRESENTING AN OVERVIEW OF THE POWER SECTOR IN JAMAICA AND THE NECESSITY TO CONSIDER PRIVATE SECTOR INVOLVEMENT AT THIS TIME, FOLLOWED BY PERSPECTIVES OF THE CO-SPONSORS OF THE SEMINAR, AND THE JAMAICAN PRIVATE SECTOR. HAVING SET THE STAGE, THE SECOND DAY WILL BE DEVOTED TO THE HARD REALITIES OF WHAT AND HOW TO PRIVATISE, THE FINANCIAL, LEGAL AND REGULATORY REQUIREMENTS, THE TARGETS TO AIM AT AND PITFALLS TO AVOID.

APART FROM OUR LOCAL AND OVERSEAS PRESENTERS AS SET OUT IN THE SEMINAR AGENDA, A SPECIAL EFFORT HAS BEEN MADE TO INCLUDE LOCAL ORGANISATIONS REPRESENTING VARIOUS INTEREST GROUPS WHICH SHOULD BE INTERESTED IN THE DELIBERATIONS, SUCH AS THE SEVERAL PRIVATE SECTOR ORGANIZATIONS, FINANCIAL INSTITUTIONS AND REPRESENTATIVES OF THE TRADE UNIONS AND THE NATIONAL CONSUMERS LEAGUE. IT IS HOPED THAT THE PARTICIPATION OF THESE GROUPS WILL SIGNAL CONCERNS AT THIS STAGE, SO THAT THEY MAY BE AIRED AND DEALT WITH OR AT LEAST RECOGNIZED EARLY SO THAT SUFFICIENT TIME AND RESOURCES CAN BE ALLOCATED TO THE SOLUTION, NOT AFTER, BUT BEFORE ANY IMPLEMENTATION.

THE FINAL OBJECTIVE OF THIS SEMINAR WILL BE TO TAKE ACTION ON THE IDEAS, ISSUES, AND OPTIONS THAT WILL BE DISCUSSED OVER THE NEXT TWO DAYS. IT IS IMPORTANT FOR US TO ARRIVE AT SOME CONSENSUS AND TO MOVE AHEAD. THE MOMENTUM GENERATED BY THIS SEMINAR NEEDS TO BE CHanneLED INTO CONCRETE ACTIONS AND ACTIVITIES. SURE, THERE MAY BE SOME MISTAKES MADE UPON THE WAY. BUT A SWIFT, YET ORDERLY PROGRAMME FOR SOLVING THE PROBLEMS OF THE ENERGY SECTOR, MUST BE PUT IN PLACE IN ORDER TO AVERT ADDITIONAL ENERGY RELATED CONSTRAINTS TO ECONOMIC DEVELOPMENT.

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AS SEMINAR CHAIRMAN, I EXPECT FULL PARTICIPATION IN DISCUSSIONS, SO THAT THE NEXT TWO DAYS WILL NOT ONLY BE ENJOYABLE BUT PRODUCTIVE. THE MATERIAL WE HAVE TO COVER IS VAST, AND THE TIME AVAILABLE IS LIMITED, THEREFORE, I MAKE THIS EARLY APPEAL TO ALL PRESENTERS TO TRY AND ADHERE TO THEIR ALLOTTED TIMES, SO THAT OTHERS FOLLOWING WILL NOT BE UNDULY RESTRICTED.

WITH THESE FEW WORDS, I HEARTILY WELCOME THE HON. MINISTER OF MINING AND ENERGY, REPRESENTATIVES OF THE CO-SPONSORS, THE WORLD BANK AND U.S. AID; THE SEVERAL PANELISTS AND PRESENTERS, WHO HAVE TAKEN TIME OUT TO PREPARE AND PRESENT PAPERS AND ALL THE OTHER INVITEES, LOCAL AND FROM OVERSEAS WHOSE PARTICIPATION WILL BE VITAL TO THE SUCCESS OF THE SEMINAR.

JAMAICA: ENERGY POLICY DIRECTIONS

KEYNOTE ADDRESS

SEMINAR ON PRIVATE SECTOR PARTICIPATION IN

THE ENERGY SECTOR OF JAMAICA

AT KINGSTON, JAMAICA

SEPTEMBER 11, 1990

BY

THE HON. HUGH SMALL, Q.C., M.P.

MINISTER OF MINING AND ENERGY, GOVERNMENT OF JAMAICA

MR. CHAIRMAN, CABINET COLLEAGUES AND MEMBERS OF GOVERNMENT, MEMBERS OF THE DIPLOMATIC CORPS, PARTICIPANTS, REPRESENTATIVES OF THE MEDIA, LADIES AND GENTLEMEN, LET ME BEGIN BY WELCOMING YOU TO THIS SEMINAR. I AM VERY PLEASSED AT THE LARGE ATTENDANCE SUCH A WIDE VARIETY OF ENERGY SECTOR INTERESTS BOTH FROM JAMAICA AND ABROAD. I WANT TO EXTEND A VERY SPECIAL WELCOME TO THE OVERSEAS PARTICIPANTS, AND ESPECIALLY THOSE WHO HAVE COME TO JAMAICA TO SHARE THEIR EXPERIENCES WITH US. I HOPE THAT YOUR STAY IN JAMAICA WILL BE PRODUCTIVE NOT ONLY IN TERMS OF THE SEMINAR OBJECTIVES, BUT THAT YOU WILL ALSO HAVE AN OPPORTUNITY TO ENJOY JAMAICA'S NATURAL BEAUTY AND WARM HOSPITALITY.

SINCE TAKING OFFICE IN FEBRUARY OF LAST YEAR, THIS ADMINISTRATION HAS EMBARKED ON A FIVE YEAR PROGRAMME OF ECONOMIC DEVELOPMENT. THE MEDIUM TERM MACRO-ECONOMIC GOAL OF THIS PROGRAMME IS TO CREATE THE CONDITIONS REQUIRED TO ACHIEVE AND MAINTAIN THE ECONOMY'S ABILITY TO GROW AT AN AVERAGE REAL RATE OF ABOUT THREE PERCENT PER ANNUM, WHILE IMPROVING CONSUMPTION AND ADDRESSING SOME OF THE PRESENT ECONOMIC CONSTRAINTS. IN THE LONGER TERM, THE PROGRAMME IS DESIGNED TO ACHIEVE VIABILITY IN THE BALANCE OF PAYMENTS, AND TO ELIMINATE THE MAJOR DEVELOPMENT CONSTRAINTS.

WE MEET AT A TIME OF CRISIS IN THE INTERNATIONAL ENERGY SITUATION. THE JAMAICAN ECONOMY IS HIGHLY DEPENDENT ON ENERGY. IN 1989 EVERY JAMAICAN, ON A PER CAPITA BASIS (MALE, FEMALE, OLD, YOUNG AND CHILDREN INCLUDED) USED ENERGY EQUAL TO ABOUT 260 GALLONS OF PETROLIUM. FOR EVERY TEN JAMAICAN DOLLARS OF OUR NATIONAL PRODUCTION WE CURRENTLY USE ABOUT ONE THIRD OF A GALLON OF PETROLEUM. THE ENERGY INPUT COST OF OUR PRODUCTION IS ONE OF THE HIGHEST IN THE WORLD.

THE NATURE OF OUR PRODUCTIVE SYSTEM AS WELL AS INEFFICIENCIES IN OUR ENERGY PRODUCTION AND USE ARE CAUSES FOR THIS HIGH ENERGY USE. IT IS BECOMING A REAL CONSTRAINT ON OUR ECONOMY AND, WHAT IS MORE, IF OUR PRODUCTS AND EXPORTS ARE TO REMAIN COMPETITIVE IN THE WORLD MARKET, WE WILL HAVE TO ENSURE THAT EFFICIENCY OF ENERGY PRODUCTION AND USE IS IMPROVED.

MR. CHAIRMAN, I REFERRED TO THE GROWTH TARGETS IN THE FIVE- YEAR PLAN. IT IS PROJECTED THAT TO ACHIEVE THOSE TARGETS, THE ENERGY SUPPLIES TO THE ECONOMY WILL HAVE TO INCREASE BY AN ANNUAL AVERAGE OF ABOUT FIVE PERCENT. HOW ARE WE GOING TO FINANCE THIS?



THE GOVERNMENT BELIEVES THAT THE INVOLVEMENT OF THE PRIVATE SECTOR ON A COMPETITIVE BASIS IS THE BEST WAY TO ACHIEVE THESE NECESSARY INCREASES IN ENERGY SUPPLIES AND TO IMPROVE EFFICIENCIES IN THE PRODUCTION SYSTEM.

BECAUSE OF INCREASING ENERGY COSTS AND HIGH DEPENDENCE ON ENERGY TO ACHIEVE ECONOMIC GROWTH THE GOVERNMENT HAS GIVEN A VERY HIGH PRIORITY TO THE ENERGY SECTOR AND ITS DEVELOPMENT. AS AN INITIAL STEP, ALL ENERGY MATTERS WERE PUT UNDER ONE MINISTRY WHICH HAS RESPONSIBILITY FOR BOTH ELECTRICITY GENERATION AND PETROLEUM. THESE TWO TOGETHER COMPRISE THE VITALLY IMPORTANT ENERGY SECTOR OF JAMAICA.

IT IS NO EXAGGERATION TO SAY THAT THIS SECTOR IS IN A CRITICAL SITUATION, DUE MAINLY TO AN UNDER-ESTIMATION OF THE GROWTH OF DEMAND, AN OVER-ESTIMATION OF THE CAPACITY OF EXISTING PLANT AND INADEQUATE PLANNING OVER THE YEARS. IN THE POWER SUB-SECTOR, THE COUNTRY REQUIRES MORE ELECTRIC POWER THAN IT IS ABLE TO PRODUCE TO MEET PRESENT DEMAND, AND FOR PLANNED SUSTAINABLE GROWTH. IT IS NOW ESTIMATED THAT AN ADDITIONAL 600 MEGAWATTS OF GENERATING CAPACITY WILL BE REQUIRED OVER THE NEXT TEN YEARS.

THIS DEMAND FOR ADDITIONAL SUPPLY OF POWER PRESENTS A UNIQUE OPPORTUNITY FOR THE PRIVATE SECTOR TO PARTICIPATE BOTH IN THE SHORT AND LONGER TERM. INDEED, THE FIRST ELEMENT OF THE 600 MW REQUIREMENT, THE INSTALLATION OF 100 MW THROUGH PRIVATE SECTOR INVESTMENT, IS THE SUBJECT OF A WORLD BANK PROJECT.

WE ARE ALSO AT AN ADVANCED STAGE IN THE STUDY OF THE FEASIBILITY OF THE BACK RIO GRANDE HYDRO POWER SCHEME TO PROVIDE AN ADDITIONAL 50 MW OF POWER. THIS IS ANOTHER OPPORTUNITY FOR POTENTIAL INVESTORS. YET ANOTHER IS THE DEVELOPMENT OF CO-GENERATION POTENTIAL IN THE SUGAR INDUSTRY, WHERE CERTAIN INITIATIVES ARE ALREADY IN PROGRESS. WE HAVE TO APPROACH THE ADDITION OF THIS NEW CAPACITY AS A MATTER OF URGENCY.

OUR EXPERIENCE HAS TAUGHT US THAT DELAY IN MAKING THE NECESSARY INVESTMENTS IS A COSTLY EXERCISE WHETHER THE DELAY IS CAUSED BY OVER-OPTIMISM THAT EXISTING PLANT CAN BE NURSED ALONG TO DO EXTRA SERVICE, OR FOR WHATEVER OTHER REASON. IT COSTS THE GOVERNMENT, IT COSTS THE PRODUCTIVE SECTOR, AND IT UNDERMINES THE EFFORTS OF THE JAMAICAN PEOPLE TO MOBILIZE INVESTMENT AND SAVINGS TO BUILD A STABLE AND EXPANDING ECONOMY. DELAY IS DEFEAT. WE DARE NOT WAIT.

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IN THE COURSE OF THE SEMINAR YOU WILL LEARN MUCH ABOUT THE HISTORY OF OUR LIGHT AND POWER COMPANY AND REFINERY AND HOW THEY CAME TO BE PUBLICLY OWNED. MR. CHAIRMAN, THE ECONOMIC AND POLITICAL CLIMATE IS CHANGING NOT ONLY IN THE WIDER WORLD. IT IS ALSO CHANGING IN JAMAICA AND WE ARE TODAY OPEN TO DISCUSS THE PARTICIPATION OF BOTH LOCAL AND FOREIGN CAPITAL THROUGH DEBT FOR ASSETS, SWAPS AND OTHER SUITABLE ARRANGEMENTS.

IN THE PETROLEUM SUB-SECTOR THE OIL REFINERY DOES NOT PRODUCE ALL THE FINISHED PRODUCTS WHICH ARE NEEDED TO KEEP OUR ECONOMY GROWING. THERE IS AN URGENT NEED TO MODERNIZE, UPGRADE, AND EXPAND IT. THIS EXPANSION WILL ALLOW US TO MAXIMIZE THE OPPORTUNITIES TO FULLY UTILIZE OUR ADVANTAGES UNDER THE SAN JOSE ACCORD.

THE GOVERNMENT'S DECISION TO RATIONALIZE AND CONSOLIDATE ALL ENERGY SUBJECTS UNDER A SINGLE MINISTERIAL PORTFOLIO HAS MADE IT POSSIBLE FOR US TO BEGIN TO FORMULATE A LONG-NEEDED COMPREHENSIVE AND INTEGRATED POLICY FOR THE ENERGY SECTOR. UNDER THIS POLICY WE HAVE ALREADY BROKEN THE BACK OF A MAJOR PROBLEM WHICH NEEDED TO BE DEALT WITH BEFORE WE COULD ATTRACT PRIVATE CAPITAL TO THE POWER SECTOR. I REFER, OF COURSE, TO THE RESTRUCTURING OF POWER TARIFFS.

FURTHER, IN ACCORDANCE WITH OUR BELIEF THAT ENERGY POLICY IMPLEMENTATION SHOULD RELY ON DECENTRALIZED COMPETITIVE FORCES, LAST WEEK WE IMPLEMENTED EXTENSIVE DECONTROL OF MAJOR ASPECTS OF THE PETROLEUM TRADE.

THE GOVERNMENT HAS ALSO ESTABLISHED AN INTER-AGENCY ENERGY SECTOR DEVELOPMENT COMMITTEE WITH THE RESPONSIBILITY FOR DEVELOPING AN ENERGY SECTOR INVESTMENT PROGRAMME AND IMPLEMENTATION STRATEGY. WE HAVE OBTAINED THE COMMITMENT OF THE WORLD BANK TO ASSIST IN THIS TASK.

ALTHOUGH THE WORK ON THIS INVESTMENT PROGRAMME HAS NOT YET BEEN COMPLETED, EARLY INDICATIONS ARE THAT THE TOTAL COST OF THE REQUIRED INTEGRATED DEVELOPMENT PROGRAMME FOR THE ENERGY SECTOR OVER THE NEXT TEN YEARS WILL BE ABOUT ONE BILLION U.S. DOLLARS.

MR. CHAIRMAN, WE RECOGNIZE THAT THE LARGE CAPITAL INVESTMENTS WHICH ARE NEEDED FOR THE EXPANSION AND MODERNIZATION OF THE ENERGY SECTOR CANNOT BE MET FROM PUBLIC SECTOR RESOURCES. THESE RESOURCES ARE LIMITED, AND SHOULD BE DEVOTED TO THOSE AREAS WHICH ARE GENERALLY RECOGNIZED AS PRIME RESPONSIBILITIES OF ANY GOVERNMENT, NAMELY, THE SOCIAL SECTORS SUCH AS HEALTH, EDUCATION, SECURITY, AND JUSTICE AND INFRASTRUCTURE SUCH AS ROADS, WATER AND SEWAGE.

IT IS THE GOVERNMENT'S POLICY TO PROMOTE AND FACILITATE PARTICIPATION BY THE PRIVATE SECTOR IN THE ECONOMIC DEVELOPMENT OF THE COUNTRY AND THIS SPECIFICALLY INCLUDES INVESTMENT IN THE ENERGY SECTOR. I REPEAT THE STATEMENT WHICH I MADE IN THE BUDGET DEBATE IN PARLIAMENT IN MAY OF THIS YEAR, "THE GOVERNMENT IS COMMITTED TO ENSURING THAT THERE WILL BE OPPORTUNITIES FOR PARTICIPATION BY THE PRIVATE SECTOR, WHEREVER POSSIBLE, IN THE DEVELOPMENT OF THE ENERGY SECTOR AND ITS INFRASTRUCTURE", AND AS PRIME MINISTER MANLEY HIMSELF HAS SAID "OUR STRATEGY OF DEVELOPMENT MUST BE TO BROADEN THE BASE OF OWNERSHIP IN THE ECONOMY"

OUR INITIATIVE TO INVOLVE PRIVATE CAPITAL IN THE ENERGY SECTOR IS AN OBVIOUS DEMONSTRATION OF OUR COMMITMENT TO THIS POLICY, AND IT IS, IN FACT, OUR INITIATIVE, BASED ON A POLICY DECISION WHICH WE MADE AFTER AN ANALYSIS OF THE NEEDS AND RESOURCES OF THE ENERGY SECTOR.

SUPPORT AND ASSISTANCE IN DEVELOPING AN APPROPRIATE PROGRAMME OUT OF THIS INITIATIVE HAS BEEN FORTHCOMING FROM MULTI-LATERAL AND BILATERAL FINANCING INSTITUTIONS SUCH AS THE WORLD BANK, THE INTER-AMERICAN DEVELOPMENT BANK, AND THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT.

WE ARE OBLIGED FOR THEIR SUPPORT FOR AND INVOLVEMENT IN THIS SEMINAR AND LOOK FORWARD TO YOUR CONTINUED PARTICIPATION.

WE ARE CONFIDENT THAT THE DELIBERATIONS WHICH WILL TAKE PLACE OVER THE NEXT TWO DAYS WILL BE OF ASSISTANCE TO THE GOVERNMENT IN EXAMINING THE VARIOUS METHODS OF PRIVATE SECTOR INVOLVEMENT IN THE ENERGY SECTOR. I HOPE THAT WE WILL ADEQUATELY EXAMINE THE MOST SUITABLE FORM OF PRIVATE INVESTMENT, APPROPRIATE TO THE JAMAICAN SITUATION AND BY THE END, HAVE A CLEAR PICTURE OF WHAT MUST BE DONE TO EXPEDITE THE IMPLEMENTATION OF OUR POLICY. IN THIS WAY JAMAICAN AND INTERNATIONAL PRIVATE CAPITAL CAN BE PUT AT THE SERVICE OF THE SECTOR.

WHEN WE SPEAK OF PRIVATE CAPITAL WE DO NOT EXCLUDE THE SAVINGS OF OUR WORKERS, FARMERS AND PROFESSIONALS. THEY TOO MUST PARTICIPATE. THAT IS WHY THE TRADE UNIONS, THE CONSUMERS' LEAGUE AND A WIDE CROSS-SECTION OF SOCIAL CLASSES ARE REPRESENTED HERE. THERE MUST BE ROOM FOR ALL TO PARTICIPATE. THIS CAN BE A NEW STIMULUS TO THE DEVELOPMENT OF OUR CAPITAL MARKETS.

THIS GOVERNMENT HAS LEFT NO DOUBT THAT IT IS COMMITTED TO THE DEVELOPMENT OF OUR ECONOMY. WE ACKNOWLEDGE THAT OUR ROLE AS THE ELECTED REPRESENTATIVES OF THE JAMAICAN PEOPLE IS TO GOVERN WISELY. WE ACKNOWLEDGE THAT THERE ARE AREAS OF THE ECONOMY WHICH ARE BEST LEFT TO INFLUENCES OUTSIDE OF GOVERNMENT. ENERGY IS A CLEAR EXAMPLE. IT CAN BE A MODEL FOR FURTHER DEVELOPMENT. WE WANT TO GET ON WITH THE BUSINESS OF GOVERNMENT AND LEAVE THE BUSINESS OF BUSINESS TO THOSE WHO ARE BEST ABLE TO MANAGE IT.

KINGSTON

SEPTEMBER 10, 1990

**THIS PAPER WILL BE HANDED OUT  
AT THE CONFERENCE**



POTENTIAL ROLE OF THE PRIVATE SECTOR IN THE  
ENERGY/POWER SECTOR OF JAMAICA: AN OVERVIEW

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SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
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POTENTIAL ROLE OF THE PRIVATE SECTOR IN THE  
ENERGY/POWER SECTOR OF JAMAICA : AN OVERVIEW

PRESENTER - DR. VIN LAWRENCE

DEPUTY CHAIRMAN - PETROLEUM CORPORATION OF JAMAICA

A B S T R A C T

An overview of the current status of the energy sector of the island, with brief descriptions of the role, functions and operations of the bodies responsible for developing and supplying the country's energy needs - the Jamaica Public Service Co. Ltd. and the Petroleum Corporation of Jamaica, its subsidiaries and services.

The paper highlights the current and projected demands for petroleum and petroleum-based products, the expansion and upgrading requirements to meet projected demand and the role private investment can play in partnering the expansion and modernization programme of the sector.

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PETROLEUM CORPORATION OF JAMAICA

Mr. Chairman, Hon. Minister of Mining and Energy, other members of the Cabinet and Government, Members of the Diplomatic and Consular Corps. Representatives from International Institutions, our overseas guests, colleagues, representatives of the media, Ladies and Gentlemen. .

I believe we are all agreed that Government's stated and practised philosophy is that the private sector should be the main engine of growth in the nation's economic development.

Consequently, Government has embarked on a programme geared to this objective - the establishment of policies, the initiation of dialogue and the creation of a climate with the appropriate mechanisms, to encourage private sector participation at both the macro and micro levels of national life.

I believe we are also agreed that an indispensable condition for successful economic development is an adequate and reliable source of energy.

Like other small developing countries, however, we are confronted with the spectre of inadequate financial resources to meet the growing demands on the economic and social infrastructure of the nation.

Government's five year development plan projects economic growth at the rate of 3 per cent per year. To meet this projection, a minimum of 5 percent annual growth rate in energy is required. Our foreign exchange resources are severely limited, as demand far exceeds supply. 25 per cent of the nation's foreign exchange earnings are allocated to the energy sector for the purchase of fuel. The recent Gulf crisis has added to the pressure.

The Ministry of Mining and Energy has portfolio responsibility for the development of the country's energy sector. The Jamaica Public Service Company and the PCJ - The Petroleum Corporation of Jamaica - are the agencies responsible for supplying the energy requirements of the nation. In recent years, there has been a significant increase in our energy consumption. In 1989, for example, despite a downturn in economic activity, hurricane Gilbert and the subsequent loss of power for an extended period, energy consumption increased by 27.3 per cent over 1988. The energy supply mix for 1989 was petroleum 88.6 per cent, hydro-power 1.3 per cent, bagasse 8.4 per cent and coal 1.5 per cent.

PCJ was established in 1980 as a statutory corporation to promote the development of Jamaica's energy resources and in so doing, undertake the exploration, development and management of Jamaica's petroleum resources. Under the Act, the PCJ can acquire and operate through subsidiaries or contractors, refining, processing or marketing facilities. Currently there are eight companies in the PCJ group.

Petrojam Limited a subsidiary of PCJ, established in 1982 was the direct result of the decision taken by Esso Standard Oil International - which then operated the refinery in the island - to streamline its operations worldwide. Esso took a strategic corporate decision, which resulted in the closure of its operations here. As this action would have been detrimental to the national interest, Government purchased the refinery.

Privatization in the energy business is therefore not a new concept for us. Acquisition of the refinery and subsequent creation of Petrojam were simply fulfilling one of the roles of responsible government, that of initiating mechanisms to ensure the smooth running of the nation's economy.

All other aspects of the industry were and have remained in the private sector - marketing, transportation, distribution, retailing, although until last week was subject to regulation and price control. Government's timetable for deregulation, formulated more than a year ago, was set for September 1990. (And I venture to say, perhaps before Mr. Hussein began to cast his eyes south to Kuwait!).

Jamaica depends on petroleum for 90 per cent of its primary energy needs. With the exception of small amounts of hydro-electric capacity, bagasse used in sugar production and wood charcoal, all primary energy used is in the form of imported oil.

In 1989, petroleum consumption was 15.875 million barrels, moving from 12 million barrels in 1987. Projections are that by 1992, consumption will have increased to 17 million barrels, an average annual increase of 7.4 per cent. Main consumers are JPSCO and the bauxite companies, utilising bunker C; land, marine and air transport, utilising gasclene, marine oil, diesel oil and turbo fuel.

Petrojam Limited, the largest PCJ subsidiary is a 100 per cent government owned company, which operates as an independent organization, itself having subsidiaries, operating and servicing divisions. The Company owns a 36,000 barrels per day refinery, adjacent to the Kingston harbour.

Other responsibilities of Petrojam include:-

- Importation of all crude oil, under the San Jose Accord and all deficit petroleum products for domestic use, with the exception of the bauxite companies, which are permitted to import on their own behalf.
- Term exporting to some Caribbean locations.
- Co-ordination and distribution of oil products to distribution companies.
- Production and selling of ethanol.
- Operating other facilities associated with the oil refinery, including an industry loading rack, LPG and asphalt loading racks, oil movement and storage and marine terminal facilities.

Another subsidiary of PCJ, the Petroleum Company of Jamaica - Petcom - is a petroleum marketing company that operates one retail service station, bottles and markets cooking gas and retails other petroleum products to industrial consumers.

Petrojam, through a group of four subsidiaries, is also involved in the production of fuel ethanol for the US market. The ethanol production company is Petrojam Ethanol Limited. Petrojam Belize manufactures high test molasses for conversion to hydrous ethanol and contributes to the local production to satisfy the Caribbean Basin Initiative Programme. Legislation requires that up to 65 million gallons of ethanol may enter the U.S. from the CBI region, if it meets the 35 per cent local value added criterion. Petronol Limited operates a sugar factory at Bernard Lodge, a few miles from Kingston. This subsidiary also manufactures hydrous ethanol from molasses, produced locally and in Belize. EEC alcohol is used in the production of fuel ethanol and is acquired through a purchasing subsidiary, Petrojam U K Limited.

Non-energy activities of PCJ - some with a social component - have included the provision of low-cost housing, tourism, agriculture, the development of nature reserves and parks. Several of these non-energy activities have been sold and the remainder are being continually assessed for divestment as they do not pertain to the original purpose of PCJ - that of activities involving energy resources and their products.

In recent years, there has been a decrease in the use of heavy fuel and a coincidental increase for light petroleum products - kerosene, gasoline, diesel and turbo fuel. Demand for light oil products is expected to increase, also that for fuel oil, as the country responds to the growing demand for electric power.

PCJ's projection of 17 million barrels by 1992 is expected to be distributed as follows:-

JPSCO and any related power supply sources will increase its demand to 3.4 million barrels, the bauxite industry to 7.3 million barrels, gasoline to 1.9 million barrels, automotive and diesel to approximately 1.8 million barrels.

Our refinery, which is a hydro-skimming unit, is designed to produce large quantities of oil from high-priced crude. It is not equipped to provide adequate quantities of light oil products from the low grade crude imported from Venezuela and Mexico through the San Jose Accord.

The size of the refinery and lack of adequate storage limit PCJ's ability to purchase oil in cost-efficient quantities. Consequently, the country has had to resort to importing large quantities of refined oil products to meet increased demand. To meet projected demand, modifications must be done to the configuration of Petrojam's refinery and storage capacity must be increased.



Expansion of the refinery's capability will require the installation of a larger vacuum pipestill and a fluid catalytic cracking unit (FCCU). This upgrading project, estimated to cost US\$60M can show good rates of return on investment, as it would be developed in phase with a more recent \$15 million project to de-bottleneck the existing atmospheric distillation section, to attain a capacity of 50,000 barrels per day, as against the current 36,000 barrels per day capacity.

Several benefits would accrue from expansion :-

- it would allow for more efficient refinery operation;
- provide the capacity to meet the expanding energy demands of the economy by the year 2000;
- prevent the importation of finished products, as demand increases beyond the capacity of the existing refinery;
- facilitate the export of finished products to the Caribbean;
- increase foreign exchange earnings.

Projections are that the resulting earnings and savings could be in the region of US\$20 million per annum.

A project has also been developed for expanding the storage capacity by 190,000 barrels per day with two 95,000 barrel fuel tanks. This additional storage will enable the refinery to better utilize opportunities for processing third party crude and storing more fuel to allow us entry into fuel exchange transactions, thereby

putting us in a better position to supply some of the low API cracked fuel oil, currently used by the bauxite companies of Jamaica. Estimated project cost is US\$2.4 million.

Petrojam currently has a long term agreement with the Belize Government to supply its fuel requirements for electricity generation. Opportunities exist for expansion with the installation of a small storage facility, costing approximately US\$1.8 million. Earnings from this project, whereby fuel would be exported from Petrojam Kingston on a term basis to Petrojam Belize, would pay for the cost of the terminal within three years.

The upgrading of its catalytic reformer has been identified by Petrojam as a major operational and economic objective that would allow for :-

- increased capacity of the unit from 2,800 barrels per calendar day to approximately 4,500 barrels per calendar day;
- production of a higher octane gasoline blendstock, resulting in a reduction in the amount of lead used;
- increased cycle length of the plant to approximately one year runs between catalyst re-activation.

Capital investment requirement is estimated at US\$3 million, with a discounted cash flow return of over 100 per cent.

Petrojam's Logistics and Shipping Division operates a number of company-owned and time-chartered vessels. An assessment of the Division's operations is currently being done to determine the need for additional ownership and control of vessels.

Petroleos de Venezuela, South America (PDVSA), through its subsidiary, Lagoven S.A., the largest oil company in Venezuela has offered us technical and financial assistance in the development of a number of projects.

Developing countries have been pursuing private participation in their national energy sector for three reasons:-

- The private sector can bring in additional sources of finance not easily accessible to government-owned energy resources.
- The introduction of market forces can raise the overall efficiency of the energy sector.
- The risks are minimal.

In addition, financing should not require a sovereign guarantee by the government for repayment and consequently, private sector investment can reduce the amount of government borrowing.

Both the JPSCO and PCJ as government bodies, are restricted in their ability to borrow on foreign markets by the credit capacity of the Government. This is further compounded by limitations imposed by the IMF. Borrowing on the domestic market is also difficult, as returns on investment for public utilities cannot support interest rates as high as 30 per cent. Another

significant plus factor is that private sector financing will not require a government guarantee, thereby resulting in a reduction of the overall debt burden to the Government in the energy sector.

Government is therefore looking for private investment to partner the expansion and modernisation programme of the energy sector. It would however, maintain its co-ordinating, regulating and monitoring roles in the public interest, perhaps through a Public Utilities Commission.

Developing countries have adopted one or both of two routes to increase private sector participation in the power sector:

- i) Independent power facilities that are privately owned and operated and sell bulk power to the national grid.
- ii) Partial or complete privatization of existing facilities.

The route we take will determine our petroleum requirements in the medium and long term, and the use of coal is an important consideration. Further growth after 1992 will be significantly influenced by the decisions taken on the expansion of our power generating capacity. Investment opportunities are therefore based on the fulfilling of these objectives.

As stated in its five year development plan for 1990 to 1995, this administration is committed to managing the affairs of the country efficiently and in a manner which will allow for greater participation of the private sector. The recent de-regulation of the petroleum industry is one such move. There are other precedents -

in the banking sector, tourism, including the divestment of major hotels and another utility, the telephone company.

Over the next six months, Government will be undertaking a comprehensive review of the petroleum sector with the help of the Energy Management Assistance Programme of the UNDP and the World Bank. This study will provide the scope, feasibility, investment requirements and timetable for the modernization and expansion of the sector.

The Government is convinced of the merits of private sector participation in the energy sector, and in this framework, PCJ welcomes any discussions, suggestions, ideas - any initiatives from members of the sector.

Thank you Ladies and Gentlemen.

Paper prepared for Seminar on Private Sector Participation in the Energy/Power Sector of Jamaica. September 11 - 12, 1990

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OVERVIEW OF THE PRIVATE SECTOR ROLE IN THE  
JAMAICAN ENERGY/POWER SECTOR

Earl A. Richards  
Chairman  
Jamaican Public Service Company, Ltd.

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
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Overview of the Private Sector Role  
in the Jamaican Energy/Power Sector

Earl A. Richards  
Chairman  
Jamaican Public Service Company, Ltd

abstract

The Jamaica Public Service Company, Ltd. will require approximately 1000 mw of new generating capacity over the next 20 years. This capacity is planned to be provided in the form of gas turbines, coal-fired steam turbines and small hydroelectric facilities. To encourage private participation in power supply, JPS is considering the purchase of power from new private power producers and industries with excess power generating capacity. This paper also reviews other approaches to private participation in the Power Sector of Jamaica.

## Introduction

Good morning, I welcome this for this opportunity to discuss the Jamaican power sector with you. This seminar comes at an important time for Jamaica. The government of Jamaica, as we heard from minister small earlier this morning, is actively considering how the private sector can participate in the expansion of the nation's energy sector. Several countries, including Pakistan and the Philippines, have progressed quite far along this path. We are fortunate to have with us, Mr. Ramas of the national power corporation of the Philippines, and Mr. Beg of the Ministry of Water and Power of Pakistan, to discuss how their countries have implemented private power programs and they will no doubt provide examples of strategies to encourage private sector investments in the sector.

Developing countries, such as the Philippines and Pakistan, Dominican Republic, India, Costa Rica and others, are currently pursuing private power primarily for two reasons. The first is that the private sector can bring additional sources of finance to the energy sector. Secondly, because of its experience in the power sector and through the introduction of market forces and competition, the private sector can help to raise the overall efficiency of the energy sector. For these reasons, Jamaica is also considering private investment in energy development.

## Current Situation

The Jamaica Public Service Company, Ltd. was purchased by the Government of Jamaica in 1974, and is 99 percent owned by the government. The company operates under the electricity lighting act and a license granted in 1978 for a period of 39 years. Under the licence, JPS is responsible for supplying electricity to the entire nation, with the exclusive right to provide electricity for both public and private use. Any firm however, may provide power for its own use. Furthermore, the law permits JPS to purchase bulk power from private producers.

In July 1990, JPS had 443 mw of installed capacity. The system reached a peak load of 325 mw in early 1990. In Jamaica, the daily peak demand occurs between 6 and 10 p.m. The Kingston-St. Catherine area, on the southeast coast of the island, accounts for 60 percent of the total system load.

The JPS system consists of 40 mw of diesel capacity and 306 mw of steam turbine capacity running on Bunker 'c' fuel, 74 mw of gas turbine capacity running on diesel fuel, and a maximum of 23 mw of run-of-the-river-hydroelectric capacity. Oil-fired steam turbines are located at Hunts Bay in Kingston and Old Harbour on the South Coast. The Rockfort station, located in eastern Kingston, is a 2 x 20 mw slow speed diesel, barge-mounted facility. Gas turbines are also located at Hunts Bay in Kingston and at Bogue in Montego Bay. An additional 37.0 Mw of new gas



turbines were installed at Bogue in August, 1990. The run-of-the-river-hydroelectric facilities are located on rivers on the north side of the island. These units were installed between 1945 and 1988 and contribute less than 10 percent of the system's overall gross generation.

Transmission occurs over 171 miles (272 km) of 138kv lines and 445 miles (712 km) of 69kv lines. The distribution system consists of 7000 miles (11,200 km) of 24 kv, 13.8 Kv, 11.95 Kv, 6.9 Kv and 4 kv lines.

Growth in the demand for electric power over the last several year has been rising at a rate faster than was projected. Although economic growth during much of the 1980s was slow, growth in the demand for electric power, nevertheless, increased rapidly in the latter half of the 80s. In 1987 for example, the peak demand for electricity increased by 8.4 Percent over the previous year to reach a new peak demand of 286 mw. In 1989, an increase in the gross domestic product of 4.6 Percent prompted an increase in the demand for electric power of 13.7 Percent. The peak demand in 1989 increased to 305 mw, and by January of 1990 it had reached 325 mw.

The rapid growth in demand for electric power is attributable to the increased activity of large industrial and commercial consumers, and a rise in the overall number of electric power consumers. By 1990 JPS was serving 301,000 customers, up from 116,000 customers in 1970.

Jamaica Public Service Company, Ltd. employs 1700 persons to serve over 300,000 customers. The total kwh sales per employee was 785,000. The consumer to employee ratio is 160:1.

The Electric Power Tariff was completely re-structured in early 1990 and was increased by an average of 37.6% effective 1st April. Prior to this increase, the tariff had not been adjusted for six years except for changes arising from fluctuations in the cost of fuel. The new tariff structure is designed to encourage the efficient use of energy; this the previous declining block structure did not do.

Below are extracts from the existing rate schedule:

residential under 100 kwh	= 78.9 Cents Ja/kwh
	11.27 Cents U.S./Kwh
residential over 100 kwh	= 97.9 Cents Ja/kwh
	13.98 Cents U.S./Kwh
small commercial rate 20	= 92.8 Cents Ja/Kwh
	13.26 Cents U.S./Kwh
small industrial rate 40	
demand charge	= \$75 Ja/Kwh
	\$10.71 U.S./Kwh
energy charge	= 46.8 Cents Ja/kwh
	6.69 Cents U.S./Month

large industrial rate 50

Demand charge = \$52 Ja/Kva

\$7.43 U.S./Kva

energy charge = 41.8 Cents Ja/Kwh

5.97 Cents U.S./Kwh

(\$US = J\$7)

### Recent Accomplishments and Expansion Plans

The Jamaica Public Service Company, Ltd. and the Government of Jamaica are committed to improving the efficiency and reliability of the electric power system. We are determined to provide a reliable service to the public at reasonable rates.

The Company has hired a major management consulting firm to conduct an operations efficiency audit to assist us in streamlining our operations. Many other initiatives are in progress aimed at improving the Company's operations in technical, management and administrative areas.

As I have already mentioned, we have contracted for another 37 mw of capacity to come on line in early 1991. I also mentioned the 100 mw of additional capacity, we are actively seeking for installation in 1991/92.

We have upgraded our corporate planning capability and have recently produced a five year development plan detailing, inter alia, our Generation, Transmission and Distribution requirements.

The Company is committed to the training and general development of its staff and has taken new initiatives in this area.

We have also recently significantly improved our plant maintenance capabilities and are currently undertaking a major maintenance programme of our larger units.

### JPS Expansion Plan

The following discussion of the JPS expansion plan is based on our most recent expansion study, which was completed in 1989, and is subject to continual review and modification.

The JPS expansion is designed to meet the current and future demand for power, as well as to provide the company with a comfortable reserve margin. The Company would prefer to maintain a reserve margin of 54 percent of its peak load. Currently, however, JPS is operating with a reserve margin estimated to be 36 percent of its peak load based on its 443 mw of installed capacity. Actual available capacity, however, is presently between 385-410 mw, which reduces reserve margins to between 15-25%. Due to the inherent isolation of island utilities, there is no opportunity for JPS to interconnect with other utilities. Therefore, JPS must maintain a reserve margin that is relatively high when compared to utilities located in countries with multiple grids or with the ability to import power from other countries.

The Jamaica Public Service Company, Ltd. plans to add 1052 mw by year 2008. The additional capacity includes 198 mw of gas turbine capacity to come on line through the year 1994. As I mentioned earlier, the first 37 mw of gas turbine capacity came on line last month. A second 37 mw of gas turbine capacity is expected to come on line during the first quarter of year 1991. Tenders for the next 100 mw of gas turbine capacity have been issued and the offers are due by later this month. However, the Government of Jamaica is considering that this 100 mw increment could be brought on line by the private sector, provided that they meet our commissioning deadlines, and that an appropriate power purchase price is negotiated.

The remainder of the expansion plan through year 2008 calls for 366 mw of coal-fired capacity, 99 mw of gas turbines and 13 mw of hydroelectric capacity. The Back Rio Grande hydroelectric plant could add another 30 mw to the system and a feasibility study on this project is currently being conducted.

A further least cost power expansion plan study is being carried out by sweco, a swedish consulting firm. Their draft final report of the Jamaica power market survey and load forecast study has been completed and is being reviewed. The full study is to be completed by year-end.

#### Constraints to Public Sector Expansion

Since the Jamaica Public Service Company, Ltd. is government-owned, expansion of the electric power sector has historically been a public sector responsibility. In recent years, however, the Government of Jamaica has experienced difficulty in developing the energy sector to meet the growing demand for energy. As a result, over the last one to two years, there have been increasingly frequent shortages of electric power throughout the island, resulting in occasional load shedding.

Several factors have constrained the ability of JPS to provide an adequate supply of power. The first, as I mentioned earlier, is the rapid, unprojected growth in demand during the late 1980s. This growth is expected to continue through the '90s, with estimates placing it as high as seven percent.

The second factor is a shortage of foreign exchange required to purchase new generating equipment and spare parts. Traditionally, JPS has financed its expansion programmes primarily from borrowings from multi-lateral agencies and foreign banks. At the end of fiscal year 1989-1990, JPS had a medium/long term debt of J\$901 million (US\$128.71 M). With the loan financing of the additional 37 mw of emergency capacity due early in 1991, the ability of JPS to borrow hard currency funds will be further constrained. The government of Jamaica already earmarks 25 percent of its annual foreign exchange earnings to purchase petroleum. This places constraints on the government in making additional allocations of foreign exchange to the energy sector.

A third factor constraining the company is the age of its system. More than 60 percent of its existing generating capacity is over 15 years old. Due to its age, the reliability of the system is expected to decrease steadily over the next several years even after allowing for regular maintenance.

### Private Sector Participation

The Jamaica Public Service Company is actively considering the manner in which the private sector could participate in the expansion of the Jamaican Electric Power Sector. The private sector, with its access to capital and its expertise and experience with power generation, has been demonstrating substantial interest in supplying power to the Company.

We have come to this seminar with open minds and are prepared to consider a wide range of private power options and proposals.

During the past three months we have been examining issues relating to private power and are optimistic about achieving positive results from the present initiative. However we are keenly aware that there are many difficulties to be overcome and of the complexity of the necessary contractual arrangements.

We have looked at the 'boot' model and its several variants as one option for private power participation. Regarding this option, which is independent power production and sale to JPS, there appears to be no legal obstacles to the involvement of private producers. The legal issues will be addressed tomorrow by the Hon. Carl Rattray.

Private proposals for the future generating capacity requirements as previously outlined would therefore be welcomed by JPS. The Company is also interested in proposals that feature the use of Biomass and municipal solid waste as fuel, as well as projects that are configured in a cogeneration mode.

Another concept considered for private participation could be the addition of generating capacity in a future free trade zone for high energy users. The Government of Jamaica has not been able to actively encourage energy intensive industries to invest in the country, in part due to the lack of an adequate supply of power.

A substantial amount of captive generating capacity is installed on the island in various Commercial and Industrial firms. Because the units in most of these enterprises are sized to meet only their own load requirements, captive power represents a limited source of new capacity for JPS. Private companies planning to expand their captive power generating capacity or new enterprises planning to add capacity, may wish to oversize so that they can sell excess power to JPS. The Company is, however, willing to consider purchasing power from any Company that has excess installed generating capacity, which meets certain technical criteria.

Finally, JPS would also welcome a cooperative relationship with a privately owned utility. This cooperation could include technical, managerial and training services, technology transfer and procurement agreements as well as other matters. This type of co-operation could also lead to the off-shore utility gaining a good understanding of the investment and operating environment in JPS and Jamaica, which could result in an equity participation in JPS by 'the utility'.

I have mentioned the above options to indicate areas of our thinking on subject, not to limit the range of options we are prepared to consider. I am looking forward to hearing and discussing many new ideas on private power during this seminar and in the months ahead.

### Conclusion

The Energy Sector of Jamaica, like the economy as a whole, is entering a new era that includes greater public-private interaction. We look forward to greater Private Participation in the sector, particularly in the development of new electric power generating capacity. We at JPS are interested in receiving private sector proposals that meet our capacity expansion requirements.

Let me express special thanks to the multi-lateral agencies - the World Bank and USAID for the tremendous assistance and support given to us in the past and particularly with respect to the planning and promotion of this Seminar.

I appreciate this opportunity to speak with you today, and welcome any inquiries that you may have regarding my presentation.

OVERVIEW OF PRIVATE SECTOR ROLE IN JAMAICAN ENERGY/POWER SECTOR  
World Bank Perspective

Graham Smith

Chief, Infrastructure & Energy Operations Division  
Latin American & the Caribbean Regional Office  
The World Bank

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

# OVERVIEW OF THE WORLD BANK ROLE

IN THE

## ENERGY/POWER DEVELOPMENT

by

Graham Smith  
Division Chief  
Infrastructure and Energy Operations Division  
Department III  
Latin America and the Caribbean Region  
The World Bank

Those of you who have read the personal histories in the proceeding document distributed this morning may have noted that for most of my professional life I have been a transport economist. What authority have I, then, to speak to you on energy and power? It is a fair question. The architects of the World Bank's recent reorganization, carried out in 1987, in their wisdom created a multi-headed monster, the infrastructure and energy division. It is a division responsible for lending operations in a smaller group of countries than under the previous arrangements, but one which combines responsibility for economic sectors that were previously spread among five or six separate technical divisions: transportation (that is, roads, ports and railways), water supply and sanitation, housing and urban development, and finally (but not least) power and oil and gas. The concept was that these sectors have enough in common to warrant having staff --at least the managers-- span them all, while giving more individual attention to each country. A worthwhile objective. The trouble is to find similarly multi-headed monsters to run them. I have the dubious honor of trying to fill such a role. For the past two years it has made me rather schizophrenic. I had no previous background in power nor other forms of energy. However, the magnitude and importance of the problems our borrowers face in these sectors are such that I have had to learn a lot fast. It is on the basis of this short but intense experience, and the fact that my division is now preparing what (if it materializes) will be the fifth loan to Jamaica's power sector, that I speak to you today.

I also want to say by way of introduction that this is only my second visit to Jamaica. My first was almost exactly two years ago. I am sure that none of you need reminding that it was on the eleventh of September that Hurricane Gilbert swept across the island, leaving a swath of devastation and missing zinc roofing panels. A week later I arrived with a team of colleagues from the World Bank to assess the damage and

see what we could do to help. I was greatly impressed to find that JPSCo had already restored power to key parts of Kingston, including to this hotel where I was staying, so I never had to use the candles I had brought with me from Washington. I was subsequently equally impressed to learn that JPSCo took so seriously its responsibility to apply objective priorities in deciding which areas to tackle first, that even certain JPS managers had no power in their homes almost until Christmas. That speaks a great deal about the high quality and professional standards of JPSCo's management. I also want to thank Minister Small and Derek Dyer for taking the initiative of coming to Washington soon after each was appointed. They came to get to know us in the Bank and in so doing set the pace for the undertaking that we are now embarked upon, namely finding innovative ways to expand the capacity of the Jamaican power and oil industries without burdening the public treasury at a time when it can ill afford any new burdens. Hence this seminar.

