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**RUSSIAN AMERICAN JOINT ENERGY  
ALTERNATIVES STUDY**

**SEMINAR ON POWER SECTOR FINANCE**

**Sponsored by:**



**The United States Agency for International Development**

**For:**

**The Ministry of Fuel and Energy of the Russian Federation**

**The Ministry of Atomic Energy**

**RAO "EES" Rossi**

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**Wednesday, April 20 1994**

**RUSSIAN AMERICAN JOINT ENERGY ALTERNATIVES STUDY**

**СОВМЕСТНОЕ РОССИЙСКО-АМЕРИКАНСКОЕ ИССЛЕДОВАНИЕ  
АЛЬТЕРНАТИВ РАЗВИТИЯ ЭНЕРГЕТИКИ**

**SEMINAR ON POWER SECTOR FINANCE**

**СЕМИНАР ПО ВОПРОСАМ ФИНАНСИРОВАНИЯ ЭЛЕКТРОЭНЕРГЕТИКИ**

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*How to work  
with the European Bank*



**European Bank**  
for Reconstruction and Development

# Introduction

This booklet is intended to answer most questions likely to be raised by potential investors, sponsors, and entrepreneurs considering an approach to the European Bank.

## What is the European Bank?

The European Bank for Reconstruction and Development is an international institution whose members currently comprise 53 countries, together with the European Economic Community and the European Investment Bank. Based in London, it began operations in April 1991.

## Where does it operate?

The Bank operates in the countries of central and eastern Europe, including the former Soviet Union, committed to multiparty democracy, pluralism, and open market economies.\*

## What are the Bank's objectives?

To provide loans, equity investments, guarantees, advice, and technical cooperation to qualified applicants in order to:

- promote private and entrepreneurial initiative
- foster the transition toward democracy and open market oriented economies

## What is distinctive about the Bank?

It differs from similar institutions in several ways. The Bank:

- finances projects and investment programmes exclusively in the countries of central and eastern Europe, including the former Soviet Union
- provides funds within commercial decision-making time frames, according to sound banking and investment principles
- is committed to promoting environmentally responsible and sustainable development
- has a mandate which gives it a particular concern for the promotion of democratic institutions and human rights in the countries in which it operates

\* See page 19

# Operations

## How does the Bank carry out operations?

The Bank's two operations Vice Presidencies are Merchant Banking and Development Banking, each of which is staffed by professionals with specialist country, industry and transactional experience.

Merchant Banking carries out the Bank's funding of private enterprises and companies to be privatised and includes within it the full range of private sector financing skills and experience. At least 60 per cent of the Bank's funding is directed either to private sector enterprises or to state-owned enterprises implementing a programme to achieve private ownership and control.

The balance of its funding is directed to physical and financial infrastructure or other development projects. This activity is carried out through Development Banking, which includes within it the full range of development bank financing economic, country and sectoral expertise.

The Bank has resident offices in Bucharest, Budapest, Kiev, Moscow, Prague, Sofia, Tirana and Warsaw. It intends to open resident offices in the near future in Alma Ata, Bratislava, Minsk, Riga (for the Baltic States, with sub-offices in Estonia and Lithuania) and Tashkent.

# Eligibility

## What kind of projects does the Bank seek to fund?

The Bank finances projects that will help to

- create a competitive private sector
- foster entrepreneurial activity and small and medium sized enterprise
- privatise state-owned enterprises
- encourage direct foreign investment
- create and strengthen financial institutions
- restructure the industrial sector
- create a modern infrastructure for private sector development and transition to a market economy
- improve the environment

## What are the key criteria by which the Bank assesses proposals in the private sector?

Proposals submitted by private enterprises and companies to be privatised should have strong sponsors or partners and viable business plans based on

- competitive products or services with sound market prospects
- significant equity commitment in cash or in kind by project sponsors
- strong management
- dependable technology
- sound environmental management

# Financing instruments

## What capital structure does the Bank favour in the private sector?

The Bank provides recourse and limited recourse financing. Generally it favours projects where one third of the projects or company's capitalisation is covered by the sponsors equity contribution, some of which may be in kind. The Bank can normally provide one third of the financing, often in the form of loans, and is prepared to assist in finding finance for the remaining one third.

## How does the Bank assess whether to finance a project?

It assesses whether to finance projects by analysing the project business plan and financial projections and assessing the ability of the project sponsors to implement the plan. In structuring its debt financings, the Bank strives to match grace and repayment periods to each project's expected cash flow.

## Funding

### How much capital does the Bank have?

The Bank has an initial subscribed capital of FCU 10 billion, of which FCU 3 billion is paid in. The remaining FCU 7 billion, which represents the callable capital, will be borrowed in the international capital markets. The gearing ratio is one to one. The Bank can thus make total commitments of FCU 10 billion. Only an amount equivalent to the paid-in capital plus general reserves and surpluses can be invested in equity participations.

## What kind of finance does the Bank offer?

A full range of financing instruments is offered on a market basis, including:

- loans (secured or unsecured, subordinated, convertible or equity linked) with a maximum final maturity of 10 years for commercial enterprises, and of 15 years for infrastructure projects
- equity
- debt guarantees
- debt and equity underwriting

The Bank does not issue guarantees for export credits or undertake insurance activities.

Loans can be denominated in any of the major currencies or in currency units. The Bank does not accept exchange risk on repayment.

The Bank's loans to commercial enterprises are not guaranteed by the host government and are typically without recourse to foreign sponsors, if any. Loan financing to state-owned enterprises under privatisation is on a similar basis.

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# Terms

## On what terms does the Bank lend?

Rates of interest are based on a margin over a market benchmark (normally Libor). Loans can be variable rate or – using the swap and options market – fixed rate – capped or with an integrated collar. For commodity related products commodity linked loans can be provided.

The loan margin reflects both country and commercial risks. It is further set to conform to conditions in the syndicated loan market.

## On what basis does the Bank take equity positions?

It can provide equity financing for companies that have a strong growth potential. The Bank seeks an adequate return on its investment and requires a clear and credible exit strategy in the medium term.

The Bank does not seek controlling interests or direct responsibility for managing enterprises.

## When a partner is involved, does the Bank look to it for full recourse?

Recourse to a partner is not required – although the Bank may seek specific performance commitments. In the absence of recourse to a partner, the Bank's terms reflect the country and commercial risk of the enterprise being financed, rather than the credit rating of the partner.

## What insurance is required?

In its financing operations, the Bank requires the companies or entities it funds to obtain adequate insurance against normally insurable risks. It does not require protection against political risk or non convertibility of the local currency.

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# Co-financing with the European Bank

## How does the Bank cooperate with other banks?

As well as providing financing itself, the Bank aims to attract public and private capital to central and eastern Europe, including the former Soviet Union. It works with private financial institutions to create financing structures that promote the development of private sector projects.

The Bank works closely with the Bernie Union of Export Credit Agencies – and seeks to collaborate closely with Bernie Union members in supporting commercial credits to countries of the region.

## What are the benefits of co-financing with the European Bank?

The Agreement Establishing the Bank – treaty among its member institutions and governments – provides the Bank with adequate protection for its investments. Its member governments have agreed not to impose any restrictions on the payments of principal, interest, dividends and other charges in respect of the Bank's loans and investments or the proceeds of disposal of such investments. Under certain circumstances, international banks participating in Bank transactions may benefit from this protection.

In addition, a number of banking supervisors have recognised – formally or otherwise – that co-financing through the participation technique used by international financial institutions should be given preferential treatment in applying country risks provisioning requirements. As a result, participations by banks regulated in these jurisdictions are exempt from country risk provisioning