For those who are not familiar with the scope and scale of the World Bank's operations in power and other energy operations, let me give you some numbers. About one-fifth of total World Bank lending is directed for energy, and lending for energy development has increased over the past seven years. Over 4 billion US dollars in Bank loans and IDA credits were approved in fiscal year 1989 and cumulative energy lending has totalled about US\$38 billion over the past 40 years. As for Jamaica specifically, we have lent a total of 72.5 million dollars for power and \$7.5 million for petroleum exploration (though only half of the latter was eventually used).

The Bank has also increased its energy policy and advisory role, partly through advising on energy sector strategies and undertaking comprehensive energy assessments. It prepared such an assessment for Jamaica in 1984-85. This was under the aegis of the Energy Sector Management Program, or ESMAP for short, a semi-independent unit within the World Bank that draws extensively on funding from not only the Bank itself, but also the UN Development Programme and several bilateral donors. It has also supported the idea of privatization in the energy sector and of increased private sector involvement. To give the necessary support to its member countries, in the last year the Bank has set up two separate new units: a Natural Gas Utilization Unit and a Private Sector Development Group. Thus, the Bank is responding to the growing number of developing countries exploring ways to increase involvement of the private sector, to help remedy power shortages and increase oil and gas production, as well as to improve management and efficiency. In one country or another we are involved in natural gas and petroleum, electric power, coal, household and renewable energy, conservation and energy efficiency.

The benefits most often sought by developing countries for increasing private-sector involvement are three. One is to mobilize private capital and managerial skills to meet the increasing energy demand, in order to reduce the fiscal deficit and the country's indebtedness and to transfer the investment risk to private investors. Another benefit is to end the monopoly of the state power company or oil company and



thereby stimulate these agencies to improve their internal efficiency. And a third benefit sought is technical innovation: to develop new sources of energy or power generation through projects that are small and considered risky, such as small power plants that are outside the scope of a utility company, small oil, lignite and gas fields, and through co-generation possibilities.

However, trying to attract private investors to risk their money in oil and gas or power development in developing countries is not an easy task. Indeed, it is a complex undertaking and there is no ready-made recipe. The experience in the developing world in this field is fairly new and that of the Bank is still limited and embryonic.

As I just said, the Bank is very supportive of private-sector involvement and experience. In the power sector, the best example of this is the Hab River Project in Pakistan. No doubt other speakers later in the program will be referring in more detail to this path-breaking project. The Bank assisted the Government of Pakistan in setting up the institutional framework for the operation of the private sector and mobilizing private investment for the development of energy under a Build-Own-Transfer, or BOT, arrangement with limited recourse for the investors. Under the BOT scheme private developers construct a power generating station, sell power to the utility at an agreed price, and then once the debt is paid off, transfer the project to the utility at a nominal price. All without the sovereign guarantee of the government, which traditionally private investors would have insisted on as a sine qua non. Variations of this scheme are Build-Own-Operate, or BOO, in which no transfer takes place, and Build-Own-Lease, or BOL.

In the Hab River Project, the Bank has assisted the GOP in several ways. First, it assisted in formulating a long-term energy strategy covering a period of 20 years within an overall policy framework, which outlines a program of integrated structural reforms to be implemented over five-year intervals corresponding to the planning cycle. Second, it has helped the Government initiate, reinforce and extend the reforms proposed under this strategy through a series of planned World Bank loans. Thirdly, it took the lead in the design of a project aimed at attracting private participation, by undertaking a study to assess the capabilities of existing institutions to evaluate the technical and financial viability of private proposals requiring no direct sovereign guarantee. Finally, the Bank provided the structure and the general elements of a set of measures, including mechanisms for repatriating earnings, tax provisions and commercial insurance, that would reduce the various risks as perceived by the prospective investor. We call these measures a Security Package. This security package can then be used by the Government, the investors and the financial community as a basis that would allow private investors to consider limited recourse financing.

At present various countries such as the Philippines, Turkey, Malaysia, Thailand, Indonesia, Dominican Republic and Costa Rica are considering following this BOT approach to mobilize private capital for expanding their power systems and developing new sources of power generation. This experience is still at its very early stages.

In the Hydrocarbon sector, Jamaica's efforts to find oil or gas have not yet borne fruit, so its oil and gas activities concentrate on importing on the best terms and on refining. As I mentioned earlier, the World Bank financed a petroleum exploration project in Jamaica, at a time when the expenditures on imported oil were growing alarmingly. It involved drilling by PCJ and a foreign partner of one deep well on the Pedro Bank off-shore, but it turned out to be dry. It also involved seismic surveys in other off-shore locations, and various technical assistance. As the price of oil dropped in the middle of the decade, it was decided that it was not worth continuing the exploration. It will be interesting to see whether the present troubles in the Persian Gulf will cause a rethinking of this conclusion.

The Bank has assisted several other countries in their effort to increase reserves. Perhaps the best example to show the role played by the Bank in assisting a country in its effort to encourage more private involvement in oil and gas exploration is Argentina. To overcome the decline in investment by the public sector as well as private investors, the Government of Argentina with the assistance of the Bank has launched three programs to attract increased private-sector participation in hydrocarbon exploration and production by both local and international petroleum companies: the Houston Plan, the Olivos Plan and the Petro Plan. While each plan has its own specific objectives and characteristics, the main thrust behind all of them was, firstly, opening up the country by offering to the private sector exploration areas for bidding that were in the past reserved only to the national oil company, YPF; secondly, setting up incentives for new investments aimed at achieving a short-term increase in crude oil production from existing exploitation contracts; thirdly, offering marginal YPF producing areas for bids based on an initial cash bonus to be paid to YPF for the remaining reserves; fourthly, increasing the prices to be paid at the wellhead for newly-found crude oil and natural gas; and finally, eliminating many of the obstacles and regulations that were hindering private participation and/or operations. In addition, through a public enterprise restructuring loan the Bank assisted the Government of Argentina in enacting a series of measures and legislative decisions aimed at deregulating the various markets, establishing an attractive taxation system and strengthening YPF through divestiture and management autonomy, so that it could compete on a more or less equal footing with private companies.

In our discussions with governments on energy policies, several themes often recur. For both selfish and altruistic reasons, the Bank is always concerned over the creditworthiness of its borrowers. One of its most enduring objectives is, therefore, to ensure that its borrowers charge adequate rates for power. The raising of energy prices and

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bringing them into line with the costs of production or their value in alternative markets is often crucial to promoting efficient use and better demand management and to generate an adequate supply of funds. This of course conflicts with the notion that electricity should be available to all at affordable prices, particularly in small markets such as Jamaica where you cannot achieve the economies of scale of a Mexico or Venezuela. It is even more so in rural areas where the overheads are particularly high. In such circumstances we try to help governments clarify who and what exactly they want to subsidize, and to target subsidies as specifically as possible to the needy, rather than spreading them thinly over all consumers, including the rich. Should the subsidies be funded from the general tax-payer, through the national treasury? Or should the power company cross-subsidize among groups of consumers? (Typically this means charging a low rate per kilowatt-hour for a minimum volume consumed each month and much more for large volumes.) Should industrial consumers pay more or less than residential consumers?

A key related question is who should decide such things? What incentives can be built into the system to encourage financial responsibility? What regulatory mechanism can be objective and consistent, enforcing economy and efficiency, while at the same time being responsive to the national legislature yet insulated from the daily political fray? Unless the power or oil company is financially sound and an effective regulatory mechanism is in place, it is hard to attract private capital. But conversely, the bringing in of private capital strengthens the incentives to financial discipline. This can be a vicious cycle that is hard to break, but once broken, it becomes a virtuous cycle.

Another of the Bank's objectives in the power sector has therefore been the establishment of autonomous agencies to operate the power system. The agency has to have enough strength to resist political pressures and it therefore has to have some degree of financial soundness and operational efficiency. Thus the quality of management, the internal organization and problems of staff employment, salary policy and training are other issues that are of concern to the Bank. With the objective of privatization, the reorganization of the power subsector with the view to introducing an institutional framework aimed at providing the security and incentives for increased private involvement is essential. The Bank can help in this area in having a framework protection, directly or indirectly. Directly, the Bank can act through various covenants which are included in our loan and project agreements. Indirectly, the presence of the Bank and its agencies can play a comforting and a catalyst role.

Furthermore, the Bank can help in insisting on open and transparent bidding for any private sector involvement in operations in which it will be involved, thus avoiding to appear favoring or sponsoring one group over another.

Ii. conclusion, the Bank is very supportive of private involvement in energy and power development. But this involvement is not a simple task. Instead, it is a very complex political, economic and financial undertaking that is still at its early beginnings. Furthermore the role of the Bank is still in its early definition. It remains to be clarified and strengthened as more experience develops in the future. But it can be said that the Bank is willing to play a role of an honest broker in helping our borrowers to define a general framework that can be conducive in establishing the necessary confidence on both sides -- private and public--for careful progress in this area.

WORLD BANK'S  
ROLE IN PROMOTING  
PRIVATE-SECTOR PARTICIPATION  
IN ENERGY DEVELOPMENT

11 September 1999

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Latin America and Caribbean Region



WHY PRIVATE POWER ?

WHICH INTERNATIONAL AGENCY IS WHICH ?

WHAT ARE PRIVATE INVESTORS WORRIED ABOUT ?

WHAT CAN WORLD BANK DO ABOUT IT ?



## WHY PRIVATE POWER ?

1. NEW CAPITAL FOR INVESTMENT  
TO RENEW AND EXPAND CAPACITY  
WHEN GOVERNMENT DEBT MAKES  
IT HARD TO BORROW MORE
  
2. CREATE INCENTIVES FOR MONOPOLY  
PUBLIC UTILITIES TO BE MORE EFFICIENT
  
3. INNOVATION
  - small scale
  - risky
  - co-generation
  - biomass



## 4 MEMBERS OF WORLD BANK GROUP

### WORLD BANK (IBRD)

International Bank for Reconstruction and Development

- lends long term : 15-20 years
- on hard terms :  $7\frac{1}{2}$  - 8% on US dollars
- for investment projects ("normally")
- guaranteed by borrower governments

### INTERNATIONAL DEVELOPMENT ASSOCIATION (IDA)

- interest-free ( $\frac{3}{4}$ % service charge), 40 or 50 years
- only for low-income countries
- otherwise same as IBRD
- same staff as IBRD

### INTERNATIONAL FINANCE CORPORATION (IFC)

- for private sector
- without government guarantee
- lends and invests (i.e. debt and equity)
- same board of directors & president as IBRD/IDA but separate staff

### MULTILATERAL INVESTMENT GUARANTEE AGENCY

- new, starting up (MIGA)
- guarantees private investments against political risks





## WHO ARE WE NOT ?

### INTERNATIONAL MONETARY FUND (IMF)

- short- & medium-term loans : up to 3 years
- for balance of payments
- conditional on stabilization program

### INTER-AMERICAN DEVELOPMENT BANK (IDB)

- lends only to the Americas
- otherwise similar to IBRD (with soft windows)

### CARIBBEAN DEVELOPMENT BANK (CDB)

- lends only to Caribbean

### US AGENCY FOR INTERNATIONAL DEVELOPMENT (US-AID) • bilateral

### BILATERAL EXPORT CREDIT / GUARANTEE AGENCIES

- various countries

## WHAT DOES WORLD BANK DO ?

### conventional

- Lends directly to power / oil company (with full government guarantee)
- 1. Lends to government, which on-lends to power / oil company
- Structural adjustment loans

or

- Public enterprise reform loans
- disburses in tranches over 1-3 years
  - disburses against general imports
  - conditioned on implementation of action plan on economic policies, pricing, reorganization, etc.
  - can include energy sector conditions

### Economic and sector studies/reports

- Energy Sector Management Assistance Program (ESMAP)

### nonconventional

Lends to gov't (fully guaranteed) to finance its share of mixed public/private investment, where private investor has no guarantee or only limited recourse



WORLD BANK ENERGY OPERATIONS IN JAMAICA

LOANS

POWER I  
POWER II } US\$ 54.5 million  
POWER III } Completed 1988

POWER IV US\$ 18 million 1988 - 93

72.5 million

OIL EXPLORATION 7.5 million Completed 1985

US\$ 80 million

POWER V under preparation

STUDIES (ESMAP)

ENERGY ASSESSMENT 1985

BUILDING CODES

APPLIANCE LABELLING 1989 -

ENERGY STRATEGY 1990 - ?

WHAT ARE PRIVATE INVESTORS WORRIED ABOUT?

## BENEFITS AGAINST RISKS

1. MARKET (quantity to sell)
2. PRICING (escalation)
3. CONSTRUCTION COSTS & DELAYS
  - procurement
  - permits
  - environmental regulations
4. OPERATING COSTS
  - fuel supply
  - labor laws, wages

NATIONALIZATION / LOCAL PARTNERS

6. POLITICAL UNCERTAINTY / CIVIL UNREST

7. TAXATION (on what? double taxation?)

8. REPATRIATION OF EARNINGS

- permits/restrictions
- exchange rate

## WHAT CAN GOVERNMENT DO ABOUT IT?

1. LEAST-COST EXPANSION PLAN
  2. POWER PURCHASE CONTRACT
  3. RULES FOR PRICING
    - Regulatory authority, R.O.I. criteria
    - Economic pricing throughout energy sector
    - Explicit subsidy policy, transparent funding
  4. COMPANY LAW - JOINT VENTURES
  5. TAX LAWS (TAX HOLIDAYS, ROYALTY RULES)
  6. { MECHANISM FOR SETTING EXCHANGE RATE  
FOREIGN EXCHANGE TRANSFER REGULATIONS
  7. PROCUREMENT LAW
  8. BUSINESS INTERRUPTION INSURANCE
  9. DISPUTE ARBITRATION ARRANGEMENTS  
(force majeure)
  10. PERFORMANCE CONTRACTS (gov't/utility)
- = SECURITY PACKAGE

## WORLD BANK OPTIONS FOR JAMAICA

### 1. CONVENTIONAL LOAN TO JPSCo, PCS, etc

- JPS buys power from private firms

### HAB RIVER - TYPE PROJECT

- WB lends to government energy fund for public debt and/or equity contribution to joint-venture power company

### IN EACH CASE GOVERNMENT ESTABLISHES SECURITY PACKAGE

WB loan or project preparation facility or ESMAF can finance technical assistance to design security package and put in place, and evaluate private proposals

### IFC LOAN OR EQUITY INVESTMENT IN PRIVATE GENERATING COMPANY

### MIGA GUARANTEE FOR PRIVATE INVESTMENT

OVERVIEW OF PRIVATE SECTOR ROLE IN JAMAICAN ENERGY/POWER SECTOR  
InterAmerican Development Bank Perspective

Herbert A. Phillips  
Economists, Project Analysis Department  
InterAmerican Development Bank

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
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## IDB in the Latin American Power Sector

### 1. Recent Performance

During the 1960's and 1970's the electricity sector achieved a 10% average annual increase in electricity consumption. To satisfy this demand which at this rate would double every seven (7) years, the sector had to increase correspondingly generation and transmission.

During the 1980's electricity demand increased at a significantly slower rate owing, principally, to the economic crisis in the region. Expansion plans had to be revised accordingly with the postponement of the execution of some projects. Nonetheless, the level of investment was very high.

Sectoral investment finance was obtained through resources generated by the sector, government contributions loans from development banks, suppliers' credit and commercial banks.

The financial situation of the utilities was adversely affected by the economic recession and debt crisis which resulted in reduction in income accompanied at the same time by inflation and devaluation. These factors depressed electricity demand while at the same time increased the cost of operation and debt service.

The heavy financial requirements of the utilities were not accompanied by real tariff increases. Governments were reluctant to authorise real tariff increases for fear of the possible inflationary impact. Utilities in such situations



were unable to cover operating costs and debt service requirements.

Lack of adequate resources was felt in deteriorated quality and efficiency of service because of reductions in investment programmes thus diminishing capacity reserves, inadequate maintenance levels, increase in energy losses and extended periods of rationing in some countries.

Between 1961 and 1989, the production of electrical energy and installed generating capacity increased almost eight times to approximately 550,000 GWh per year and 145,000 MW respectively. Average per capita consumption of electricity in the region remained relatively low at about 1150 KWh/person. This figure is approximately one-tenth of that recorded for the United States and it is significantly lower than the world average.

Electricity consumption is not an objective in itself. Electricity consumption is an indicator of productive and social activities given its characteristic as a basic input for industry, commerce, tourism, agriculture, health, education and general welfare.

The growth in electricity consumption in the future is expected to be similar or slightly less than that experienced in the 80's because, among other things, greater emphasis will

be placed on the efficiency in the use of electricity from generation to final user. However, even with an annual 5.5% growth rate, electricity consumption will double every 13 years requiring investment for system expansion on a scale much greater than that achieved over the last decade. In addition investments will also be needed for rehabilitating a large part of the generation, transmission and distribution facilities.

The electric power sector has been going through a long crisis stemming from various causes, which include: a high level of debt, lower growth in demand, rates that do not reflect economic costs, and also the fact that when they scheduled their expansion in line with the growth in consumption that occurred in the decade of the 70's, the electric utilities had to meet investments in generating facilities with a capacity exceeding the demand that was actually recorded in the 1980's. This combination of circumstances led the electric sector to the difficult situation that we have noted, resulting in the general consequence that distribution works and the operation and maintenance costs of the systems were not properly taken care of. In some countries, this caused serious problems in the supply of electric power that resulted in lengthy and frequent rationing of the service.

Institutionally, many of the utilities will need to be restructured in such a way as to improve their internal

efficiencies. It may be necessary to increase tariffs in order to generate a more adequate operation margin. Capitalisation structure needs to be improved and debt refinanced in conditions compatible with capacity to repay without affecting the contribution the utilities could make to financing the expansion programmes.

2. Action of the IDB in the Sector

(a) Past Lending

Between 1961 and 1989, the Bank approved about US\$10,500 millions in loans, especially for the electricity sector. This represents about 25% of the total cost of projects financed by the Bank in its twenty-nine (29) years of operation. In the crisis period, 1981-1989, with rates of increase in electricity consumption significantly lower than historical rates, the Bank participated in financing fifty-seven (57) operations estimated at a cost of US\$6,400 million which represented 26% of all loans made in this period. The projects together amounted to about 25% of the increase in generating capacity added during this period.

(b) Future Strategy

Since the demand has continued to grow, although at a slower rate, investment programs for this sector would include: expansion of the capacity of generation plants, and

transmission and distribution systems, and greater rehabilitation of its existing facilities.

Based on these investment needs and the parallel goal of recovery of the sector's finances, the Bank has scheduled two types of operations in its pipeline for the next few years: those that will continue to support the execution of specific projects and those that would help finance a time-slice of the investment programs. In the two alternatives, works will be included to rehabilitate, modernise and optimise the systems by reducing losses and improving the efficiency of the installations.

It is estimated, according to the expansion plans of the different countries, that almost 60 generation plants will be built in Latin America and the Caribbean in the period 1990-1993, with a capacity of approximately 35,000 MW at a cost of about US\$42,000 million. We estimate that the total participation of the Bank in the financing of the different types of energy projects during the Seventh Replenishment will be in the order of US\$1.2 to US\$1.5 billion per year.

The development of the region's electricity sector will take place in conditions typified by severe financial constraints facing individual utilities and companies as outlined above. The Inter-American Development Bank as a development

institution concerned with economic and social development of its member countries focuses, primarily, on economic efficiency and social equity in the utilisation of resources which will produce the greatest benefit to the population. In the field of electric power development the Bank has developed different approaches to this end. Development of these approaches has been influenced also by the dynamic, unpredictable environment in which most utilities now operates. It is now felt that there should be more flexibility in investment programming and that efficiency and restructuring issues should receive as much emphasis as power expansion.

IDB will continue to extend its support to member countries to develop different options which may contribute to a satisfactory solution to the current problems in the power sector.

(i) Marginal Cost-Based Tariffs

Tariffs based on marginal costs could help customers to adjust their consumption of electricity to the point where decrease in consumption is more than compensated for through savings gained by the system in terms of investment and operation cost avoided. Experience in Chile, Brazil, Mexico and Colombia has shown that this outcome is attainable in a significant manner. The reluctance of some countries to implement marginal cost based tariffs is expected to wane as it is realised that the multiple objectives of tariff design could be accommodated

within that framework and that in some cases, marginal cost-based tariffs are no higher than those tariff structures which reflect solely financial considerations.

(ii) Energy Conservation

Several different estimates have been advanced for the potential gains from conservation. However very little effort has been expended to objective and pragmatic studies of the possibilities of conservation. The results of available studies indicate that there are some conservation opportunities which could compete with other supply options in system expansion plans. Eletrobras in Brazil is a regional pioneer in this area. Eletrobras' coherent programme has suggested that there are opportunities for significant reductions in demand in the medium term. IDB through its intrarregional technical cooperation is willing to finance visits from member countries to study the experience gained in Brazil.

(iii) Substitution of Energy Fuels

Integrated energy sector studies in some countries have revealed that effective economic substitution among fuels is possible for specific uses. In some instances cooking and water heating by LPG is more economic than electricity. In Costa Rica studies showed that a significant proportion of domestic electricity consumption originated in these uses. A programme of fuel substitution in favourable economic circumstances could liberate resources for other uses.

(iv) Adjustments in the Coverage and Quality of Service

Adjustments in coverage and levels of service quality have been forced upon many countries because of stringent financial conditions. However, in some instances adjustment in coverage and quality levels could be deliberately pursued as in the case where reliability of the different elements, generation, transmission and distribution are inconsistent or there is expenditure of money on redundant works. It is not rare to encounter rural electrification systems designed on the basis of criteria applicable to urban areas of developed countries or great imbalances in reliability levels between generation and distribution. Where reliability levels are adjusted care should be taken to distribute the risks and minimise the economic impact.

(v) Private Sector Participation

The measures outlined above may not provide for the needed capacity expansion in generation, transmission, distribution and maintenance facilities. Private sector participation in future capacity expansion in whatever form i.e. co-generation, dedicated power or utility privatisation is another option in satisfying a country's electricity demand in an era of financial resource scarcity in the public sector. Private participation has been pursued also as a mean of improving utility performance.

Private ownership though it may reduce public sector borrowing requirements may not automatically diminish the public sector role in the power sector. Private ownership would need a stable policy environment and this implies a regulatory/monitoring framework which define long-term conditions conducive to rational decision making. Investments in specific and durable assets will depend on, among other things, long-term pricing arrangements.

The nature and conduct of regulatory policy is therefore of crucial importance in the changed situation created by privatisation. The IDB's interest in the efficient allocation of resources within the sector and the general economy would lead it to examine operational schemes for regulation to see whether allocative and internal cost efficiencies are maintained. The IDB is prepared to help in financing studies which will furnish the data and analyses necessary for the development of regulatory/monitoring framework which would avoid regulatory failures and permit for an efficient operation of the power sector.

Private participation in the present Jamaican context may be interested in base-load generation. Uncordinated construction of base load plants may require JPSCo to use large steam units as peaking plants. Careful system expansion planning would be needed to preclude such imbalances from occurring.



Private participation would change not only the regulatory context but also the operational environment for the public utility. New functions, alignment of responsibilities and specialisation may develop requiring enhanced institutional capability. The IDB recognises that institutional capacity could be a scarce resource and is willing to support institutional strengthening programmes which removes this potential bottleneck.

3. IDB Experience With Private Participation

The IDB's policies allow for loans directly to private enterprises under certain circumstances though no loans have been made directly to private firms for power generation. However the IDB has allowed the transfer to private companies of power plants financed by the Bank (Chile). The IDB is assisting the Guyana Electricity Corporation in rehabilitating itself even while privatisation proposals are being evaluated. IDB through parallel financing arrangements helped executing/borrowing agencies raise money in the international capital markets for some projects.

4. Conclusions

The IDB foresees a relatively large expansion of power generation over the period covered by the Seventh Replenishment. Given the severe constraints on financial resources, the Bank is supporting strategies which will increase the economic life of existing installation, moderate

the growth in demand and improve the efficiencies in electricity production and consumption. All viable options for electricity supply would be carefully considered by the Bank. The challenge to system planners is to choose the options which best suit the needs of the country.

### Petroleum Sector

The IDB has financed seismic surveys, oil exploration, drilling, pipeline rehabilitation and natural gas exploration and development in its effort to help countries develop their hydrocarbon resources.

In the case of Jamaica, IDB financed a US\$17 million oil exploration programme. The programme was reformulated to allow for further geological and investigative exploration after a phase of unsuccessful drilling. It is considered by the IDB that exploration and drilling could be conducted by private companies therefore the IDB does not anticipate an active participation in this sphere of activity in the immediate future.

However, the IDB has viewed with keen interest Government's expressed intentions to study the sector in order to develop and implement measures to increase market incentives. The IDB through its sector policy lending programme is prepared to assist the Government in studying the problems and selecting and implementing appropriate policies and/or projects.

OVERVIEW OF PRIVATE SECTOR ROLE IN JAMAICAN ENERGY/POWER SECTOR  
U.S. Development Assistance Perspective

John R. Hammond

Director

Private Sector Energy Development Program/T. Head & Co., Inc.

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

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INDEPENDENT POWER IN DEVELOPING COUNTRIES  
AND THE ROLE OF U.S. DEVELOPMENT ASSISTANCE

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Abstract

The demand for electric power in developing countries is increasing at an annual rate of seven percent. Recognizing that assistance from bilateral and multilateral donors can no longer provide the quantity of capital that is necessary to meet the growing demand, the U.S. Government has initiated a policy of promoting private sector participation in the developing country energy/power sector. The A.I.D. Office of Energy has spearheaded this effort with the establishment of the Private Sector Energy Development (PSED) Program. The PSED Program provides assistance to developing country governments, utilities and the private sector in developing independent energy/power projects in developing countries.

**INTRODUCTION**

Thank you for this opportunity to discuss with you independent power in developing countries and the role of U.S. development assistance. My name is John Hammond and I am employed by the firm of T. Head & Co., Inc. as a contractor to the Office of Energy of the U.S. Agency for International Development. In that capacity I serve as the Director of the Private Sector Energy Development Program of the Office of Energy.

Today I would like to address the subject of independent power in developing countries and the role of the U.S. development assistance. Over the past two years, the U.S. Agency for International Development (A.I.D.) has been giving increasing attention to the serious power shortages occurring in developing countries and how the private sector might contribute to the solution of the problem.

Two reports published by A.I.D. have resulted in additional attention to this subject. In 1988, A.I.D. submitted a report to Congress on "Power Shortages in Developing Countries: Magnitude, Impacts, Solutions, and the Role of the Private Sector", which outlined the extent of the current and future problem and set forth various possible solutions. In April of 1989, the Energy Industry Review Group submitted its report to Administrator Alan Woods that

reaffirmed the development constraining impacts of power shortages and urged the U.S. development assistance program to expand its activities in this area.

Therefore, this seminar is quite timely. First, I will give you an overview of U.S. development assistance and its past involvement with energy. Then I will discuss what the U.S. development assistance program is doing to assist developing countries and the private sector to promote greater private sector participation in energy/power sector of developing countries.

#### 1. U.S. DEVELOPMENT ASSISTANCE AND THE DEVELOPING COUNTRY ENERGY SECTOR

As you may know, the role of U.S. development assistance is to support economic and social development in over 70 countries throughout the world. The ultimate goal of the U.S. development assistance is a world in which economic growth and development are self-sustaining and the extremes of poverty have been eliminated.

U.S. foreign aid programs are designed to stimulate economic growth in developing countries, thus making it possible for these countries to make permanent inroads against long-term problems such as hunger, health deficiencies, illiteracy and unmanageable population pressures. When a nation request economic assistance from the United States, help is provided to devise economic policies that enable long-term development to proceed. The U.S. development assistance program, therefore, works with governments to eliminate inappropriate subsidies, price and wage controls, trade restrictions, over-valued exchange rates and interest rate ceilings that curtail economic performance.

The development assistance program of the United States also promotes open and competitive markets in developing countries and advocates policies in those countries that permit the expansion of the indigenous private sector. Development assistance from the United States has been concentrated in education and human resource development; agriculture, rural development and nutrition; health care; family planning; and energy, environment and natural resources.

One critical input to achieving the goal of sustainable economic development is energy. Indeed, to attain the development targets of the U.S. development assistance program, per capita income and caloric intake will require energy growth rates of at least 7 percent per year.

Therefore, without adequate attention, energy problems will continue to stifle economic growth in developing countries.

Of the current A.I.D. budget of approximately \$5 billion, an average of \$200 million is spent on energy activities. Almost two-thirds, however, is expended in two countries: Egypt and Pakistan. Except for those countries, U.S. development assistance, due to declining budgets and shifts in policy, is not in a position to provide capital financing for major power sector projects, such as power plants. Back in the 1960's, in the beginning of its operations, the U.S. development assistance program was a major actor in the power sector. The agency at that time, did have funds for large capital projects, both central generating plants and rural electrification transmission and distribution. As you may know, the agency assisted in the establishment of rural cooperatives to help bring electric service the low income rural areas. In the 1970's, the agency's role in capital funding for power project began declining due to resource constraints and a policy shift towards rural and agricultural development. In the 1980's, "basic human needs", policy reform and participation of the private sector became the guiding policies for the Agency. The agency remains active in capital funding for power only in Egypt and Pakistan.

Today, major capital funding for power projects comes from the Multilateral Development Banks and other bilateral donors. The World Bank averages about \$2.5 billion per year in lending for power. The InterAmerican Development Bank lends about \$600-700 million annually. And, the Japanese OECF program loans about \$1.2 billion for power per year.

A.I.D. is organizationally divided between the Missions that operate within developing countries and the central operation in Washington that supports and enhances the Mission activities. The Bureau for Science and Technology, in Washington, has the responsibility to support the development of new ideas and research for all of the A.I.D.-assisted countries. The Office of Energy, in the Science and Technology Bureau, provides technical assistance, research, training and project assistance to the Missions in areas such as electric power planning, resource development, conservation and project development.

The Office of Energy often seeks to identify situations where it can play a coordination role or a "broker's" role, so to speak --where it can help nurture projects to the point where larger investors (either in the private sector, in government, or from development banks) will commit themselves to financing and implementing the projects. A.I.D. is also very committed to supporting projects that

will increase indigenous resource development and use. Energy imports are having a serious impact on many developing economies. By supporting the development and efficient use of indigenous resources, U.S. development assistance can play a very important role in helping to reduce dependence on imported energy and relieve pressure on foreign exchange reserves.

Over the past two years, there has begun a reexamination of the agency's role in the energy/power sector. The two reports I mentioned clearly identified power shortages in developing countries as a serious constraint on future economic development. While it is unlikely that the U.S. development assistance program will again be a major actor in providing capital funding for power projects, except in few selected countries, the Agency's niche appears to be in providing assistance to developing countries and U.S. companies to apply proven technology and private sector approaches to the power shortage problem.

## 2. ROLE OF THE PRIVATE SECTOR IN ELECTRIC POWER

The topic of independent power generation has become an extremely important not only in the United States, but also throughout the world. Since 1978 the United States, under the Public Utilities Regulatory Policies Act (PURPA), has seen the rapid growth of private, non-utility power generation.

Today, in the United States there are over 2,300 independent power projects that have been implemented or are under consideration. Over 26,000 MWs or 4% of total U.S. generating capacity is now coming from independent power. Annual revenues from the independent power industry total over \$6 billion.

Overseas favorable policies toward independent power have been adopted in Pakistan, the Philippines, Costa Rica, Thailand, Indonesia, the Dominican Republic, India, Turkey, and Thailand. Also, there is significant privatization activity in the United Kingdom, Malaysia, and Chile.

Elsewhere, governments and state utilities in developing countries are turning to independent power producers to supply needed additional capacity. The first major independent power project overseas was constructed and operated by a private consortium led by Hopewell Limited of Hong Kong in the People's Republic of China -- a 700 MW coal-fired plant at Shajiao.

The National Power Corporation (NPC) of the Philippines

recently signed up a 200 MW gas turbine station independent power project with Hopewell Limited of Hong Kong and is currently in the final stages of reviewing proposals for a solicitation for a 300-700 MW coal-fired facility. Currently, we are aware of over 100 active proposals for independent power projects around the world that have developed over the past two years. This begins to give you feeling of the magnitude of the international interest in this subject.

### 3. ENERGY INDUSTRY REVIEW GROUP REPORT

In March 1988, A.I.D. found and reported to Congress that (i) substantial electrical power shortages exist over half of the A.I.D.-assisted countries, and that (ii) these shortages of adequate and reliable supplies of energy/power are directly threatening sustainable social and economic growth.

Concerned about the development-constraining impacts of energy shortages, particularly shortages of electric power, Alan Woods, the Administrator of A.I.D. asked executives from the U.S. energy industry to review the situation and suggest steps that could be taken to solve the problem. This dialogue resulted in the formation of the Energy Industry Review Group on Power Shortages in Developing Countries in 1989. Ten suppliers of power equipment goods and services responded to the Administrator's request and agreed to contribute their time and effort to this review. The companies were: Arco Solar, Inc.; Bechtel Power Corp.; Combustion Engineering, Inc.; Stone and Webster Engineering Corp.; United Engineers and Constructors, Inc.; and Westinghouse Electric Corp. A list of the members of the Review Groups is appended to this report.

The Energy Industry Review Group conducted three fact-finding missions, travelling to the Dominican Republic in December of 1988 and to the Philippines and Indonesia in January 1989. In each country, members of the Review Group interviewed representatives from private sector companies, energy ministries, finance ministries, state-owned utilities, legislative bodies, U.S. Embassies, A.I.D. Missions, multilateral development agencies, and U.S. firms operating in these countries.

#### Findings

The Energy Industry Review Group strongly reaffirmed A.I.D.'s findings that investment in the energy/power sector of developing countries provides an essential element



for economic growth, social well-being and political stability of these countries.

Although U.S. development assistance has made valuable contributions to several fields vital to international development, the Review Group discovered, in the energy/power sector, there was a serious disparity between the critical development needs expressed by leaders of developing countries and the current priorities of the U.S. development assistance program. Less than 4% of the annual budget of A.I.D. is now committed to energy/power development activities. Yet, in the three countries visited by the Review Group, electric power development ranked among the top priorities of each country.

This situation is particularly disturbing since the U.S. energy industry, with its experience in efficient operation and technology development can help developing countries alleviate power shortages - through state-of-the-art new equipment or rehabilitation of existing systems in the developing countries - and meet increased environmental concerns. It can help inject expertise, leadership and additional financial resources into the energy/power sectors of developing countries.

Without a significant change in the way the U.S. development assistance program views the relationship between the energy/power sector and economic growth, the Review Group found that it is unlikely that U.S. development assistance can help developing countries meet the development challenge confronting them.

#### Recommendations

The Energy Industry Review Group offers several recommendations:

- The U.S. development assistance program should place a greater emphasis on energy, particularly electric power, and on the transfer of proven technologies and services. It should make the necessary organizational and budget changes to achieve this objective and seek, if necessary, additional Congressional authority;
- The U.S. development assistance program should provide more leadership within the U.S. government to coordinate energy/power development assistance programs and trade policy for developing countries. It should also attempt to bring about a more equitable balance between trade and aid assistance among donor nations; and

- The U.S. development assistance program should encourage private sector participation in power supply and investment through continuous policy reform and institutional reform, creation of private sector financing windows, funding of feasibility studies, and other mechanisms.
4. THE COMMITMENT OF U.S. DEVELOPMENT ASSISTANCE TO PRIVATE SECTOR PARTICIPATION

In this section I will describe what the A.I.D. is doing to promote greater private participation in the energy/power sector of developing countries.

The A.I.D. Office of Energy established the six year, \$10 million, Private Sector Energy Development Program (PSED) in 1989 to accelerate the sustainable social and economic development of U.S. developing countries by increasing the supply of reliable, affordable energy, particularly electric power, for productive purposes. The PSED Program provides assistance in creating a favorable environment to encourage the private ownership, financing, and operation of energy/power facilities in developing countries, concentrating on the electric power sector.

The PSED Program provides assistance to developing country governments, utilities and the private sector in establishing independent power projects through two program components:

- Policy Reform and Institutional Development/Information Dissemination;
- Private Energy/Power Project Development Assistance; and

Policy Reform and Institutional Development/Information Dissemination

For developing country governments and their utilities, the PSED Program can provide technical experts with experience with independent power, training and workshops, study tours in the United States, and special studies of key independent power issues. The PSED Program assistance provides support for the development of institutions, laws, procedures, and programs for promoting the development of independent power. This has most commonly taken the form of technical assistance in assessing the opportunities for, and impediments to, independent power. This is followed by direct technical assistance by experts to governments and utilities in interested countries. For instance, the PSED

Program has been providing assistance to the Government of Guatemala in establishing an avoided cost for electric power.

The PSED Program also publishes an occasional newsletter, the *Private Power Reporter*, to update the status of independent power projects and legislation worldwide. Information in the *Private Power Reporter* is taken from the Office of Energy's Private Power Database. The database contains information on:

- Selected cogeneration and private projects;
- Pertinent laws, regulation and policies;
- Contacts in developing countries and international organizations; and
- Independent power policies and activities of international development organizations.

The database currently contains information on nearly 135 project opportunities.

#### Private Energy/Power Project Development Assistance

The PSED Program can provide some assistance directly to U.S. companies seeking to develop independent power projects in developing countries. Activities in this area include feasibility studies, assistance in locating and conceptualizing projects, and assistance in financing projects.

The PSED Program assists the private sector to develop private independent projects in developing countries through:

- **Cost-sharing Feasibility Study Fund**
- **Assistance with Financing Programs**

The **Private Sector Energy Development Feasibility Study Fund** was established to reduce the front-end risk and cost of developing independent power projects in developing countries. The Fund will share with private developers the cost of prefeasibility and feasibility studies and other project development activities for independent power projects in developing. Possible uses of Feasibility Study Fund money would include an analysis of the technical,

legal, financial, and environmental aspects of independent power projects.

Threshold criteria for application to the Fund include:

- Project must be a private/energy power project with equity investment in a developing country;
- Applicant must share the cost of the study;
- Applicant must be a U.S. or developing country company; and
- Project must meet World Bank environmental standards

The PSED Program can also assist project developers locate potential sources of equity and debt for independent power projects.

#### CONCLUSION

In every region of the world, countries are examining the U.S. experience with independent power and are beginning to realize the potential it offers. Although in the past, movement toward independent power had been somewhat slow, more recently we have seen countries in Asia and Latin America openly endorse the concept of independent power. These countries are beginning to construct the technical, legal and institutional framework necessary for project development. We are pleased to see that Jamaica is now considering joining these nations in providing a greater role for the private sector in the development of its energy/power sector.

POTENTIAL PRIVATE SECTOR ROLE IN  
JAMAICA'S ENERGY AND POWER SECTOR

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Vice President  
Private Sector Organization of Jamaica

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
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POTENTIAL PRIVATE SECTOR ROLE IN  
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Jamaica's energy sector is largely state-owned and definitely over regulated. It is also very inefficient and as a result under-capitalized. This paper argues that deregulation and privatization form only practical routes in improving the energy sector. The public sector in any event cannot raise the necessary capital.

The Government is to be commended for beginning the deregulation of the petroleum trade and privatization of the oil refinery should follow. Fears of private monopolies and cartels emerging are exaggerated.

Private foreign capital is essential for improving electrical supply. Far from being an unpleasant necessity, this would in fact would be a decided advantage to the economy. Several options for privatization and deregulation are presented.

Jamaica's energy sector has been heavily dominated by the public sector since the 1970's. Our energy sector is heavily dependent on imports with over 90% of energy consumed derived from petroleum which is, of course, imported.

PRIVATIZATION AND DEREGULATION

The critical issue today is whether and to what extent the Jamaican energy sector should be privatized, and if so, how might this be accomplished. The PSOJ's view is unequivocal: we believe that the energy sector should be privatized.

The simple and most common understanding of the term is that the government sells assets or state-owned enterprises to private persons. In fact, however, the concept of privatization allows for more options than this. Privatization can also proceed by partial divestment or

without expressly changing ownership rights of public sector assets, for example -

- \* Management contracts can be arranged with private operators.
- \* The production of goods and delivery of services can be contracted out to private agents while the government retains responsibility for financing.
- \* The government can remove regulations that restrict private competition with state agencies.
- \* The financing of publicly provided goods and services can be shifted to consumers or users and away from taxpayers by reducing or removing subsidies and applying user fees.
- \* Where the government does not own, the government may also control by regulating prices, which is sometimes combined with subsidies. And finally, the government may control by restricting entry to an industry or market. Privatization may, therefore, also apply to the removal of such restrictions, i.e. deregulating.

All of these ideas provide us with a kind of tool-kit to apply to the privatization of the energy sector. It is in everybody's interest if the regulatory and policy framework encourages competition in the production and delivery of energy, and in every way possible supports a market-driven industry.

#### REGULATIONS AND PETROLEUM PRODUCTS

As a precursor to the total deregulation of the energy sector the legal framework has to be revamped. Outlawing of price fixing, restrictive practices and unfair trading practices are mentioned as instances requiring attention. There are six Acts which govern the activities and operations of the petroleum industry which in embarking on the deregulation route would have to be reviewed and amended as necessary. These are:

1. The Petroleum and Oil Fuel (Landing and Storage) Act;
2. The Petroleum Filling Stations Regulations Act;
3. The Petroleum Refining Industry Encouragement Act;
4. The Petroleum Act;
5. The Gunpowder and Explosives Act;

6. The Trade Act.

To the above must be added an elaborate tax and pricing structure with a variety of imposts, fees, margins, exceptions and special categories. It is a mind-boggling regulatory structure. Market prices of gasoline, auto diesel oil, kerosene and LPG are controlled at different levels thus facilitating a distortion in the price mechanism.

Decontrol should be expanded to all petroleum products. This means that all prices should reflect real production-and-marketing costs and real supply-and-demand in a competitive environment. All experience now shows that subsidies and other price distortions have very bad economic and social consequences.

The government has already begun deregulating the petroleum industry, though at the time this paper was written the details were not published. The Minister should get our unstinting support for this deregulatory policy. Some of our private sector colleagues in the gasoline retailers group have been very nervous about deregulation. To the extent that they will have greater freedom to adjust product margins and employee wage levels I think this is what private business is about. These things ought never to have been government's business. Some retailers have expressed fears about the transnational marketing companies pressuring them unfairly. I am all for the native Jamaican and the little man getting a leg up in business, but on the other hand why shouldn't Esso, Shell and Texaco get the best return possible on their investment? A rational wholesaler or distributor will want to make sure that his retailer or franchisee gets a fair deal from the arrangement otherwise the wholesaler will lose his best operators and franchise-holders. So I think it cuts both ways and is a matter for negotiation and private treaty.

A third objection which has been raised is that the three transnational companies will collude to squeeze the independent retailer. I don't see much danger of this. One third of the gasoline retailers are independent operators, i.e. they own their own stations. There is nothing to stop these independent retailers from organizing their own company to buy product wholesale from the refinery and market their own brand if they so desire.

It is also argued that Shell, Texaco and Esso already own most of the best locations. My answer to that is two-fold. If they do, why should they not profit from their investment? Secondly, there is no such thing as a perpetual advantage in business. Just as yesterday's prime residential site may be today's slum, so today's prime business location may be tomorrow's second or third grade site. Once they cannot



exercise veto if you decide to establish a competing station across the road there can be no objection. The old Petroleum Filling Stations Licensing Board was in effect a cartel operation to restrict competition. As I understand it, the licensing of gas stations from here on will be subject only to normal Town and Country land-use provisions and the regulations governing the handling of hazardous materials.

The free market does not guarantee anybody a good living, much less an easy life. What it guarantees is superior reward for superior performance in satisfying the needs of the market. This is what generates efficiency and innovation - which is good for the consumer and good for our economy.

### THE OIL REFINERY

All this still leaves the refinery in government hands. The government now says that the refinery is inefficient in its present size and processing parameters. About US\$60 million, we are told, is needed to expand and upgrade the facility so as to produce more and a better mix of products. This would enable Jamaica to take more crude oil under the San Jose Accord, reduce product imports and even develop export product sales. The plan, as I understand it, is to privatize the refinery via this new equity injection - if and when the investor or investors are found. On the face of it this seems to be an excellent plan.

I can only record my regret that when the government was acquiring the refinery from Esso in the early 1980s we did not at that time understand the value of private foreign investment. Esso asked for a higher margin on the products sold by the refinery. Its argument at the time that the rate of return on investment did not justify keeping the refinery open, much less sinking in new capital to upgrade the facility, was rejected by the government. Esso sold out to government which proceeded to raise prices far more than Esso had requested! The government has profited on the refinery, and used by it from time to time to manipulate prices and unfairly harass private businesspeople in the petroleum products distribution sector. I see no permanent gain to the country to show from this massive profiteering, and we are now having to seek private foreign investment once again for the refinery.

I confess that both as a Jamaican citizen and a businessman the ironies of this history overwhelm me, but for the sake of the national economy I hope that the plan to attract back private investors succeeds. The one rider I would attach is that however the ownership configuration develops, the refinery must not be given a captive market. We do not want any reinforcement or extension of monopolies. Its product

prices must be competitive with at least Caribbean Gulf reference prices, and distributors must have the option to import product without having to climb a protective tariff wall. Once again let me commend the Minister and the government for the embarking on this policy of deregulation and privatizing.

#### ELECTRICITY

Finally, I turn to the Jamaica Public Service Company. From published statements my understanding is that the JPS needs a capital expenditure programme of at least J\$500 million a year for some five years to put in the generating capacity and distribution facilities and lines needed by the economy.

There are four ways to raise that kind of capital. The first is for JPS to raise rates. I don't see that as being feasible after the most recent rate increases which seem to be working out far above the average 37% which JPS had promised. Given the poor service we have been getting, another rate increase could precipitate a riot. However, there may be scope for increasing revenues to JPS by scrapping intergovernmental cross subsidies which are embedded in the JPS rate structure, and which are in effect a tax on electricity supplied to the productive sector. In any event, incremental revenues would be in Jamaican dollars whereas the vast majority of capital expenditure would be in hard currency.

The second option is for the government, which owns the JPS, to pump in the capital. This would mean that the government increases taxes or closes institutions such as public schools or hospitals. We don't need to go further on these routes. For once, economics and politics combine to say "impossible".

The third option is to borrow the money. This is not advisable either. JPS is simply not an attractive object for loan funds due to its current loss position and already large existing debt. From published sources I gather that it has not even satisfied the performance requirements for its creditors, which is an 8% return on investment before interest payments on its existing fixed asset base.

Even if JPS were able to borrow, it is critical to understand the advantages of equity, particularly foreign equity, over debt. First, foreign equity does not carry an exchange risk once the equity has been introduced. Foreign debt does. Secondly, equity is entitled to returns only if there are profits. If the country is performing poorly and this is reflected in the utility's profitability, dividend outflow will also be less. When the economy is doing well, dividend outflow will be greater but so will the country's ability to afford the outflow. The converse is true of interest payments since interest rates tend to go up if the economy gets worse,

as the country's credit rating tends to go down. Finally, equity is indefinite in its duration, whereas debt carries a finite time period for its repayment.

The fourth option for solving the capitalisation issue is to privatize JPS. I am, needless to say, in favour of this option. I don't think there is any other practical choice, but I am also bound to say that it will be an extremely difficult route for the company to follow as it is currently structured. To begin with, JPS' current loss position makes it unattractive for a public offering similar to Telecommunications of Jamaica or the Cement Company. Alternatively, forecast profits could possibly be used to calculate a target market value based on the price earnings ratios for similar companies on the Jamaican Stock Exchange. Such a price earnings ratio is currently around 4 for widely held companies. It is likely, however, that a projected market value derived by this route would only be a fraction of JPS' book value. This of course reflects the sub-optimal use of JPS' assets, but more immediately it makes the sale of JPS' existing shares a non-starter by current political criteria, wherein the Government is attempting to recover close to book value in privatizations. Therefore, more creative solutions need to be found.

The first to explore is the establishment of new private entities to install new generating capacity that will sell into JPS' grid. The best type of investor would be a privately owned foreign utility. Companies which operate utilities in several countries are common in the world today. A second alternative is to run JPS by management contract with a new investor, based on a low fee plus performance rewards. The disadvantage with such an alternative is the inability to restructure rapidly enough. The third alternative is to lease JPS to new investors. Although this gives new players greater autonomy to restructure and innovate, it still may be too unwieldy a solution given the rapid increase in capacity that is required.

A prerequisite to all the above must be a sensible rate fixing mechanism. I favour a system pioneered in the U.K. with British Telecom and British Gas. Rates are increased by the change in the retail price index minus some factor called "x". There is of course a separate fuel charge to reflect fluctuating oil prices. I believe such a formula as this would do away with cumbersome applications for price increases, public hearings on rates, and the like. At the same time, there is a built-in incentive for the utility to improve its efficiency. The consumer benefits as rates rise less than the rate of inflation. I believe everyone, including the management of JPS, agree that there is substantial room for improvement in efficiency.

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I believe given our need for a quick increase in capacity we have no real alternative but to allow private capital investment in new generating companies. A word on competition. There should be several entities allowed to do so who would compete with each other, and also with JPS' existing generating capacity. Existing companies who already have generating plants in place; Carib Cement, the sugar factories and alumina plants should be free, indeed should be encouraged, to expand along this route, as well as, to invite new foreign investors.

Having said all of the above, the long-term goal ought to be to once again have JPS as a widely held, publicly traded company. Therefore, we may need to proceed simultaneously with several of the above suggestions. For example, as soon as possible, new privately owned generating companies could commence at the same time that, say, all or a part of JPS is leased to another group of private investors. JPS should set a date some years in the future by which it should make a public offering, and work towards steadily improving its earnings by that time. This is important as any new investor in private generation will have only one customer, JPS, and will need assurances that the customer will be solvent enough to pay for purchased electricity.

#### CONCLUSION

Let me now summarize. However we got started on this road, we have ended up as a country with one of the most highly state-owned and regulated energy sectors that anyone could devise. It is also a very inefficient sector. Rigidities, high taxation, corrupt practices and unreliability of supply have been typical of Jamaica's energy sector for many years. This country probably has more standby generators per thousand population than most other countries in the world. Coupled with this is the basic fact that over 90% of all the energy used in the economy is derived from imported petroleum. All this adds up to extremely expensive - and unnecessarily expensive - energy which, let me emphasize, is a serious limiting factor on the efficiency of the entire economy!

Deregulation and privatization are the greatest single source of dynamism for any economy. Creating more open competitive markets will also reduce inequalities associated with administrative rationing, monopoly, price fixing and special licensing. So we congratulate this administration which is unique among modern Jamaican governments in embarking on a policy of deregulating the energy sector. It is likely to be a long, complex and periodically contentious process, but we in the PSOJ urge the government to stay the course. There is no question in our mind that the economy, and therefore the nation, will benefit greatly from deregulation and

privatization.

PRIVATE POWER EXPERIENCE IN OTHER COUNTRIES

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## INDEPENDENT POWER IN DEVELOPING COUNTRIES

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### Abstract

Power shortages in developing countries are a growing and serious problem with expanding power systems that support economic growth. Inefficiency, subsidized electricity prices, poor management, and undue political influence over technical and financial decision making are producing a financial crisis in Third World utilities. A growing number of developing economy governments are exploring ways that increased involvement of the private sector can help remedy the problem of power shortages.

This paper describes the role of the private participation in the energy/power sector -- private ownership, financing and operation of energy/power facilities -- and how private participation can assist in resolving the power shortages problem in developing countries.

### **THE PROBLEM: POWER SHORTAGES AND FINANCIAL CRISIS**

While the installed capacity in the developing world is meager compared with developed countries, its rapid growth rate--averaging 6.5%--overwhelms the 3.5% growth rate prevalent in the U.S. Canada and western Europe. A 6.5% growth rate for electric power transforms the present \$50-60 billion per year bill for power expansion in the developing world into an average of \$100 billion per year over the next ten years, a staggering sum. Developing countries already spend on average 25% of their public development budgets on power, amounting to \$8 for power for each \$1 for education or health. These funds are not, and will not, be available from public treasuries.

Revenues of many utilities, if not most, cover only a small fraction of their operating and capital expansion expenses. In India for example, among the 15 state electricity boards in the country, 13 had operating losses in 1984, adding up to the equivalent of 20 percent of the country's power sector budget in that year. With this meager income stream, rates of return on invested capital in the power sector are on the decline, down from 8% in the 1960s to about 5% now.

Private industry in developing countries is perhaps hardest hit by power shortages. For India the cost of unreliability in electricity supply to the industrial sector has been estimated at 1.5% of GNP while in Pakistan the cost of reliability problems in the industrial sector has been

estimated at 1.8% of GDP. Neither estimate includes the value of foregone services associated with residential and commercial outages crisis, and as we shall see later, this fact has helped motivate private sector activity. Lack of power has driven industry to look to independent power development. The installation of backup diesel generator sets is the most common answer by industrial firms to unreliable grid supplied power. However, the use of such equipment is quite uneconomical since units operate only part time causing high capital costs per kilowatt hour. It has been estimated that on the order of 10% of the total installed generating capacity in many developing countries is in the form of standby generation on customer premises.

Several studies now show that achieving levels of efficiency similar to those in developed countries would reduce the financial requirement for developing country electric power expansion to \$75 billion per year, much closer to the \$50-60 billion now being spent. For many countries, there is a growing consensus that publicly controlled utilities--because of undue political influence, poor working conditions and other reasons--will not be able to achieve such efficiencies. The only answer may involve increasing the role of the private sector.

#### **APPROACHES TO PRIVATE SECTOR POWER DEVELOPMENT**

To date developing countries have followed one or both of two routes to increasing private sector participation in their power sector: divestiture of whole or part of the public utility commonly called privatization; and development of independent power generating facilities, including development of industrial cogeneration facilities, either as stand alone or grid connected systems.

Chile has experienced perhaps the most advanced divestiture program in the developing world. Malaysia has committed itself to this path as well. Divestiture could take the form of selling shares to the public in the public utility selling part of the national system to private owners including generation, transmission and distribution, or selling one or two of these functions only. Private utilities coexist with public utilities in number of countries, India being one example with its Bombay Suburban Electric and Transportation Company and Tata Electric Co. in Bombay and the Calcutta Electric Supply Corporation.

Independent power facilities can be developed along any number of approaches, the most commonly discussed is the build-own-transfer (BOT) model developed in China at the Shajiao plant and the Hab River project in Pakistan among others. The



Philippines, Turkey, Indonesia, Thailand, Dominican Republic, and Costa Rica are following this approach. Under the BOT scheme private developers construct a power generating station, sell power to the utility for an agreed upon price, and then once debt is paid off transfer the project to the utility at a nominal price. Variations on this theme are build-own-operate (BOO), in which no transfer takes place, and build-own-lease (BOL).

Industrial self generation constitutes the bulk of independent power generation now selling energy to the grid in developing countries. Indonesia, India, Dominican Republic, and others are examples.

#### WHY INDEPENDENT POWER?

Given the rather poor state of the power sector in so many developing countries, and given the huge financial requirement that the power sector imposes on national treasuries, it could be expected that a number of developing countries would look to the private sector to help develop needed power sector improvements. Certainly privatization has been encouraged by the examples set in the United States and lately in Great Britain, but in developing countries it appears to have arisen more out of practical necessity indigenous to each country.

The rationale most often given by developing countries for increasing private sector involvement can be classified under one or more of three general reasons: 1. to increase the efficiency of the sector, 2. to mobilize private capital for power development, 3. to develop new sources of power generation.

Most developing country utilities are state owned monopolies where investment decisions are made by the monopoly supplier with rate payers having relatively little influence. Independent power would end this effective monopoly. Under the assumption that competition would dictate that profit margins of the plants depend on the efficiency of their operations, independent power would thus create savings that could be shared between plant owner and the utility's customers. The extent of those savings will depend on how well efficiency improvements counterbalance the higher cost of capital from private sources than from public sources. And, of course, if political influence distorts free market competition in soliciting and selecting a independent power project, the overall cost of privately supplied energy could exceed the public utility's marginal cost of power.

On the larger economic level, such private plants could not

only decrease the overall need for new generation in a country but would also reduce fuel requirements and foreign exchange requirements for imported fuels. In addition, private plants, if they were well run, would set a standard for publicly owned plants to emulate.

Privately owned and operated power companies increase the probability of autonomy of the utility which would shield it from the undue political influence now so prevalent in developing country power sectors. With autonomy, power system optimization becomes possible. Because burdensome bureaucratic procurement and civil service requirements would be removed from independent power company management, private plant owners provide the potential for the faster introduction, management and transfer of new and more cost effective energy conversion technologies.

A final efficiency related argument--and as will be discussed below perhaps the most potent practical argument for independent power--advanced for independent power is that the private sector can move faster to respond to shortages. Once it has government approval it can construct new plants faster than can the public sector, and could better undertake load management and other innovative means to meet demand.

Private financing would alleviate the serious drain on the public treasury now imposed by the power sector. This would not only free up resources for expenditure for other sectors such as education, health or agriculture, but it would also provide a vehicle for private investment that is more accessible than other traditionally public sectors. A power station, or stock in a utility, is one of the few areas in which a major substitution can be made quickly for government investment. Also, the private sector party presumably assumes all responsibility for both equity and debt which are carried on the balance sheet of the private party rather than the host government or government owned power company.

Independent power offers the possibility of developing new sources of power: 1) projects that are too small to be developed effectively by a utility or that lie outside the traditional scope of electric utilities, but which may be appropriate for small private developers, 2) cogeneration possibilities in industry or agriculture that can be developed by the owners of the industrial facility, 3) cheaper indigenous resources such as small gas fields or lignite fields that require special expertise in developing and which could be integrated with power stations developed by private developers.

## RECENT DEVELOPMENTS INTERNATIONAL DEVELOPMENTS IN INDEPENDENT POWER

I would like to briefly review some recent independent power developments in the Dominican Republic and India, which are not represented on this panel. Both countries have recently passed legislation that encourages the development of independent power facilities that sell electricity to the state-owned grid.

### Dominican Republic

The problem of power shortages has reached crisis proportions in the Dominican Republic. The peak demand for electricity greatly exceeds the nation's supply and blackouts occur on the average on one to four times daily. Recent estimates place economic losses due to power shortages at nearly \$300 million for 1988. To maintain commercial and manufacturing activities, the private sector has invested over \$150 million in private generators since 1986.

According to the most recent expansion plan of the Government of the Dominican Republic, CDE, the government utility, plans to nearly double its 1987 capacity of 1,146 mw by the year 1997. Over that 10 year period 1,110 mw will be added, 935 mw of which will be thermoelectric, and 175 mw will be hydroelectric power.

To bring new generating capacity on-line quickly and efficiently, President Balaguer signed Law 14-90 in February, which actively encourages independent power production. The law permits and encourages the development of independent power facilities in the Dominican Republic by providing developers with a number of fiscal incentives:

- 100 percent exemption on income tax revenue on revenue generated from independent power producers for a period of twenty-five years;
- Exemption from the tax on transferring property purchased for independent energy facilities;
- Exemption from the tax on the formation of companies engaged in electricity production; and
- Exemption from all duties and taxes on imports for commercial energy facilities.

Law 14-90 also guarantees the supply of U.S. dollars required for importing goods and services for independent energy

projects, and guarantees the convertibility of revenues from those projects into hard currency. The law also provides that the Government will guarantee the performance of the utility in the power purchase contract.

Under the law a new institution called the Directorate for the Development and Regulation of the Electric Energy Industry is established. The Directorate will determine tariffs, develop policy planning for the electricity sector, and define the specifications for interconnection. The Directorate will also supervise power purchase contracts and approve the expansion plans of CDE.

The Seaboard Corporation (United States) is the owner of the first Build-Own-Transfer independent power project in the Dominican Republic. The 40 MW barge-mounted, diesel project supplies power to CDE. Financing for the \$22 million project was arranged by Chase Manhattan using \$18 million of "936 funds". Insurance was provided by the Overseas Private Investment Corporation.

## India

During the 8th development plan period (1990-1995), the government is planning to allow the private sector to develop 5,000 MW of new power generation capacity. The Government of India recently passed legislation that encourages private sector investment. The law requires 20 percent equity investment in an independent energy project, of which 11 percent must come from the developer. The maximum debt portion that can be provided by public institutions under the law 40 percent. The remaining debt financing must come from the private sector.

Under the new law, the Madhya Pradesh State Electricity board has solicited proposals for three thermoelectric plants and two hydroelectric plants with a combined capacity of 1042 MWs. The projects may be structured with 100 percent private ownership, or as joint ventures with the utility or the state government.

There are already a few electric utilities in India that are planning to expand their operations (e.g., Tata Electric Company, Bombay Suburban Electric Supply Company). The Bombay Suburban Electric Supply Company, traditionally a distribution company, is building its first generation plant, a 500 MW coal-fired power plant.

A number of industrial plants are selling excess power to the state electricity boards, and a number of large investment houses in India have also expressed interest in power supply

projects. Bechtel has joined up with the Hindujas Group in India and has proposed a 1,000 MW project in Tamil Nadu.

There are also proposals for "collective" captive power generation where a group of industries jointly build a power plant and supply part of their power needs using the utility system for wheeling. Faridabad Industrial Power Company, formed by a group of industries in Faridabad, for example, recently received permission to build a 120 MW diesel plant to supply part of the plant owner's power needs using the Haryana State Electricity Board's system for wheeling.

The Gujarat Electricity Board has also been buying electricity from Gujarat Wind Farm which is a joint public-private sector project that has been in operation since 1985.

### CONCLUSION

Involvement of the private sector in power development in developing countries is a complex political, economic and financial undertaking that is now passing out its early tentative beginnings. It is not surprising that developing country governments would turn to the private sector for power development, given the critical situation utilities find themselves in today. It is surprising, however, how fast new private sector programs are developing, given the complexity of the issues surrounding this new industry.

PRIVATE POWER EXPERIENCE IN THE UNITED STATES

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# Private Power Experience in the United States

by

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## ABSTRACT

The Public Utility Regulatory Policy Act (PURPA) was passed by the U. S. Congress as part of the Natural Energy Act of 1978. Designed to stimulate energy conservation by eliminating barriers to cogeneration and the use of select fuel stocks, PURPA also provided developers of Qualifying Facilities relief from the regulatory constraints of the Federal Power Act. Following a period of challenge to avoided cost based pricing and Federal Energy Regulatory Commission (FERC) authority under PURPA, select states in the U.S. began to aggressively implement PURPA.

Individual state actions clarifying the implementation of PURPA coupled with a growth in public utility avoidance of capacity construction initiated rapid growth in non utility generation development. For 1990, it is expected that non utility capacity additions will account for approximately 55 percent of all electric capacity added in the U.S.

Utility pricing and selection practices for non-utility capacity have evolved as rules of various states implementing PURPA have evolved. From "first come-first served" procurement priced on utility avoided cost, increasingly state regulatory bodies have mandated or public utilities have chosen to rely upon combinations of price and non-price driven bidding mechanisms. As the non-utility generation market has grown, private power developers have also increasingly faced the limits of PURPA. Given these limits, developers have sought mechanisms to expand into wholesale electric generation without being encumbered by PURPA or the Public Utility Holding Company Act (PUHCA). Although efforts have been undertaken to eliminate the constraints of PUHCA on the market, they have not been yet successful. In addition to PUHCA constraints, lack of clarity and focus in addressing transmission access, "all source" bidding, environmental externalities, incentives and risk allocations issues all continue to retard the achievement of the full benefits which may potentially be offered by the evolution of private power development in the United States.

## PAPER

### 1. Introduction: A Non-Utility Developers Perspective

PURPA enacted, in 1978, a new category of specialized non-utility generators, "Qualifying Facilities" (QFs). QFs were given automatic exemption from the burdensome structure of federal and, to an extent, state regulation which applies to the electric utility industry. They qualified for exemption by being a "cogenerator", an installation which produced both thermal energy and electricity or as "small power producers" (defined variously at 50 to 80 MWe), using renewables and residual or waste fuels. PURPA limited electric utilities to a maximum 50% ownership in QF facilities. In addition, electric utilities were required to purchase the output from QF's, on a "PURPA preference" basis. However, QF's were not allowed to make direct sales to third parties.

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The overriding public policy objective which produced PURPA was the desire to obtain the economic benefits of conservation through cogeneration, and to encourage the utilization of domestic waste fuels. During the PURPA debate, it was concluded that national legislation was required to accomplish these two purposes.

The requirement for utilities to purchase from QF's was debated at some length. It was concluded that in the absence of a strong purchase requirement, utilities would probably impede efforts to develop QF facilities. There was also a view that the potential for development of QF's would be fairly small relative to the magnitude of U.S. electric capacity (approximately 580 GWe at the end of 1978). Therefore, electric utilities assumed that the requirement to purchase from QF's would not be burdensome.

Through PURPA, QF's were given a protected market entry position as wholesale, or "bulk power", suppliers of electricity to the distribution utilities. The implementation of PURPA was left to the Federal Energy Regulatory Commission (FERC), which had, under the FPA, well-established administrative responsibility in the electric industry. Beneath the Federal level, each of the 50 U.S. states also has significant administrative responsibility for the electric industry. The premise of PURPA was that the FERC at the Federal level would establish the broad elements of the program, while individual states would retain jurisdiction and responsibility for more detailed elements of "implementation". Needless to say, the dividing line between these two spheres is a vague one, and has given rise to frequent disputes between the Federal and state-level regulators.

## 2. Early Phases of the PURPA Program

After passage of the PURPA, the major administrative task of the FERC was to put in place the necessary mechanisms to launch the program. The most difficult and controversial task was to establish a "just and reasonable" price at which the QF's would be entitled to sell their electric output to the purchasing utility.

After considerable analysis, interventions and debate, the FERC adopted as the pricing benchmark:

"the purchasing utility's full avoided cost ... an administratively-determined approximation of the incremental costs to an electric utility of electric energy or capacity or both, which, but for the purchase from the qualifying facilities, such utility would generate itself or purchase from another source"<sup>1</sup>

The FERC's regulations concerning PURPA, including the "avoided cost" approach, were challenged by some electric utilities, and a Federal court case was argued all the way to the U.S. Supreme Court, which in 1983 upheld the FERC's authority and use of the "avoided cost" approach. During the period 1980 through 1983, while the court challenge to the FERC was underway, there was very limited activity under PURPA. However, ultimately, the U.S. Supreme Court upheld the avoided cost approach, finding that:

"the basic purpose of... PURPA was to increase the utilization of cogeneration and small power production facilities and to reduce reliance on fossil fuels ... at this early stage in the implementation of PURPA, it was reasonable for the Commission [FERC] to prescribe the maximum rate authorized by the Congress and thereby provide the maximum incentive for the development of cogeneration and small power production."<sup>2</sup>

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With the court challenge out of the way, serious QF project activity commenced. As a result, the U.S. electric utility industry did not really have a PURPA sector to deal with until the middle years of the 1980s. Between 1978 when PURPA was enacted, and 1984-1985 when the QF sector emerged more fully, many things had changed for the electricity industry in the U.S.

### 3. Industry Outlook by 1985

By the middle of the 1980s when the PURPA program was established legally and administratively, many American utilities had become very reluctant to sponsor the construction of new generating capacity. The fundamental reasons for this reluctance are many, and are widely debated. The most persuasive are:

- Diseconomies of scale in power plants;
- Volatility of load growth and fuel prices;
- High real interest rates in the U.S. capital markets;
- Growing popularity of non-recourse project financing for independent power plants in the U.S.;
- Punitive prudence reviews and the use of the "used and useful" standard;
- Utility balance sheet concerns;
- Failures in nuclear and non-nuclear construction.

The combination of growing clarity of PURPA rules and a disinclination to build on the part of utilities with a growth in capacity need established the foundation for strong growth in independent power development.

### 4. Growth of PURPA-Sponsored Facilities Since 1985

Tables 1 through 4, and Figures 1 through 4, attached, provide summary data on the development of PURPA facilities, and some of their major characteristics, for the period 1985-1990. Data for 1990 are based on projections.

Table 1 and Figure 1 show the relative market share for generating capacity brought on line during the period 1985-1990, differentiating among three sources of capacity:

- Capacity developed (or "sponsored") by the traditional electric utility for its own needs;
- PURPA additions, with the energy and capacity offered for sale to distribution utilities on a "bulk power" basis; and
- Other non-utility (non-PURPA) capacity, primarily industrial firms building for their own needs.

It can be seen by Table 1 that PURPA capacity constitutes approximately 35% of total capacity additions over the period 1985-1990, or 21,500 MWe out of a total of 62,200 MWe. More importantly, the PURPA role increased significantly within the period, from a level of 25% of additions in 1985 to a projected level of almost 55% in 1990.

Figure 1 illustrates the sharp growth in the PURPA share, over the period in question. It can be seen that by the latter part of the 1980s, PURPA has become the principal supply option for capacity additions to the U.S. electric grid.

Table 2 presents a detailed regional breakdown, consisting of 10 defined areas (including a "non-contiguous U.S." category). The Pacific area, primarily California, accounted for the largest share of PURPA activity

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during the 1985-1990 period, almost one-third (32%) of the total for the U.S. The West-South Central area, primarily Texas, accounted for around 20% of the national total, but shows a dramatic fluctuation over the period, starting strong in the 1985-1987 years and then falling off sharply, reflecting the decline of the Texas economy after the oil price decrease of 1985-1986.

The areas with very low PURPA activity, East-South Central, West-North Central and Mountain, have tended to have high excess reserve generating margins, caused by prior overbuilding of capacity. As a result, there has not been much of a need for any new generating capacity, and PURPA activity has been modest.

Figure 2 shows the regional PURPA activity, based on four representative "super areas" (using the more detailed areas of Table 2 as building blocks). Among the trends, the following are worth noting:

- The recent (1988-1990) buildup of PURPA activity along the U.S. East Coast, "Atlantic" category, which consists of all Eastern states south of New England;
- The resumed growth of PURPA activity in the "Central" category, driven in large measure by projected 1990 additions in the U.S. mid-west region;
- The relatively sustained high level of activity in the "Western" category, 1500-1800 MWe per year between 1988 and 1990.

Table 3 and Figure 3 show the distribution of PURPA capacity by fuel type. As expected, natural gas dominates, with 54% of capacity additions over the 1985-1990 period. Renewables, classified as "other", also have a significant market position, 30%.

Table 4 and Figure 4 present the distribution of PURPA capacity by size ranges. It can be seen that over the 1985-1990 period, about 38% of additions are 100 MWe or above. Moreover, for 1990, larger units are projected to account for almost 45% of the total to be added. The significant share for units in the range of 25-49.9 MWe is the result of technology considerations and easier siting and licensing procedures involved for unit sizes beneath 50 MWe.

Estimates of growth in private power development for 1991 to 2000 vary widely. Total capacity need for the U.S. has been estimated by various entities to range between 72 GW to 143 GW. The point of similarity in the estimates is the strong role of private power capacity additions which range between 18 GW to 59 GW. The extent to which private power is able to continue playing a strong role in the U.S. market is a function both of the pricing and project selection process of U.S. public utilities, as well as the significant issues affecting both private power producers and public utilities.

##### **5. U.S. Utility Approaches to Pricing and Project Solicitation and Selection.**

As indicated in Table 2 above, the development of private power had been initially limited to a few select regions in the U.S. The approaches taken by utilities to pricing and project selection were unique to each utility and were partially driven by state regulatory implementation of PURPA. Approaches varied from standard offers to "first come-first served" negotiated contracts. For example, in California, utilities were required to purchase under standard offers all QF capacity offered at Public Utility Commission approved administratively determined avoided costs. In New York, state legislation was passed which fixed a floor price (6¢) which utilities were mandated to pay for QF output. In New

England, utilities "negotiated" with private power developers using avoided cost as the hurdle rate for assessment of pricing offers from the QF. These approaches were to a significant degree the cause for chaotic development of QF's for both private power developers and public utilities. Further it led to significant, and sometimes overwhelming major planning and operation problems for public utilities.<sup>3</sup>

In an attempt to regain control of their planning and organize the selection of QF projects, utilities in the New England region, (initially Central Maine Power, and Boston Edison Company) initiated Bidding programs. Today, regulatory commissions and utilities in 27 states have or are developing competitive bidding systems.<sup>4</sup> It is currently estimated that bidding will amount for more than 50% of the capacity resources added by the end of the decade. The bidding systems which have and continue to evolve can be characterized as open or closed co-systems.

Generically, open bidding systems are requests for proposals (RFP's) which provide an explicit scoring system composed of price and non price attributes of a project. The price component is normally weighed against a utilities avoided cost. The non-price attributes of a bid system usually reflects the traditional aspects of utility planning. These would be, for example, the dispatchability or the level of development of the facility and its environmental characteristics. With an open bid system the project proponent self scores against weights that are provided for each component of the bid. At the finish of the bid the proponent clearly understands the trade-offs that he has made between the price offered and commitments made relative to risks being taken in terms of such items as dispatch.

In a closed bid system, utilities provide no more than general guidelines relative to their preferences in a bid. In addition, utilities may indicate preferentially, without any weighted scoring elements, aspects of a particular proposal that they would favor. For example, such aspects as in-service territory locations or dispatchability. However, in a closed bid system the utility does not provide a fixed standard under which they will evaluate and rank project bids. Utilities using closed system bids retain substantial flexibility to negotiate with bidders. In a closed bid system, the utility is in a position where it has information relative to the evaluation of the bid that is not available to the bidder. Further, utilities using this system indicate they are more at ease in terms of acquiring, through purchase, facilities which better meet their needs as they make the necessary trade-offs in the financial, operational and environmental features of particular projects that they might wish to procure. I would argue that generally private power developers prefer negotiating contracts to bidding, and if bidding, open systems tend to cause less concern than closed systems.

Whether open or closed, the approach taken by utility bidding evolves around price. Utilities evaluate bids against their avoided cost, other bids or place the unit bid into a production costing model and determine under the utility's expected operation mode what the net present value revenue requirements would be for its ratepayers for various options it has available, (including its own options). In pricing utilities have been pursuing a process whereby they increasingly shift more risks onto the private power developer. Although it is fairly standard that variable costs that are beyond the control of a private power developer, for example fuel costs, be allowed to flow through to the utility's ratepayer, there are increasingly pressure being place on private power developers to assume some of the future market risk on fuel supply.

Initially only QFs were allowed to bid into utility RFPs. However, in the United States all source bidding is evolving. All source bidding allows not only QFs but also independent power producers that are not qualifying facilities as well as utility wholesale electric producers and demand side

management measures to be bid against each other. Among private power producers there is concern that a utility not be allowed to bid in its own solicitation. A practice which raises concern about the competitive nature of the process and the prospects for an independent to be successful.

From its initiation, competitive bidding has provided a clear indication of the extent of market interest by private power developers. Although the relative success or failure of open and closed bidding systems is still subject to significant debate, what is not subject to debate is the fact that in response to RFPs utilities are often being offered over ten times the amount of capacity subject to bid.

The difficulty in the selection process of either a negotiated or an open bid system purchase is to separate "real" from "hypothetical" projects. Initially in RFP structures price played a dominant role, however as bidding has evolved, non-price components have become increasingly important. This importance has grown as utilities, which have an obligation to serve, became increasingly aware of the need to select projects that will provide capacity when needed. Therefore, utilities have evolved bidding systems to enhance the probability of selection of "real" projects. Utilities have imposed increased cost on private power developers who must incur development expenses to perfect a project to the point where the project has solid substance and "reality" in order to compete in RFPs.

Utilities in the United States argue this is necessary because of the failure rate of proposed private power projects which is characterized as 40 to 50%. However, it should be noted that between 1980 and 1990 utilities added approximately 100 GW of capacity. During the same period, utilities canceled approximately 100 GW of capacity. A utility failure rate of 50%. The development of a power plant, whether by a utility or a private power developer, is subject to all of the risks and issues that arise in satisfying the rigorous requirements of permitting and licensing and development. The potential promise of independent power development may be constrained in the future due to these issues which confront utilities as well as independents.

#### **6. Issues Facing Utilities and Private Power Developers**

One of the major issues that has arisen in private power development has been transmission access. Due to the need to have market access for power sales, it is essential that private power developers have access to the transmission system. At the same time, utilities are very concerned with the reliability of the transmission system and with just reason have raised issue with open access to the transmission system. The debate on transmission access has been going on for years and it appears will continue for years. Without transmission access under terms that are reasonable, the potential for the growth of the private power market industry may be limited in select portions of the United States.

FERC had attempted to address the transmission issue but in the process found such splintered interest between utilities without transmission versus utilities with transmission versus private power developers that resolution of the issues became extremely difficult. In an attempt to focus the issues, following public meetings and filings, FERC developed an internal transmission task force which issued, in October of 1989, a report to the Commission to offer guidance on the evolution of rules effecting transmission access. Although favoring more open access, the commission which received the report has been significantly altered due to the departure of select commissioners and the addition of new commissioners and, therefore, the debate goes on.

In addition to transmission both utilities and private power developers face the issue of new amendments to the Clean Air Act. Proposed Clean Air regulations require air quality credits that place significant power into the hands of the utilities who have the capability, because of existing power stations, to gain credits. Lack of credits may negatively impact the potential growth of independent power.

In addition to air regulations there is a need to begin to codify on a more consistent basis state regulations relative to the procurement from independents by public utilities. The extent to which an independent market can grow is limited by the extent to which there is lack of clarity in regulations. Although FERC attempted to enhance this clarity with the development of notices of proposed rulemaking in 1988, state regulatory bodies objected strenuously to the attempt. State regulatory bodies, each with its own domain and its own political and social concerns, argued that FERC, in imposing regulations that would over-ride state regulations, basically violated states' rights. It is for this reason that FERC ultimately backed off from following through on proposed new rules. Because of the lack of clarity and consistency in regulations between the federal and the state level, independents face additional hurdles in development.

The last issue that I would address that is confronting utilities and independents alike is the Public Utility Holding Company Act. The Public Utility Holding Company Act passed in 1935 was designed to eliminate the abuses created by highly integrated and geographically dispersed holding companies. When the Act was first passed, Congressman George Huddleston on the floor of the House of Representatives in addressing the bill stated the following:

"The bill is a mystic maze. A man of average intelligence wandering into it will soon find himself hopelessly lost without knowing east from west or top from bottom. After weeks of study the most intelligent man will still remain in doubt as to what the bill means. It seemed to me to be designed to baffle, to harass, to ensnare, to enmesh, to confuse, to produce a situation beyond the wit of anybody to get through with."<sup>5</sup>

Private power developers as well as select utilities wish to see alterations in the Holding Company Act. Currently, a private power developer is limited to developing qualifying facilities which meet the host qualifications previously indicated. Although independent power producers have developed non-qualifying facilities, they have done so by joining with utilities which are already subject to the Holding Company Act. Through legal mechanisms, they have weaved their way around the constraints of the Holding Act. There have been unsuccessful attempts in the past two years to reduce the limits imposed by PUHCA on the development of independent power. Unless PUHCA is changed, it clearly will limit the development of independent power.

The last issue I would raise that is particular to public utilities but has significant implications to private power developers is the use of incentive mechanisms. Under PURPA and by the regulations of most state utility commissions, public utilities gain nothing other than the avoidance of construction by purchasing power. As noted above, public utilities maintain the obligation to serve and therefore are subject to risk in purchasing from an independent power producer. Since they are subject to risk of not having capacity if they purchase from an independent, utilities need to be offered compensation for this risk. If such were done, I believe, utilities would begin to be even more open to the competitive market in the procurement of private power.

## 7. Lessons for Jamaica

When one views the experience of the United States in private power development, other than parochial issues and the issues of reducing barriers to entry when dealing with a monopoly, there are select lessons that I think can be learned. First and foremost is that incentive mechanisms are needed as part of a procurement system to stimulate the provision of least-cost resources. Secondly, it is important, as recognized in the Budget presentation of the Honorable Mr. Small, that there be clarity in the objectives sought and the subsequent rules developed under which private power will evolve. Although PURPA was passed in 1978, there was only limited development under PURPA until the mid 1980s. I would argue this was due to the continuing debates over the rules at the Federal level and between states and FERC. In order to clarify the rules, it is essential that the objectives attempting to be achieved be clarified. The objective of PURPA was energy conservation, as that objective disappeared it became apparent that the objective of FERC was the de-regulation of generation. The evolution of rules that allow for de-regulation has been slow and the concomitant requirements to achieve the objective have not been integrated. The transmission debate has gone on for over four years. The debate of the Holding Company Act did not begin in earnest until a few years ago.

Once the issues of the Holding Company Act and transmission access are, if ever, resolved, I have no doubt that the fuel clause issue will be the next major issue being faced by both independents and utilities. That is, who is going to be taking the future market risk in fuels. As Jamaica approaches private power development it is well worth the time to establish a clear set of guidelines consistent with Jamaica's objectives under which it will accept private power development. Given a clear set of guidelines and by such, risk delineation, I would expect that private power developers would be willing to participate in the privatization of the generation industry.

### FOOTNOTES

<sup>1</sup> FERC Notice of Proposed Rulemaking, Docket Number RM88-6-000.

<sup>2</sup> FERC Notice of Proposed Rulemaking, Docket Number RM88-6-000.

<sup>3</sup> See California Energy Commission (CEC) and California Public Utilities Commission, (CPUC), Final Report to the Legislative and Joint CEC/CPUC Hearings on Excess Electrical Generating Capacity, June, 1988; also Pfeffer, Lindsay and Associates, Emerging Policy Issues in PURPA Implementation (DOE/PE-70404-HI, March, 1986).

<sup>4</sup> "Bidding for Power: The Emergence of Competitive Bidding in Electric Generation", National Independent Energy Producers, March 1990.

<sup>5</sup> See William C. Weeden "PUHCA in Past and Present Context: Independent Power Meets the "Mystic Maze". The Electricity Journal, January/February 1990.

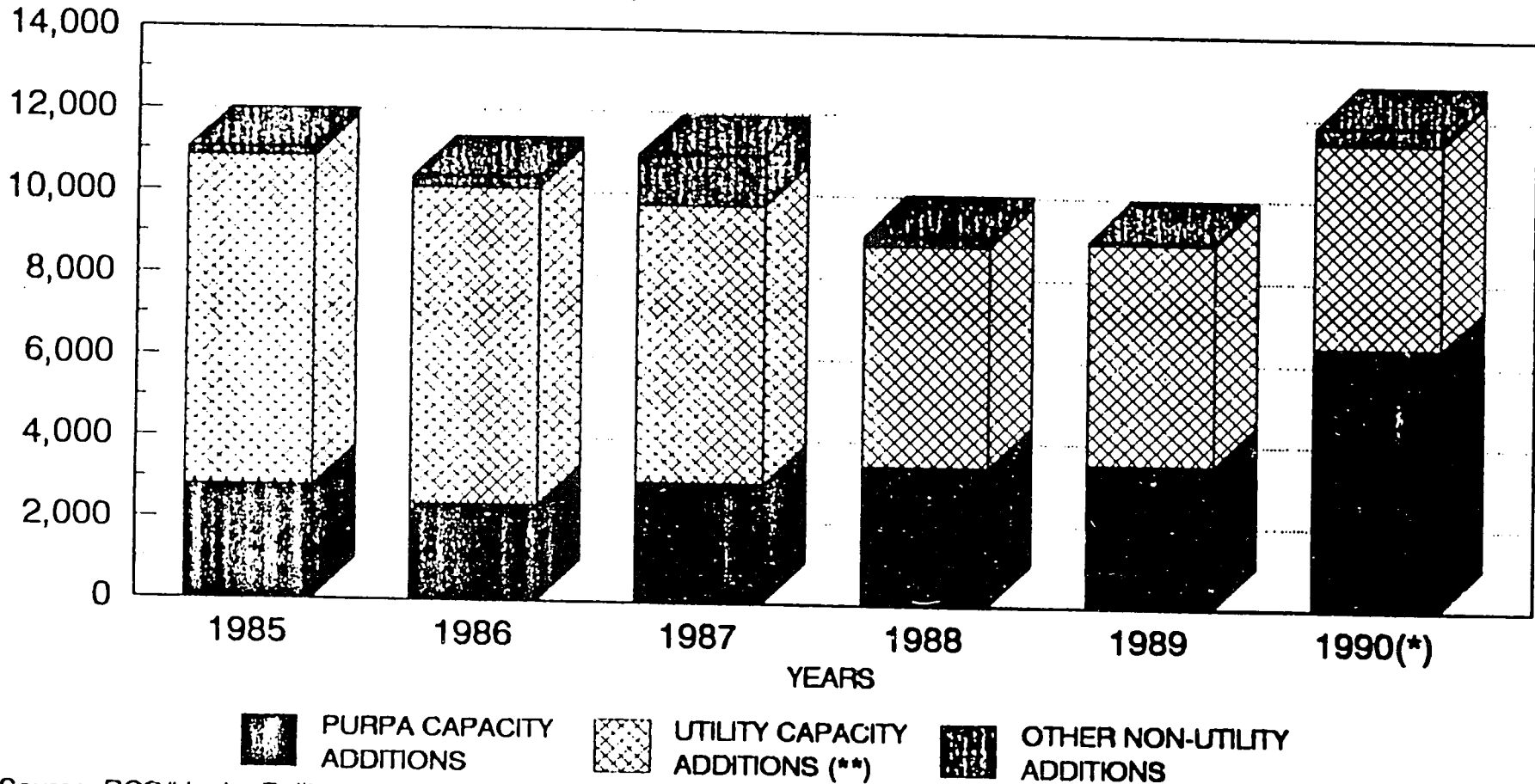
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# FIGURE 1

## CAPACITY ADDITIONS TO U.S. ENERGY GRID

### FOR YEARS: 1985-1990

ON-LINE CAPACITY ADDITIONS (IN MEGAWATTS)



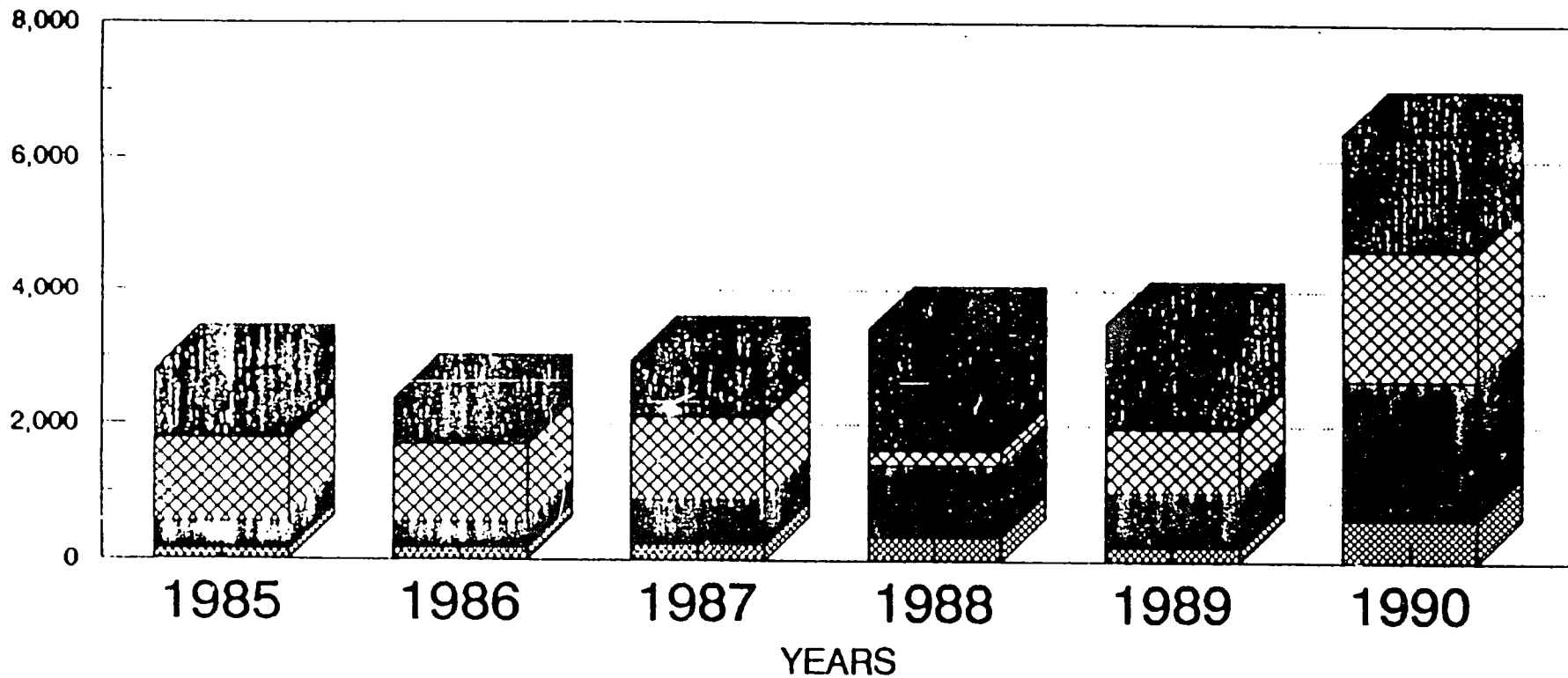
Source: RCG/Hagler Bailly

(\*) INCLUDES PROJECTED STARTS IN 1990

(\*\*) UTILITY ADDITIONS COURTESY NERC

**FIGURE 2**  
**PURPA CAPACITY ADDITIONS BY REGION**  
**YEARS: 1985-1990**

CAPACITY IN MEGAWATTS

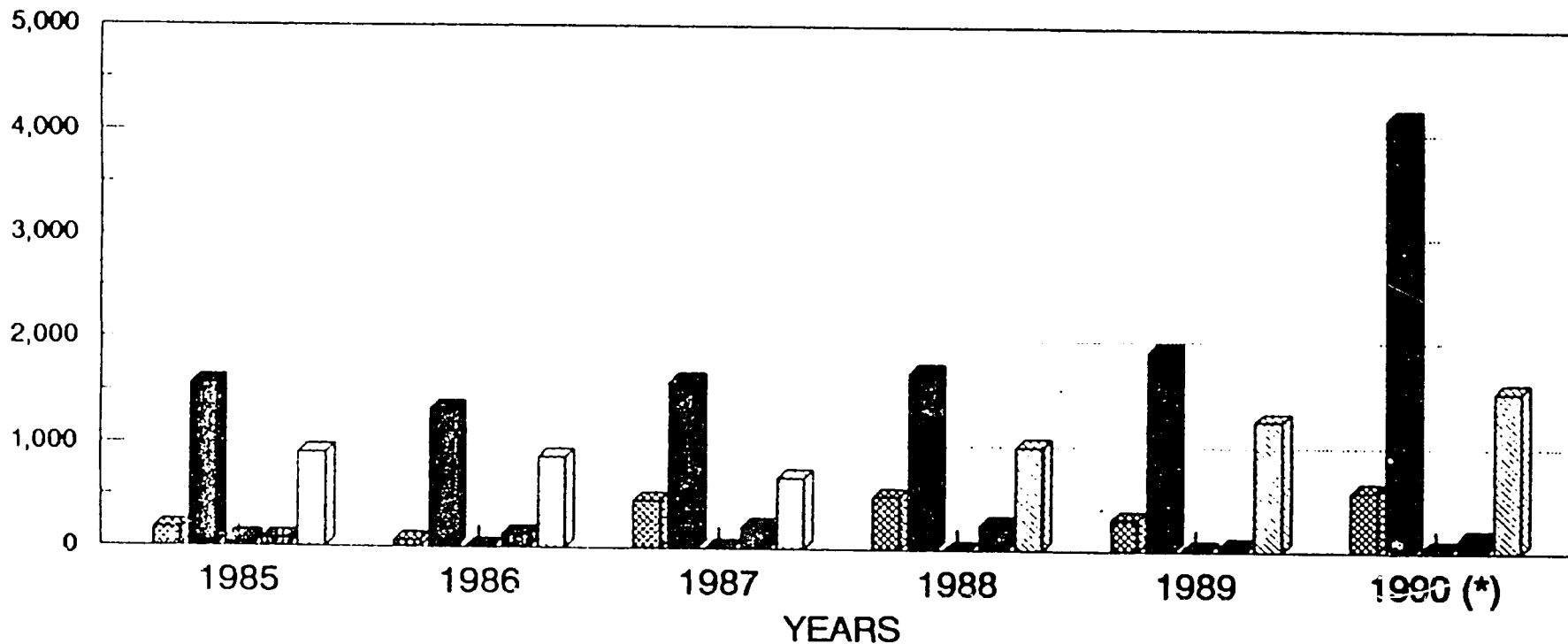


Source: RCG/HAGLER BAILLY  
 (\*) PROJECTED ON-LINE FOR 1990



**FIGURE 3**  
**PURPA CAPACITY ADDITIONS BY FUEL TYPE**  
**FOR YEARS: 1985-1990**

CAPACITY IN MEGAWATTS



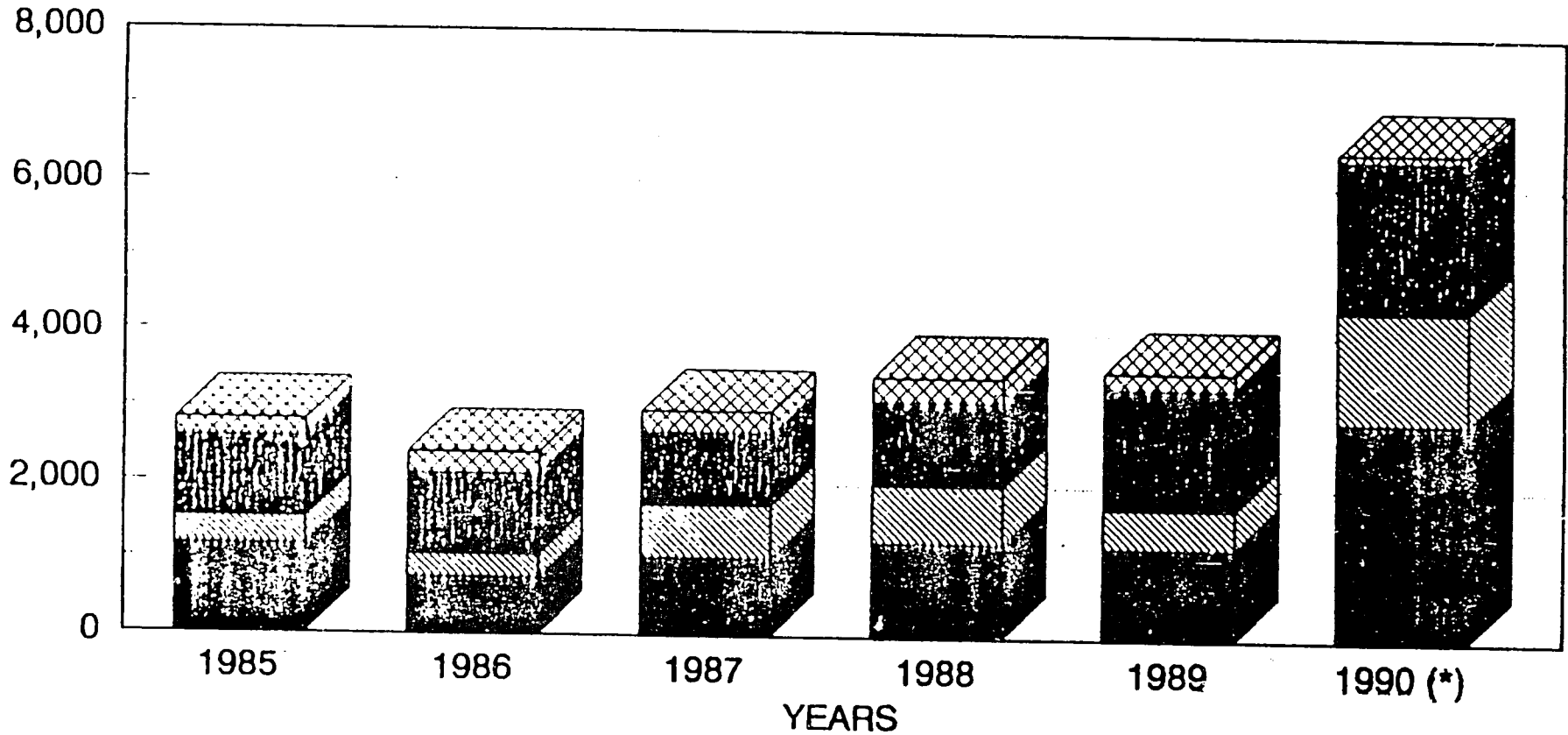
Source: RCG/Hagler Bally

(\*) INCLUDES PROJECTED STARTS IN 1990

(\*\*) INCLUDES WASTE, SOLAR, WIND & GEOTHERMAL

FIGURE 4  
**PURPA CAPACITY ADDITIONS BY PROJECT SIZE**  
FOR YEARS: 1985-1990

CAPACITY IN MEGAWATTS



■ PLANT SIZE 100 + MW    ▨ PLANT SIZE 50-99.9 MW    ▩ PLANT SIZE 10-49.9 MW    ▧ PLANT SIZE 1-9.9 MW

Source: RCG/Hagler Bally  
(\* ) PROJECTED ON-LINE STATUS IN 1990

TABLE 1

CAPACITY ADDITIONS TO U.S. ENERGY GRID  
 =====

(Capacity in Megawatts)

YEAR	UTILITY SPONSORED (***)	PURPA ADDITIONS	OTHER NON-UTILITY	TOTAL
1985	8020.00	2810.53	204.64	11035.17
1986	7710.00	2386.12	266.93	10363.05
1987	6780.00	2949.11	1210.87	10939.97
1988	5360.00	3425.74	262.47	9048.20
1989	5410.00	3510.76	64.71	8985.47
1990 (*)	4990.00 (**)	6423.18	423.40	11836.58
TOTAL ONLINE CAPACITY	38270.00	21505.43	2433.01	62208.44
% of TOTAL "OF"	61.52%	34.57%	3.91%	100.00%

(\*) INCLUDES PROJECTED STARTS IN 1990.

(\*\*) Source : NERC (estimate only)

(\*\*\*) Source : North American Electric Reliability Council

Source: RCG/Hagler, Bailly, Inc., March 1990; INDEPENDENT POWER DATA BASE

PURPA CAPACITY ADDITIONS BY REGION

(Capacity in Megawatts)

REGION/ YEAR	NEW ENGLAND	MID- ATLANTIC	SOUTH ATLANTIC	E/NORTH CENTRAL	E/SOUTH CENTRAL	W/NORTH CENTRAL	W/SOUTH CENTRAL	MOUNTAIN	PACIFIC	NON- CONTIGUOUS	TOTAL	PERCENTAGE BY YEAR
1985	154.22	63.67	327.20	27.07	41.05	9.67	1164.24	71.25	948.86	3.31	2810.53	13.07%
1986	185.80	175.17	192.13	39.81	17.20	0.00	1086.32	28.32	651.02	10.36	2386.12	11.10%
1987	244.95	317.05	329.98	146.36	4.04	20.54	1046.44	185.08	654.60	0.06	2949.11	13.71%
1988	362.13	528.30	524.20	40.74	2.50	93.62	78.22	247.70	1544.92	3.40	3425.74	15.93%
1989	214.45	656.69	147.77	155.90	5.00	3.54	775.76	31.15	1520.52	0.00	3510.76	16.33%
1990 (*)	623.57	1263.57	811.70	1555.60	0.00	155.76	246.24	153.02	1568.68	45.10	6423.18	29.87%
TOTAL ONLINE CAPACITY	1785.12	3004.45	2332.97	1965.48	69.79	283.07	4397.21	716.52	6888.60	62.23	21505.43	100.00%
% of TOTAL "ON"	8.30%	13.97%	10.85%	9.14%	0.32%	1.32%	20.45%	3.33%	32.03%	0.29%	100.00%	

REGION KEY:

NEW ENGLAND	MID- ATLANTIC	SOUTH ATLANTIC	E/NORTH CENTRAL	E/SOUTH CENTRAL	W/NORTH CENTRAL	W/SOUTH CENTRAL	MOUNTAIN	PACIFIC	NON- CONTIGUOUS
CONNECTICUT MAINE MASS. N. HAMPSHIRE RHODE ISL. VERMONT	NEW JERSEY NEW YORK PENN.	DELAWARE D/C FLORIDA GEORGIA MARYLAND N. CAROLINA S. CAROLINA VIRGINIA W. VIRGINIA	ILLINOIS INDIANA MICHIGAN OHIO WISCONSIN	ALABAMA KENTUCKY MISS. TENN.	IOWA KANSAS MINNESOTA MISSOURI NEBRASKA N. DAKOTA S. DAKOTA	ARKANSAS LOUISIANA OKLAHOMA TEXAS	ARIZONA COLORADO IDAHO MONTANA NEVADA NEW MEXICO UTAH WYOMING	CALIFORNIA OREGON WASHINGTON	ALASKA HAWAII PUERTO RICO VIRGIN ISLANDS

(\*) INCLUDES PROJECTED STARTS IN 1990.

Source: RCG/Hagler, Bailly, Inc., March 1990; INDEPENDENT POWER DATA BASE

TABLE 3

PURPA CAPACITY ADDITIONS BY FUEL TYPE  
 =====  
 (Capacity in Megawatts)

FUEL TYPE/ YEAR	COAL	NATURAL GAS	OIL	HYDRO	OTHER (**)	TOTAL
1985	178.39	1570.92	78.02	78.35	904.84	2810.52
1986	60.30	1322.71	9.17	126.35	867.59	2386.12
1987	454.65	1600.79	5.65	209.01	679.01	2949.11
1988	507.80	1690.72	0.85	237.68	988.68	3425.74
1989	300.90	1893.44	22.18	46.90	1247.35	3510.76
1990 (*)	576.82	4155.15	29.90	130.85	1530.46	6423.18
TOTAL ONLINE CAPACITY	2078.86	12233.73	145.77	829.14	6217.93	21505.43
% of TOTAL "OF"	9.67%	56.89%	0.68%	3.86%	28.91%	100.00%

(\*) INCLUDES PROJECTED STARTS IN 1990.

(\*\*) INCLUDES WASTE, BIOMASS, WASTE ENERGY, SOLAR, WIND AND GEOTHERMAL

Source: RCG/Hagler, Bailly, Inc., March 1990; INDEPENDENT POWER DATA BASE

TABLE 4

PURPA CAPACITY ADDITIONS BY PROJECT SIZE  
 =====

(Capacity in Megawatts)

SIZE/ YEAR	PLANT SIZE 1-9.9 MW	PLANT SIZE 10-49.9 MW	PLANT SIZE 50-99.9 MW	PLANT SIZE 100+ MW	TOTAL
1985	238.73	1045.00	355.56	1171.23	2810.52
1986	271.13	1060.29	309.20	745.50	2386.12
1987	292.27	931.54	702.30	1023.00	2949.11
1988	326.83	1091.87	757.00	1250.04	3425.74
1989	204.53	1585.24	517.00	1204.00	3510.76
1990 (*)	98.66	2004.71	1489.38	2864.92	6423.18
TOTAL EXISTING ONLINE CAPACITY	1432.16	7718.64	4130.44	8258.69	21505.43
% of TOTAL "QF"	6.66%	35.89%	19.21%	38.40%	100.00%

(\*) INCLUDES PROJECTED STARTS IN 1990.

Source: RCG/Hagler, Bailly, Inc., March 1990; INDEPENDENT POWER DATA BASE

PRIVATE POWER EXPERIENCE IN OTHER COUNTRIES  
Pakistan

Daud Beg  
Additional Secretary  
Ministry of Water & Power

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

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## POWER SECTOR PRIVATISATION:

### PAKISTAN'S EXPERIENCE

By

Daud Beg  
Additional Secretary (Power)  
Government of Pakistan

#### ABSTRACT

Pakistan has taken bold initiatives to induct private sector participation in power generation. Chronic power shortages resulting in massive load-shedding and resource constraints have left no option but to invite Private Sector in EOC Power Projects. This paper describes historical background to initial nationalisation of power sector and factors leading to private sector participation.

Policy and regulatory framework, establishment of Private Sector Energy Development Fund (PSEDF), enhancement of Security Package, and provision of other incentives are explained. Pakistan's experience and problems faced by it in finalising private entrepreneurs proposals are outlined.

#### INITIAL NATIONALISATION OF POWER SECTOR.

Public Sector has a tendency of being monopolistic. This breeds complacency and comparative inefficiency. There is no incentive to respond effectively to challenges posed by excessive demand or price shocks as witnessed in oil crises over the last two decades.

Public policy is determined by social priorities. Education, public health, water supply, housing, roads and often provision of electricity have been retained in the public sector as responsibilities of the Government. In this context, a brief review of the development of electric power sector in developing countries of the British Commonwealth would be of interest.

Prior to World War II, Public Works Development (P.W.D.) used to administer works relating to irrigation, water supply, roads and public buildings in most developing countries of the British empire spread around the globe. Electricity did not enjoy this status. Power supplies in major towns were owned and operated by private entrepreneurs. PWD only maintained electric installations in hospitals, offices, military cantonments and Government Officers Residences (G.O.R). Electricity branches were created under the jurisdiction of PWD wherever hydro-electric installations and transmission systems were built to meet exigency of the situation.

Isolated electric power supplies were operated by private entrepreneurs. Generation was either by diesel engines or small steam turbines. Distribution networks were of a variety of voltages, A.C./D.C. and sometimes of different frequencies. Tariffs were determined by private companies themselves, with little regulatory control by the Government. These tariffs were exceptionally high, and one wonders as to how these were tolerated by consumers. Electricity was mostly used for lighting or fans, and extensive industrial usage had not yet developed. At the time of creation of Pakistan in 1947, Karachi Electric

Contd.....P/2.



Supply Company (KESC) had an average Sale price of Rs. 1.25 per KWH (Equivalent to 30 cents at that time). Other power companies supplied electricity at average tariffs varying from Rs.1 to Rs.3 per unit. The total installed capacity in Pakistan was only 40 MW. The reliability of power supply was erratic and these isolated generation facilities could hardly cope with the post-war economic upsurge and independence of many nations.

Centralised power stations and interconnected grid networks changed the entire picture. Cost of generation reduced appreciably due to economy of scale and increasing efficiency of power plants. Most of the developing nations in the British Commonwealth proceeded to nationalise the power sector. Short-sighted policies of private electric companies provided a perfect platform for nationalisation.

P.W.D. separated Electricity Branch into a separate Electricity Department to meet the changing requirements.

In Pakistan, WAPDA (Water and Power Development Authority) was created in 1958 to execute Indus Basin Treaty projects under the aegis of the World Bank. This integrated programme is similar to Tennessee Valley Authority (TVA). Completion of hydro-electric projects at Warsak (160 MW), Mangla (800 MW) and Tarbela (presently 1,750 MW to be increased to 3,750 MW) ensured provision of cheap electricity. Rationalisation of tariffs brought average tariff down to 10 paisas/KWH (2 cents per unit) at that time. Commonwealth countries followed in the footsteps of Britain in nationalisation of power sector (and other major industries). Cheap electricity and cheap money, with low interest rates, lasted for nearly three decades. Nationalisation of electric sector after World War II had paid off.

#### NEED FOR PRIVATE SECTOR PARTICIPATION IN POWER GENERATION

There have been quantum jumps in power demand in Pakistan. In 1947, the cumulative demand was about 40 MW. By 1958, when WAPDA was created, the demand had increased to 100 MW. It had further increased ten-fold to 1,000 MW by 1969. Present peak demand is 6,500 MW. Huge investments are needed to meet the funding requirements of this magnitude. Oil price shocks of 1972 and 1980 did not evoke adequate response in tariff increases to generate additional funds. Additional dams on River Indus (Kalabagh and later Basha) fell victim of political bickering, thus depriving Pakistan of cheap hydro-electric power. All these resulted in massive load-shedding from 1979 to 1989, which reached a peak of 1,800 MW last year. Public sector had failed to meet the power requirements, for various reasons.

A brief analysis of the factors leading to reluctant acceptance of private sector participation in power generation is given below:-

(a) HIGH ELECTRICITY ELASTICITY FACTOR

High economic growth is the aim of any Government. Electricity consumption is a vital component of economic development. Elasticity factor, a ratio between percentage increase in electricity consumption and percentage increase in G.N.P. growth, is an important index. In Pakistan, GNP growth has been maintained at 6-8% p.a. An elasticity factor of 1.5 for Pakistan would indicate a growth in electricity consumption of 9-12%. Honourable Hugh R. Small has mentioned this elasticity factor at app.3 for Jamaica in his Budget speech. This rate

Contd.....P/3.

of growth would require huge investments which public sector cannot provide due to budgetary constraints. High aspiration of GNP growth needs to be accompanied by strong financial discipline for several years.

(b) CHRONIC SHORTAGE OF POWER

Presently, Pakistan is suffering actually from power crisis. The total installed capacity of Pakistan is 7100 MW out of which hydel generation capacity is 3000 MW and thermal generation is 4100 MW. The current peak demand is about 6400 MW and there was an annual increase of 10% but due to enhanced village electrification programme, the demand has gone up to 12% annually. This means that power generation capacity has to be doubled every six years i.e. 15,000 MW by 1996, 30,000 MW by 2002. Out of the total hydel capacity, 2550 MW is installed on the two large dams of Tarbela and Mangla. These dams have been constructed under the Indus Water Treaty and are primarily designed to meet the irrigation requirement of the country. The power generation from these dams is thus sub-servient to the requirements of water for irrigation.

The capacity of hydel generation is highly susceptible to seasonal variations both because of reduced flow in water and lower reservoir levels in spring/early summer. The power generation fluctuates between 100% and 30% of the installed capacity. The thermal generation is subjected to substantial derating and outages because of non-availability of any spinning or maintenance reserves on the system for about half year. Thus the country is faced with shortage of power between the months of December and May each year. This situation has been existing during the last 20 years when the generation capacity has persistingly fallen short of demand due to resource constraints. The maximum peak shortage was about 1800 MW in 1989, which is about 30% of the demand.

(c) RESOURCE CONSTRAINT

Public sector invariably complains of resource constraint. It is obviously impossible for any government to provide unlimited funds for power generation due to considerable demands on the exchequer by other sectors of economy.

It is a vicious circle, IMF puts budgetary ceilings on the Government to reduce deficit financing and contain inflation. These ceilings remain even if the public sector power supply company (WAPDA in case of Pakistan) improves its performance and generates more than 40% Internal Cash Generation (I.C.G) according to World Bank covenants. This is a dis-incentive to the power supply company to improve performance.

In case of Pakistan, Annual Development Plan (A.D.P) for 1990-91 is Rs.55 Billion (\$ 2.55 billion). WAPDA requested for Rs.28 billion and got only Rs.16 Billion so it has to cut its power generation programme. Private Sector investments do not fall in ADP and therefore provide the only answer to meet the power requirements.

Contd.....P/4.

(d) COMPETITIVENESS.

Introduction of private sector in power generation is expected to provide competition to public sector in efficient operation and economic generation. This can later be extended to power distribution, where privatisation is desirable.

PAKISTAN'S POLICY FOR PRIVATE SECTOR POWER GENERATION

In pursuance of the policy of privatization the Government announced in November 1985 measures to encourage private sector participation in power generation.

Large increases in investment in power generation are required during the Seventh and Eighth Five Year Plans to remove existing power shortages and to meet expected increases in demand. The Seventh Plan, covering fiscal years 1988-89 to 1992-93, provides for additional generating capacity of about 6,600 MW. The Government plans that 2,000 MW or more of this should be provided by the private sector. The indicative figures for the Eighth Plan (1993-98) are similar.

To achieve this level of private investment, the Government is offering the private sector the opportunity to earn real rates of return after tax which are competitive with the returns available from similar activities internationally.

BUILD-OWN-OPERATE (B.O.O) PROJECTS

The projects covered by the November 1985 statement commonly referred to as "build-own-operate" (BOO) projects have the following main features:

- The private sector through a special project company incorporated in Pakistan will finance and build a power station and operate it for a concession period, typically more than 20 years. Extension of the concession period may be negotiated.
- The project will involve limited recourse financing, and the funds for the project will be raised without any direct sovereign guarantee of repayment. Instead, the investors in, and lenders to, the project company must look to the revenues earned by the sales of electricity for their returns on equity and the servicing of their loans.
- The output of the power station will be sold to the utilities i.e. WAPDA or KESC under a long term contract covering the concession period, whose performance will be guaranteed by the Government.

Initially, private sector power stations were restricted to thermal stations fuelled by fuel oil and indigenous coal. The policy has since been extended to include thermal stations using low calorific value gas, Geothermal and hydroelectric stations. In principle the Government will give consideration to the use of any fuel, including imported coal and even nuclear energy, having regard to both economy and fuel diversity.

Contd.....P/5.

Specific private sector projects may be solicited by the Government. Alternatively, private sector sponsors may put forward unsolicited proposals.

MEASURES TAKEN TO PROMOTE BOO PROJECTS

The Government has, in collaboration with several multi-lateral and bi-lateral aid agencies, particularly World Bank and USAID, developed an innovative approach to encourage private sector investment in BOO power generation schemes. The key elements of this are:-

(a) The careful allocation of risk between the public and private sectors.

(b) The availability of loans to improve the debt service profile of projects.

Measures have been taken on four fronts to pursue this approach. In summary the Government has:

i. Formed the Private Sector Energy Development Fund (PSEDF). This Fund is able to extend loans to the private sector as an important source of finance for qualifying projects. Both the grace period and the repayment period of these loans are attractive with the result that a project's debt service profile will typically be more commensurate with the long life of power projects than would be feasible given commercial finance alone.

ii. Expressed itself willing to protect the project company against certain risks which are beyond the control of the project company. This enhances the value of the lender's "Security Package" and increases the attractiveness of the investment to both lenders and sponsors.

iii. Granted power generation schemes several fiscal and other incentives.

iv. Put in place a new institutional framework to facilitate the preparation, execution and operation of private sector power generation projects. Further details of these measures are described below:

THE PRIVATE SECTOR ENERGY DEVELOPMENT FUND

The private Sector Energy Development Fund (The Fund) has been established to utilize the proceeds of loans and grants from several multi-lateral and bi-lateral aid agencies. The Fund is administered by the National Development Finance Corporation (NDFC).

Either firm commitments or indications of support have been received from:

- (1) World Bank.
- (2) Export Import Bank of Japan.
- (3) U.S. Agency for International Development.

Contd.....P/6.

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- (4) UK Overseas Development Administration.
- (5) Kredistanstalt fur Weideraufbau (KfW), Federal Republic of Germany.
- (6) Canadian International Development Agencies.
- (7) Government of the Republic of Italy.

Total funds committed to PSEDF are \$ 653 million.

The Fund will lend up to 30% of the total cost of approved projects, but no more than 50% of the foreign exchange costs. Loans may have a maturity of up to 23 years, with grace period of repayments of up to 8 years. Currently the applicable interest rate is 14% p.a.

ENHANCEMENT OF THE SECURITY PACKAGE.

As stated earlier it is anticipated that private sector power generation projects will be undertaken with limited recourse financing. Such limited recourse financing requires a comprehensive set of interlocking agreements and provisions (the security package) to give security to lenders. While details will generally need to be agreed on a case by case basis, the Government is committed to enhancing the value of the security package by assuming or providing protection against certain risks that would otherwise be borne by the project company.

Subject to specific contractual arrangements the Government will:-

- Provide protection against specific force majeure risks.
- Provide protection against changes in taxes and duties.
- Allow indexation of the price of power to protect the project company from inflation in specific cost items and changes in the rupee exchange rate.
- Ensure the convertability of Rupees and remitability of foreign exchange to cover necessary imports, debt services dividends and, ultimately, capital repatriation.
- Offers, through the State Bank of Pakistan, foreign exchange insurance to allow the project company to determine in advance the Rupee cost of foreign debt service commitments.
- Guarantee the performance of WAPDA under the Power Purchase Agreement, which will include protection for the project company against failure by WAPDA to take the expected amount of power.
- Where fuel will be supplied from a public sector organization, guarantee the performance of the fuel supplier under the Fuel supply Agreement.

Contd.....P/7.

- Arrange, subject to certain limitations, to finance a proportion of project cost over-runs through the Fund.
- Arrange for commercial loans and/or export credits to have priority over loans from the Fund, to be backed by ECO.

#### OTHER INCENTIVES

In addition to the enhancements of the security package described, the Government has established a number of incentives that will benefit private sector power projects. In particular the Government has:

- Declared that private sector power project companies shall be exempt from corporate tax.
- Declared that private sector power generation is an "industry". This means that private sector power projects in notified areas qualify for exemption or partial exemption from custom duties and sale taxes on imports of machinery (unless of a type manufactured locally).
- Made available preferential loans for the purchase of locally manufactured machinery (currently the interest rate payable on such loans is 6% p.a.).
- Attractive return on investment in real term is provided in tariff calculation.
- The plant factor fixed for ensuring return and debt servicing as well as all operation and maintenance cost is fixed at a low figure of 60% to 65%. The possibility of failure have, therefore, been minimized.
- Pakistan's present power position ensures utilization much above the agreed plant factor. Bonus has been provided for such performance and chances of higher return on investment are thus substantially more than otherwise.
- Recently the Government of Pakistan has created a Board of Investment. This Board has resulted in cutting across the bureaucratic delays.

#### DETAILS OF PRIVATE SECTOR POWER GENERATION PROPOSALS

The following projects have been issued with Letters of intent:-

- M/s. Xenel of Saudi Arabia and M/s. Hawker Siddeley of UK for installation of 1292 MW Oil Fired Power Plant on the sea coast near Hab River, Balochistan.
- M/s. Fauji Foundation of Pakistan for installation of 300 MW Oil Fired Power Plant near Port Qasim, Karachi.
- M/s. Army Welfare Trust for installation of 10.5 MW Hydro Electric Plant on the Headworks of the B.S. Link canal in Kasur District, Punjab.

Contd.....P/8.

- M/s. Alteran Inc. of U.S.A. for installation of 6 MW Hydro Electric Plant at the Tail of the B.S. Link canal, Punjab.
- M/s. Inter Redec Group and M/s. Intrag Inc. of U.S.A. for 80 MW Coal Fired Power Plant in the Salt Range of Punjab.
- A Letter of Intent is being issued to the successful bidder (Loeb/Intrag) for a 100 MW Combined Cycle Power Plant based on low BTU Gas available, from Nandpur Gas fields near Multan in the province of Punjab.

#### PROBLEMS - BOTTLENECKS

A number of problems are being faced in finalizing private entrepreneurs proposals for power plants which cause delays resulting in increased costs and frustration amongst the entrepreneurs and the Government entities. The problems are:-

- Proposals are not properly prepared. Inputs are generally wrongly worked out. The parties are slow to respond to the changes in the proposals.
- The costs of equipment, financing, insurance are pitched high which result in protracted negotiations.
- Extreme positions on risk allocations, definition of Force Majeure, mode of operation of the plant, bonus and penalties and other similar matter result in long negotiations and delays process.

The approval of the 1292 MW Hab River Power Project by the Government of Pakistan is a land mark in the history of Pakistan. Being the largest power plant project in the world to be installed in the private sector, it would enhance the confidence of the investors in private sector power generation and would also open the doors for more foreign investors in Pakistan and abroad. The pioneering role played by World Bank, in particular Mr. I. Elwan, and USAID must be acknowledged. The size of Hab River Project with an investment of over \$ 1.1 Billion is surely a tremendous initiative by the sponsors as well as Pakistan. There have been delays in financial closure, which hopefully would be overcome soon. The other private sector power generation project of 100 MW based on Nandpur Gas is a smaller project costing about \$ 120 million and is expected to be commissioned much earlier than Hab River.

A lot of hard work and some prayers are still needed for the accomplishment of our Private Sector Power Generation initiatives.

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PRIVATE POWER EXPERIENCE IN OTHER COUNTRIES  
Hab River Project

Daud Beg  
Additional Secretary  
Ministry of Water & Power

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990



## PREFACE

M/s Xenel of Saudi Arabia expressed their interest in installation of 600 MW power plant in July 1985 and started working on preparation of a preliminary feasibility report for such plant. In 1987, M/s Hawker Siddeley Power Engineering Ltd. (HSPEL) also indicated their interest in installation of a plant of the same size. By that time the progress of work on private power in Pakistan had drawn the attention of the international financial institution and the World Bank was keenly interested in providing help in this field. As a first step the World Bank helped M/s Xenel and HSPEL to join together and work on a proposal of 1200 MW with primary objective of reducing costs of infrastructure. A joint proposal was submitted to the Ministry of Water and Power in August 1987 which remained under discussion with the sponsors on the one hand and a Committee was appointed by the Government of Pakistan under Secretary Water and Power with representatives from Planning, Finance Division, WAPDA, NNFC and PSO etc. on the other. The proposal was approved by the ECC on 5th April 1988 and a Letter of Intent was issued on 27th April, 1988.

### Main Principles of the Letter of Intent.

The Letter of Intent indicated the following main principles:-

- (1) The plant location was indicated to be at Khalifa Point.
- (2) The plant configuration was to be 4 x 300 MW.

- (3) The pollution limits indicated to be according to the World Bank guidelines.
- (4) The plant was supposed to operate at 60% annual plant factor with total energy generation of 6308 GWH.
- (5) The power plant was to be connected with WAPDA Grid with 220 KV switchyard.
- (6) The basic tariff was indicated to be as follows:
 

1-12 years	Rs 0.88 per KWH
13-23 years	Rs 0.70 per KWH
- (7) The penalty and compensation above and below this generation were negotiable.
- (8) The finances of the project was to be done with 75: 25 debt equity ratio without any under writing from Pakistani financial institutions and that Government of Pakistan will have no direct guarantee of the payment of foreign loans. Return on equity will also not to be guaranteed implicitly or explicitly.
- (9) The taxes and duties were to be paid by the Group in accordance with the laws of Pakistan for the chosen location.
- (10) The sponsors were indemnified for any changes in duties and taxes or other actions of the Government.
- (11) A bond of US \$ 1 million was to be provided by the sponsors at the time of acceptance of the Letter of Intent for completion of the feasibility study in the specified time.
- (12) The feasibility study was also to give financial , technical and environmental package.

The feasibility study was received by the Government in three installments in November 1988, January 1989 and May 1989.

### Negotiations

Preliminary negotiations were started in January 1989 in Islamabad and then in Washington where Implementation Agreement and Power Purchase

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Agreement were discussed between the sponsors and Government of Pakistan with World Bank as observer/moderator. The negotiations were intensified in middle of 1989 when discussions were used to be held on daily basis. Main principles of the Implementation Agreement and Power Purchase Agreement were decided upon but the negotiations went into difficulty when tariff came under discussion. The sponsors had prepared a financial model which the Government thought was a departure from the Letter of Intent and was, therefore, not negotiable particularly when they raised the tariff from 88 paisas given in the LOI to 124 paisas in the financial model. The Government of Pakistan sought the help of USAID and the World Bank to intensify the analysis of the model and bring it in line with LOI. Despite help from Price Waterhouse of United States the financial model could not be brought in line with the LOI, therefore, it was decided that the tariff given in the LOI should be considered as a base and any changes in financial cost and physical cost of the project since the issuance of the LOI should be included in the tariff as genuine costs besides the other costs such as insurance cost etc. was also included in the tariff. The tariff was also split into two components i.e. capacity charge and energy charge to facilitate the repayment of loan by the sponsors and also to have the confidence of financial institutions in repayment of their loans irrespective of the operation of the plant.

In the Implementation Agreement and Power Purchase Agreement there were differences on certain issues such as clauses of force majeure, termination and compensation amount and the guarantee to be given by the

Government of Pakistan for the performance of its institutions. In the PPA there were dis-agreements on penalty and bonuses. The Government, therefore, appointed a Ministerial Level Committee to resolve the differences. The Ministerial Level Committee also held a number of meetings first among themselves and then with the Sponsors and most of the issues were resolved by December 20, 1989. however, the differences on the tariff remained. Intensive negotiations were held during the next three days between Government of Pakistan and the sponsors and finally a tariff of Rs 1.036 (on declining basis) was agreed on December 23, 1990 between the sponsors and the GOP for the first 12 years with a reopener that the tariff will be adjusted to actual costs incurred by the Group.

It was also agreed with the World Bank that the GOP would create a fund with PSEDF providing special temporary fund (STF) to the project Company with a fixed amount from a standby facility made available by the World Bank for the following purposes:

- i) Repair of the plant damaged due to political force majeure.
- ii) Payment of debt service if construction period is extended due to political force majeure.

The World Bank has also indicated to create an extended co-financing (ECO) scheme which would under-write GOP's foreign exchange liabilities for the project in case of political force majeure.

## PRINCIPLES OF THE SECURITY PACKAGE

### INTRODUCTION

This document summarize the principles on which the contractual and financial arrangements being proposed for the Hub River Power Project are based. These arrangements comprise a set of arrangements between the Project Company and the Government of Pakistan (GOP), agencies of GOP, contractors and other parties to the Project, which are known collectively as the Security Package. The purpose of the Security Package is to commit the parties to the successful implementation of the Project and to safeguard their lender's interest.

#### 1. THE PROJECT COMPANY

The Project, a 1,292 MW oil fired power station, comprised of 4x323 MW units, located at the mouth of the Hub River in Baluchistan, Pakistan, will be designed, constructed, owned and operated by a limited liability company (the Project Company). The Project Company, formed under the laws of Pakistan by the Hub River Power Group (the Group), currently comprises:

- Xenel Industries Ltd.;
- Hawker Siddeley Power Engineering Ltd.;
- a construction Consortium led by Mitsui and Co. Ltd. (the Consortium); and

British Electricity International Limited (BEI) as  
operators of Power Plants.

During the development and implementation of the Project, share ownership in the project company will be widened, ultimately to include members of the general public in Pakistan.

## 2. FINANCING PLAN

The Project Company will arrange base financing in an amount not less than the estimated construction costs, financing costs during construction and Project Company pre-operating costs, e.g., general and administrative costs, consumable, initial fuel supply, start-up costs and insurance, not provided by the consortium. These costs are estimated as of 21-7-1989 to be \$1072.9 million equivalent, of which 75% will be committed debt and 25% will be committed equity. The Private Sector Energy Development Fund (PSEDF) will provide approximately 40% of the debt, which will be subordinate to the balance of the debt (the Senior Debt) to be provided by export credit facilities and local and foreign commercial loans. It is anticipated that approximately 42% of the equity will be subscribed by offshore investors including members of the Group, who will provide about 30% of the equity.

The Project Company will also arrange standby debt financing of approximately \$150 million which would be additional to the based financing and available to meet contingent costs arising in connection with, for example:

- design changes requested by the Project Company, WAPDA or GOP during the construction period; and
- the cost of default by the Consortium exceeding the value of liquidated damages and bonds payable under the Construction Contract.

### 3. POWER PURCHASE AGREEMENT

#### 3.1 Introduction

The Power Purchase Agreement (PPA) will be between the Project Company and the Water and Power Development Authority of Pakistan (WAPDA), whose performance will be guaranteed by GOP.

The tariff for electricity generated by the Projected Company will comprise of two individual charges which reflect the different types of costs incurred by the Project Company and the load scheduling philosophy agreed upon by the parties. These are, broadly speaking, (1) the Capacity Charge; (2) the Operating Charge.

#### 3.2 Capacity Charge

The Capacity Charge will cover the Project Company's fixed costs of operation and management of the plant, and include a debt service component (including foreign exchange risk insurance premia) and an equity component. The debt service component (including foreign exchange risk insurance premia) and an equity component. The debt service component will be the amount necessary to pay debt service as it comes

due on the debt included in the base financing. The debt service component and, therefore, the Capacity Charge will decrease over time as debt is retired. The staging of the decrease will be determined in the light of the debt retirement profile ultimately agreed with the lenders at financial close. Where the Project Company meets the operating assumptions underlying the tariff (as set out in the FPA), the equity component, measured in terms of a real internal rate of return calculated by reference to the Project Company's equity committed at financial close and the dividend stream paid by the Project Company over 30 years of plant operations will be at least 18%.

### 3.3 Operating Charges

The operating Charges will include all other costs involved in running the plant which are primarily fuel, general and variable operating costs and maintenance costs.

The tariff structure proposed for the Hub River Power Project gives WAPDA flexibility in scheduling the operation of the units within the Plant, so as to meet the needs of the system while providing the Project Company with the potential to generate revenues that adequately cover all costs and provide an acceptable return on equity.



### 3.4 Payment Mechanisms

Payment of the charges will be secured by an irrevocable and automatically renewed letter of credit provided by WAPDA, issued by the bank acceptable to lenders and investors.

### 3.5 Indexation of Charges

Each charge or component of charge will either a fixed amount subject to indexation or an amount directly passed to WAPDA (e.g., in the case of insurance or taxation).

The debt service component of the Capacity Charge will be adjusted if, due interest during construction varying from that included in estimated construction period costs (as a result of floating interest rates varying from those assumed in estimating such costs) or if, as a result of Force Majeure, non-performance of public sector entities, material adverse changes in the operating environment of the Project, or design changes requested by GOP or WAPDA, the capital costs of the Project exceed the requested by GOP or WAPDA, the capital costs of the Project exceed the estimate and, therefore, Project Company debt at completion of construction is more than the debt included in the base financing.

### 3.6 Limitation on Project Company Liability

The Project Company will have no liability to WAPDA, other than the penalty, for damages suffered by WAPDA or third parties as a result of the Project Company's failure to deliver energy in the amounts, at the times, or at the voltage or frequency required by the PPA.

### 3.7 WAPDA's Obligations

WAPDA will be obligated under the PPA to construct and maintain, at its expense, the interconnection facilities between the plant and the national grid.

## 4. CONSTRUCTION CONTRACT

The Project Company will enter into a contract (the Construction Contract) with Mitsui and Company Ltd. (Mitsui) under which Mitsui will commit to complete the design and construction of the Project for a fixed price within an agreed schedule and agreed specifications. Performance of Mitsui's obligations will be further guaranteed by a performance bond in a percentage of the fixed price, a retention of at least 5% of progress payments and a one-year post-completion warranty against defective equipment and workmanship. Warranty obligations may be alternatively covered by the bank guarantee. The turnkey contract will require Mitsui to satisfy PSEOF requirements, for example, concerning international competitive bidding in respect of equipment to

be purchased with loans from the Fund.

The Construction Contract will contain plant output and performance guarantees from Mitsui (e.g., in respect of heat rate). In the event of failure to complete construction by the scheduled date, Mitsui will be obligated to pay liquidated damages in an amount sufficient to cover approximately 8 to 10 months of debt service and other consequential costs. If the construction is completed but the plant fails to meet output or heat rate performance guarantees, Mitsui will be obligated to pay liquidated damages in an amount sufficient, on a present value basis, to cover projected lost revenues/increased costs incurred by the Project Company. Mitsui will bear any cost overrun and will not be entitled to any adjustment to its fixed price or scheduled completion date except for Force Majeure, non-performance of public sector entities, material adverse changes in the operating environment of the Project or design changes requested by the Project Company, GOP or WAPDA.

5. OPERATIONS AND MAINTENANCE AGREEMENT

BEI will establish the Operations and Maintenance Contractor (the operator) which will enter into an Operations and Maintenance Agreement (OMA) with the Project Company.

BEI will guarantee the Operator's contractual obligations. The Operator will be obligated to operate, maintain and repair the plant at its expense, and to administer the PPA

Contd.....P/13.

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and the Fuel Supply Agreement on behalf of the Project Company. The base compensation paid to the Operator will be the amounts applicable to operations and maintenance costs included in the tariff under the PPA, indexed and adjusted in the same manner as such amounts are indexed and adjusted under the PPA. In addition, the OMA will provide for a bonus/penalty mechanism under which the Operator will share in the bonus/penalty applied to the Capacity Charge and the Energy Charge.

#### 6. FUEL SUPPLY AGREEMENT

The Project Company will enter into a Fuel Supply Agreement (FSA) with Pakistan State Oil Co. Ltd. (PSO) under which PSO will supply fuel oil of an agreed specification to the Project Company's requirements, through a pipeline to be constructed and operated by PSO at its sole expense. Title to the fuel will pass to the Project Company at its end of PSO's pipeline. PSO will be liable for any damages caused to the Project Company by PSO's failure to deliver the required quantity or specification of fuel oil. The timing of payments under the FSA will track the timing of payments by WAPDA under the PPA.

#### 7. SECURITY ARRANGEMENTS

All revenues under the PPA will be paid to an escrow agent under an Escrow Agreement to which the Project Company, its lenders, WAPDA and the escrow agent will be parties. The escrow agent will be a bank or institution acceptable to the other parties to the Escrow Agreement.

Under the escrow agreement a Debt Reserve Escrow Account will be established from revenues under the PPA, to be built up to, and thereafter maintained at a level equal to all project Company debt service payments falling due in the following six months. A standby loan facility will be available from PSEDF to meet any shortfall in the Debt Reserve Escrow Account.

The Project Company will assign to its lenders as security all its rights under agreements to which it is a party and a first security interest in all its assets.

8. DISPUTES

Disputes procedures will be included in all agreements comprising the Security Package. Procedures for resolving disputes arising in connection with the administration of the IA, PPA or FSA will permit continued operation of the plant without adverse financial impact upon the Project Company, pending award by arbitration.

Specifically in connection with an event of Force Majeure, non-performance of public sector entities or material adverse changes in the operating environment of the Project, the PPA disputes procedure will operate as follows: The Capacity Charge will continue to be paid by WAPDA and the shareholders' return portion of the Capacity Charge payments in dispute will be placed in a Disputes Escrow Account (in which it will earn interest, including a premium payable by GOP) pending

resolution of the dispute, at which time will be either released to the Project Company if award is in its favour, or returned to WAPDA/GOP if award is not.

If the dispute concerns a prolonged and serious event of default by the Project Company which has led to GOP intervening, in consultation with lenders, payments advanced in respect of disputed amounts will become the responsibility of GOP under the IA and be deemed grants if the dispute is awarded in favour of the Project Company, or subordinated loans repayable from future Project Company Profits, if award is not.

#### 9. GOVERNMENT OF PAKISTAN UNDERTAKINGS

GOP and the Project Company will enter into an Implementation Agreement (IA) under which GOP will grant the Project Company an exclusive license to design, construct, own and operate the plant; will commit to provide assistance to the Project Company in acquiring the plant site; and will guarantee:

- (i) performance of the obligation of WAPDA, PSO and other public sector entities to the Project Company;
- (ii) foreign exchange convertibility and availability;
- (iii) free remittance abroad of interest, dividends and repayment of capital;
- (iv) non-interference with the Project Company and the Project assets and non-expropriation of Project assets (for the benefit of both the Project Company and its shareholders);
- (v) indemnification of the Project against the adverse

financial impact of non-performance of public sector entities and material adverse changes in the operating environment of the Project (e.g. changes in law, taxes or duties);

- (vi) to provide contingent funding to meet cash shortfalls arising from uninsured events of Force Majeure (see 11 below); and
- (vii) to provide subordinated loans in the events that GOP intervenes with lenders, following a prolonged failure by the Project Company to attain an agreed minimum AECF for reasons within its control (see 12 below).

Under the existing ordinances, the Project will enjoy exemption from corporate income tax liability. To the extent there is any modification of these ordinances, GOP will maintain this exemption for the Project.

#### 10. TRANSFER OF THE PROJECT

The IA will contain provisions for transfer of the Project to GOP upon:

- (i) termination of the IA by GOP for Project Company default;
- (ii) termination of the IA by either party if Force Majeure renders impossible or impracticable the Project Company's construction or operation of the Project for an agreed period of time;
- (iii) termination by the Project Company if non-performance of public sector entities or material adverse changes in the operating environment of the Project renders impossible or impracticable the Project Company's construction or operation of the Project for an agreed period of time;
- (iv) termination by GOP if GOP determines to convert the plant to coal-firing; or

(v) on the expiration of the 30 year term of the PPA.

In the event of a transfer for any of the reasons set forth in clauses (i) through (iv), GOP shall be obligated to assume or discharge all Project Company debt. In the event of a transfer for any of the reasons set forth in clauses (ii) through (iv), suitable compensation shall be paid to the Project Company by GOP. In clause (v), GOP shall pay the Project Company Rupee 1.

11. CONTINGENT FUNDING FROM GOP

GOP will extend funding sufficient to remedy events beyond the reasonable control of the Project Company (Force Majeure) and to meet the ongoing costs of the Project Company arising during such events.

In respect of insured events (physical Force Majeure), insurance payments received by the Project Company, including business interruption insurance, will reimburse GOP. The balance of contingent funding provided by tariff which GOP may determine to levy.

12. SUBORDINATED LOANS FROM GOP

Subordinated loans may be advanced to the Project Company by GOP to meet Capacity Charge payments falling due after prolonged failure by the Project Company to attain an agreed minimum AECF, due to circumstance within its control, has led to GOP intervening in consultation with lenders under the IA.



These loans will bear interest and be repaid by proceeds from the Debt Reserve Escrow Account and future Project Company profits. If the amount of loan outstanding to GOP exceeds the equity in the Project Company, GOP will have the option to take over the Project.

So long as any subordinated loans are outstanding, (i) prepayment of GOP may be effected through reductions in the shareholders, return on equity component of the Capacity Charge, and (ii) the Project Company will be prohibited from paying any dividends not previously declared.

A CASE STUDY

HAB RIVER POWER PROJECT

SALENT FEATURES OF THE APPROVED HAB RIVER POWER PROJECT  
(LARGEST PRIVATE THERMAL POWER PLANT OF THE WORLD)

1. LOCATION : HAB RIVER DELTA IN LASBELA
2. SIZE : 3\*323 = 1292 MW
3. ESTIMATED COST : \$ 1072.9 MILLION  
\$1 = 21.23 RS.  
RS. 22,777.667 MILLION
4. PROPOSAL SUBMITTED ON : AUGUST, 1987
5. LOI ISSUED ON : 27-4-1988
6. FEASIBILITY SUBMITTED ON : 19-11-1988
7. BOI APPROVAL ACCORDED ON : 27-12-1989
8. SCHEDULED DATES OF COMMISSIONING :  
UNIT 1 : APRIL 1993  
UNIT 2 : JULY 1993  
UNIT 3 : OCTOBER 1993  
UNIT 4 : DECEMBER 1993
9. ANNUAL GENERATION : 6791 MILLION KWH AT 60%  
PLANT FACTOR  
(25% OF WAPDA 'S OVERALL  
PRESENT GENERATING  
CAPACITY)
10. TARIFF 2 TO 12 YEARS : AT 60% AT 70%  
IN PAISAS PER KWH (PLANT FACTOR) (PLANT FACTOR)  
103.6 97.6

PRIVATISATION EXPERIENCE IN THE UNITED KINGDOM  
THE ELECTRICITY SUPPLY INDUSTRY

Simon Allen  
Partner, Privatisation Services  
Price Waterhouse, London

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingscon, Jamaica  
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# PRIVATISATION EXPERIENCE IN THE UK

## THE ELECTRICITY SUPPLY INDUSTRY

by

Simon Allen  
Partner, Privatisation Services  
Price Waterhouse, London

### INTRODUCTION

When the UK Government first announced its intention to privatise the UK electricity industry in May 1987 it was conscious of criticism levelled at its approach to two industries which has been privatised earlier namely, British Telecom in 1984 and British Gas in 1986.

These criticisms gravitated around two themes:

- lack of competition
- failure to protect adequately consumer interests.

This paper examines the Government's objectives in privatising electricity, provides an explanation of the industry structure - old and new, and discusses some the main issues that have been addressed and reviews the current status and outlook. Also, there is a brief review of the Malaysian electricity industry, which has a number of similarities to the Jamaican electricity industry and which is planned to be privatised in 1991.

### THE UK ELECTRICITY INDUSTRY

In brief, the electricity industry in England and Wales has 78 commissioned power stations, 390,000 miles of transmission and distribution lines and 76,000 employees. It supplies about 250 TWh of electricity a year to 22 million customers and the industry's total turnover is in excess of £12 billion. In the future it has large capital expenditure requirements to meet. This is attributable partly to growth and partly to the retirement of existing generating capacity.

### THE UK PRIVATISATION PROGRAMME

The UK privatisation programme has been a process that has evolved over the past decade, gradually developing momentum as the Thatcher Government recognised the benefits. Since 1980 around £35 billion has been raised and over 20 top stock market companies have been created. At the same share ownership has increased from 5% to around 20%.

The Government's privatisation goals can be identified as:- raising revenue, increased efficiency, reduced Government interference, wider share ownership, the opportunity to introduce or enhance competition and exposure to the disciplines and opportunities of private sector markets for capital and other resources. These goals are not mutually exclusive and their priority has varied as the privatisation programme has developed. Raising revenue was a priority in the early days, whereas British Telecom in 1984 was targeted principally on wider share ownership.

#### UK ELECTRICITY PRIVATISATION

The UK electricity privatisation process commenced in 1987. The timetable is indicated below:

May 1987	-	Announcement to privatise electricity
February 1988	-	Government White Paper setting out restructuring proposals
July 1989	-	Electricity Act received Royal Assent
March 1990	-	Industry restructured - "corporatisation"
Late 1990	-	Flotation of the 12 distribution companies
Early 1991	-	Privatisation of the 2 generating companies
Late 1991	-	Privatisation of the two Scottish electricity companies.

#### Objectives

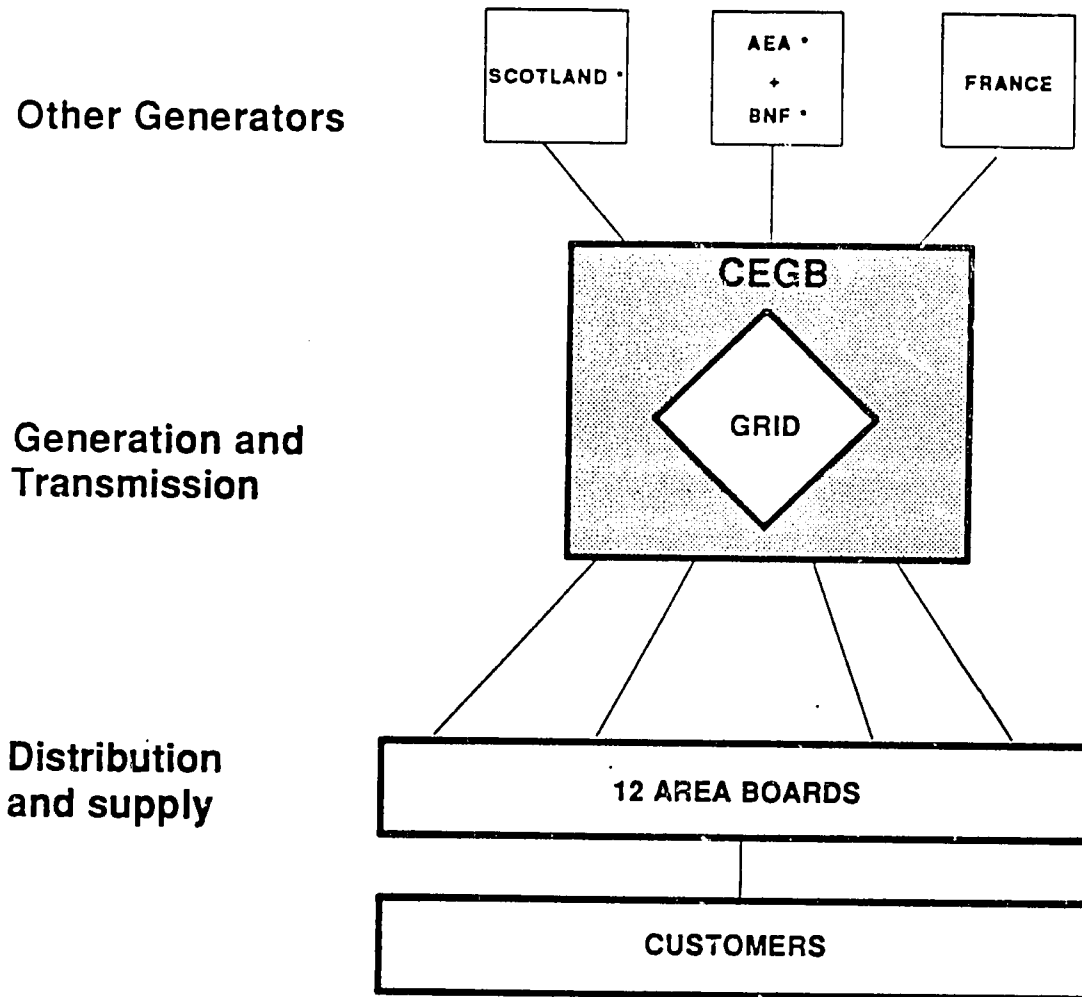
In its White Paper of February 1988, Government announced that it was "determined to make electricity a better industry, by introducing competition and new customer rights".

The following principles were to be applied in privatising electricity:

- Decisions about the supply of electricity should be driven by the needs of customers.
- Competition is the best guarantee of the customers' interests.
- Regulation should be designed to promote competition, oversee prices and protect the customers' interests in areas where natural monopoly will remain.
- Security and safety of supply must be maintained.
- Customers should be given new rights, not just safeguards.
- All who work in the industry should be offered a direct stake in their future, new career opportunities and the freedom to manage their commercial affairs without interference from Government.

# STRUCTURE OF ELECTRICITY INDUSTRY IN ENGLAND AND WALES

UPTO 31 MARCH 1990



- PG** - Private Generation
- AEA** - Atomic Energy Authority
- BNF** - British Nuclear Fuels
- Public sector companies/bodies

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One of the Government's main objectives was the development of competition. The scope for competition was established by analysing the industry's main functions of generation, transmission, distribution and supply.

Transmission and distribution are both natural monopolies, in the sense there is no economic case for replicating the existing networks. On the other hand, generation and supply offer scope for competition. The challenge lay, therefore, in designing commercial arrangements which would permit competition in generation and supply.

At the same time a regulatory structure would need to be put in place to ensure that monopoly power in transmission and distribution was not abused.

### THE FORMER STRUCTURE

From 1947 until 1990, the Electricity Industry in England and Wales operated as follows:

- The Central Electricity Generating Board ("CEGB") was responsible for the generation of electricity in bulk and the transportation of this power through a nationwide transmission system, called the "National Grid".
- The 12 Area Electricity Boards received power from the Grid and delivered it to customers through their own distribution networks.

A diagrammatic representation of the nationalised structure is shown in Diagram 1.

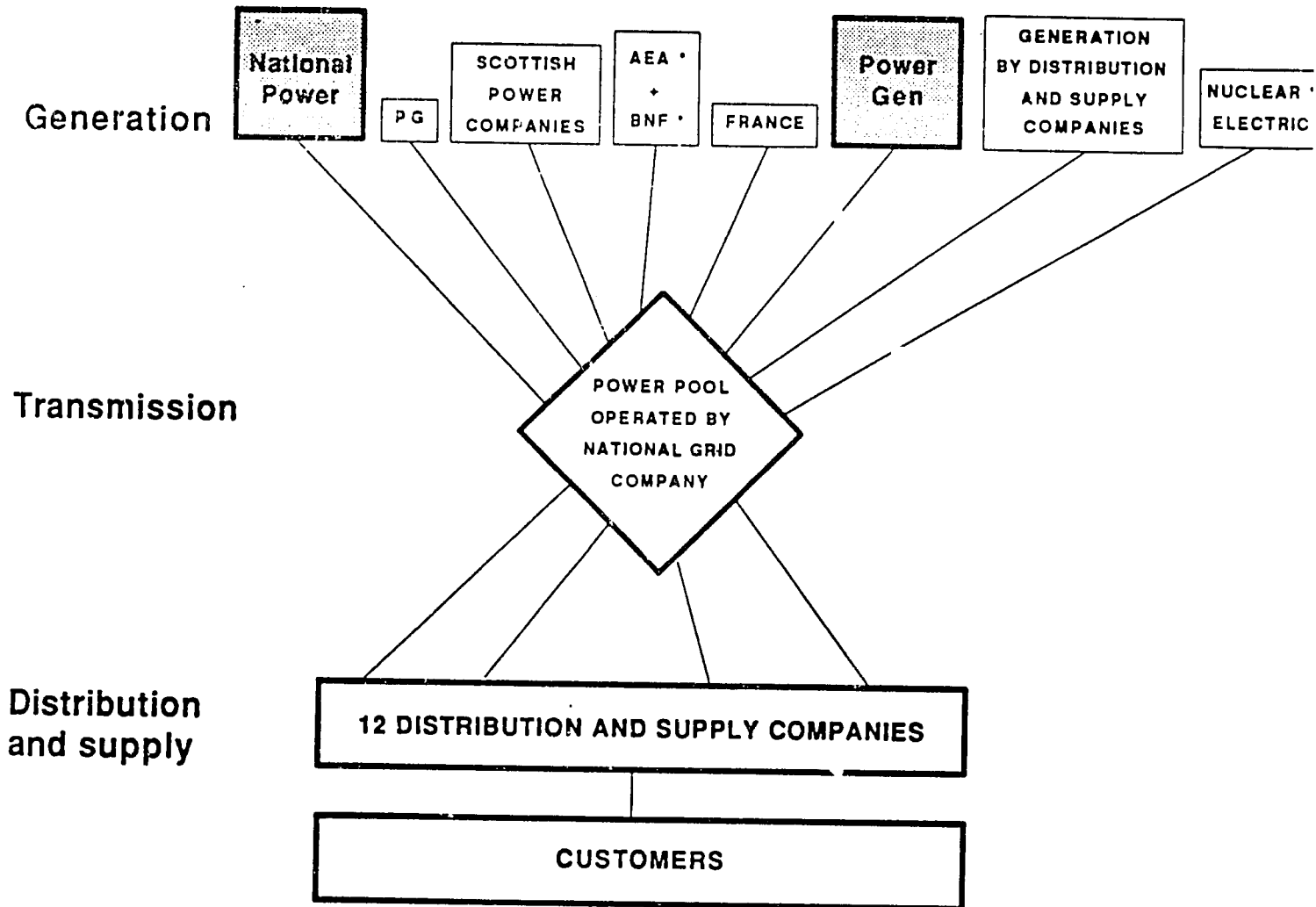
### THE NEW STRUCTURE

The industry was reorganised on 31 March 1990 when the major provisions of the Electricity Act 1989 came into force. The main features of the new structure are:

- The 12 Area Boards have been succeeded by regional electricity companies often called "distribution companies". They are responsible for the operation of their local distribution networks.
- The national grid, the links to the French and Scottish networks and two pumped storage power stations are now owned by the National Grid Company ("NGC"). It operates the transmission system and co-ordinates the operation of all the major power stations in England and Wales.
- The CEGB's generating operations have been split into three parts, owned by three new companies, National Power, Power Gen and Nuclear Electric.

# STRUCTURE OF ELECTRICITY INDUSTRY IN ENGLAND AND WALES

31 MARCH 1990 ONWARDS



**National Power, Power Gen and Nuclear Electric - Successor Companies to CEBG**

- PG** - Private Generation
- AEA** - Atomic Energy Authority
- BNF** - British Nuclear Fuels
- Public sector companies/bodies



A diagrammatic representation of the privatised structure is shown in Diagram 2.

#### The Distribution Companies

The distribution companies are the successor companies to the 12 Area Boards. Since 31 March 1990, their major activity (the distribution and supply of electricity to customers in their authorised areas) has been run as two separate businesses. This was previously a single operation.

The distribution business now operates and maintains the distribution networks and employs about 85-90% of the resources of the old combined operation. The supply business purchases power in bulk from generators for sale to consumers.

#### The Restructuring of CEGB

The generating capacity of the CEGB was split originally in a ratio of 70:30 between two companies, National Power and Power Gen.

Power Gen's generating capacity is entirely non-nuclear. National Power was to own the nuclear stations. The 70:30 split was rationalised on the grounds that a company that had predominantly nuclear generating capacity would not attract investor interest. National Power was given a larger proportion of the CEGB's generating capacity to counter-balance the nuclear component. The nuclear issue is discussed further below.

#### Other Generators

The new structure will introduce competition and provide a framework in which it will develop. It will give the distribution companies:

- The incentive to promote competition in generation.
- The ability to connect competing generators to the system.
- A wide choice of generators.

So long as electricity generation remained a monopoly, there was no way of telling whether costs were as low as they could have been and no effective external pressure to reduce them. In the new structure, the distribution companies will contract for power station capacity on the basis of competitive tenders. They also have stronger incentives to pursue economic schemes for local generation and for managing peak demand, so as to reduce requirements for bulk generating capacity. So generators face real pressures to build plant efficiently.

Since NGC calls up those power stations which offer the cheapest energy, generators also have incentives to fuel and run their stations efficiently. They also face real contractual incentives to ensure that their power stations are available. In these ways, competition creates downward pressure on generating costs, which account for some 75% of total operating costs.

## The National Grid

Electricity has two special characteristics. First, it cannot be stored. Second, the output of power stations and the demand on the system have to be matched at all times, otherwise, the quality of supply will deteriorate and, in extreme cases, the system will fail.

In light of these characteristics the Government decided that NGC was to retain the central role in scheduling and directing the use of power stations so that:

- Power is transmitted reliably to the distribution companies.
- Demand at any moment is met from those power stations which offer the cheapest energy.

So the advantages of a national integrated system, with a merit order of operation, were to be maintained. The changes were to be in:

- Ownership

NGC is now collectively owned, through a holding company, by the 12 distribution companies. However, the shareholders do not control NGC's capital expenditure plans. Conversely, NGC cannot call on its owners for funds. It will, however, be paying dividends to its shareholders.

- The creation of a new electricity market.

With the restructuring of the industry a market for electricity has been created. The heart of the electricity market is the pool which is operated by NGC. In simple terms, generators sell electricity in bulk through a wholesale market known as "the pool" to "suppliers" which, in turn, sell electricity to consumers. The prices at which electricity is traded through the pool vary considerably by the half-hour, day and season. This implies constantly changing revenues and costs to the generators and distribution companies.

In order to stabilise the prices paid in the wholesale market, the companies have arranged contracts with each other to hedge against the pool price, as commonly occurs in other commodity markets. The suppliers also pay NGC and the local distribution companies for the use of the networks.

- Operation of a level playing field

NGC is responsible for co-ordinating all power stations with more than 100MW capacity. Instead of a cost merit order it will operate an offer price merit order.

## MAIN ISSUES

Few countries have ever attempted an industrial reorganisation on the scale of the UK electricity privatisation. The restructuring of a similar magnitude of telecommunications in the US following the break-up of Bell System is one of the few examples that could rival it. The sale of tranches in Nippon Telegraph and Telephone is probably the only privatisation which dwarfs it in value.

In an operation of this scale difficult and complex issues arise. Some of the most significant have been:

- the potential for developing a competitive framework in generation
- regulation of the industry
- coal
- nuclear power

### The Development of Competition in Generation

The 1983 Energy Act allowed for competition in generation. However, an industry structure in which the CEBG controlled both transmission and generation was obviously not attractive to potential new entrants.

With the new structure in place there is clear evidence of competitive behaviour. There has been a burst of activity by generators and distribution companies to sign up contracts with large industrial users. In addition independent generators have emerged.

Under the former structure the CEBG had a statutory duty to supply the Area Boards and the Boards in practice had to meet the CEBG's costs. There was little point, therefore, in encouraging other sources of supply. Under the new structure every generator will have to compete to meet the distributors' requirements.

### Regulation

Even after privatisation, the distribution and a large part of the supply activities of the distribution companies and NGC will not be open to competition. Distribution and transmission will remain as natural monopolies and the distribution companies will have, for a transitional period, a franchise on sales to all customers taking 1MW and less. An effective regulatory regime has been established, therefore, to promote competition and to safeguard the interests of customers.

The regulatory system is designed to provide each company in the industry with incentives to operate more efficiently and to ensure that the benefits are shared with customers. Regulation is based on a system of price control, which helps to provide the right incentives to the industry's management, and avoid unnecessary bureaucracy.

The issues are complex. They include the nature of the prices to be controlled, the treatment of generating costs in any price control formula, the scope for excluding some parts of the market from price control, and the regulatory implications of the obligations placed on the distribution companies. The terms for open access to the distribution and transmission systems are also regulated.

Responsibility for supervising regulation rests with the Director General of Electricity Supply (the "Director"). He enforces the provisions of licences issued to the industry. The terms of these licences regulate the prices which can be charged for electricity and specify certain terms and conditions of supply. In addition, the Director has statutory duties to safeguard the interests of customers, primarily through the monitoring of performance standards, and to promote competition in the industry. The costs of the Director's office are met through fees charged to the various licensees.

### Coal

Distinct limits have been placed on competition in electricity generation in the initial years of privatisation. The most obvious constraints are the coal contracts which National Power and Power Gen have signed with British Coal.

The agreement lasts for three years. It obliges the generators to buy the bulk of their supplies from British Coal limiting their ability to cut costs during their first three years in the private sector.

Some quantities of coal could be purchased more cheaply from abroad. The Government defends this situation on the grounds that these contracts, together with other restrictions imposed on the generators, are transitional arrangements needed to smooth the introduction of the privatised competitive market.

### Nuclear

Towards mid 1989 the momentum towards the corporatisation and privatisation of the electricity industry was grinding to a halt. It became increasingly obvious that the industry would be un-saleable as long as the nuclear power stations were included in the privatisation package. The true costs of nuclear power - particularly the costs of dealing with nuclear waste and decommissioning were believed to represent an unacceptable risks to investors. Accordingly in November 1989, the Government announced that all nuclear stations would remain in the public sector. As a result of this decision, National Power's share of the CEGB's assets reduced from 70% to 47%.

## CURRENT STATUS AND OUTLOOK

The huge task of restructuring the electricity industry, the building of systems for a new market place in which power can be traded and the creation of a regulatory framework is all now in place. There is, however, still much to do. Prospectuses are being drafted, profit forecasts are being put together and the task of marketing the industry to domestic and international investors has begun. Finally there will be the delicate task of pricing and underwriting the various rounds of the flotation.

It is not yet possible to estimate accurately the likely proceeds from the flotations, mainly because no decision has yet been taken by Government on the percentage of the equity to be sold. Unofficial estimates, however, are in the region of £10-12 billion.

Another recent development surrounds the planned flotation of Power Gen. It could now be cancelled in favour of a trade sale. A number of interested parties are currently considering whether to submit an offer for the company which, if in excess of the estimated flotation proceeds, could cause the Government to revise its flotation plans.

We now have a unique electricity industry in the UK and I am sure that the "electricity" world will watch with interest how the new structure works in practice and whether the new companies will prove to be a sound investment.

## References

1. **Privatising Electricity, Government's proposals for the privatisation of the electricity supply industry in England and Wales, HMSO, February 1988.**
2. **Privatisation: The Facts, Price Waterhouse, July 1989.**
3. **Privatisation: Learning the Lessons from the UK experience, Price Waterhouse, July 1989.**

# PRIVATISATION IN MALAYSIA

## RATIONALE AND STATUS

### INTRODUCTION

During the 1970s there was a proliferation of public enterprises in Malaysia. By the early 1980s it was recognised that public sector management was not working and there was a fundamental policy shift towards a more market-orientated approach.

A number of industries have already been privatised. These include the Malaysian Airlines System and the Malaysian International Shipping Corporation. The Telecommunications industry is scheduled to be floated later this year and a flotation of the electricity company is scheduled for early in 1991.

### RATIONALE

In privatising electricity the Government has identified the following priorities:

- increased efficiency;
- technology transfer;
- identification of a potential foreign equity partner; and
- mobilisation of funds to meet the large capital expenditure programme.

### Structure of the Industry

The electricity industry in Peninsular Malaysia is a fully integrated utility and will be privatised as such, without a restructuring. It had sales of approximately 15,200 GWh and turnover of approximately £650 million in 1989. The industry has 23,000 staff. Electricity is generated from a mixture of fossil fuels and hydro.

The significant factors facing the industry are:

- demand has increased by approximately 9% pa over the last few years and is forecast to continue at around this rate for the foreseeable future;
- significant investment (over US\$9 billion) will be required over the next ten years to meet this demand; annual capital expenditure requirements are likely to be more than double those of the past few years;

two thirds of the company's foreign borrowings are denominated in Yen. The Malaysian ringgit tends to move in line with the US dollar and heavy exchange losses have been incurred in recent years and could well continue. The company is taking measures to minimise foreign exchange exposure but about 70% of the planned capital programme will need to be financed by overseas borrowings;

- electricity prices have fallen by 30% in real terms over the last five years;
- there is scope for achieving greater efficiency, for example, in fuel utilisation through improved despatch efficiency, plant mix and availability;
- earlier privatisations set a precedent in offering employees job security in the initial post privatisation period.

#### Timetable

By comparison with large scale privatisations in the UK the work to date in preparing the electricity company for flotation has been carried out in a short timeframe. However, unlike the UK electricity industry, the Malaysian industry was not restructured prior to flotation.

November 1989	Decision to proceed
July 1990	Legislation received Royal Assent
September 1990	Corporatisation
Spring 1991	Possible flotation

#### STATUS

##### Regulation

The industry is an integrated monopoly which will soon be subject to the pressures from shareholders to make profits. In order to prevent abuse by the company of its monopoly position a regulatory framework is currently being put in place. A regulator is to be appointed and a licence authorising the company to operate will be issued to the company. The licence specifies a number of conditions relating to price control and quality of service and the protection of consumer interests.

##### Foreign Participation

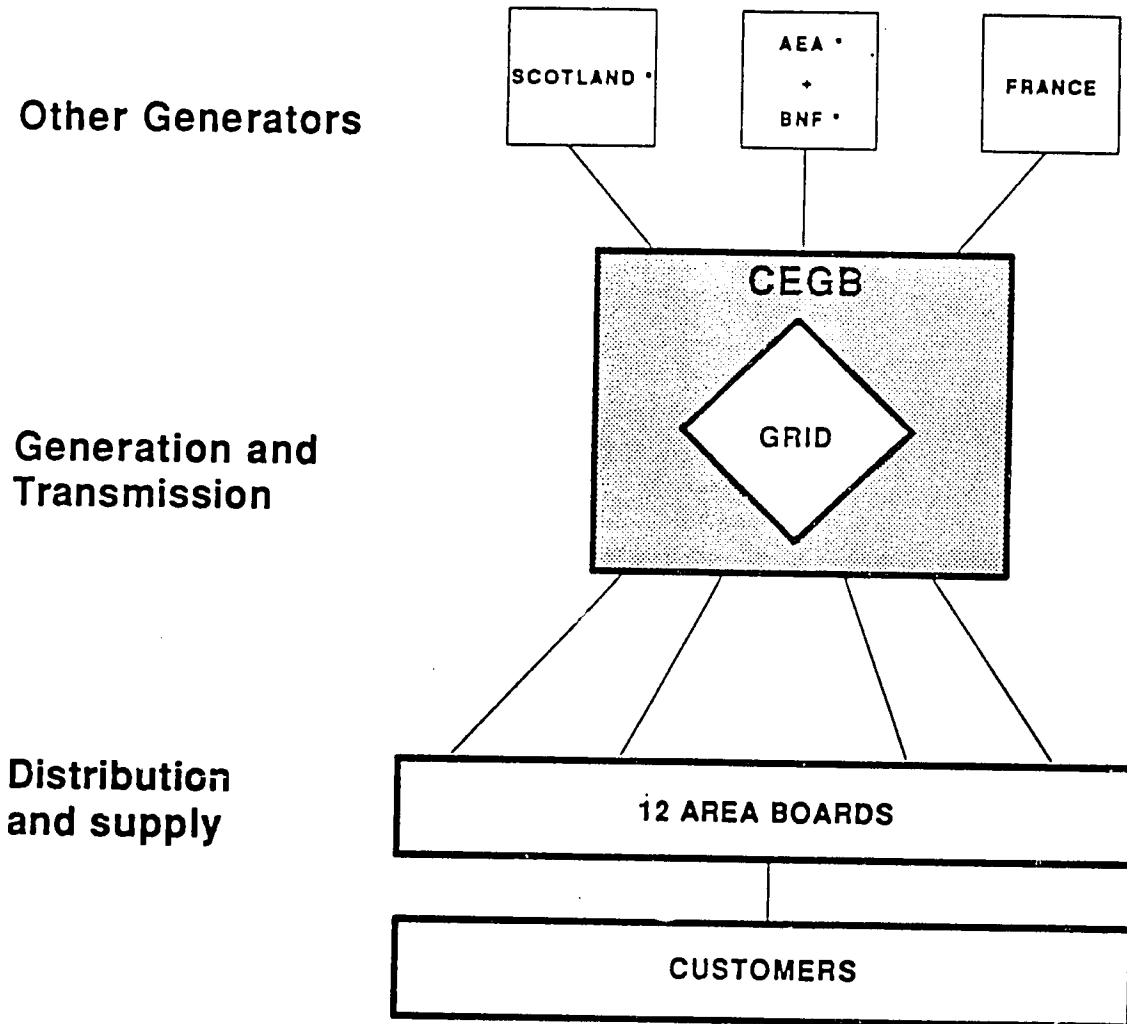
The Government has been keen to attract foreign participation, preferably from an electricity utility. Such an arrangement would help achieve a number of objectives.

- The company will gain both management expertise and technical know-how.
- The foreign utility might become interested in taking an equity participation.
- The foreign partner may be able to tap additional sources of financing.
- The presence of a foreign technical and management team may attract potential equity investors and additional concessional financing.

As yet, no arrangements have been finalised and these and other flotation details are currently being reviewed.

# STRUCTURE OF ELECTRICITY INDUSTRY IN ENGLAND AND WALES

UPTO 31 MARCH 1990

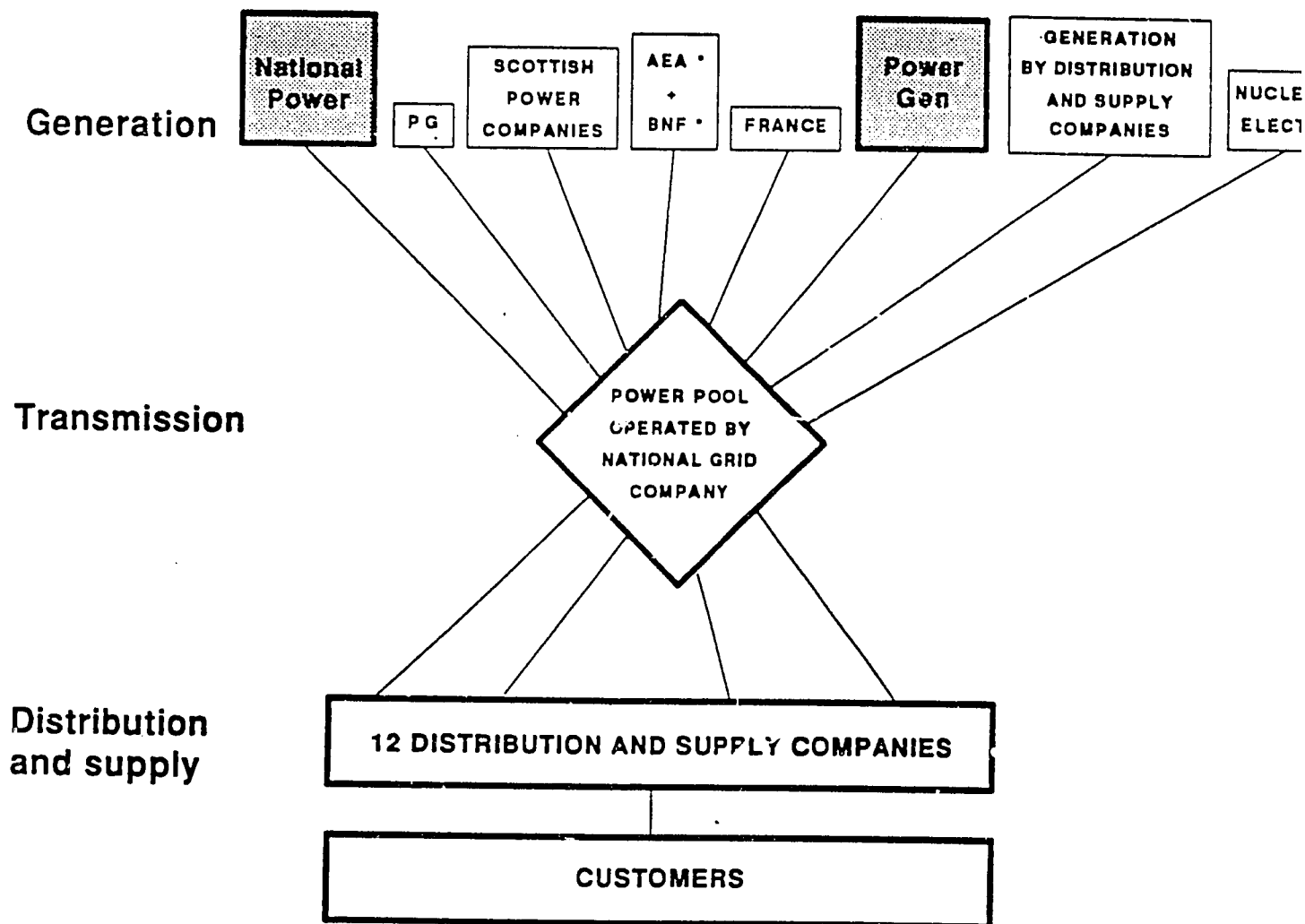


- PG** - Private Generation
- AEA** - Atomic Energy Authority
- BNF** - British Nuclear Fuels
- \*** - Public sector companies/bodies



# STRUCTURE OF ELECTRICITY INDUSTRY IN ENGLAND AND WALES

31 MARCH 1990 ONWARDS



**National Power, Power Gen and Nuclear Electric - Successor Companies to CEBG**

- PG** - Private Generation
- AEA** - Atomic Energy Authority
- BNF** - British Nuclear Fuels
- Public sector companies/bodies

PRIVATE POWER EXPERIENCES IN THE PHILIPPINES  
THROUGH THE BOT/BOO CONCEPTS

Jose T. Ramas

Vice President, Systems Operation

National Power Corporation

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR OF JAMAICA

Kingston Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990



PRIVATE POWER GENERATION THROUGH  
The BOT/BOO Concepts - Philippine Experience

SUMMARY

Executive Order No. 215 of 1987 repealed provisions of Presidential Decree No. 4 giving exclusivity to National Power Corporation to own and operate all power generation facilities in the country. Thus, it authorizes and encourages the private sector to participate/engage in the development and operation of power generation facilities, preferably co-generation facilities and the use of indigenous resources to generate power; although the sale of energy shall either be to NAPOCOR or to the nearest private utilities and electric cooperatives. The Government, as a policy, however, will not guarantee any foreign and local loans to finance the private power projects.

As a consequence, NAPOCOR signed the 1st BOT Contract with Hopewell Holdings Limited of Hongkong, for the installation of a 3 X 70 MW Gas Turbine Power Plant. Distinguishing features of this contract are:

- a) The site was selected and leased by NAPOCOR, given free use to Hopewell.
- b) NAPOCOR will supply the diesel fuel to Hopewell through the 12-year cooperation period. Both these features eliminates uncertainty and/or risks by the BOT operator that greatly affects the energy rates.

In our BOT solicitation for the San Juan 300-700 MW Coal-Fired Power Plant received last March 1990, we made our selection of the winning Proponent and now in serious discussion for the issuance of the Letter of Intent, after which we will start negotiation of the Power Purchase Agreement for completion by November 1990 and finalized by February 1991.

In addition, we are presently considering the BOT proposals of five (5) serious proponents: one (1) for a 200 MW Coal-Fired Power Plant, two (2) for 300-350 Combined Cycle Gas Turbine Power Plants, and two (2) for Geothermal Power Plants.

Private Power Generation Through  
The BOT/BOO Concepts - Philippine Experience

1.0 Background

- 1.1 As early as 1986 when the new Democratic Government of President Cory Aquino took over the reigns of government, the idea of attracting back the private sector to participate in the development of power generation was launched so that by latter part of 1987, Executive Order No. 215 was issued prior to the adoption of the New Constitution and thus legally considered part of the laws of the land.
- 1.2 Executive Order No. 215 in essence repealed certain provisions of Presidential Decree No. 40 which mandated that all power generation facilities and establishment of electrical power grids in the country shall be the sole responsibility of the State to be owned and controlled by the National Power Corporation. Thus, E.O. 215 authorizes and encourages the private sector to participate/engage in the development and operation of power generation facilities, preferably co-generation facilities and the use of indigenous resources to generate power; although the sale of generated energy shall either be to NAPOCOR or to the nearest private utilities and electric cooperatives. However, as Government Policy, there shall be no Government guarantees on the foreign and local loans financing the private power projects.
- 1.3 Some critiques contend that the issuance of E.O. 215 was obviously more towards alleviating the present situation in terms of the following aspects:
  - 1.3.1 The country's foreign debt would require restructuring and in the meantime new loans that can be negotiated should be channeled to agro-industrial priority projects and these may not be able to accommodate the rather large investment requirements for power projects.
  - 1.3.2 The present financial condition of NAPOCOR is such that it has been considered unofficially in default by the World Bank and ADB on certain Bank conditionalities, like the 8% rate of return, Cash-Flow Problems, poor disbursement performance on loan funds and delayed projects - to name a few. Hence,

these banks will surely not entertain new project loans, not until a proper house-keeping is done by NAPOCOR.

1.3.3 The country's private sector has always cried "foul" to P.D. 40 and contend that private enterprises can better manage the electric power supply industry, for indeed private enterprise is not constrained by short-sighted and straight-jacket government and Commission on Audit rules and regulations that generally are just applicable to ordinary government operation, aside from the fact that there are other advantages like:

- a) Selection of properly designed machinery and equipment.
- b) Proper support on logistics and spare parts.
- c) Selection of better qualified personnel at appropriate salaries - gives better service.
- d) Improved productivity, higher efficiency and availability can be attained.

1.4 Despite the issuance of E.O. 215 and the subsequent Implementing Guidelines, there really was no serious local proponents that sent proposals to NAPOCOR to develop a power generating facility. Main reasons were that a) Electric power generation projects require very substantial investments and it was then and up to this day rather hard to line-up the financing. Furthermore, the rate-of-return are very much lower than the other business opportunities, b) The existing electricity tariffs are regulated by the NAPOCOR Board, the Energy Regulatory Board for Private Utilities and by the National Electrification Administration Board (NEA Board) for the Electric Cooperatives. There was no clear indication which of these Government Agencies will regulate the electricity tariff for the sale of electric energy by the Private Power Generators. Obviously, there should be an independent and impartial Government Body that should regulate the rates to make it more attractive as well as protect the private sector proponents.

## 2.0 E.O. 215 vis-a-vis The U.S. Public Utility Regulatory Policies Act of 1978 (PURPA)

2.1 In essence, part of the concepts injected in the promulgation of E.O. 215 were patterned after the U.S. PURPA. However, the U.S. PURPA as implemented

later, particularly in California, became more in favor of the Independent Private Power Developers. It somehow forced the Utility Companies to accept the electric energy generated by these small independent private power developers and co-generation facilities, at electricity rates considered fair and reasonable by the State Public Utilities Commissions, based on the "avoided cost" concept and what is fair to the ultimate consumers.

- 2.2 In the absence of an independent Government Agency that will determine the fair and reasonable electricity rates for the sale of power and energy between NAPOCOR and the private power generators, NAPOCOR adopted the public solicitation, similar to the International Competitive Bidding procedures by the World Bank and ADB, whereby NAPOCOR publicly indicated NAPOCOR's reference "avoided cost" in the Specifications that were issued to only the pre-qualified proponents. A rigid pre-qualification procedure was adopted to ensure that proponents were not merely equipment suppliers per se or just constructors, but the combination of financiers, architect-engineers and plant operators, who will successfully finance, build and operate the power plant at the least cost at reasonable power rates and largely in partnership with NAPOCOR in a long term service to the electricity supply industry.

### **3.0 The Hopewell BOT Contract with NAPOCOR**

- 3.1 This 1st BOT Contract was a result of a proposal made by Hopewell Holdings Limited of Hongkong, in response to NAPOCOR's public announcement in mid 1985, inviting private power generator proponents to submit their proposals to build-operate and transfer generating power plants in the Philippines.
- 3.2 This public invitation was made in anticipation of the approval of E.O. No. 215, which would somehow be the legal basis for NAPOCOR to entertain or allow the private sector to participate in the development of power generating facilities.
- 3.3 This Hopewell BOT Contract with NAPOCOR is for a 200 MW Gas Turbine Plant to be established at the Navotas site, property of the Philippine Fish Port Authority near Manila and leased to NAPOCOR for 20 years. Essential provisions of the contract are as follows:
  - a) 12-year life of contract-cooperation period and

at end of 12th year automatically transfers the plant to NAPOCOR.

- b) Payment terms:
    - i) Capacity Fee to cover capital recovery, return on investment and other fixed charges in the operation of the plant.
    - ii) Energy Conversion Fee to cover variable operating expenses of the plant plus profit based on guaranteed energy delivery of 10% plant factor.
  - c) Fuel which is diesel (Fuel Oil No. 2) shall be supplied by NAPOCOR to Hopewell at the plant.
  - d) Performance Guarantee in the form of \$4.0 million Performance Bond from effectivity of the contract up to the end of Cooperation period.
  - e) Early Completion Bonus in the form of payment of Capacity and Energy Conversion Fees based on actual capacity and energy delivered prior to the start of Cooperation Period.
  - f) Penalty for delayed completion in the form of 1.05 times the Capacity Fee for uncompleted or undelivered KW capacity below 200 MW.
  - g) Penalty for deficiency in KW capacity delivered below 200 MW due to forced-outages of the generating units in excess of allowable hours for maintenance and repairs.
  - h) Incentive to generate and deliver energy over and above the guaranteed 10% plant factor.
- 3.4 The stream of payments of the Capacity and Energy Conversion Fees under this Hopewell BOT contract when compared with the fixed and variable costs of the NAPOCOR owned Gas Turbine Plants when the present value is taken and discounted at 15% p.a. are comparable almost the same cost per Kwh for a 12-year cooperation/operation period.
- 3.5 Hopewell's proposal became very attractive because the plant can be made operational within eight (8) months after contract signing/effectivity. However, such attractiveness was lost, when the final approval by higher Government Authorities were delayed for almost a year, since this was the 1st BOT contract and at same time, certain conditions precedents imposed by Hopewell's financiers/lawyers were rather whimsical and difficult to re-

solve.

3.6 Finally, with the small kinks resolved, Hopewell got underway with the contract and is now scheduled:

- a) 1st Unit 70 MW - Jul 29, 1990 synchronization
- b) 2nd Unit 70 MW - Aug 26, 1990 -do-
- c) 3rd Unit 70 MW - Nov 30, 1990 -do-

There is a 2 to 3 months delay in the coming of Unit No. 3 which was slightly damaged during shipping from Texas to Manila due to typhoon in the Pacific and the unit had to be repaired in Hongkong and expected to be in Manila by August 1990.

4.0 BOT/BOO Solicitation for San Juan 300 - 700 MW Coal-Fired Thermal Power Plant

4.1 In preparation for the public solicitation of this BOT/BOO San Juan Coal-Fired Thermal Power Plant project, NAPOCOR decided to create a BOT/BOO Committee from among the members who directly participated in the negotiations with Hopewell and undertake the following work:

- a) Prepare the Solicitation Documents and Standard BOT/BOO Contract or Power Purchase Agreement.
- b) Solicit assistance from USAID to learn the U.S. experience and procedures in the implementation of PURPA, as well as consult and discuss with the Private Power Developers, the State Energy Commissions, the Public Utilities with existing contracts with Private Power Developers and other U.S. firms, individuals somehow involved with the Pakistan BOT Projects.
- c) Conduct the public solicitation, i.e., pre-qualification of interested parties receive and evaluation of proposals.
- d) Prepare the NAPOCOR estimate of the "avoided cost" and justification of award.
- e) Clarify and discuss with the probable winning proponent the financial plan to support the project if awarded to them.
- f) Recommend the award and upon approval by NAPOCOR Board, negotiate with the winning proponent the Letter-of-Intent and subsequent Power Purchase Agreement that shall include a Finan-



cial Closing Date to occur, as condition precedent to the effectivity of the Power Purchase Agreement.

- 4.2 According to plans, the BOT Committee came out with the following BOT Solicitation Process:

<u>Activity</u>	<u>Responsibility</u>
1) Conduct Feasibility Study	NAPOCOR
2) Prepare Environmental Impact Statement	NAPOCOR
3) Issue Solicitation Document	NAPOCOR
4) Submit Proposals	Proponent
5) Evaluate Proposals	NAPOCOR
6) Sign Letter of Intent (If needed)	NAPOCOR/ Proponent
7) Conduct Verification Study	Proponent
8) Negotiate Power Purchase Agreement	NAPOCOR/ Proponent
9) Sign Power Purchase Agreement	NAPOCOR/ Proponent
10) Finalize Financing	Proponent
11) Effect Agreement	NAPOCOR/ Proponent

- 4.3 With respect to the San Juan BOT Coal-Fired Thermal Plant, we came out with the following revised schedule:

1) Discuss with Proponent	week of 4 Jun 1990
2) Select a Proponent	2nd week Jul 1990
3) Complete Environmental Screening Study	1st week Aug 1990
4) Sign Letter of Intent	2nd week Aug 1990
5) Proponent Complete F/S	Mid-Dec 1990
6) Negotiate PPA	Sept-Nov 1990
7) GOP Review of Draft PPA	01 February 1991
8) Sign PPA	15 February 1991
9) Close Project Financing/ Contract Effectivity	October 1991
10) Construction	Nov 1990-1st Qtr 1995
11) Commercial Operation	1st Qtr 1995

So far, we are on schedule and we hope that before end of 1990 we have a Power Purchase Agreement ready for signing. In this BOT Solicitation, two (2) important aspects, we may consider as Philippine innovations are:

- a) Fuel will be supplied by NAPOCOR to the BOT Proponent.
- b) The site will be provided free by NAPOCOR and

initial environmental study as well as suitability site investigation shall be undertaken by NAPOCOR, these are variable price related items in plant costing.

#### 4.4 Other BOT Proposals to NAPOCOR

4.4.1 In the BOT Solicitation for San Juan Coal-Fired Plant, there were 43 interested parties who registered for pre-qualification and only 14 were pre-qualified and finally only two (2) submitted serious proposals with good indication of getting their respective financing requirements.

4.4.2 Even during and after the solicitations, some BOT Proponents separately submitted serious proposals and these are as follows:

1. The Cogentrix of USA, for a Coal-Fired Co-generation Plant that will supply process steam to Caltex Refinery and excess power of 200 MW to be sold to NAPOCOR.
2. The Philippine Geothermal Inc. for 2 X 12.5 MW Geothermal Plant at Maibarara, Sto. Tomas, Batangas.
3. The Miro and Associates of USA, for a 350 MW Combined Cycle Plant, initially to be operated as Simple Cycle Gas Turbines at 250 MW for two years and as Combined Cycle Plant at 350 MW thereafter for 14 years.
4. The International Power Corporation of Boston, USA for a 300 MW Combined Cycle Plant to be in operation by 1993 and for a 20-year cooperation period.
5. The Design Power of New Zealand jointly with Mitsui of Japan for the 2 X 440 MW Tongonan Geothermal Plant plus Build and Transfer of the Extra High Voltage DC Line with Submarine Cable crossing the San Bernardino Strait. Because of the rather large financing requirement, it was suggested by World Bank that only the generation portion be made available to DP and Mitsui under the BOT scheme, whereby World Bank through a new Private Sector Window, to participate up to 30% of project cost.

## 5.0 Financial Plans for BOT Projects

5.1 In the NAPOCOR BOT solicitation documents, we strongly advised the proponents that there should be a 80%/20% Debt/Equity ratio in the proposed funding of the project. Furthermore, we preferred that out of the 20% equity, at least 10% of the total equity share should be owned by either the Operator, Financier or Developer.

5.2 In one of the proposals, the proponent indicated the following Financial Plan for a BOT Project:

1. Estimated Project Cost --- \$400 million

2. Proposed Funding:

a) Equity: 20% --- \$ 80 million

b) Debt : 80% --- \$320 million

Total ----- \$400 million

3. Proposed Debt Sources:

a) ADB \$ 35 million

b) IFC 35 million

c) Export Credit (Ex-Im) 200 million

d) Peso Funding (local) 25 million

e) Relending Arrangements 25 million

Total ----- \$320 million

4. Foreign Currency Loans:

Interest Rates : Estimated at 11%

Loan Maturity : 10 years

5. Export Credit (Ex-Im) will be sourced from the country where major machinery and equipment will be manufactured/supplied.

Please note that when ADB and IFC loans out through the private sector window, they usually participate on the equity of the borrower's shares.

Please note also, that one important consideration in this kind of Financing Plan, is that the Proponent must be prepared to bridge-finance gap when certain Debt Sources are delayed in their release of committed funds, otherwise it will delay the project and will be more costly.

5.3 Way back in June 1990, World Bank have indicated that aside from the regular lending window to the Philippines, it will consider two (2) options to

consider co-financing private sector power generation through the BOT/BOO concept:

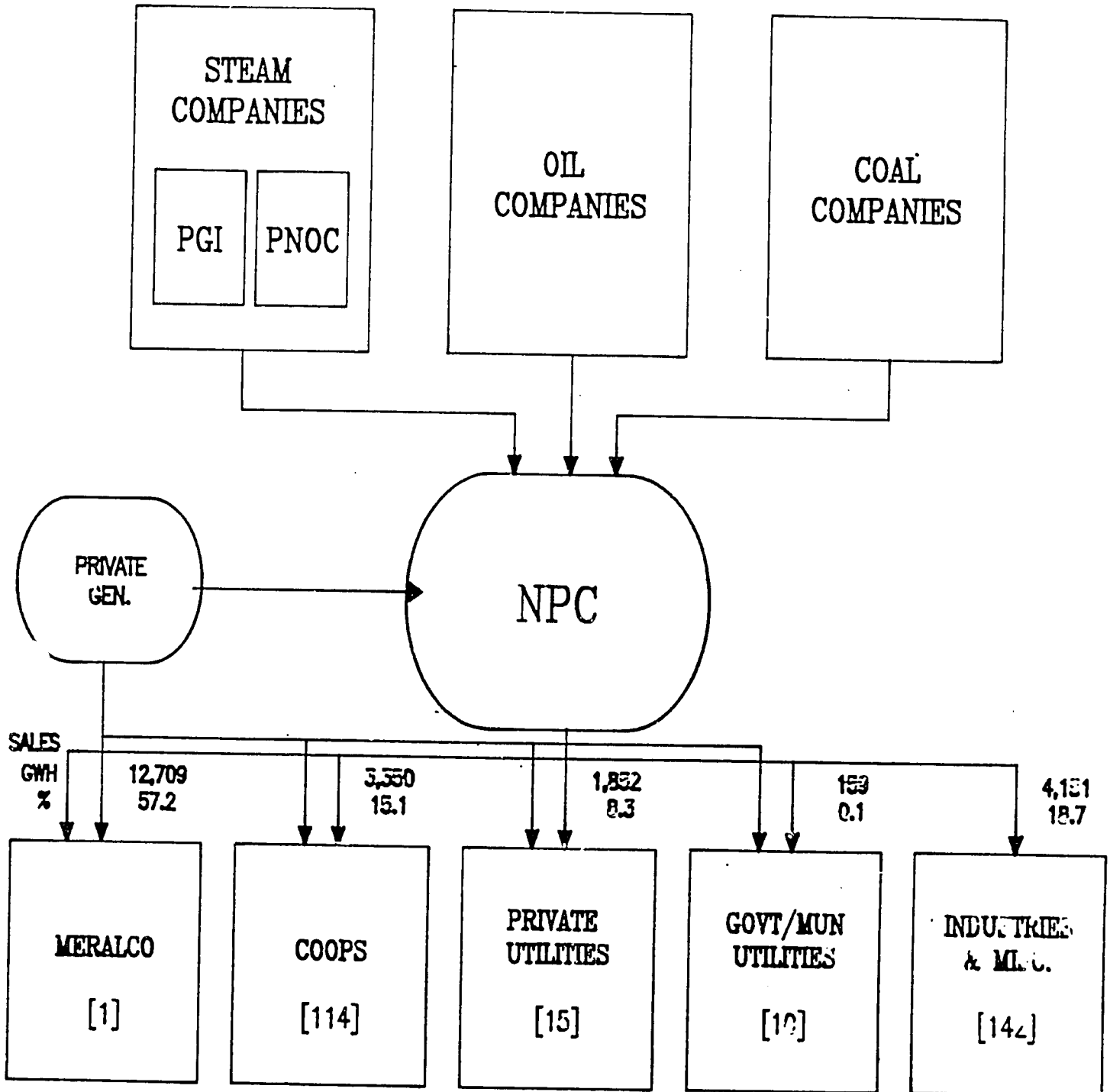
- a) Through a special loan facility similar to what has been granted to the Pakistan BOT Project, i.e., the Bank will make available up to 30% of the Project Cost to the Philippine Government, which in turn through one of the Government's Agencies will relend the amount at minimal fees to the private sector proponent of the BOT project. In addition, the Bank encourages NAPOCOR to participate and own at least 5% of the shares of stocks by the Proponent's Company that will be organized for the purpose of the BOT Project.
  - b) The Bank may have to open a new window for private sector lending facility, similar to what ADB has done for the Hopewell Contract but separate from the IFC window. In addition, the Bank may also consider upon application by the Philippine Government to issue a country risk guarantee for the comfort of the private sector lending institutions and commercial banks participating in the financing of the BOT Project.
- 5.4 There is that belief that the participation of the World Bank, Asian Development Bank and International Finance Corporation in co-financing a BOT Project will ensure the successful financing of the BOT project, after considering that these institutions have the technical capability to evaluate and assess the engineering, economic and financial viability of the BOT Project. These multi-national institutions, which may even limit their participation in terms of loanable amounts, will act as catalyst in encouraging private financiers and Export-Import Banks to co-finance the BOT Project. The only drawback to some proponents (with the manufacturers having the major shares/ownership) is the requirement of these Banks to follow Bank rules, i.e., procurement through international competitive bidding.

**Prepared by:**

**Jose T. Ramas**

**August 1990**

# PHILIPPINE ELECTRIC POWER INDUSTRY (1989)



NO. OF  
CUST. 1,906,527      3,000,000      612,000      [ ] No. of NPC Customers

%      32.97      50.70      11.17

**TOTAL PHILIPPINES  
AVERAGE YEARLY INCREASE  
IN DEMAND (MW)**

GRID	DEMAND			AVE. YEARLY INC.		AVE. YEARLY CAP. ADDITION 1/	
	1989	1995	2000	1989-95	1995-2000	1989-95	1995-2000
LUZON	2809	4510	6627	243	353	304	441
VISAYAS	334	594	801	37	35	46	43
MINDANAO	611	1080	1445	67	61	84	76
PHILS	3754	6184	8873	347	448	434	560.

1/

$$\text{AVE. YEARLY CAP. ADDITION} = \frac{\text{AVE. YEARLY INCREASE}}{0.8}$$

# 1990 POWER DEVELOPMENT PROGRAM

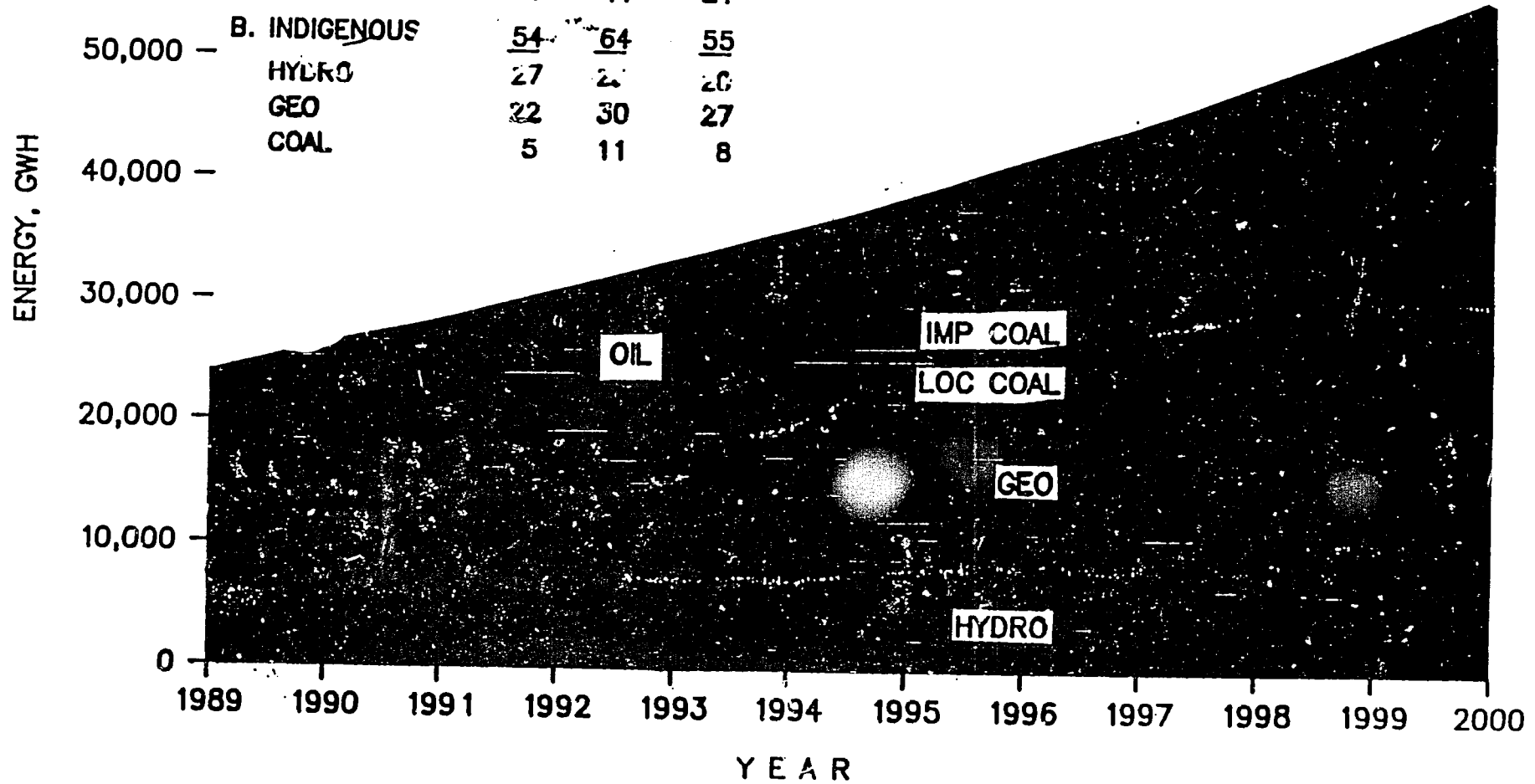
YEAR	LUZON		VISAYAS		MINDANAO	
	PLANT ADDITIONS	MW	PLANT ADDITIONS	MW	PLANT ADDITIONS	MW
1990	FBGT (MITSUI) FBGT (J BROWN) HCFEWEILL ST REHAB SUCAT 4	90 60 210 300	ANOPOL (NEA) ABB-6T DIESEL-BOHOL NEGROS-PANAY INT. PBGT (MITSUI) PBGT (J BROWN)	5 55 3 30 30	AGUS I FBGT (J BROWN)	80 60
1991	GAS TURBINE	200	SMALL PBDSL DIESEL-CEBU	12 19	SMALL PBDSL	24
1992	BAC-MAN I BAC-MAN II GAS TURBINE REHAB SUCAT 2	110 40 100 150	CEBU-NEGROS-PANAY INTERCONNECTION			
1993	CALACA II BOT COAL MAIBARANA BULUPAN REHAB SUCAT 3	300 220 10 60 150	PALIMPINGN	80	MT. AFO	40
1994	BALUG-BALUG PINATEBO COAL	100 60 600	MAMBUCAL	20	MT. AFO	60
1995	LEYTE A DEL GALLEGO GASIA LUZON-LEYTE INTERCONNECTION	440 150 40	TINEAEAN SMALL PBDSL	36 8	SMALL HYDRO	270
1996	LEYTE B	220	MAMBUCAL CEBU-LEYTE INTERCONNECTION	20	MINDANAO-LEYTE INTERCONNECTION	
1997	LEYTE B	220	MAMBUCAL	40		
1998	JAPENAN	100			A-13 III	100
1999	KALAYAAN COAL A	300 600	KALAYAAN DIESEL-BOHOL	10 8	GEOTHERMAL	120
2000	COAL B	600				
2001	PAN RAGIE COAL C	240 300	GEOTHERMAL CEBU-BOHOL INT.	120		
2002	COAL D	600	VILLA TIRA	24	EL PLANKO-BATANG	120
2003	COAL E	600			SASAYAN-IN	120
2004	COAL F	600				
2005	COAL G	600				

# PHILIPPINES

ELECTRIC ENERGY MIX (GWH)

PERCENT GENERATION MIX

TYPE	1989	1995	2000
A. IMPORTED	46	36	45
OIL	42	22	21
COAL	4	14	24
B. INDIGENOUS	54	64	55
HYDRO	27	22	20
GEO	22	30	27
COAL	5	11	8





SUMMARY OF INVESTMENT REQUIREMENTS  
 1990 POWER DEVELOPMENT PROGRAM  
 (In Millions at Constant Prices)

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		<u>1991-1995</u>	<u>1996-2000</u>	<u>TOTAL</u>
LUZON	TP	31,732	70,940	152,672
	P	14,736	11,300	26,096
	\$	2,799	2,485	5,274
VISAYAS	TP	6,230	1,580	7,860
	P	1,600	500	2,100
	\$	135	45	240
MINDANAO	TP	12,730	6,825	19,615
	P	6,670	2,265	8,935
	\$	255	190	445
PHILIPPINES	TP	100,302	79,345	180,147
	P	23,066	14,065	37,131
	\$	3,239	2,720	5,959

# NATIONAL POWER CORPORATION

as of 31 December, 1989

### GENERATING PLANT INSTALLED CAPACITY (MW)

TOTAL	: 6015 (100%)
LUZON	: 4321 (72%)
VISAYAS	: 641 (11%)
MINDANAO	: 1053 (17%)

### PEAK DEMAND (MW)

LUZON	: 2938
VISAYAS	: 354
MINDANAO	: 617

☐ Non-coincident

### TRANSMISSION AND DISTRIBUTION LINE (CKT. KM.)

TOTAL	: 13893 (100%)
LUZON	: 7824 (56%)
VISAYAS	: 2211 (16%)
MINDANAO	: 3858 (28%)

### ENERGY SALES (GWH)

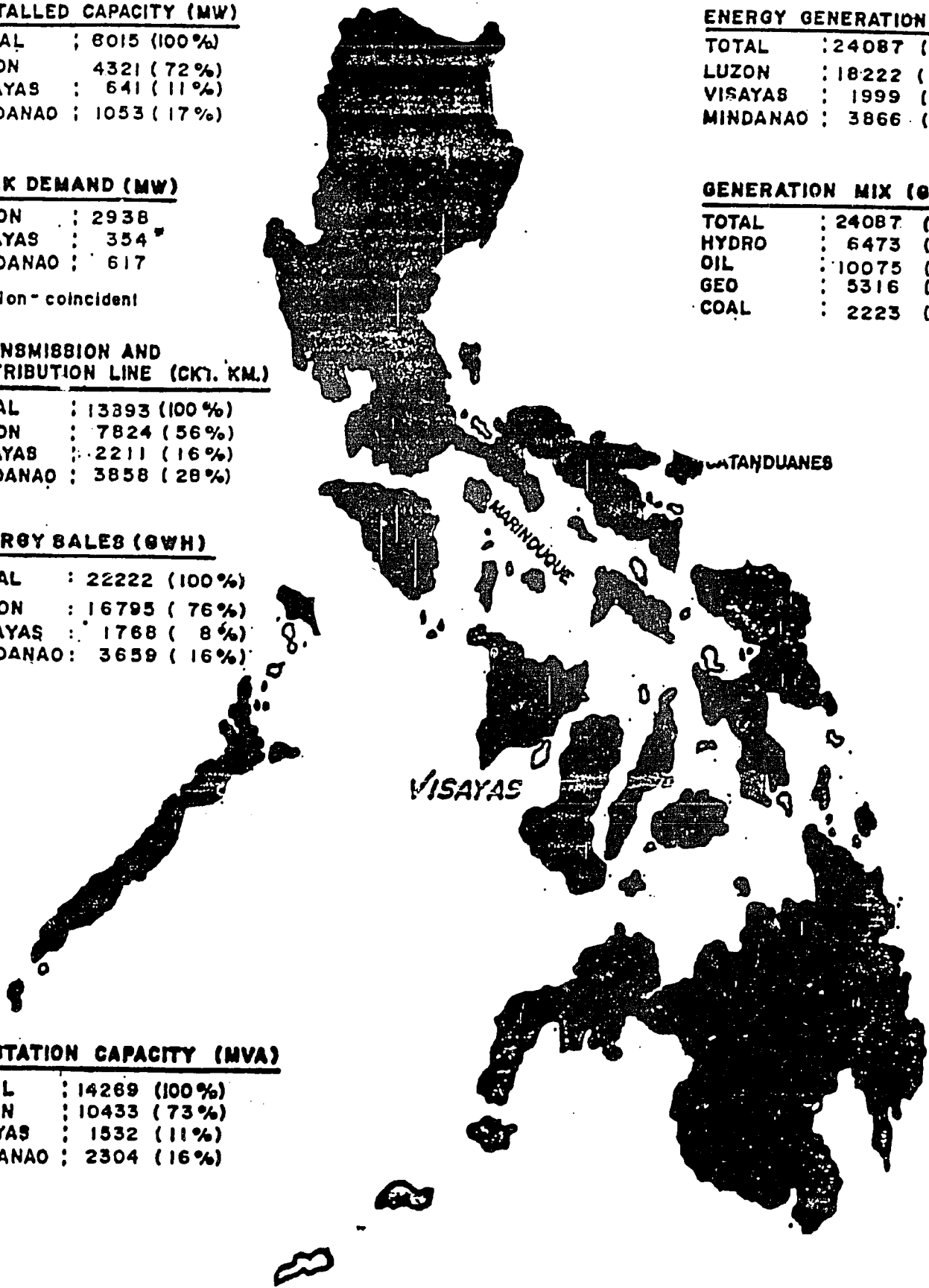
TOTAL	: 22222 (100%)
LUZON	: 16795 (76%)
VISAYAS	: 1768 (8%)
MINDANAO	: 3659 (16%)

### ENERGY GENERATION (GWH)

TOTAL	: 24087 (100%)
LUZON	: 18222 (76%)
VISAYAS	: 1999 (8%)
MINDANAO	: 3866 (16%)

### GENERATION MIX (GWH)

TOTAL	: 24087 (100%)
HYDRO	: 6473 (27%)
OIL	: 10075 (42%)
GEO	: 5316 (22%)
COAL	: 2223 (9%)



### SUBSTATION CAPACITY (MVA)

TOTAL	: 14269 (100%)
LUZON	: 10433 (73%)
VISAYAS	: 1532 (11%)
MINDANAO	: 2304 (16%)

## WHY PRIVATE GENERATION ?

POWER GENERATION IS NOT A NATURAL MONOPOLY;

POWER TRANSMISSION AND DISTRIBUTION ARE  
NATURAL MONOPOLIES

- \* WIDEN CAPITAL BASE
- \* FREE UTILITY REVENUES  
FOR OTHER PURPOSES
- \* INCREASE INDUSTRY EFFICIENCY
- \* TRANSFER CONSTRUCTION RISKS
- \* SPUR COMPETITION TO LOWER PRICE
- \* ACCELERATE TECHNOLOGY TRANSFER

# PRIVATE GENERATION

## E.O. 215

- o JANUARY 1987
- o ALLOWS PRIVATE GENERATION
- o NAPOCOR RESPONSIBLE FOR RATIONAL AND STRATEGIC DEVELOPMENT OF THE NATIONAL POWER GRIDS

## RULES AND REGULATIONS

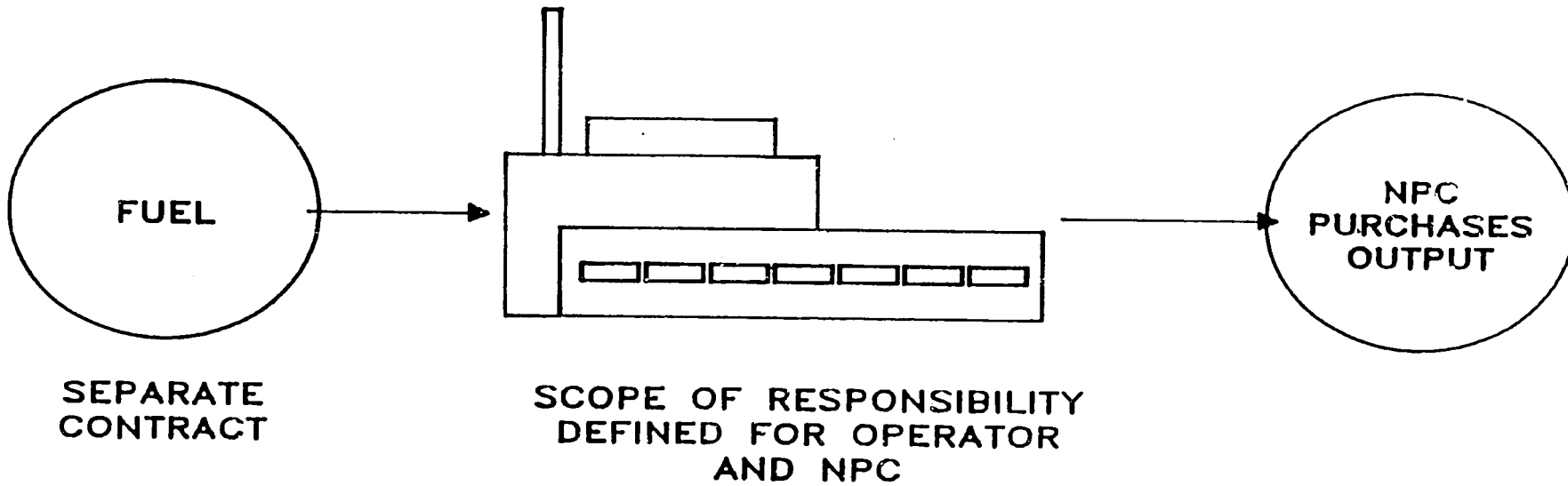
- o MAY 25, 1989
- o DEFINES ACCREDITATION PROCEDURES
- o ELABORATES AVOIDED COST
- o BUILD-OPERATE AND TRANSFER A.G.

## R.A. 6957

# GAS TURBINE PLANT (BUILD-OPERATE-TRANSFER SCHEME)

- COMPANY** : HOPEWELL ENERGY, LTD. (HEL)
- PLANT CAPACITY** : 3 x 70 MW
- CONCEPT** :
- o NPC
  - o PROVIDES SITE AND OTHER INFRASTRUCTURES
  - o SUPPLIES FUEL REQUIREMENT
  - o HEL
  - o DESIGN, FINANCE, CONSTRUCTION, OPERATES AND MAINTAINS FACILITIES
- COOPERATION PERIOD** : 12 YEARS ( AT THE END OWNERSHIP TRANSFERS TO NPC)
- PLANT OPERATION** : DISPATCHABLE
- GUARANTEES** :
- o FOREX REPATRIATION OF PROFITS
  - o PERFORMANCE UNDERTAKING FROM GOP
- PAYMENT TERMS** :
- o CAPACITY PAYMENTS
    - Fixed Cost/Profit
    - Performance-Based
  - o ENERGY PAYMENTS
    - Actual Generation
    - Heat Rate Guarantees
- BUYOUT** :
- o FIVE-YEARS AFTER COMPLETION DATE
  - o CHANGES IN "RULES-OF-THE-GAME"
  - o FORCE MEJEURE
- PENALTIES** :
- o PROVIDED FOR DELAYS IN COMPLETION
  - o CAPTURED THROUGH PAYMENT TERMS

# COAL-FIRED PLANT



# RISK SHARING

## A. OPERATOR

1. CONSTRUCTION AND OPERATION  
COST OVERRUNS
2. DELAY IN COMPLETION
  - o BONUS
  - o PENALTY
3. PERFORMANCE GUARANTEE
  - o FUEL UTILIZATION
  - o CAPACITY AVAILABILITY
4. STATUTORY REGULATIONS
  - o ENVIRONMENTAL LIMITS
5. FORCE MAJEURE NOT WITHIN  
CONTROL OF NAPOCOR

## B. NAPOCOR

1. FORCE MAJEURE DUE TO NAPOCOR/GOVERNMENT
2. INFLATION
3. MARKET DOWNTREND
4. FOREX RISK

## C. GOVERNMENT

1. FOREX REMITTANCE
2. CONVERTIBILITY OF FOREX
3. NAPOCOR OBLIGATION
4. TAX INCENTIVES

## SUGGESTED BOT SOLICITATION PROCESS

<u>ACTIVITY</u>	<u>RESPONSIBILITY</u>
1. CONDUCT FEASIBILITY STUDY	NFD
2. PREPARE ENVIRONMENTAL IMPACT STATEMENT	NFD
3. ISSUE SOLICITATION DOCUMENT	NFD
4. SUBMIT PROPOSALS	FRCF/NENT
5. EVALUATE PROPOSALS	NFD
6. SIGN LETTER OF INTENT	NFD/FRCF/NENT
7. CONDUCT VERIFICATION STUDY	FRCF/NENT
8. NEGOTIATE POWER PURCHASE AGREEMENT	NFD/FRCF/NENT
9. SIGN POWER PURCHASE AGREEMENT	NFD/FRCF/NENT
10. FINALIZE FINANCING	FRCF/NENT
11. EFFECT AGREEMENT	NFD/FRCF/NENT



# BOT SAN JUAN COAL PLANT

1. DISCUSS W/ EFFICIENT WEEK OF 4 MARCH '90
2. SELECT A EFFICIENT 2ND WEEK MARCH '90
3. COMPLETE ENVIRONMENTAL SCREENING STUDY 1ST WEEK APRIL '90
4. SIGN LETTER OF INTENT 2ND WEEK APRIL '90
5. EFFICIENT COMPLETED F/7 MID-DECEMBER '90
6. NEGOTIATE FFA DEPT/OCT/NOV '90
7. GCF REVIEW OF DRAFT FFA 1 FEBRUARY '91
8. SIGN FFA 15 FEBRUARY '91
9. CLOSE PROJECT FINANCING (CONTRACT EFFECTIVITY) OCTOBER '91
10. CONSTRUCTION NOVEMBER '91  
1ST QUARTER '95
11. COMMERCIAL OPERATION 1ST QUARTER '95

NATIONAL POWER CORPORATION

Diliman, Quezon City

Gentlemen:

This has reference to our proposal on 2 x 350 MW Coal Fired Power Station on BOT basis.

It is our intention to fund the project, using the following financial plan.

Estimated Project Cost	US\$ 800 Millic
------------------------	-----------------

Proposed Funding:	
Equity: 20 %	US\$ 160 Million
Debt : 80 %	640 Million
Total	US\$ 800 Millic

Proposed Debt Sources:	
ADB	US\$ 70 Million
IFC	70 Million
Export Credit (Ex-Im)	400 Million
Relending	50 Million
Peso Funding	50 Million
Total	US\$ 640 Millic

Foreign Currency Loans:	
Interest Rates	Estimated at 11 %
Loan Maturity	10 years

The amount indicated and the sources are tentative and are based on our best estimate at the present time. We will re-allocate the amounts and sources based on actual funds that can be made available for the project.

Very truly yours,

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# PRIVATE OPERATION CONTRACT

## NAPOCOR

- o LEASES TOTAL PLANT TO A PRIVATE DEVELOPER/OPERATOR
- o REHABILITATES PLANT

## PRIVATE OPERATOR

- o OPERATES AND MAINTAINS POWER PLANT
- o SELLS OUTPUT TO NAPOCOR

IMPLEMENTING REQUIREMENTS FOR PRIVATE POWER  
Regulatory and Pricing Issues

Dr. Pirooz Sharafi  
Principal  
RCG/Hagler, Bailly, Inc.

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

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## INTRODUCTION

Faced with growing demand for electricity and an inability to provide sufficient financial resources for power supply expansion, many developing countries have adopted policies to encourage private sector participation in power sector investment. This trend has followed the introduction of non-utility power generation in the United States, which was initiated by the Public Utility Regulatory Policies Act of 1978 (PURPA). Under PURPA the non-utility power supply in the United States increased from 6,000 MW in 1980 to over 26,000 MW in 1989, representing over 4 percent of total U.S. generation capacity and over 20 percent of the generation capacity added during the 1980s. It is projected that non-utility generation capacity in the United States will contribute over 40 percent of new generation capacity during the 1990s.

Similar trends are projected for developing countries. Already Pakistan, the Philippines, Thailand, Indonesia, the Dominican Republic, Costa Rica, and Turkey have initiated policies and regulations allowing and encouraging private sector participation in power supply. Currently over 15,000 MW of generation capacity are under various stages of development in these countries.

While the private sector has shown a strong interest in investing in power projects worldwide, successful expansion of a private power industry will depend ultimately on the effectiveness and clarity of the regulatory framework under which private power projects will be developed. Given the inherent perception of investors about business uncertainties in developing countries, it is essential that countries interested in private power supply establish a comprehensive regulatory framework clarifying the roles and responsibilities of private power entities as well as national utilities and other involved government agencies. The most important element of this framework will be the way the electricity exchanged between private generators and national utilities is priced.

This paper will examine the institutional framework necessary for successful development of private power in developing countries, and identify and analyze alternative options for purchase price determination. The paper will review the U.S. regulatory structure under PURPA and its application to other countries. It will also identify the major issues associated with purchase price determination, particularly those specific to developing countries.

## INSTITUTIONAL FRAMEWORK

For a national private power program to succeed, an institutional framework that resolves legal, regulatory and administrative issues is critical. With clear policies and procedures, as well as adequate incentives, a private power industry will flourish. However, as long as there are unresolved issues, the private sector will not be responsive and a private power program will not generate additional capital investment.

From past experience, the two most critical elements of the institutional framework are: (1) private power legislation or equivalent policy and (2) implementing regulations. There are a number of issues that must be resolved in association with these

components. If the issues are addressed at the outset, they will undoubtedly be raised as the program develops.

### **Legal Issues**

Depending upon the political system in place, a strong policy statement is the initial step in developing a private power program. Depending on the country this can be executed through a law, executive decree or both. The legal issues cover the constitutionality of the program, trade and investment implications, and general provisions regarding what types of facilities that qualify for the incentives of the program.

The constitutionality of a private power policy has been questioned in the U.S. and other countries. In fact, it represents the ultimate legal challenge to the law, and can take years before the issue is raised. Does the law take precedent over existing laws governing the generation and sale of electricity? Does the current government have the right to reverse or undo the nationalization of essential services? Is a state, province or district able to offer greater incentives than those provided at the national level? A thorough legal analysis and opinion at the outset of developing a private power program can answer these questions.

Another legal issue concerns the treatment of foreign investment in private power projects. In particular, are there local equipment sourcing requirements, are there limitations to foreign equity in local project companies, and how are the profits of the venture treated in terms of foreign exchange and repatriation? Since attracting foreign private capital is a principal objective of a private power program in capital constrained developing countries, these questions should be answered in consultation with prospective local and foreign investors. The policy statement, law or decree, should address these concerns.

Who qualifies under the program is yet another critical policy question. While the exact definition of specific classes of generation facilities is ultimately answered in the implementing regulations, the private power law or decree defines the scope of the program. In addition to the acceptable level of foreign participation mentioned above, the policy statement must articulate the energy resources used, any size limitation of individual projects, and whether or not the national utility can participate, at what level, and how utility involvement is measured. In the U.S., a utility can have up to 50 percent equity participation in a qualifying facility (QF) under PURPA. A utility subsidiary can also own 100 percent of an independent power production facility, as apposed to a QF, but the incentives of avoided cost and required power purchases of PURPA do not apply.

### **Regulatory Issues**

Implementing regulations are needed to translate the policy statement into a practical program, complete with interpretation of the law, procedures for applying for and receiving qualifying status, as well as definition of the respective roles, responsibilities and requirements of different parties in the process. In the case of the Dominican

Republic, a new institution, the Directorate for the Development and Regulation of the Electrical Industry, was created under the private power law in order to develop implementing regulations.

A private power policy provides direction and guidance, but is not intended to explain the nuances of the program. Implementing regulations need to define terms, provide methodologies (such as how to calculate avoided cost), and generally remove any ambiguities of the law. Due to the critical nature of regulatory interpretation, challenges to the regulations may ultimately need to be resolved at the appropriate level of legal or government, namely the entity responsible for the policy statement.

The procedures to implement the private power program are also important. For unsolicited proposals, the procedure must explain the process of applying for qualification, reviewing applications, notifying the project sponsor, and developing an approved project. For solicited proposals, the procedure would begin with preparing a solicitation document, announcing the solicitation, evaluating proposals, and notifying the winner. The procedure should also provide for a situation where the winning proposal does not go forward and another project must be selected. Of importance to both solicited and unsolicited proposals is the contract negotiation process.

Finally, the implementing regulations must articulate the roles, responsibilities and requirements of the government, the regulatory body, the utility and the project sponsor. If industrial or agricultural cogeneration projects are contemplated, then the steam host would also be added to the list. The government's role is to set policy and revise that policy as appropriate to provide for the desired level of private sector development. The regulatory agency's responsibilities, as mentioned above, revolve around implementing the policy and resolving contentious issues between the utility and the project sponsor. The regulatory body may also be given oversight responsibilities to ensure the utility and the project developer comply with the law. The utility's responsibilities usually include calculating their avoided or marginal cost, soliciting proposals for specific projects, establishing standard contracts for unsolicited proposals, negotiating terms for power purchase contracts, and some form of reporting electricity purchases. The project sponsor's responsibilities, within the program, consist of submitting complete proposals, conducting technical and economic feasibility studies, arranging financing, negotiating agreements with equipment suppliers, construction contractors and other services. Fuel supplies can be the responsibilities of either the utility (for solicited proposals) or the developer (for unsolicited proposals). The responsibility for building the necessary interconnection capability may fall on either the utility or the project sponsor, depending on the size of the proposed facility.

There is no single institutional framework for private power. While the U.S. program, as implemented by federal and state regulatory bodies, has worked in terms of stimulating private development and lowering utility marginal costs, there are still many criticisms of the system. The issues facing the U.S. are different from those facing countries with nationalized utilities, and the issues facing developed countries are different from those facing developing countries. Finally, a program introduced in one developing country is by no means transferable to another. Any program must reflect

public policy objectives and preferences, existing institutional relationships, and needs and capabilities of the existing electric utility sector. Furthermore, the program must be capable of evolving over time, as an industry develops and the parties involved identify new issues.

## **PURCHASE PRICE DETERMINATION**

The most important issue related to the sale of electricity from independent power generators to a utility is the determination of electricity purchase price.

From an economic point of view, the major characteristic of this price should be that it promotes efficient use of economic resources in the country. In other words, the proposed purchase price should ensure that the power generation resources developed by non-utility entities fall within the "least cost" supply options available to the country. At the same time, given the tremendous demand for electricity and the apparent inability of national utilities to satisfy the growing electricity demand, the price should provide sufficient incentives to independent suppliers to expand their generation capacity and to provide additional supply to the grid.

From a practical point of view, however, the proposed pricing procedure should also be easy to determine and easy to verify, be based on readily available data, and be finally easy to administer for the duration of power purchase.

The other major characteristic of the purchase price is that it should provide enough certainty with regard to the private power project's revenue stream so it can be financed.

Within this general framework, two approaches to non-utility electricity pricing can be pursued, namely,

This section first reviews the two primary pricing methodologies (avoided cost pricing and competitive bidding) currently used in the United States and then describes the specific issues developing countries must take into account in determining the purchase price. The last section proposes an approach for purchase price determination.

### **Avoided Cost Pricing**

The avoided cost pricing approach first achieved prominence in the United States in the context of the 1978 PURPA legislation which required electric utilities to purchase excess power from cogenerators under "avoided cost principles." Essentially, avoided energy costs are defined by "system lambda," the short-run incremental operating costs, adjusted for losses. For firm capacity purchases, the avoided capacity cost concept is linked to the notion of marginal capacity cost for generation capacity.

#### **Major Issues of Avoided Cost Pricing**

There are eight major issues that must be addressed in determining a utility's avoided costs, as described in the following paragraphs:



### **The Data and Computational Problem.**

This problem consists of selecting a method for computing avoided costs that is understandable and useable by all parties to the process. Similarly, the method selected should use data that are readily verifiable and should accurately reflect the data. While the utility should in general have the right to negotiate a purchase price based on the avoided cost for that specific purchase, in practice it would be extremely cumbersome and time consuming to calculate and agree on such rates on a case-by-case basis. Therefore, a generic approach for calculating the avoided costs should be selected and applied uniformly. In the interest of fairness, the approach selected should be scrutable and accessible to the public. Similarly, the data used by the utility to calculate the avoided costs should be readily available. These considerations put a premium on use of a relatively simple computational system.

Regardless of the method selected to estimate a utility's avoided costs, required data include data on current marginal operating costs and the expected capital and operating costs of future generation. These latter data will depend on the utility's expected future demand and planned retirement schedule as well as other factors. Therefore, even a simple computational system for estimating avoided costs would require a substantial data set.

### **The Reliability Problem.**

This problem is engendered by the potential differences between the reliability of utility-owned generating facilities and the reliability of private power plants. Some means is necessary to adjust the payments that a private power producer receives for any reliability differences between it and the utility facility which it displaces in whole or in part.

### **The Energy and Capacity Problem.**

This problem concerns how to divide the total avoided cost payments to a private generator between energy and capacity components. This is similar to designing electricity tariffs with demand and energy components.

### **The Resource Planning Problem.**

This problem relates to structuring rates to private generators in such a way as to negate the possibility of charging ratepayers for the private plant or utility capacity which is unneeded. Obviously, in a country with power supply shortages, this will not be a problem.

### **The Aggregation Problem.**

Rates for a particular private power plant could be based on either the avoided costs for that facility or for the entire class of similar facilities. The aggregation problem

concerns the appropriateness of aggregating all similar facilities into a facility class for ratemaking purposes.

#### **The Timing Problem.**

A private power plant that becomes available in one time period may allow the utility to avoid costs in another time period. For example, a private plant that comes on line in 1990 may allow a utility to defer or cancel a unit that it had scheduled to come on line in 1994. The timing problem is thus one of equating costs incurred in different years.

#### **The Lumpiness Problem.**

A single private power plant may not be large enough to displace entirely a planned utility unit, although a group of private plants would do so. In the event that a private power plant is not sufficiently large to displace a utility unit, it is necessary to determine how much capacity, if any, a specific private plant can displace for avoided cost payment purposes. This constitutes a lumpiness problem.

#### **The Uncertainty Problem.**

This problem consists of providing the private generator with sufficient certainty as to the rates it will receive in the future to allow its construction to be financed without unduly burdening the ratepayer with all the financial risks for a non-utility project.

If an avoided cost rate is used that is based purely on future "spot" costs of the utility, and these costs are subject to great uncertainty, then the private generator may be unable to obtain financing. On the other hand, ratepayers should not face the risk that avoided cost rates are so firmly fixed in advance that they end up paying more for energy and capacity from private generators than they are worth at the time such energy and capacity are delivered.

#### **Approaches for Calculating Avoided Cost.**

There are three general approaches to calculating a utility's avoided cost: the "component" approach, the "differential revenue requirements" approach, and the "proxy unit" approach. The first is based on the short-run marginal costs of the utility, while the other two approaches are based on its long-run marginal costs.

**The Component Approach.** This is the simplest of the three avoided cost calculation methodologies. It uses the short-run marginal operating costs of a utility for the energy component of the avoided costs and the capital costs of a peaking unit (usually a combustion turbine) for the capacity component. In this approach, it is implicitly assumed that the utility system is in equilibrium and therefore is continuously optimized. The major problem with this approach is its inherent inaccuracy. When the power system needs new capacity, the component approach will underestimate avoided costs, with the result that the utility itself will be unable to build and operate its next plant at the estimated peaking unit cost.

**The Differential Revenue Requirements (DRR) Method.** This is the approach that would be instinctively selected for computing avoided costs by the utility system planner with ready access to the utility's detailed dispatch model. Conceptually, the approach is quite simple and consists of the following steps:

- Select a time period for the analysis (usually 20 to 30 years).
- Develop an optimum generation expansion plan over the selected period excluding the private power plant.
- Make an assumption about the timing and type of the private power plant which will be interconnected to the utility's system.
- Develop a second "optimum" generation plan, forcing the private power plant into the plan at the assumed time.
- Compare the revenues required each year by the utility under the optimum plans with and without the private power plant. These revenues are the so-called "differential" revenues and are those which could be paid to the private power generator assumed to be in place.

The principal advantage of the DRR approach is its apparent accuracy. Because the method relies on the use of a detailed dispatch model, all the parameters of a particular utility system that have been captured in the dispatch model can be taken into account in computing avoided costs. Scheduled outages, spinning reserve requirements, ramp up and down times, minimum loading, and the statistical pattern of forced outages can all be taken into account, giving the appearance of great accuracy. This advantage is somewhat illusory, however, since the detailed output from a dispatch model is dependent on the system parameters input to the model. These basic parameters include information on the utility's load shape, forecasted peak demand, and most important, the utility's generation plan. Since a utility's 20- to 30-year resource plan typically contains speculative elements, the revenue required to finance such a plan is speculative also.

The principal disadvantage of the DRR approach is that it requires the use of a computerized dispatch model which makes it difficult to verify by parties other than the utility. This is especially true in developing countries where there is very little experience or expertise in utility planning and economic analysis outside the national utility. Small private power generators, in particular, will be at a disadvantage since the cost of such an undertaking will be formidable. Therefore, for private power developers who do not have the expertise with such models, the use of the DRR method in estimating avoided costs becomes an act of faith which few will feel comfortable with.

**The Proxy Unit Approach.** This approach is also simple in concept and consists of the following steps:

- Determine the next avoidable unit in the utility's resource plan (the proxy unit).
- Compute the capital and operating costs of that specific unit.
- Avoided cost payments to the private generator for energy and capacity are then based on the costs of the proxy unit (adjusted for reliability differences with the private power plant).

The principal advantage of the proxy unit approach is its simplicity. All the calculations can be performed with a hand calculator and by anyone who understands the basic elements of utility operations. The principal disadvantage of the method is that there is some sacrifice in realism as to type, timing, and dispatch of utility facilities that are assumed to be avoided when a private power plant comes on line.

### **Competitive Bidding**

Recently, competitive bidding procedures have been proposed or instituted in several states in the United States as well as in the Philippines and Turkey. Indonesia has had two competitive bid solicitations so far.

Although the specific aspects of bidding procedures vary from utility to utility, the general idea is to adopt a process of the following type. Periodically, the electric utility would determine the need for additional resources based on a least-cost planning analysis and specify what type of additional generation capacity it requires, e.g., amount, reliability, dispatchability, baseload, peaking. It would issue a "request for proposals" for such services. From its least-cost planning, the utility knows what its avoided cost would be for such a supply. Therefore, the avoided cost becomes in effect the ceiling price for the competitive bids. Potential independent generators would then bid to supply this need. Any bids above the avoided cost would not be accepted. Conceivably an independent generator may be willing to accept a price below the utility's avoided or incremental cost. The extent of independent generator competition and efficiency would determine this level. Any unmet resource needs would be built by the utility. In practice, however, electric utilities will have to take into account both price and non-price factors in evaluating potential private power producers in a competitive bidding approach.

### **Major Pricing Issues in Developing Countries**

- While the general purchase price determination methodologies described above are applicable in developing countries, there are a number of issues specific to developing countries that should be taken into account.

#### **Foreign Exchange Risk**

Because electric utilities in most developing countries are shielded from foreign exchange risks by the government, their avoided cost figures will not include adjustments

for foreign exchange fluctuations. Thus the government should either provide similar foreign exchange risk coverage to private investors or have the utility to adjust its avoided cost figures to include foreign exchange fluctuations.

### Taxes

Similarly, in many countries electric utilities are exempt from corporate taxes while private entities pay taxes. In addition, in some countries the national utility is exempt from import duties or taxes while the private generator will not have such exemptions. To make private power supply competitive with the utility supply, the government should take these into account in comparing the private generator's production costs with those of the utility.

### Cost of Capital

National electric utilities also have the inherent advantage of lower cost of capital since they often borrow with the sovereign guarantee of the national government, resulting in lower interest rates. The lower cost of capital will result in an unfair estimation of an electric utility's avoided costs to the private supplier.

### Fuel Cost Risk

Fuel cost risk cannot be expected to be borne by the private generator, and the utility or the national utility should reflect fuel cost fluctuations in their proposed price. In cases where the national utility obtains fuel at subsidized rates while the private generator does not, the avoided cost should reflect this discrepancy.

### Impact on the National Utility

While in principle the national utility should provide fair prices to private suppliers based on the true cost of inputs to the private generator and not the concessionary rates or subsidized prices available to the utility, in practice, it should itself be able to reflect these additional costs into its rate base and recover them from its customers. Or, the government itself should bear such expenses if they exist. Otherwise the national utility will face a deterioration of its financial status.

## PROPOSED PRICING APPROACH

The following pricing approach is recommended for the sale of electricity from independent generators to a national utility.

1. "Standard Offer" small purchases (under 2 MW)
  - as available energy
  - firm capacity

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2. For medium size purchases (between 2 MW and 20 MW), the seller can choose between
  - the standard offer in 1,
  - negotiation of better provisions
3. Large projects to be negotiated on a case-by-case basis.

A "standard offer" simply refers to a tariff that is publicly posted by the national utility, as are all other tariffs for power sales. For small power producers and cogenerators, a standard offer is advantageous since they can avoid cumbersome, time consuming, and costly negotiations. The standard offer, however, has to be based on the utility's avoided energy and capacity costs and therefore depends on the grid that the private generator will supply electricity to.

The standard offer should distinguish between non-firm purchases of "as available energy" and purchases where a firm capacity credit can be associated with the purchase. The former refers to purchases of kWh in cases where such supplies are intermittent, cannot be assumed, or the magnitude and/or temporal profile cannot be predicted with any degree of certainty. The acid test to gauge whether such a purchase is non-firm is whether such supplies can be counted upon to defer resource additions. If it is not the case, then the prices for such purchases would be based solely upon the marginal energy costs of the utility system.

Capacity credits are justified in situations where the independent generator is prepared to specify the amount of firm capacity and times -- of year and day -- at which such capacity would be made available, expected annual availability, as well as the duration of the contract (number of years). A minimum contract duration of one year is suggested for such standard offer contracts.

Medium-sized purchases (2 MW to 20 MW) should be handled in a manner similar to small-sized purchase, with one exception. In circumstances where the seller is offering certain special provisions associated with the sale that are not adequately reflected in the standard offer -- a longer duration contract (e.g., five years), some dispatchability, higher availability, off-peak maintenance -- then some upward adjustments to the capacity credit may be warranted.

Where large projects are involved, it is also reasonable to assume that these will be of a minimum duration of five years. These situations merit a case-by-case analysis. The first step is to estimate the capacity credit. Whereas the differential revenue requirements methods is very data intensive and cumbersome to implement for the situations described above, it is justified in this case. The differential revenue requirement approach should be used to estimate the capacity credit to the private generator.

CONTRACTING FOR POWER:  
CONCEPTUAL ISSUES IN DEVELOPING COUNTRIES

John L. Sachs  
Partner  
Olwine, Connelly, Chase, O'Donnell & Weyher

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
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Jamaica Pegasus Hotel  
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CONTRACTING FOR POWER:

CONCEPTUAL ISSUES IN DEVELOPING COUNTRIES

by

John L. Sachs

Partner

Olwine, Connelly, Chase, O'Donnell & Weyher

ABSTRACT

In the last twelve years, the United States has witnessed the growth of a large and healthy private power industry. Many private power transactions have been completed, and the requirements for a successful project have been established clearly. Initially, the private developer and the public utility must enter into a power purchase agreement in which the commitments of the parties are described and the means of enforcing those commitments are specified. To create a successful project, the developer must then share his risks and responsibilities with other private parties through a series of contractual arrangements.

The developing world has only recently begun to experiment with private power. Although the developer and the national utility typically enter into an agreement similar to the United States power purchase agreement, the developer may be unable to share the risks and responsibilities resulting from that power purchase agreement with other parties because they are most often other governmental entities. In order for private power to succeed in the developing world, therefore, the government may need to assume some of those risks and responsibilities.

TEXT

In the United States and elsewhere, the concept of private power is as old as the need of private industry for power. Industrial facilities of all descriptions have installed generating equipment to serve all or part of their loads rather than relying upon the sometimes uncertain and sometimes expensive power supplied by the local utility.

I. United States Experience

Rarely, however, was the power - or even the excess power - generated by these units sold to utilities pursuant to long



term contracts until 1978. In that year, the United States Congress enacted the Public Utility Regulatory Policies Act ("PURPA") as one of several measures to decrease dependence upon imported oil.<sup>1/</sup> PURPA contributed to this goal by requiring utilities to interconnect with, purchase power from, and supply back-up power to certain "qualifying facilities" which utilized renewable energy resources such as water, wind, biomass and the sun or which utilized fossil fuels more efficiently in cogeneration applications.

The result of PURPA was the birth of a private power industry in the United States which today spans the North American continent and supplies almost 5 percent of the nation's electric power.<sup>2/</sup> Well over 100 utilities already purchase private power for resale to their customers. Existing private power facilities range in size from a few kilowatts to hundreds of megawatts and rely upon fuels as diverse as natural gas, geothermal energy, wood chips, garbage, waste coal and solar energy. At its current pace, the industry is expected to be the source of over 30 percent of the 75,000 to 200,000 MW of new generating capacity required in the United States by the year 2000.<sup>3/</sup>

At the heart of each private power transaction is an agreement between the private developer and the public utility for the sale and purchase of power. It is the assured stream of revenue resulting from this power purchase agreement which is the source of security for the repayment of the loans used to finance the construction, operation and maintenance of the facility. After negotiating hundreds of these agreements and financing a large percentage of them, United States utilities, private developers and bankers have arrived upon a contractual formula that, within certain parameters, appears to satisfy all concerned.

As indicated in Table 1, the power purchase agreement generally contains a series of commitments by the parties and a variety of remedies to enforce those commitments. First, the developer commits to obtain land, secure regulatory approvals and arrange financing by one or more milestone dates. The developer must also obligate himself to complete a plant which meets certain technical requirements on or before another milestone date. Once the plant is completed, the agreement will require the developer to arrange for the delivery of sufficient fuel supplies and to operate and maintain the plant properly throughout the term of the agreement. For its part, the utility must commit to the construction of the facilities necessary to interconnect with the plant within a certain time frame. The utility will also agree to purchase the power at a pre-

determined price consistent with the cost of the utility producing the power itself and sufficient to cover the developer's debt service, operation and maintenance expenses and an adequate return on equity for a period of time at least as long as the term of the developer's loans.

Should a party fail to fulfill the above commitments, the power purchase agreement normally bestows a range of remedies upon the other party for the purposes of encouraging the first party to meet his commitments and compensating the second party for the harm he suffers. The utility, for example, may assess penalties against the developer if the developer fails to meet the above milestone dates and to operate and maintain the plant properly. To ensure that the utility receives the penalties to which it is entitled, the utility may require a security deposit from the developer. And if the developer's failure to satisfy his obligations persists, the utility might have the right to terminate the contract altogether or to take over the plant at an agreed price. Conversely, if the utility fails to fulfill its commitments, the developer might be entitled to the commencement of payments by the utility, to terminate the agreement, and, in some cases, to require the utility to wheel the output of the plant to another utility.

To obtain financing for a project in the United States, the private developer must demonstrate that he can perform those commitments which the developer has made to the utility. Consequently, the developer must acquire the right to use the site and must obtain regulatory approvals from a series of federal, state and local governments. In addition, unless the developer or affiliated companies have the necessary capability, the developer must obtain commitments from other private parties to provide engineering, equipment and construction services, fuel supply and transportation, and operation and maintenance services. Finally, the developer must demonstrate his ability to meet his on-going obligations through the establishment of reserves or the procurement of insurance cover. The interrelationship of the resulting contractual arrangements is depicted in Table 2.

Through these arrangements, the developer spreads his risks and responsibilities to other private entities so as to assure the utility and lenders that the developer can fulfill his commitments to the utility. The developer, for example, usually requires the construction contractor to complete the facility by a date prior to the milestone date in the power purchase agreement, and, if the construction contractor is late, the construction contractor may be obligated to pay to the developer penalties comparable to

the penalties which the developer must pay the utility if the milestone date is missed. Similarly, if the fuel supplier fails to provide the agreed quantities of fuel at the agreed times and thereby causes the developer to incur liability for penalties to the utility, the fuel supplier might share that liability. Lastly, in the event of a natural disaster, the developer can and will rely upon insurance, the classic risk spreading vehicle.

## II. Experience in Developing Countries

Faced with a pressing need for additional, capital-intensive generating capacity and an approaching debt ceiling which sorely limits the ability of the public sector to undertake the construction of new power plants, a number of developing countries have embarked on the path of private power in recent years. Private power projects have been completed in the People's Republic of China, the Philippines and the Dominican Republic.<sup>4/</sup> Moreover, substantial progress has been made with private power programs in Pakistan, Turkey and Thailand.

In each case, the private developer has entered into a power purchase agreement with the national utility which contains commitments similar to those in the typical United States contract described above. Unlike the situation in the United States, however, the developer in a developing country is not surrounded by a series of similarly situated private parties to which the developer can spread the risks and responsibilities. As shown in Table 3, at each turn the developer confronts another arm of the same government which owns the utility to which the developer has made his original commitments. The project site, for example, may be owned by a governmental entity. General business and environmental approvals are issued by various government agencies. Fuel supply and transportation are commonly controlled by the government. And perhaps most importantly, foreign exchange with which to pay interest, overseas contractors and dividends is usually distributed by the national bank. If the government fails to exercise its prerogative to direct these various branches of the government to share the risks and responsibilities with the developer as do their private counterparts in the United States, the developer may not be able to meet his commitments to the national utility.

It is this near omnipresence and omnipotence of the national government that distinguishes private power in developing countries from private power in the United States. From these differences arise substantial political risk to

developers and their equity and debt investors, which developing nations must recognize and ameliorate or the chances that private power will succeed will greatly diminish. On the other hand, the government's control over so many of the necessary ingredients for a private power project provides it with a unique opportunity to solve the problems which confront the project and to ensure its success. The examples which follow demonstrate both the magnitude of the political risk and some of the solutions which the government has at its disposal:

#### A. Permits and Approvals

Early in the life of a private power project, the developer must obtain a series of governmental approvals relating to the generation of electricity, the storage and consumption of fuel, the importation of goods and services, protection of the environment, and the organizational and financial structure of the enterprise. A delay by the authorities in the issuance of an approval or the withholding of an approval altogether, however, might cause the developer to miss a milestone date in the power purchase agreement, and the failure to comply with a milestone date could entitle the national utility to collect penalties and, ultimately, to terminate the agreement. Even if the developer obtains each of the necessary permits initially, the government might refuse to grant renewals or might renew the permits with more stringent conditions attached. Once again, these governmental actions and inactions could cause the developer to incur liability to the national utility for penalties and could lead to termination.

The government could take several different steps to alleviate this risk for the developer. First, the government might guarantee the issuance of all necessary permits whenever application is made. Such blind approval, however, would leave the government exposed to the very evils that its regulations were designed to prevent. Alternatively, the government could require the developer to identify and make application for each of the permits it requires before the government executes any agreements with the developer. The government could then review the applications and ensure that the requirements of the law are satisfied before the government enters into the transaction and promises to grant the applications. What is the government's obligation, however, if the developer later discovers he requires an approval he neglected to request? What is

the government's obligation if the developer subsequently violates the conditions of the approval? If the government revokes the approval, must the government then issue the same approval upon receipt of a new application?

#### B. Force Majeure

Virtually every contract contains a clause which relieves the parties of their obligations upon the occurrence of an event which is beyond the control of the parties, a so-called "Force Majeure" event. Accordingly, if a hurricane damages a power plant, the owner will ordinarily receive an extension of time within which to deliver electricity, and the utility will be relieved of its obligation to pay for the power until that time. Moreover, the developer normally receives insurance proceeds with which to repair the facility, and he may even receive insurance proceeds for the revenue he has lost.

There are certain events, however, which could disrupt operations just like a hurricane, but which are generally uninsurable. These events could lead to inferior repair or inadequate operation of the facility and could result in the imposition of penalties or even in bankruptcy.<sup>2/</sup> Among these events are war, strikes and changes in laws such as taxes or duties. To the extent that these events take place inside the country, the government arguably has some control and, therefore, some responsibility for imposing these risks on the developer. To compensate for its involvement, the government might consider offering the developer additional assistance. Where insurance cover is unavailable, the government might lend additional funds to the developer for the purpose of servicing his debt and making repairs. The limits, if any, on these supplemental funds and the terms of repayment must be negotiated. If the Force Majeure event continues, however, investors who receive no dividends might grow dissatisfied or the government might wish to proceed with a replacement project. Thus, at some point, the Force Majeure event might well lead to termination.

#### C. Termination for Government Default

If either party to a contract commits a material breach of its obligations, the other party is usually entitled to protect its interests by terminating the contract after allowing the breaching party time to cure the

breach. Where the breaching party is the government, however, termination could be as harmful to the developer as to the government. If the developer terminates the agreement with the government because of a government breach, the developer will also suffer because the power purchase agreement with the government-owned utility, the only available market for the power, will simultaneously terminate. Accordingly, to safeguard the developer against this governmental risk, the agreement might include a commitment by the government to pay a substantial sum of money to the developer upon such a breach by the government. This remedy, in turn, raises questions about the accessibility of government funds and/or assets which could be seized to satisfy the government's obligation. Under ordinary circumstances, these funds and/or assets might be shielded by the doctrine of sovereign immunity. Moreover, for obvious reasons, local courts might well be disinclined to enforce a substantial judgment against the government.

#### D. Continuity of Payment

Paramount among the concerns of the developer and his lenders and investors is maintaining the ability to pay fixed operation and maintenance expenses, to service the large debt that private power projects typically entail, and to distribute dividends to investors. In order to accomplish this goal, the developer must receive regular payments from the utility, and, if the contractors, lenders or investors are foreign, the developer must be able to exchange these funds at the national bank for foreign currencies, must be permitted to remit these monies overseas, and must not encounter any delays along the way.

Given the government's central role in this process, its ability to disrupt the continuity of payment is evident. Although the government could direct the developer and his lenders to rely upon maintenance and debt service reserves in times of trouble, lenders would insist that the level of these reserves be sufficient to cover any foreseeable interruption. The funding of these reserves would significantly raise the cost of the project and, therefore, the price of power. Instead, the government might consider a variety of forms of assistance in order to increase the likelihood that private power will succeed. The national utility, for example, might post a letter of credit to support its obligation to pay the developer for power.

Alternatively, the government might guarantee the payments of the utility. In neither case, however, are the developer or the financing parties protected against situations in which the utility has no obligation to make payments to the developer. For example, if the developer were to encounter a Force Majeure event or to incur penalties which offset the payments from the utility, the government might agree to provide funding on a temporary basis to enable the developer to meet his debt service obligations. Similarly, if a dispute arises between the utility and the developer, the government might continue to provide the developer with minimal funding until the dispute is resolved. In all of these situations, if payments must be made off-shore, the government might also be obliged to guarantee the availability of - or at least priority with respect to - foreign exchange and the free transfer of funds.

### III. Conclusion

Although it is possible to address these and other manifestations of political risk in agreements such as the power purchase agreement, it may be preferable for the developer to execute a separate agreement directly with the government which focuses on these issues. Developers, lenders and investors will derive much comfort from direct governmental assurances which might be contained in this so-called implementation agreement. Unfortunately, there are as yet too few examples of private power projects in the developing world to draw any firm conclusions as to the contents of this implementation agreement. As in the United States, it will undoubtedly require years of experience to determine where the lines should be drawn. Moreover, the legal and economic differences among countries will always necessitate different contractual treatment. It is clear, however, that the more encouragement and assistance developers receive from the government, the faster they will construct new power plants to meet the growing demand in the developing world.

## FOOTNOTES

1/ Public Utility Regulatory Policies Act of 1978, Pub. L. 95-617 (Nov. 9, 1978). The other components of the National Energy Act were the National Energy Conservation Policy Act, the Powerplant and Industrial Fuel Use Act, the Energy Tax Act and the Natural Gas Policy Act.

2/ The Energy Information Administration of the U.S. Department of Energy estimates that non-utility capacity represented 4.7 percent of the country's total generating capacity in 1989. Annual Outlook for U.S. Electric Power 1990: Projections Through 2010 (Energy Information Administration 1990), pp. 11-12. RCG/Hagler, Bailly, Inc. estimates that this number is 5 percent.

3/ The Energy Information Administration of the U.S. Department of Energy estimates that non-utility capacity additions will represent 32,000 MW, or 31.3 percent, of the 134,000 MW of required capacity additions by the year 2000. Annual Outlook for U.S. Electric Power 1990: Projections Through 2010 (Energy Information Administration 1990), p. 10. The North American Electric Reliability Council estimates that non-utility generators will provide 18,100 MW, or 25.1 percent, of a required 72,200 MW by the year 1998. 1989 Reliability Assessment: The Future of Bulk Electric System Reliability in North America 1989-1998 (North American Electric Reliability Council September 1989), p. 15. Finally, RCG/Hagler, Bailly, Inc. estimates that non-utility generators will account for 40 percent of the 200,000 MW of capacity expected to be built by the year 2000.

4/ To date, a 700 MW coal-fired project has been completed by Hopewell Power (China) Ltd. in Shajiao, China; a 200 MW gas turbine project has been completed by Hopewell Energy (Philippines), Corp. near Manila, Philippines; and a 43 MW barge-mounted diesel powerplant has been completed by Seaboard Corporation in the Dominican Republic.

5/ Many countries have established agencies, such as the Overseas Private Investment Corporation, the Export Development Corporation, the Export Credit Guarantee Department of the United Kingdom, and the Ministry of International Trade and Industry of Japan, which offer nationals who invest overseas insurance cover for certain political events such as breach of contract and war, but the insurable events are narrowly defined and the insurance affords no protection to lenders.



ELEMENTS OF A POWER PURCHASE AGREEMENTDeveloper's Obligations

obtain land  
secure regulatory approvals  
obtain financing  
build plant of certain description  
obtain fuel  
operate and maintain plant

Utility's Remedies

security deposit  
penalties  
damages  
termination  
right of purchase/possession

Utility's Obligations

interconnection  
purchase power  
o fixed price  
o term of agreement

Developer's Remedies

deemed commissioning  
damages  
termination  
wheeling out

U.S SECURITY PACKAGE

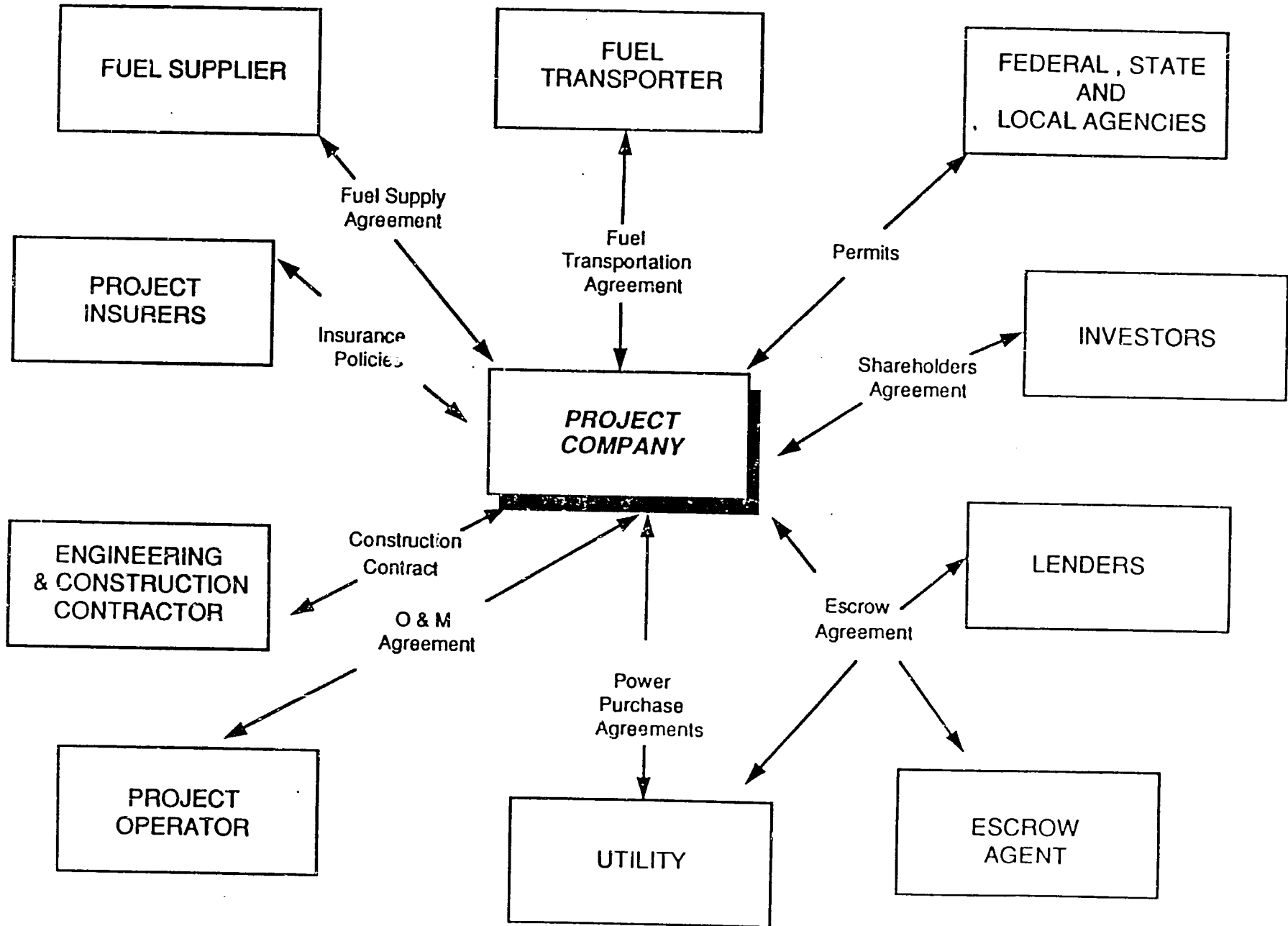
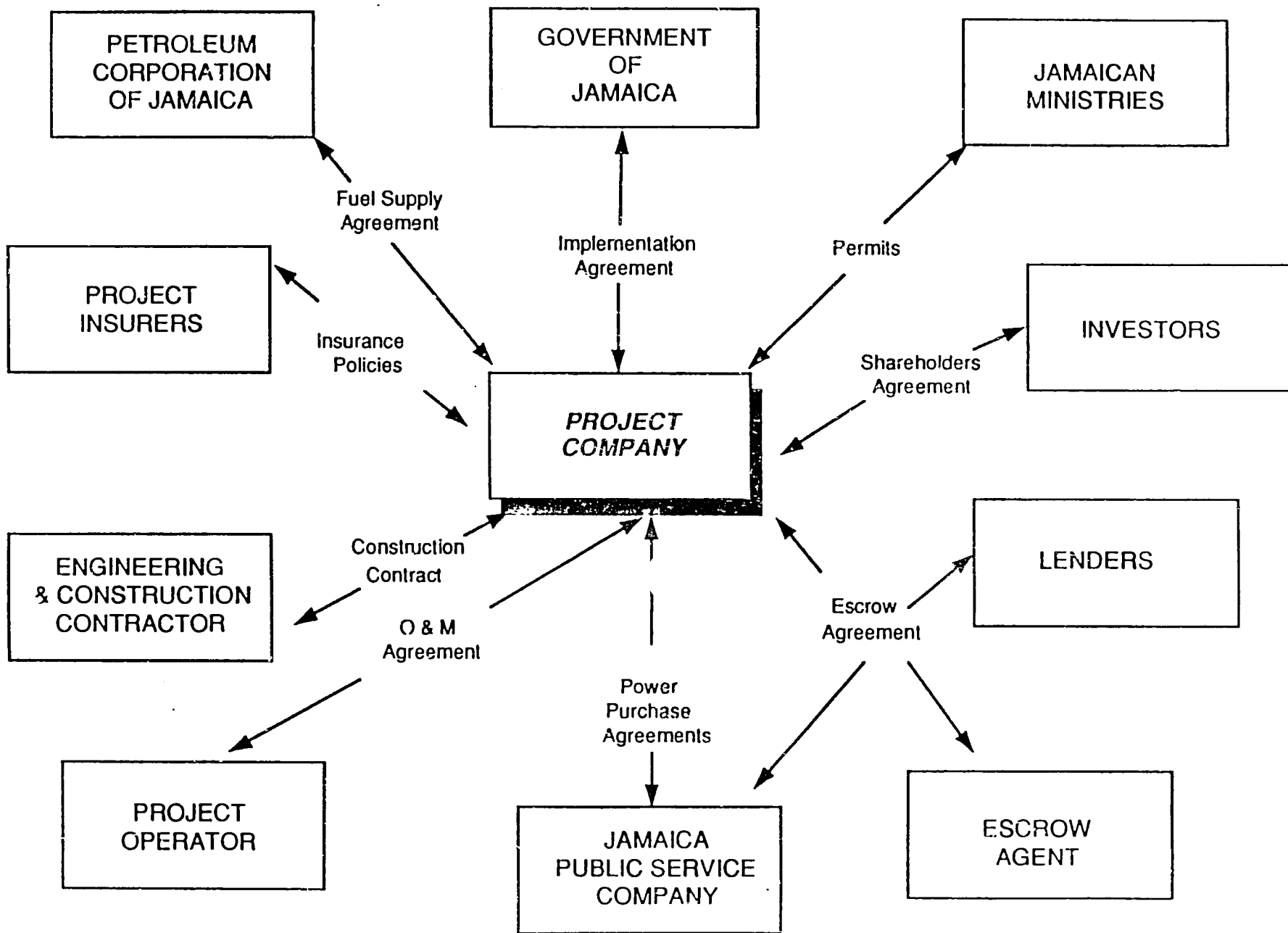


TABLE 2

**JAMAICAN SECURITY PACKAGE**



IMPLEMENTING REQUIREMENTS FOR PRIVATE POWER  
JAMAICAN LEGAL FRAMEWORK

Lennox Kirkwood Campbell  
Director  
Commercial Law Division  
Attorney General's Chambers  
Kingston

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

IMPLEMENTING REQUIREMENTS FOR  
PRIVATE POWER

JAMAICAN LEGAL FRAMEWORK

by

Lennox Kirkwood Campbell  
Director  
Commercial Law Division  
Attorney General's Chambers  
Kingston.

This paper sets out to examine the main legislations, Regulations and orders affecting the electricity services, energy, industry. It is not exhaustive.

It gives a brief look at the Constitution and political background of the country, and ends with a view of what legislation is likely to be needed in this Sector.

CONSTITUTIONAL BACKGROUND

Jamaica is a Sovereign State with a system of Government which is based on the Westminster Model.

The effective head of Government is a Prime Minister presiding over a Cabinet comprised of Minister over whose appointment and removal he has substantial control.

There is a written Constitution that enshrines the doctrine of separation of powers, place limitations on Parliamentary sovereignty, guarantees fundamental human rights, provide for judicial review of the constitutionality of legislation, places the responsibility for terminating a Judge's tenure of office in a judicial forum, and the vesting of full control over the public service and the conduct of elections in the hands of independent Commissions.

The Constitution recognises and accords special parliamentary status to the leader of the party in opposition to the Government in office.

Parliament, is bi-cameral, consisting of a Senate, whose members are appointed by the two major parties. Eight of the 21 members of the Jamaican Senate are appointed by the Governor-General on the advice of the Leader of the Opposition. The remainder are appointed by the Government.

The Lower House, the House of Representatives is an elected body. All changes of Government since Independence have been effected by the process of elections.

### CORPORATE LAW

#### (a) Company Law:

As regards the general body of law applicable to Corporations; The Companies Act, which came into effect 1st January, 1967 follows closely the format of the 1948 English Companies Act, the Common Law, i.e., Case Law governs a major aspect of it. The established principles are derived from the British common law system which includes the law relating to promoter contracts, directors, accounts, dividends, debentures, auditors, winding up and other such areas. In conjunction with the Companies Act the body of case law is consistent and is on par with the prevailing international standards.

#### (b) Incorporation

The process of incorporation is a fairly standard and settled procedure. It includes the registration of an Articles of Association and Memorandum of Association at the Registrar of Companies, the primary institution established under the Companies Act to monitor the operations of companies. It is a strict requirement of the Act that certain information is provided so as to secure a certificate of incorporation. These include and pertain to the name of the company; the registered office in Jamaica; the names of the directors; the share capital, statement that the company is limited by shares; the objects of the company. After these requirements have been satisfied the Certificate of Incorporation will be issued by the Registrar of Companies.

#### (c) Foreign Ownership of Jamaican Corporations and Repatriation of Profits:

The Exchange Control Act, 1954 is the relevant piece of Legislation with respect to the repatriation of profits.

The Bank of Jamaica is the major organ through which government policy in tandem with the Act regulates the movements and dealings in foreign exchange as they relate to the repatriation

of profits and the purchasing of Jamaican corporations by foreigners.

Approval will be given by the Bank of Jamaica to the remittance of profits and dividends arising from a non resident investment provided that the audited accounts and the balance sheet of the enterprise is presented to substantiate the claimed remittances and certification is duly obtained from the Commissioner of Income Tax certifying that all payable taxes have been settled.

Subject to the approval of the BOJ from resident corporations may repatriate capital from Jamaica in respect of all cases of non-resident investment in Jamaica that have been duly approved by and registered with the BOJ.

There are no major restrictions on ownership of business in Jamaica by non-residents but it is subject to the approval under the Exchange Control Act which necessarily involves the Bank of Jamaica and such approval may be granted with certain conditions.

Companies incorporated outside of Jamaica, which have complied with the provisions of the Companies Act, shall have the same power to hold lands as if it were incorporated in Jamaica.

(d) Business Incentives

The Industrial Incentives Act, 1956, empowers the Minister to declare a product, an 'approved product' if he is satisfied that the product would -

- (a) be of benefit to the Island, both economic and non-economic considerations being taken into account; and
- (b) have a beneficial effect on employment both in numbers and in gross wages.

A product on being declared an approved product, shall be entitled to relief from income tax in respect of profits or gains earned from the manufacture of the product for a period of up to ten years.

Section 15 provides inter alia, that the Minister may declare that the enterprise manufacturing the approved product, shall be entitled to one hundred or fifty per centum of custom duties imported for the construction, alteration, reconstruction or extension of the factory premises. Equipment necessary for the proper administration of the factory premises and for the health, safety, hygiene and welfare of employers and are included in the articles entitled to customs benefit.

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(e) The Approved Organisations and Authorities Loans (Government Guarantee) Act, 1948.

This enables the Government of Jamaica to Guarantee loans to approved organisations or authorities.

The Jamaica Public Service Company is an approved organisation for the purpose of the Act.

(f) The Government may well consider benefits along the lines of its present incentive legislation aimed directly at the energy industry.

(g) There is a Labour Code for the purpose of promoting good labour relations in accordance with -

(a) the principle of collective bargaining freely conducted on behalf of workers and employers;

(b) the principle of developing and maintaining orderly procedure in industry for the peaceful and expeditious settlement of disputes by negotiation, conciliation or arbitration.

Existing Legal Regime

(A) Legislative Enactment

- (1) The Electric Lighting Act, 1890.
- (2) The Electricity Development Act, 1958
- (3) The Electricity (Frequency Conversion) Act, 1957.
- (4) The Electric (Survey) Act, 1956
- (5) The Factories Act, 1943
- (6) The Public Utility Commission Act.
- (7) The Public Utilities Protection Act.
- (8) The Land (Clauses) Act.
- (9) Labour Relations and Industrial Disputes Act.

(1) The Electric Lighting Act, 1890 is the Centrepiece of existing energy legislation in Jamaica. This legislation contains provision against which private power was able to operate in Jamaica.

Section 3 provides, inter alia:



The Minister may from time to time license any local Authority as defined by this Act, or any company or person, to supply electricity under this Act for any public or private purposes within any area.

Local Authority is defined in Section 47 (Interpretation Section) to mean:

- (a) In relation to the Corporate Area as defined in KSAC Act, the Council of Kingston and Saint Andrew Corporation;
- (b) in relation to parishes not within the Corporate Area the Parish Councils of such parishes.

Section 3. Therefore empowers the Minister to license

- (1) Any Parish Council, Company or person -
  - (a) to supply electricity for any public or private purpose within any area

The License so issued by the Minister is subject to -

- (a) regulations under which the electricity will be supplied. The license will contain terms to enforce performance by the licensee as well as terms for its revocation. (See Section 3 (a)).
- (b) Where the licensee is not the Parish Council, the license may contain provision to enable the Parish Council, in whose area the plant is to be sited to break up road and alter waterways at the expense of the undertaker.

It is therefore clear that the Electric Lighting Act, 1890, can be used for the implementation of the participation of the private investor in the energy sector.

Section 4 of the Act provides for the alteration, rescission of any rule in relation to the application for licences, and for payments to be paid for such application.

Section 7. makes provision for Parish Councils who are licensed, to make contract for the supply of electricity or any works needed for such supply.

Section 13. This Section indicates that a supplier of electricity must allow for equality of term of supplies to all persons in a given area.

Section 26: Empowers the Electricity Authority to purchase undertaking and works after a certain period.

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Section 41: makes provision for the making of Way leave agreements between the undertakers and owner and occupier of land.

Section 46: allows the Minister to make regulations on several matters, inter alia:

- (a) to provide for the registration and inspection, and the standards of supervision of electrical plant, and supply of electricity whether or not such plant, installations of apparatus are intended for the supply of electricity under this Act for any public or private purpose.
- (b) to provide that any Authority, company or person supplying electricity for public or private purposes shall furnish to the Minister, in such form as the Minister may determine, such information relating to such generation and supply all the accounts in respect thereof.

2. The Electricity Development Act, 1958

Section 3. Establish and incorporates the Electricity Authority, whose functions are spelt out in Section 4, but may be summarised as the preparation and submission to the Minister of proposals for the Development of Electricity Sector.

Section 5. Allow the Electric Authority with the approval of the Minister to require any person supplying electricity to give the Electric Authority such information relating to supply and accounts thereof.

The essence of the two pieces of legislation just reviewed was the issuance of an exclusive license to supply electricity to all parts of Jamaica at reasonable rates and to sustain economic development within a safe, adequate and efficient framework.

3. The Electricity (Frequency Conversion) Act, 1957

The purpose of this legislation appeared to have been to set up a Commission with a view of effecting a standardisation for the provision of generation and supply of electricity at a frequency of fifty cycles.

Frequency Conversion was preceded by legislation to permit the obtaining, collection and compilation of information relating to the generation, distribution and use of electricity and the quantities and types of electrical apparatus in use.

4. (See Electricity (Survey) Act, 1956)

5. The Factories Act, 1943 Section 2 defines Factory to be:

Any premises in which persons (ten or more) are regularly employed or (XVI) for undertakings in connection with the generation of electric current by way of trade or for purpose of gain;

"Machinery" includes -

- (c) all apparatus or appliances for generating, developing, receiving or transforming, or for measuring or testing the volume, voltage, pressure or frequency of, or for distributing or applying, any mechanical, electrical or natural power to any industrial or manufacturing process in the Factory.

The legislation demands Registration of new Factories. (Section 6).

Section 12 provides for the making of regulations for the purpose of ensuring safety, health and welfare of person employed in a factory, or in connection with machinery.

Rules may also be made for the periodic inspection, testing and classification of boilers, etc. and for the issue and display of certificates. Rules may also be made for sanitation and maintenance.

6. The Public Utilities Commission Act, 1967.

When this legislation was being drafted in 1966, the public utilities in Jamaica, Electricity and Telephone were in private ownership.

It was pointed out by the legal draftsmen, then, "the system of regulating privately owned public utilities by commissions appointed by Government has received widespread acceptance in the United States of America and we have drawn heavily on the American experience in preparing this legislation.

It is clear that important utilities and the equally important decisions which would have to be taken concerning the service rendered by those utilities to the public could not be left solely to the Board of Directors of the Private Companies.

Section 4 (1): This lists the functions of the Commission and states the powers that are given to the Commission to ensure that it will be able to carry out the functions.

It states that it is the duty of the Commission to ensure that a controlled public utility renders satisfactory service at reasonable rates, and will assist the Commission in fulfilling its

task.

The Commission is given the power to -

- (a) enquire into the nature and extent of utility services and to determine standards which must be maintained in relation to such services;
- (b) to determine the rates which may be charged;
- (c) to require a controlled public utility to undertake development programmes.

Section 8 (1): This clause gives the Commission the power to prescribe rates charged by a public utility for its services.

Under this clause the Commission can institute proceedings to fix rates either on its own initiative or at the request of the utility or any other person.

Section 9 (1): This clause gives the utility the right to submit an application to the Commission for approval of a proposed tariff.

If the tariff is approved by the Commission the date suggested by the utility must not be earlier than 30 days after the application is made.

Section 13 - This clause deals with the grant of certificate of necessity by the P.U.C. This clause will enable the utility to acquire land even in cases where the utility and the land owner cannot agree on a price. The clause can only be invoked where the Commission by notice published in the Gazette declares that the purchase is necessary for the purpose of the activities of the utility which will relate its main functions.

(7) The Public Utility Protection Act, 1984

Imparts criminal sanctions for anyone who breaches the act in any of the following ways:

1. Trespass on the equipment of the public utility (Section 3).
2. An employee who meddles, interferes, or tampers with the work or any part thereof. (See Section 4)
3. Any director, officer or employee of a public utility, who solicits, receives or agrees to receive for himself or any other person -

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- (a) An inducement to show preference or to have preference shown, as the case may be, to any person in the provision of services by doing or forbearing to do of anything in respect of any transaction, actual or proposed related to such services; or
- (b) as a reward for showing preference or , as the case may be having preference shown, as mentioned in paragraph (a) (See Section 5)
- (c) Any person who offers an inducement to a director, officer or employee of a public utility to show preference in circumstances outlined in 3 (a) and (b) above.

8. The Labour Relations and Industrial Disputes Act, 1975

Section 2 defines an "essential service" as any of the services set out in the First Schedule;

The First Schedule contains the list, inter alia,

Water Services

Electricity Services

Health Services

Section 9 - Provides that when there is an Industrial Dispute in an undertaking providing essential services - any party to the dispute, or anyone acting on their behalf may report a dispute to the Minister.

Within 10 days of the receipt of the report:

- (1) refer the dispute to the Tribunal for settlement if he is satisfied that attempts were made, without success, to settle the dispute by such other means as were available to the parties.
- (2) give directions in writing to the parties to pursue such means as he shall specify to settle the dispute if he is not satisfied that attempts were made to settle the dispute by all means as were available to the parties.

If either party to the dispute informs the Minister his

instructions have been followed without success then within 10 days of such report the dispute shall be referred to the Tribunal for settlement.

Subsection (5) provides:

"Any industrial action taken in contemplation or furtherance of an industrial dispute in any undertaking which provides an essential service is an unlawful industrial action unless -

- (a) The dispute was reported to the Minister (as above) and he failed to take the necessary steps.
- (b) that the dispute was referred to the Tribunal for settlement and the Tribunal failed to make an award within the period specified in law.

Licence under the Electric Lighting Act, 1978

The All-Island Electric Licence, 1978

The preamble to the Licence reads -

Licence granted by the Minister under the provisions of Section 3 of the Electric Lighting Act authorising Jamaica Public Service Company Limited to erect operate and maintain electric lines and works and to supply electricity for public and private purposes within the island of Jamaica.

Section 5 provides:

"Subject to the provisions of this Licence the Company shall provide an adequate service, safe, efficient and on modern standards, to all parts of the island of Jamaica at reasonable rates so as to meet the growing demands of the Island and to contribute to economic development:

Provided that all investments must be supported by some or all consumers in the Island and/or such contributions in aid as are herein specified.

Section 6 - The Company shall have the exclusive rights to provide a service within the framework of an All-Island Electric Licence and the All-Island Integrated Electrical System.

Provided that no firm or corporation or GOJ or other

entity or person shall be prevented from providing a service for its or its own exclusive use. Nothing herein shall preclude two or more metal production firms from joining together as owners or operators of a generating plant to provide electric service for its own metal production purposes.

Section 7 - The Company shall have the right to purchase electricity in bulk from private suppliers for transmission and distribution through the All-Island Integrated Electrical system. Subject to consent by both parties any dispute as to the terms and conditions on which such transmission take place may be determined by the Minister.

Section 19 - (a) Subject to the provisions of sub-paragraph (b) hereof the Company shall upon being required to do so by the owner or occupier of any premises not already served situated within two pole spans totalling more than 300 feet but one pole span where the said first span exceeds 300 feet along a public road or highway from any distribution line of the Company give and continue to give a supply of energy for such premises at no construction cost to such owner or occupier up to the distance along a public road or highway aforesaid.

Provided that the Company will give a supply or energy for any premises so long as the owner or occupier will contribute to the Company the cost of distribution line extension in excess of the aforesaid distance. The cost of so much of the service line as may be passed over the property of such owner or the premises of such occupier and so much of such service line as may be necessary for a greater distance than 100 feet from the point of connection to the distribution line shall, if the Company so requires, be defrayed by such owner or occupier. If the service line is required to be laid underground the Company will bear the equivalent cost of up to 100 feet of overhead service line. The Company may require such owner or occupier for when such distribution line extension is constructed to agree to pay for electricity service for a period of two years at the applicable rate in force from time to time.

(b) Should transformation of voltage be required then the Company may require such owner or occupier to contribute to the Company, part or all of the cost of providing and installing the transformation facilities.

Section 21 - Subject to paragraphs 22-23 hereof the Company shall be obliged to exercise good faith and reasonable diligence to make extensions and improvements to its generating, transmitting and distribution system as promptly as is feasible in order to make electricity available to all parts of the island.

Clause 25 - The Company may exercise such rights and shall observe such conditions relating to wayleaves, entry of private property and the construction of lines above or below ground, as the relevant laws may prescribe. In addition the Company shall have the right to trim tree or shrubbery which may overhand any public way and may interfere with electric lines or cables constructed by the Company.

### Protection of Investment & Dispute Resolution

The Jamaican Constitution protects property from compulsory acquisition, save and except in circumstances invoked by the Constitution itself.

#### Dispute Resolution

##### (a) The Investment Disputes Awards (Enforcement) Act, 1967

Section 3 - provides for awards of the International Centre for Settlement of Investment Disputes to be enforceable in the Supreme Court as if it were a final judgment of that Court.

The purpose of the Centre (which is based at the Principal Office of the IBRD) is to provide facilities for conciliation and arbitration of investment disputes between Contracting States and Nationals of other Contracting States in accordance with the provisions of this Convention.

##### (b) Arbitration (Foreign Award) Act, 1931

The Act make (Foreign Awards) enforceable in the Jamaican Courts.

Section 3 (2) provides:

"Any foreign award which would be enforceable under this Act shall be treated as binding for all purposes on the persons as between whom it was made and may accordingly be relied on by any of these persons by way of defence, set-off or otherwise in any legal proceedings in Jamaica.



(c) Settlement may also be under the aegis of the Arbitration Act, 1900.

which provides clear stated formula for settlement of disputes in the Jamaican Courts.

THE WAY FORWARD

In the United States the advent of the Public Utilities Regulation Act; 1978 (PURPA) enabled private companies to involve in power generation.

Generation of electricity was regulated by the Public Electric Commission which regulated retail sales. No private company could generate power without being subject to rate regulation. In Jamaica in the 1960's, the major utilities - electricity, telephone, urban passenger transport - were all regulated. Electricity and telephone were regulated along basically American lines, via Public Utilities Commission.

When the Government of Jamaica acquired the equity of Stone and Webster, in the 1920's regulation ceased, perhaps, for the reason that public ownership rendered Public Utilities Commissions unnecessary, it was dissolved.

The legislation is in place, the Public Utilities Commission should be revived prior to the generation of power by the private sector.

The Electric Lighting Act and the All Island Licence, granted pursuant to it, makes provisions for the purchase of power by utilities from private power sources.

Yet, it may well be found to need legislation for greater definition and classification of the several issues involved.

Legislation is needed to encourage new able sources of power, co-generation etc.

We ought to examine, sources, such as bagasse, wood, hydro-electricity etc.

In the wider arena, the time has come to look at the question of anti-trust, price - living, restrictive practices and cartilisation.

The legislation that has been examined as electricity impacting on the energy sector, for the most part, has the common theme of public interest, and the public good 'running through it. It is my respectful view that we should maintain that theme.

1. The New Commonwealth and its Constitutions.
2. Halsbury Laws of England.
3. A Report to Congress, power shortage in Developing Countries.

FINANCING PRIVATE ENERGY/POWER PROJECTS:  
RISKS AND SOLUTIONS  
ARRANGING DEBT FINANCING

Bernays T. Barclay

Vice President, Senior Banker

Citibank, N.A.

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR OF JAMAICA

Kingston Pegasus Hotel  
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FINANCING PRIVATE ENERGY/POWER PROJECTS:  
RISKS and SOLUTIONS

ARRANGING PROJECT DEBT FINANCING

by

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Project Finance Group

Despite widespread and growing interest in private development of power projects in developing nations worldwide, very few such projects have actually closed financing.

Even in domestic U.S. projects, financeable non-recourse project structures are very difficult to develop. The contractual structure is fashioned so as to meet the lender's expectations: Thus, a 10% cap on contractors' liquidated damages for delay and deficiency in performance would be "off market". On the other hand, a 30% - 50% cap on liquidated damages may be difficult to obtain at any price, but may make the difference between financing and not financing the deal.

When the complexities of foreign exchange and convertibility risks, unfamiliar laws, regulations, tax structures and contractual environments are added, it invariably becomes a terribly frustrating task to obtain private financing which is non-recourse to the national government.

The basis for credit extension in a non-recourse power project is very largely the credit of the purchaser of the power. Therefore, where the solution that is being sought is to build a project to serve a large, undifferentiated portion of the utility's electric load, the credit of the utility, and thus the government, becomes the lender's primary focus. The government has many needs for capital, however, and like all borrowers, has

a finite amount of credit available to it. Thus I would not consider a large project with a substantial amount of debt guaranteed by the government of Jamaica, to be a first-tier solution to the nation's energy needs, even if the financing is called "Project Finance" and is non-recourse to the developer.

In short, I have become convinced after studying the efforts of developers from Asia to Canada to the Caribbean, that bigger is not better. Some say that it is just as difficult to put together a large project as it is a small one, but I would disagree strongly. I think it is mainly the consultants and lawyers who make money regardless of the project's success, who propagate that theory. In the domestic U.S. market, I have seen many times more small projects financed than large projects on a private non-recourse basis.

As a practical matter the project needs to be large enough to bear USD \$1-2 million in development costs without jeopardizing its economics. In addition it would be useful if it were sizeable enough overall (USD \$25-50 million) to interest sophisticated non-recourse lenders. The primary goal for efficient non-recourse financing, however, should be to match the size and structure of the project and financing to the needs of specific, creditworthy end users of the power.

If this can be achieved, I believe projects will be developed faster, with less political and economic stress, and with a higher percentage of success, than can be attained if large developments are attempted.

On the following pages I have set out in bullet-point fashion the principal considerations of structuring non-recourse financing as Citibank approaches it. There will not be time to discuss it in detail, but I hoped it would be useful to illustrate the complexity of the task, and to structure further discussions.

## 936 Funding of Projects

I have been asked specifically to address the application of 936 funds to project financing. You have already heard, in this and several prior conferences, a great deal about 936 funds. Citibank has the greatest degree of access to the 936 Market of any commercial bank. Assuming that the project qualifies for 936 funds, we would obtain 936 funds to reduce the cost of borrowing in substantially the same way we access the commercial paper market for projects in the United States.

There are two basic approaches to the 936 market, either or both of which may be employed in any given project financing. 936 investors do not as yet take project risk. They require a credit backstop of AA or better. Further, half of the 936 market invests for 180 days or less. There is, however, an important market for 5 year investments.

In a given project, in order to access the 5-year 936 market for a portion of the debt, we would first select commercial bank project lenders with appropriate credit ratings. For a tranche of 5 year 936 investors, one of those banks would be solicited to provide a 5 year letter of credit to backstop the 936 investment, in lieu of providing direct project loans in that amount.

The 936 market is a floating rate market. In many cases, however, it would make little sense for the project to take interest rate risk. So many aspects of the project are fixed (including the cost and revenue/expense relationship) that interest rate volatility is not desirable. Where a project's operating profit varies with inflation, however, or some other fluctuating index (where, for instance, both power sales and fuel purchases are set to the same inflation index), some degree of interest rate risk may be appropriate.

If the tranche were larger than the lender was willing to handle, the other commercial bank lenders in the project syndicate would provide their letters of credit to the first bank to support it, since 936 investors do not really want to look at more than one institution's credit.

With the 5 year 936 funding, fixed rates may be available, through a swap arrangement in which essentially the borrower, and not the investor, is swapped.

All-in costs to the project of this arrangement would include the 936 rate, (essentially 80-85% of LIBID), the fronting bank fees, which may be 50-100 bp up front and 75-125 bp annually, and the swap cost, which will be determined based on the swap market availability at the time. Since the fronting bank is taking project risk, the annual LC fee will be at least as large as the credit spread on the direct loans that would have been made absent a 936 program. Where the front bank is taking some bank risk rather than project risk for a portion of its LC, it will share a portion of the front end and annual fees with the other participant banks, to represent their project credit spread.

At the end of the 5 year term, the fronting banks may renew for another 5 years, or go to direct loans to the project.

Another means of accessing the 936 market is on the short end, not unlike a commercial paper program. Here we would be dealing with the portion of the capital structure that would take interest rate risk, including the risk that 936 funds may be unavailable due to U.S. legislative action. Essentially the same double A fronting bank structure would be put in place, for as long a term as could be acquired at reasonable cost. Then a placement agent with access to the 936 market would place and roll over 30-180 day 936 investments during the term of the letter of credit. Again, the all in costs would include the 936 interest and the up front and annual bank letter of credit fee. No swap cost would be imposed, but there would be a fee for the placement agent of 1/8 to 1/4 annualized for the paper actually placed.

Where a bank syndicate is in place then, the costs of a 936 program may be analyzed as follows:

936 investor interest  
+ fronting bank credit spread for bank risk and admin  
+ project bank letter of credit fee  
    (may be the same or 1/8 less than credit spread  
    on direct loans)  
+ swap costs if applicable  
+ placement agent costs if applicable  
All in cost

This compares favorably to a commercial paper program in several respects. First, only a double A fronting bank is needed, rather than triple A for CP programs. Second, since 936 investments are interest bearing, the fronting bank LC's can be equal to the amount of the borrowing. In CP programs for projects, the LC may need to be larger than the funds received, because the paper is sold at a discount. Most importantly, a project may pay for a fronting bank LC to allow it access to the CP market only to find that the basis differential between CP rates and the project's alternative LIBID basis is not great enough to compensate for the transaction costs. Thus a CP program would be paid for but unusable. With a 5-year 936 investment, there would be no fee to the fronting banks until the rate-advantaged 936 borrowing were closed.



## PROJECT FINANCING

- o Financing which is non-recourse to sponsors (developers, owners) beyond the extent of their equity commitment
- o Basis for Extension of Credit
  - \* Contractual Arrangements (collaterally assigned) with capable, creditworthy parties or guaranteed by acceptable credits
    - Site ownership or lease
    - Engineering, Procurement, Construction
    - Fuel Supply
    - Off-Take Purchase (electricity/steam)
    - Interconnection/Transmission
    - Operations and Maintenance
    - Insurance
    - Equity Commitments
    - Security Interest in Physical Assets.
  - \* Projected cash flow coverages of principal and interest payments
    - Contractually locked-in differential between revenues and costs
    - "Shirt-tail" of coverages extending beyond term of debt
    - Temporary weaknesses in coverages covered with reserves or cash sweeps
    - Minimum 1.2X; average 1.4X after taxes

(a)

PROJECT FINANCE  
BENEFITS TO PROJECT OWNERS

- o Distributes risk to contracting parties
  - Engineering, Procurement, Construction Contractor
  - Fuel Supplier
  - O&M Contractor
  - Off-Take Purchaser
  - Equity Return Subject to Operational Risk
  
- o Preserves Debt Capacity of Owner, Offtake Purchaser, Utility
  
- o Off-Balance Sheet
  
- o Higher Leverage than Corporate Capital Structure
  - Can increase equity return
  - Reduces cost of capital
  
- o Tax/Accounting Benefits
  
- o Minimizes conflict with Sponsor's other restrictive covenants
  - Debt and equity instruments
  - Charters
  
- o Protects Sponsor's other Assets
  
- o Provides Financing Not Otherwise Available to Sponsor

(b)

PROJECT FINANCE  
ATTRACTIVENESS TO LENDERS

- o Hard Asset
  - Long-lived
  - Produces cash flows
  - Secured deal
  
- o Predictable Economics
  - Established cost-revenue relationship
  - Little or no market risk for output
    - . Demand growth for output
    - . Take-or-pay purchaser
  
- o Fee Potential
  
- o Higher Interest Rates

(c)

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## PROJECT FINANCE

### OWNER/DEVELOPER TRADE-OFFS

- o Undiversified Risk to Lenders Results in:
  - Fixed returns to equity with little windfall profit potential
  - Limitations on Ownership/Management transfers
  - Extensive due diligence
  - Complex and lengthy credit documentation
  - Higher structuring fees
  - Higher interest rate spreads
  - Higher transaction costs
    - . Counsel
    - . Independent Engineers
  - Higher cost/risk during development (prefinancing) stage

(d)

PROJECT FINANCE  
LENDER'S RISK ANALYSIS

- o Capabilities of Owners/Developers/Sponsors
- o Off-Take Buyer's Long-term Creditworthiness
- o Technology
  - Proven commercial application
  - Competitively low cost
- o Site Control
- o Fuel Availability
- o Interconnection/Transmission Interruptibility
- o Environmental Impacts
  - Compliance with regulations
  - Potential lender liability
- o Regulatory/Legislative Environment
  - Potential interference with essential project economics
    - . Contractual interference/enforcement
    - . Tax rate on sales of electricity
    - . Tax rate on purchase of fuel
    - . Other taxes/royalties
    - . Changes in taxes/royalties over time
  - Burdensome regulation of owners/lenders/contracting parties
  - Change in regulation of project operations

(e)

o Construction

- Single point responsibility
- Creditworthy contractor
- Price control
- Timely completion
- Force majeure
- Guaranteed performance standards
  - . Efficiency
  - . Capacity
- Insurance

o Operations

- Capabilities of O&M contractor
- Business/contractual management
- Availability of spare parts
- Availability of specialized maintenance contractors
- Insurance

o Project Economics

- Matching of costs and revenues
  - . Fixed costs - capacity payments
  - . Variable costs - energy payments
- Matching price adjustments
- Interest rate sensitivity
- Project contracts
  - . Match term of debt and shirrtail
  - . Ability to cure defaults
  - . No open ended project liabilities

o Funds Management

- Permission to borrow foreign currencies/pay in foreign currency
- Exchange rates
- Interruption of convertibility
- Logistical competence of borrower

(f)

PROJECT FINANCE

ROLE OF HARD EQUITY

1. Improve pro forma debt service coverages.
2. Provide incentive for close management attention to potential problem areas in construction: Cost overrun sharing.

## PROJECT FINANCE

### LENDER PROFILES

#### Bank Lenders

Senior secured debt  
Construction and Term  
Multiple takedown  
Floating or fixed rates  
Letters of credit or  
direct loans  
Refinanceable  
Agented underwriting  
100% debt  
Long term (17 years)  
Portfolio cross border  
limitations

Low interest cost

#### Export Credit

Usually requires Government  
participation in ownership

Requires Government guaranty  
or comfort

Value of equipment  
5-30 year term

Fixed rates  
Substantial grace periods  
Lowest interest cost

#### Vendors/Contractors

Deeply subordinated debt  
May be secured  
Limited to vendor's profits  
Convertible to Equity  
Floating rates  
Highest interest cost

#### Institutional Lenders

Senior secured debt  
Construction and Term  
Single takedown  
Fixed rates  
Direct loans only

Refinancing difficult  
Best efforts placement  
100% debt difficult  
Longer term (20-23 years)  
Statutory and portfolio  
cross border  
limitations

Higher interest cost

#### International Lenders

(IFC, IADR)

May require Government  
participation in  
ownership  
Direct loans or guarantys

May limit vendor choice  
Portfolio limitations  
10 year term  
High interest cost  
"Complimentary" debt  
Not 100% of debt needs  
Fixed or Floating rates

#### 936 Investors

No project risk  
Require investment grade  
rated credit backstop  
Terms 180 days - 5 years  
Require approval of  
investment  
Low (tax exempt) interest  
cost

(h)

20



PRIVATE PROJECT  
STRUCTURES

- BOT - Build, Own, Transfer.
- BOOT - Build, Own, Operate, Transfer.
- BOO - Build, Own, Operate.
- BOL - Build, Own, Lease.

## PROJECT FINANCE

### ACCESSING THE DEBT MARKET EFFICIENTLY

1. Match type of project to user's specific electrical need within the limits of fuel availability.
2. Integrate the financial structure with the contractual structure.

PROJECT FINANCING  
JAMAICA POWER PROJECT  
POTENTIAL STRUCTURE

- Benefits - Efficient (low cost) access to debt markets.
- Non-recourse to owner, utility or customer.
  - Does not utilize Jamaica debt capacity.
  - Matches F/X risks with benefits.
  - Increase Island total generation.
- Key - Match size and type of project to needs of one or more industrial customers who are:
1. Electrically accessible (if necessary, transmission through JPS.)
  2. Exporting product for sale in U.S. Dollars.
  3. Creditworthy, or have a creditworthy parent/guarantor.
- Due to economies of scale it may be possible to over size somewhat, without adding significant capital cost.
  - With cooperation, valuable excess power may be available to the utility on a regular basis or during off peak periods for the industrial customer.

(k)

JAMAICA POWER PROJECT  
(Continued)

Structure - BOOT

- o Third party development and ownership.
- o Power sales to exporting industrial directly, on take-or-pay (capacity credit) basis and coverage of variable costs of generation.
- o Insert a dispatching and transmission contract with the utility if additional remote industrials are to be purchasers.
- o Industrial's obligations to pay in U.S. Dollars at an acceptable place (probably escrow account in New York or possibly Puerto Rico), guaranteed by international parent.
- o Excess (and emergency) temporary power sold to utility on separate contract: take or pay (for any predictable excess) and variable costs of generation for economy sales. Utility to pay directly to project in local currency plus FX rate for component representing variable fuel cost.
- o Utility indemnifies project for changes in applicable Jamaica and local taxes on project operations or fuel supply.
- o Utility's performance obligations (including obligations to pay for power) guaranteed by the government.

- o Priority of payments by escrow/collateral agent:
  - Project operating expenses plus fuel
  - Provision for taxes
  - Service debt interest plus principal amortization
  - Debt service reserves
  - Subordinated creditors interest and principal
  - Excess available for distribution to owners
  
- o Some combination of capacity and energy credits paid by the utility and tax holidays for the project and/or the industrial, may be necessary to generate savings necessary to capitalize the project in a reasonable term. One way may be to let the industrial have non-recourse (limited partnership) ownership for tax purposes in Jamaica to allow benefits of depreciation to be transferred to an efficient user.
  
- o After financing is repaid, transfer project to the utility at nominal cost. Utility begins serving industrial directly, at reduced rates.

(m)

FINANCING PRIVATE ENERGY/POWER PROJECTS;  
RISKS AND SOLUTIONS  
Arranging Equity

Elon Beckford

President

Banker's Association of Jamaica

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
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7/21

ARRANGING EQUITY

by

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To be Presented

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The Energy/Power Sector of Jamaica

To be Held

September 10-12, 1990

Jamaica Pegasus Hotel

Kingston, Jamaica

## ARRANGING EQUITY

by  
Elon E. Beckford  
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### SUMMARY

The paper takes a broad look at the present investment climate and has highlighted the fact that a high preference exists for low risk investments. The preference for short term capital gain provides a real challenge for any aggressive equity mobilization programme.

The Stock Exchange has been identified as having an important role to play. However, regulatory changes are needed.

The current withholding tax of 33 1/3 percent of dividends earned has been identified as a disincentive to any major equity investment programme.

The need for financial institutions to develop a more liberal position towards equity investments have received special focus.

An effective educational programme highlighting the benefits of equity investments has been identified as an area for early action.

Potential sources of equity funding totaling more than J\$2.0 Billion have been identified.

### INTRODUCTION

This paper is being presented against the background that the Government of Jamaica has given a commitment to ensure that there will be opportunities for Private Sector participation in the development of the energy sector and its infrastructure.

It is estimated that a minimum expenditure of US\$1.0 Billion will be required over the next 10 years to upgrade and expand Jamaica's energy and power needs. Assuming a minimum 30/70 ratio between equity and debt, a minimum of US\$300 Million or J\$2.1 Billion in equity support would be required during this period.

The principal focus of this presentation will be to identify possible sources of equity funding from the Jamaican market. Mention will also be made of some international possibilities for equity investments.



## A BROAD LOOK AT THE PRESENT INVESTMENT CLIMATE

The institutional or individual investor has several attractive investment alternatives in the current market.

With return on Safe Investments as high as 30% and Real Estate appreciating at an average annual rate in excess of 15% (plus cash yield) within recent years - It is evident that any equity investment offering must carry with it an attractive return to the investor. The Jamaican Stock Market index has increased from 2075.85 as at December 31, 1989 to 2235.99 as at August 31, 1990. Investors in the market have experienced fluctuating fortunes. As at August 31, 1990 the market value of companies listed on the Jamaican Stock Exchange was just over \$6.0 Billion.

The Investment climate is currently one in which there is a high preference for low risk investments. Risk capital is not always readily available. However, as the paper will reveal some amount of existing financial resources could be shifted into new investment opportunities.

## NEW THINKING NEEDED

Investment in equity is coloured with expectation of immediate capital appreciation especially in respect of common stocks listed on the stock exchange. This "mind set" has received support from some experiences in the 80's when some investors received substantial early appreciation from some listings emanating from the privatization programme. However subsequent listings under the same programme did not provide the expected growth and as a result some investors have become more cautious towards the market.

For us to experience the full benefits of the market it will be necessary to develop and implement an effective National Education Programme. The consistent understanding that equity is a long term investment is most times lacking at the institutional and individual levels. The long term focus must be an integral part of any educational programme developed for this purpose. The spreading of ownership of productive enterprise among the broad populace engenders a feeling of participation and contributes to greater economic and social stability. The ultimate goal of such a programme would be to increase the number of savers who would be willing to invest in shares.

## INVESTOR CONFIDENCE

It is generally accepted that some potential equity investors do not fully understand what is entailed in share investment and do not have the confidence that they will be treated fairly if they were to invest. A system of standardized reliable information flow will help to assure investors that the market operates on the basis of accurate and complete information.

7/12/90

There is consensus that some form of regulation for the protection of public investors is needed and should be implemented. To date there has been no major scandal or other demoralizing event in the financial markets. The proposal to institute a regulatory system is to prevent any confidence-destroying incidents and to inspire public confidence. Work has commenced on the required act for the establishment of the Securities Regulatory Commission. The proposed commission would be empowered to issue rules and regulations to regulate the capital market and its participants. The intent is to rely upon the Stock Exchange as a self-regulatory body with initial responsibility to regulate its members, subject to supervision by the proposed commission. The Stock Exchange will have an important role to play in any programme for arranging equity for the energy sector.

### THE STOCK EXCHANGE

The Stock Exchange was established in 1969 and has developed into an accepted National Institution. The small competent staff appears to lack the independence required to be fully effective in regulating the exchange members. The Governing body is controlled by the member Brokers and include representatives of the Government. The view has been frequently that the system whereby Brokers have majority control is not conducive to optional self-regulating. A decision to change the structure to one which would provide for the majority of the members on the Stock exchange council to be outsiders would have a positive impact on investors confidence. The exchange should become more active in encouraging share investment and additional company listings.

The conditions for listing a new company are not onerous. The two principal requirements are as follows:

- (a) A minimum issued share capital of \$100,000
- (b) A minimum of 100 Shareholders owning 20% or more of the issued share capital.

### INCENTIVES

Companies are being encouraged to capitalize earned surplus and issue additional shares as stock dividends. Under this programme a company is authorized to capitalize up to 50% of its taxable income, issue stock dividends for this sum and thus qualify for a tax credit for half the amount capitalized.

Another attractive incentive in place is the tax exemption for all capital gains. Although the market has a strong preference for capital gains most of the companies listed on the exchange have maintained a high dividend pay out policy.

Companies listed on the Exchange pay no tax on share transfer while unlisted companies pay a 7 1/2 percent transfer tax.

2/17

### DISINCENTIVE

A major disincentive to the mobilization of equity funding is the current practice of double taxation which prevails in respect of dividend earned by shareholders. The withholding tax payable is currently 33 1/3 percent of dividend earned. The removal of this disincentive is pre-requisite for a successful equity mobilization programme for the energy sector.

### SOURCES OF FUNDING

Can the amount of J\$2.1 Billion in equity funding be supported by the Jamaican market? In this section an attempt will be made to identify some of the possible sources.

For a satisfactory level of success in the equity mobilization programme it will be necessary for all major institutions involved in savings mobilization to participate actively in the programme. It is recognized that any aggressive involvement in equity financing, will in the short-run adversely affect the revenue flows of these institutions. A well structured programme could result in a reversal in the long term. The arguments against using short-term savings to fund long term investments are well known. However, a detailed study will reveal that the average stability of the pool of savings is very high, and as such should give financial intermediaries the level of comfort necessary to take the risk..

Based on the present structure of the Jamaican economy the increased involvement of these institutions in equity investments must become an integral part of the developmental strategy.

The possible local funders could be classified into five broad categories -

- (a) Commercial Banks
- (b) Other Financial Institutions
- (c) Non-financial Corporations
- (d) Pension Funds
- (e) National Venture Capital Fund

### COMMERCIAL BANKS

Historically, commercial banks have never been active participants in the equity market. Taking into consideration the large pool of resources controlled by the sector it is difficult to envisage any successful large scale equity mobilization programme without full participation from the banks. It is estimated that equity investments of commercial banks are currently below one percent (1%) of total invested funds.

The following are some of the financial highlights of Commercial Banks as at June 30, 1990.

Assets	\$18.4	Billion
Deposits	\$11.1	"
Shareholders Equity	\$ 0.78	"
Loans	\$ 7.7	"
Fixed Assets	\$ 0.37	"

Based on the above figures it is estimated that the possibility exists for banks to increase their investment in equity to a maximum of 10% of their combined deposits, this would make additional equity capital of approximately \$999.0 Million available to the market.

#### OTHER FINANCIAL INSTITUTIONS

The major players in this category would be companies licensed under the Protection of Depositors Act, (PDA's) which includes (Merchant Banks, Trust Companies) Life Insurance Companies and Building Societies.

The PDA's have experienced substantial growth during recent years and as at June 30, 1990 their records revealed the following:

Assets	\$4.6	Billion
Deposits	\$2.8	"
Shareholders Equity	\$0.25	"
Loans	\$2.9	"

Although the detailed information is not available as to the level of equity investments. It is estimated that this will not exceed 2% of total deposits. After adjusting for the current level of involvement it is expected that a further 8% of these resources could be invested in equity thus providing an additional \$224.0 Million for the programme.

The latest aggregate figures for the LIFE INSURANCE SECTOR have revealed that the Industry has Invested Assets (excluding managed pension funds) of \$2.2 Billion as at December 31, 1989. Assuming that the Industry currently invests 5% of its funds in equity one could conclude that the opportunity exists to increase this amount to a maximum of 20% of invested assets. As a result, a further \$330.0 Million could be available for equity funding.

The BUILDING SOCIETIES have built up a fairly stable pool of savings over the years and as at March 31, 1990 had the following to show:

Assets	\$ 2.5 Billion	
Savings Fund	\$ 2.23	"
Capital Reserve	\$ 0.22	"
Loans	\$ 1.2	"

The Building Societies currently have a minimal amount of equity investments and as such could invest up to 10% of their total savings fund in equity thus providing a further \$223.0 Million.

The category of Non-Financial Corporations includes all the relevant companies listed on the Stock Exchange and privately held companies. Based on the levels of sales, profitability, shareholders equity and cash resources. It is estimated that this Group could produce approximately J\$300.0 Million for new equity investments.

PENSION FUNDS have grown significantly within recent years. It is estimated that private pension funds have total resources currently of approximately \$2.8 Billion, of this amount the Life Insurance Companies currently manage \$1.5 Billion with the balance of \$1.3 Billion being managed directly by the Trustees. Based on the long term needs of these funds they could comfortably invest up to 25% of total resources in equity. Assuming these funds are currently investing 15% of their resources in equity, it is evident that a further \$280.0 Million could be made available if the right opportunities are presented.

The newly established National Venture Capital Fund is a potential source of equity funding. However, it should be noted that this fund is likely to have limited resources in its early years. Early successes could make the fund an attractive vehicle for the mobilization of resources from local and overseas interests.

It is projected that the fund will raise a minimum of \$100.0 Million in the first two years of operations.

Although it is possible for amounts totalling just over \$2.0 Billion to be mobilized for equity investments. It is well known that there will be several competing opportunities and the necessary re-orientation will take several years. It is therefore prudent that we explore all opportunities to attract external equity investors.

### A BROAD LOOK AT SOME INTERNATIONAL POSSIBILITIES

The International Finance Corporation (IFC) a subsidiary of the world has indicated its willingness to increase its level of exposure in Jamaica.

A Private Sector led programme in the energy sector is likely to receive the support of this organization.

The newly formed Inter-American Investment Corporation (IIC) is another window with limited possibilities. All economic sectors are eligible for IIC financing. This Corporation may invest in Stock Capital, Loans or Guarantees. The Corporation can finance up to 50% of project cost in respect of expansion of an existing business. However, it will hold no more than one third of the share capital. Maximum exposure in any one project is currently limited to US\$6.0 Million.

THE PROPOSED 936 FOUNDATION could provide an attractive source of equity funding for the Jamaican project. The 936 Corporations operating in Puerto Rico have decided to establish a US\$100,0 Million Foundation specifically to fund economic projects in CBI countries. This is the opportune time to influence the Foundation as the guidelines have not yet been finalised.

The Dutch and German Development Banks along with the British Commonwealth Development Corporation provide some additional possibilities.

The decision to establish a Caribbean Stock Exchange could be regarded as timely in the context of this paper. Although the other islands will have their equity needs, it is likely that this could prove to be a very valuable source for additional investments.

Jamaicans residing overseas tend to have a good appreciation of the potential of the stock market and as such provides yet another source for further exploration.

### CONCLUSION

The paper has clearly indicated that there are some interesting possibilities for arranging equity to support the growth and expansion of the Jamaican economy.

An understanding of the reality that an effective power supply is a requirement for sustained economic growth and development will help to galvanize maximum support for any attractive Private Sector driven proposal.

Investment in the Jamaican Power and energy by the Jamaican Private Sector will not be automatic - it has to be sold. Present indications are that with the right structure it can be sold.

September 1990

FINANCING PRIVATE ENERGY/POWER PROJECTS;  
RISKS AND SOLUTIONS  
936 Financing

Winston Gooden  
Senior Group Director, Services Industries  
Jamaica Promotion Ltd.

SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR  
OF JAMAICA

Jamaica Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990



ADDRESS BY

MR. WINSTON GOODEN, SNR. GROUP DIRECTOR,

SERVICES INDUSTRIES DIVISION - JAMPRO

FINANCING PRIVATE ENERGY/POWER PROJECTS

RISKS AND SOLUTIONS - 936

THURSDAY, SEPTEMBER 13, 1990

SALUTATION:

I AM PLEASED TO HAVE BEEN ASKED TO MAKE A PRESENTATION AT THIS VERY IMPORTANT SEMINAR, WHICH IS EVEN MORE CRITICAL AT THIS TIME WHEN ENERGY ISSUES ARE AGAIN FOREMOST IN THE MINDS OF MOST PEOPLE.

FINANCING IS CERTAINLY SOMETHING WHICH, IT IS FAIR TO SAY, IS ALWAYS ON THE MINDS OF BUSINESS PEOPLE EVERYWHERE. IN JAMAICA WHILST FINANCE MAY NOT BE SCARCE, LIKE MOST COMMODITIES THE JAMAICAN HAS TO BUY IT IS VERY EXPENSIVE. IT IS IMPORTANT THEREFORE THAT WHEN WE CONSIDER PROJECTS SUCH AS WE ARE CONSIDERING TODAY WE EXAMINE ALL THE ALTERNATIVE APPROACHES AND SOURCES OF FINANCING IN ORDER TO ENSURE THAT WE GET THE BEST PRICE FINANCING AVAILABLE.

LADIES AND GENTLEMEN I HAVE BEEN GIVEN FIFTEEN MINUTES IN WHICH TO GIVE YOU SOME INFORMATION ON SECTION 936 FUNDS AND HOW THESE FUNDS MIGHT BE ACCESSED AND USED TO FINANCE PRIVATE SECTOR INVOLVEMENT/INVESTMENTS IN JAMAICA'S ENERGY-POWER SECTOR.

WHAT ARE 936 FUNDS?

936 FUNDS ARE THE PROFITS GENERATED IN PUERTO RICO BY SUBSIDIARIES OF UNITED STATES CORPORATIONS WHICH OPERATE UNDER SECTION 936 OF THE U.S. INTERNAL REVENUE SERVICE (IRS) CODE. IN ADDITION, AS A RESULT OF PUERTO RICO'S TAX EXEMPTION INCENTIVES THESE 936 COMPANIES CAN DEPOSIT THEIR PROFITS IN PUERTO RICO'S FINANCIAL INSTITUTIONS AND MAY USE THEM FOR THE NORMAL FINANCING OF PROJECTS AND OTHER QUALIFIED INVESTMENTS. THESE FUNDS ARE PRIVATE FUNDS AND NOT FUNDS OF THE GOVERNMENT OF PUERTO RICO.

THIS IS IMPORTANT TO BEAR IN MIND ESPECIALLY WHEN CONSIDERING WHAT SOME MIGHT REGARD AS THE EXCESSIVE CONCERN FOR GUARANTEES AND COLLATERAL.

SINCE JANUARY 1, 1987, UNDER THE AMENDED SECTION 936 CODE, THESE FUNDS CAN NOW BE INVESTED IN ACTIVE BUSINESS ASSETS AND DEVELOPMENT PROJECTS IN ELIGIBLE CBI-BENEFICIARY COUNTRIES, AS LONG AS THE INVESTMENTS ARE PASSED THROUGH ELIGIBLE PUERTO RICAN FINANCIAL INTERMEDIARIES. THE GOVERNMENT OF PUERTO RICO ALSO AMENDED ITS INDUSTRIAL INCENTIVES ACT AND THE COMPANION LOCAL REGULATION 3087 (NOW 3582) TO PERMIT THE INVESTMENT OF QUALIFIED PASSIVE INCOME IN THE CARIBBEAN BASIN, IN A MANNER CONSISTENT WITH IRS TEMPORARY REGULATIONS.

ELIGIBLE PROJECTS

ELIGIBLE PROJECTS, INCLUDE BOTH COMPLEMENTARY (TWIN PLANT) OPERATIONS BETWEEN ENTITIES IN PUERTO RICO AND IN QUALIFIED CBI COUNTRIES AS WELL AS STAND-ALONE PROJECTS IN ANY QUALIFIED CBI-BENEFICIARY COUNTRY. ELIGIBLE COMPLEMENTARY PROJECTS MAY BE FINANCED BY BOTH PRIVATE FINANCIAL INSTITUTIONS AND THE GOVERNMENT DEVELOPMENT BANK OF PUERTO RICO (GDB) WHILE STAND-ALONE PROJECTS MAY BE FINANCED ONLY BY ELIGIBLE PRIVATE FINANCIAL INSTITUTIONS. BECAUSE OF ITS MANDATE TO FOSTER THE ECONOMIC DEVELOPMENT OF PUERTO RICO, THE CHARTER OF THE GDB ALLOWS IT TO FINANCE ONLY COMPLEMENTARY (TWIN PLANT) CBI PROJECTS, PROVIDED THEY DEMONSTRATE A POSITIVE, MATERIAL IMPACT (EXAMPLE, THE CREATION OR RETENTION OF JOBS) IN PUERTO RICO AS WELL AS IN THE BENEFICIARY COUNTRY. IN PRACTICE THE GDB HAS OPTED OUT OF THE PROGRAMME AND ONLY THE PRIVATE INSTITUTIONS ARE ACTIVE.

BECAUSE PUERTO RICO GRANTS TAX EXEMPTION TO 936 FUNDS DEPOSITED IN PUERTO RICO, FOMENTO, PUERTO RICO'S ECONOMIC DEVELOPMENT AGENCY, HAS THE RESPONSIBILITY FOR ENSURING THAT THE PROJECTS IT ENDORSES FOR 936 FINANCING DO NOT ADVERSELY AFFECT THE ECONOMY OF PUERTO. THEREFORE, FOR EACH PROJECT, FOMENTO CONDUCTS AN ECONOMIC IMPACT ASSESSMENT TO ENSURE THAT THEY DO NOT ADVERSELY IMPACT ON PUERTO RICO'S ECONOMY.

ALTHOUGH THE 936 FUNDS ARE AVAILABLE TO PUERTO RICO, SUCCESSIVE GOVERNMENTS OF THAT ISLAND HAVE TENDED TO USE NON 936 FUNDING SOURCES TO FINANCE PUBLIC UTILITY PROJECTS. THE MAIN REASON FOR THIS, IS THAT THE PUERTO RICAN GOVERNMENT TRADITIONALLY LOOKED FOR LONGER TERM FINANCING THAN IS NORMALLY AVAILABLE IN THE "936 MARKET".

TYPICALLY, FINANCING FOR PUERTO RICAN PUBLIC UTILITIES IS THROUGH THE SALES OF LONG TERM (25 - 30 YEARS) PAPERS IN THE U.S. BOND MARKET. FOR EXAMPLE, IN F. Y. 1987, PUERTO RICO FLOATED SOME US\$1 BILLION ON THE U.S. BOND MARKET TO FINANCE VARIOUS MUNICIPAL PROJECTS. 936 LOANS AS YOU ALL PROBABLY KNOW, ARE USUALLY FOR PERIODS OF UP TO 10 YEARS AND UNDER EXCEPTIONAL CIRCUMSTANCES PERHAPS UP TO 15 YEARS.

THE BULK OF FINANCING IN THE 936 MARKET IS BY WAY OF SHORT TERM PLACEMENTS OF THESE FUNDS OR THE PURCHASE OF SHORT AND MEDIUM TERM INSTRUMENTS RANGING FROM 30 DAYS 5 YEARS.

THE FACT THAT THE PUERTO RICANS DO NOT NORMALLY FINANCE PUBLIC UTILITY PROJECTS WITH 936 FUNDS, DOES NOT MEAN THAT PRIVATE SECTOR INVESTORS IN A SITUATION SUCH AS WE ARE HERE DISCUSSING COULD NOT EXPLORE THIS FACILITY. I AM AWARE OF ONE SUCH PROJECT THAT HAS BEEN FINANCED IN THE DOMINICAN REPUBLIC RECENTLY FOR A 40 MEGA WATT BARGE TO SERVICE THE SANTO DOMINGO METROPOLITAN AREA. THE FINANCING WAS DONE BY CHASE IN COOPERATION WITH A BERMUDA BASED BANK TRANSCONTINENTAL CAPITAL CORPORATION.

A DECISION TO USE 936 WOULD OF COURSE DEPENDS ON A NUMBER OF CONSIDERATIONS. INCLUDED AMONG THEM WOULD BE:-

- 1) THE SOURCE OF THE CAPITAL ITEMS FOR THE GENERATING PLANT.
- 2) THE PERIOD OVER WHICH THE FINANCING IS REQUIRED TO MAKE THE INVESTMENT VIABLE.
- 3) THE KIND OF CREATIVITY WHICH IS BROUGHT TO BEAR IN THE STRUCTURING OF THE FINANCING.

ALTHOUGH 936 FUNDS ARE WELL BELOW THE COST OF MOST OTHER FUNDING SOURCES, THERE ARE SOME EXCEPTIONS, NOTABLY JAPANESE FUNDS, ESPECIALLY WHEN LINKED TO THE SOURCING OF JAPANESE CAPITAL ARE USUALLY BELOW 936 RATES.

THE PERIOD OVER WHICH A LOAN WOULD BE REQUIRED WILL HELP TO DETERMINE WHETHER ONE SEEKS 936 FUNDS OR WHETHER ONE LOOKS TO TRADITIONAL SOURCES. AGAIN, EVEN WHERE LONGER TERMS THAN ARE NORMALLY AVAILABLE IN THE 936 MARKET ARE DESIRABLE OR NECESSARY FOR THE VIABILITY OF A PROJECT, THERE ARE WAYS OR STRUCTURES IN WHICH 936 FUNDS COULD BE USED. ONE APPROACH COULD PERHAPS BE TO MIX 936 FUNDS WITH SAY, EURODOLLAR OR OTHER TRADITIONALLY SOURCED FUNDS, USING THE 936 FUNDS AT THE FRONT END FOR SAY 10 YEARS OR FOR THE LONGEST PERIOD AVAILABLE AND EITHER CONTRACT UP FRONT TO BE IN A POSITION TO ROLL OVER INTO A SECOND PERIOD OF SIMILAR LENGTH OR TO SUBSTITUTE THE REMAINING PERIOD WITH TRADITIONAL FUNDS.

THE CREATIVE LAWYERS AND THE BANKERS WOULD CERTAINLY PROFIT FROM THIS TYPE OF STRUCTURING, BUT IF THE RESULT WOULD BE TO REDUCE YOUR SERVICING COST, ESPECIALLY DURING THE INITIAL YEARS, THEN THE HEALTH AND PROFITABILITY OF THE PROJECT RESULTING FROM SUCH AN APPROACH WOULD BE ENHANCED.

NOW, TO ACCESS 936 FUNDS FOR PROJECTS OUTSIDE PUERTO RICO HAS NOT BEEN EASY, AND MOST OF US WHO HAVE BEEN INVOLVED IN TRYING TO ACCESS THESE FUNDS KNOW WHY THIS HAS BEEN SO. CONTRARY TO THE GENERAL VIEW OUTSIDE OF PUERTO RICO, I BELIEVE THE DIFFICULTY HAS MORE TO DO WITH A LACK OF UNDERSTANDING OF WHAT ARE 936 FUNDS AND WHO ARE THE OWNERS OF THESE FUNDS THAN TO DELIBERATE OBSTRUCTIONS BY PUERTO RICO AND THE OWNERS OF THESE FUNDS. I BELIEVE I HAVE DEALT WITH THESE TWO POINTS EARLIER, BUT TO RECAP; 936 FUNDS ARE THE PROFITS OF U.S. CORPORATIONS OPERATING IN PUERTO RICO UNDER IRS SECTION 936 AND THESE PROFITS ARE OWNED BY THE 936 COMPANIES AND NOT THE GOVERNMENTS OF THE U.S. OR PUERTO RICO. THE OWNERS OF THESE FUNDS HAVE THE TRADITIONAL FIDUCIARY RESPONSIBILITIES TO THEIR SHAREHOLDERS, AND IN INVESTING THESE FUNDS, ACT ACCORDING TO THESE RESPONSIBILITIES. IF YOUR PROJECT QUALIFIES AND IS ATTRACTIVE THEY ARE LIKELY TO INVEST THEIR FUNDS IN THE INSTRUMENTS RELATED TO YOUR PROJECTS, IF YOUR PROJECT DOESN'T QUALIFY OR IS OTHERWISE UNATTRACTIVE THEN THEY ARE UNLIKELY TO INVEST THE FUNDS ENTRUSTED TO THEM IN SUCH INSTRUMENTS.

YOU SHOULD ALSO KNOW THE 936 COMPANIES THEMSELVES ARE NOT THE LENDERS RATHER THE ACTUAL LENDING TAKEN PLACE BETWEEN THE BANKS AND THE BORROWERS. THE OWNERS OF THE FUNDS BUY THE INVESTMENT INSTRUMENTS CREATED TO FINANCE A PROJECT LOAN.

IN ORDER TO ACCESS THESE FUNDS THEREFORE, A POTENTIAL BORROWER MUST MEET THREE SETS OF CRITERIA, NAMELY:

- A) THE COUNTRY ELIGIBILITY CRITERIA
- B) THE NORMAL COMMERCIAL CRITERIA
- C) U.S. TREASURY CRITERIA - REFER TO TEMPORARY REGS

A) THE COUNTRY CRITERIA

A COUNTRY MUST HAVE IN PLACE A SIGNED AND RATIFIED TAX INFORMATION EXCHANGE AGREEMENT (TIEA). UNDER THIS CRITERIA ENTITIES LOCATED IN JAMAICA QUALIFY BY VIRTUE OF THE TIEA WHICH HAS BEEN IN PLACE BETWEEN THE U.S.A. AND JAMAICA FOR SOME TIME. IN 1986 SHORTLY AFTER I OPENED OUR OFFICE IN SAN JUAN THE JAMAICA/USA TIEA WAS AMENDED TO COVER OUR DEALINGS WITH PUERTO RICO.

B) NORMAL COMMERCIAL CRITERIA

MOST LOANS FROM 936 FUNDS ARE TO COMPANIES, CORPORATIONS OR GOVERNMENT (PUERTO RICO) THAT ARE AT LEAST (DOUBLE) AA RATED AND IN THE MAJORITY OF INSTANCES THEY ARE (TRIPLE) AAA RATED.



C) U.S. TREASURY CRITERIA

THE U.S. TREASURY HAS THE RESPONSIBILITY TO PROVIDE THE REGULATIONS WHICH GIVE EFFECT TO THE 1986 TAX REFORM ACT. THE 1986 TAX REFORM ACT AS YOU PROBABLY KNOW EXTENDED THE 936 FACILITY TO QUALIFY CBI COUNTRIES. TEMPORARY REGULATIONS ARE NOW AVAILABLE BUT UNTIL THEY ARE ISSUED IN FINAL AND BINDING FORM, EACH PROJECT MUST BE APPROVED BY THE IRS AND THE TREASURY DEPARTMENT.

BEARING THE ABOVE IN MIND, IF ONE DECIDES THAT 936 FUNDING WOULD BE APPROPRIATE OR DESIRABLE TO FINANCE PRIVATE INVESTMENTS IN OUR ENERGY SECTOR THEN I WOULD FIRST MAKE THE FOLLOWING ASSUMPTIONS:

- 1) THE PRIORITY ACCESS TO FOREIGN EXCHANGE NOW ACCORDED PCJ/JPS FOR THE PURCHASE OF FUEL WILL BE PASSED ON TO ANY NEW INVESTORS IN THIS AREA.
- 2) TO THE FOREIGN INVESTOR(S), THE USUAL FOREIGN INVESTOR STATUS WOULD BE ACCORDED BY B.O.J. TO FACILITATE UNRESTRICTED REPATRIATION OF CAPITAL, DIVIDENDS AND PROFIT.
- 3) FOR BOTH THE DOMESTIC AND FOREIGN INVESTORS, APPROPRIATE AND INTERNATIONALLY ACCEPTABLE MECHANISM(S) WOULD BE PUT IN PLACE AND MADE AVAILABLE TO FACILITATE THE TIMELY AND PROPER SERVICING OF RELATED EXTERNAL OBLIGATIONS.

ASSUMING THAT PRIVATE SECTOR COMPANIES RESPONDED FAVOURABLY TO A JAMAICAN GOVERNMENT INVITATION TO INVEST IN THIS SECTOR AND WISH TO USE 936 FUNDS, FOR CERTAIN U.S. AND MULTINATIONAL CORPORATIONS INVOLVED IN ELECTRICITY GENERATION, ACCESSING 936 WOULD NOT PRESENT ANY DIFFICULTY. FOR EXAMPLE, GENERAL ELECTRIC AND WESTINGHOUSE, --- ARE AAA RATED COMPANIES AND AS SUCH THEY WOULD HAVE LITTLE OR NO PROBLEM FINDING TAKERS FOR ANY INSTRUMENT DESIGNED TO FINANCE THEIR INVESTMENTS HERE. THEY WOULD OF COURSE BE ABLE TO PROVIDE THE NECESSARY GUARANTEES ALSO. THE PROBLEMS OF QUALIFICATION AND ACCESS ARISE FOR JAMAICAN AS WELL AS FOR THOSE FOREIGN COMPANIES THAT ARE LESS THAN (DOUBLE) AA RATED AND THEREFORE NEED SIGNIFICANT CREDIT ENHANCEMENT TO ACHIEVE THE MINIMUM CREDIT RATING NECESSARY TO ACCESS THE 936 MARKET.

**SPECIFIC OPPORTUNITIES FOR PRIVATE SECTOR INVESTMENT PRIVATE  
AND ISSUES AND OPTIONS IN THE ENERGY SECTOR PROJECTS:**

Zia Mian

Energy Policy Advisor

Ministry of Mining and Energy

**SEMINAR ON PRIVATE SECTOR PARTICIPATION  
IN THE ENERGY/POWER SECTOR OF JAMAICA**

Kingston Pegasus Hotel  
Kingston, Jamaica  
September 10-12, 1990

September 11, 1990

JAMAICA

SEMINAR ON PRIVATE SECTOR

PARTICIPATION IN THE ENERGY SECTOR

Specific Opportunities for Private Sector Investment  
and Issues and Options in the Energy Sector

by

Zia Mian  
Energy Policy Advisor  
Ministry of Mining and Energy

1. THE PRESENTATIONS MADE DURING THE PAST TWO DAYS HAVE MADE IT ABUNDANTLY CLEAR THAT WITHIN THE CONTEXT OF THE CURRENT THIRD WORLD DEBT CRISIS AND CONTINUING HIGH COST OF ENERGY, IF THE DEVELOPING COUNTRIES ARE TO ATTAIN EVEN A MODEST SUSTAINED GROWTH IN THEIR ECONOMIES, THEY WILL HAVE TO FIND ALTERNATIVE MEANS TO FINANCE THE DEVELOPMENT OF THE ENERGY SECTOR. WE HAVE SEEN THAT MOST DEVELOPING COUNTRIES ARE NOW EMBARKING ON A NEW PATH INVOLVING THE PRIVATE SECTOR. FOR EXAMPLE PAKISTAN IS RAISING ABOUT A BILLION US DOLLARS TO FINANCE HAB RIVER PROJECT.

2. THE HON. MINISTER OF MINING AND ENERGY HAS SHOWN THAT THE JAMAICAN ECONOMY IS CHARACTERIZED, AS COMPARED TO OTHER DEVELOPING COUNTRIES, WITH VERY HIGH ENERGY INTENSITY. HE HAS ALSO EMPHASIZED THE VIRTUES OF EFFICIENCY AND COMPETITION, HENCE HIS ENCOURAGEMENT OF PARTICIPATION BY THE PRIVATE

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SECTOR. THE GOVERNMENT IS COMMITTED, AS A MATTER OF POLICY TO PROVIDE ITS PEOPLE WITH AN ADEQUATE, SAFE AND ECONOMIC SUPPLY OF ENERGY.

3. 1973, 1979 AND CURRENT ENERGY CRISES RESULTING FROM INSTABILITY IN THE MIDDLE EAST HAVE CLEARLY DEMONSTRATED THE VULNERABILITY OF FRAGILE DEVELOPING ECONOMIES TO ENERGY PRICE SHOCKS. IT IS NOW OBVIOUS THAT:

(a) DEVELOPING COUNTRIES SHOULD NOT FALL PREY TO A FALSE SENSE OF SECURITY. NOT ONLY SHOULD THEY IDENTIFY AND DEVELOP INDIGENOUS ENERGY SOURCES, BUT THEY MUST ALSO FIND WAYS TO IMPROVE BOTH THE CONVERSION AND USE EFFICIENCY OF EXISTING ENERGY SYSTEMS; AND

(b) THERE MUST BE INCREASED PARTICIPATION BY PRIVATE SECTOR TO ACHIEVE THE ABOVE AS WELL AS FINANCING OF NEW PROJECTS.

4. THIS PUTS THE PRIVATE SECTOR IN THE DRIVING SEAT, AND ITS RESPONSE TO THE CHALLENGE COULD INCLUDE A NEW BREED OF ENERGY COMPANIES PROVIDING TO ITS CUSTOMERS RELIABLE ENERGY WITH EFFICIENT AND COMPETITIVE TECHNOLOGIES AND MANAGEMENT, AND AT THE LEAST ECONOMIC COSTS.

5. THIS PRESENTATION IS DIVIDED INTO TWO PARTS:

- (a) PART ONE DEALS WITH THE SPECIFIC OPPORTUNITIES WHICH ARE IMMEDIATELY AVAILABLE FOR PRIVATE SECTOR INVESTMENT; AND
- (b) PART TWO ADDRESSES THE ISSUES AND OPTIONS WHICH ARE NOW UNDER REVIEW AND WHICH REQUIRE A MEDIUM TO LONG TERM APPROACH.

PART ONE

6. THERE ARE TWO TYPES OF OPPORTUNITIES WHICH ARE AVAILABLE TO THE PRIVATE INVESTOR IN THE ENERGY SECTOR:

- (a) OPPORTUNITIES BASED ON INDIGENOUS RESOURCES; AND
- (b) OPPORTUNITIES BASED ON THE IMPORTED ENERGY INPUTS.

7. I SHALL FIRST DISCUSS THE INDIGENOUS RESOURCE BASED OPPORTUNITIES WHICH IN THE POWER SECTOR INCLUDE:

- (a) A 40MW - 50MW HYDROPOWER PROJECT ON THE BACK RIO GRAND/STONY RIVER CONFLUENCE. THE FEASIBILITY STUDY FOR THIS PROJECT WILL BE COMPLETED BY APRIL NEXT YEAR AND THE PRIVATE SECTOR WILL BE WELCOME TO INVEST IN

THIS SCHEME. PRELIMINARY ESTIMATES INDICATE AN INVESTMENT OF ABOUT US\$100 MILLION;

(b) GREAT RIVER, LAUGHLANDS GREAT RIVER AND RIO COBRE SCHEME WITH ABOUT 14MW CAPACITY;

(c) CO-GENERATION OPTIONS IN THE PRIVATE SECTOR WHICH INCLUDE THE SUGAR, BAUXITE AND CEMENT INDUSTRIES; AND POWER FROM WASTE; AND

(d) MANUFACTURE OF SOLAR AND WIND EQUIPMENT FOR SMALL ISOLATED AS WELL AS LARGE ECONOMIC APPLICATIONS BY THE PRIVATE SECTOR.

8. ON THE LIQUID FUEL SIDE OPTIONS AVAILABLE INCLUDE PARTICIPATION IN THE PRODUCTION OF ETHANOL FROM SUGAR CANE AND MOLASSES.

9. OPPORTUNITIES BASED ON THE IMPORTED FUELS FALL UNDER TWO CATEGORIES, IMMEDIATE AND MEDIUM/LONG TERM:

10. UNDER THE IMMEDIATE CATEGORY JAMAICA REQUIRES 100MW OF NEW GENERATING CAPACITY DURING 1991/92. THE WORLD BANK IS ALREADY PREPARING THIS PROJECT FOR PRIVATE SECTOR PARTICIPATION. OPPORTUNITIES ALSO INCLUDE PARTICIPATION IN

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THE OWNERSHIP OF EXISTING ASSETS OF THE POWER COMPANY, THE REFINERY, AND IN ALCOHOL PRODUCTION.

11. UNDER THE MEDIUM AND LONG TERM CATEGORY OPPORTUNITIES FOR ADDITIONAL GENERATING CAPACITY OF ABOUT 450MW EXIST. SWECO IS CURRENTLY DEVELOPING A LEAST COST POWER EXPANSION PROGRAMME FOR JAMAICA, WHICH WILL DEFINE THE SIZE, TECHNOLOGY, TIMING AND THE TYPE OF FUEL (COAL, OIL ETC.) AND SEQUENCE OF UNITS FOR THE REST OF THIS DECADE. ALL THIS NEW EXPANSION IN THE POWER SECTOR WILL BE OPEN TO THE PRIVATE SECTOR.
  
12. IN THE PETROLEUM SECTOR, THE WORLD BANK WILL ASSISTING US TO DETERMINE THE MODERNIZATION AND EXPANSION NEEDS OF THE SECTOR AND IDENTIFY PROJECTS FOR REFINING, STORAGE AND TRANSPORT. WE EXPECT THIS DEVELOPMENT AND MODERNIZATION TO TAKE PLACE THROUGH THE ACTIVE PARTICIPATION OF THE PRIVATE SECTOR.
  
13. BY THE MIDDLE OF NEXT YEAR WE SHOULD HAVE A CLEARER PICTURE WITH REGARD TO THE MEDIUM AND LONG TERM ENERGY SECTOR DEVELOPMENT NEEDS OF THE COUNTRY AND LAUNCH A COMPREHENSIVE ENERGY SECTOR DEVELOPMENT PROGRAMME. WE WOULD ASK THE WORLD BANK, TO ASSIST US IN DEVELOPING AN ENERGY SECTOR DEVELOPMENT FUND A LA PAKISTAN TO FACILITATE THE IMPLEMENTATION OF THIS PROGRAMME IN THE PRIVATE SECTOR.



PART TWO

ISSUES AND OPTIONS

- (a) GOVERNMENT POLICY: GOVERNMENT INTENDS TO ALLOW ALL NEW POWER GENERATION TO QUALIFY AS INDEPENDENT POWER AND IS COMMITTED TO THE INITIATIVES NECESSARY TO CREATE HOSPITABLE AND ATTRACTIVE ENVIRONMENT;
  
- (b) REGULATORY REQUIREMENTS: THESE COVER SAFETY, ENVIRONMENT, PRICING AND SECURITY PACKAGING OF THE NEW PROJECTS;
  
- (c) INSTITUTIONAL FRAMEWORK: THE MINISTRY OF MINING AND ENERGY WILL COORDINATE THE ACTIVITIES IN THE ENERGY SECTOR, AND WILL RECEIVE ALL COMMUNICATIONS AND PROPOSALS FROM THE PRIVATE SECTOR AND WILL WORK CLOSELY WITH THE INTERNATIONAL FINANCING INSTITUTIONS; AND
  
- (d) FINANCIAL FACILITATION: THE WORLD BANK IS EXPECTED TO TAKE A LEAD ROLE IN PUTTING A FUND IN PLACE TO FINANCE PRIVATE SECTOR PARTICIPATION IN THE ENERGY SECTOR. GOVERNMENT WILL FACILITATE WHERE EVER POSSIBLE DEBT EQUITY SWAP AND DEBT FOR ASSETS SWAP ARRANGEMENTS TO LEVERAGE THE EQUITY COST OF FOREIGN INVESTORS IN JAMAICA.

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14. INSTITUTIONAL SUPPORT: THE GOVERNMENT OF JAMAICA WOULD NEED SUPPORT FROM INTERNATIONAL AGENCIES TO ASSIST IN LEGAL, FINANCIAL, INSTITUTIONAL, DATA-BASE DEVELOPMENT, COMPUTERIZATION, TRAINING AND MANPOWER SUPPLY DURING THE INITIAL STAGES OF THE PROGRAMME.

15. TIME TABLE: THE SECURITY PACKAGE FOR THE 100MW POWER PROJECT IS BEING DEVELOPED; THE SWECO AND ESMAP STUDIES WHICH ARE EXPECTED TO BE COMPLETED IN NEXT FOUR MONTHS WILL FORM THE BASIS FOR THE PREPARATION OF COMPREHENSIVE ENERGY PROJECT WHICH WOULD ADDRESS THE MEDIUM TO LONG TERM ENERGY NEEDS OF THE COUNTRY, INCLUDING POWER, PETROLEUM AND OTHER ENERGY SUB-SECTORS. THE PROJECT IS EXPECTED TO BE PREPARED BY THE WORLD BANK WITH SUPPORT FROM IADB AND USAID, AND WOULD BE FOR THE PARTICIPATION OF PRIVATE SECTOR. FEASIBILITY OF THE HYDRO PROJECTS WILL BE COMPLETED BY EARLY NEXT YEAR AND MME WOULD BE HAPPY TO DISCUSS THESE PROJECTS WITH PRIVATE ENTERPRISES. AS FAR THE EXISTING FACILITIES ARE CONCERNED, GOVERNMENT IS READY TO RECEIVE PROPOSALS AND HAVE THEM EVALUATED WITH THE HELP OF EXPERIENCED AND COMPETENT AGENCIES.

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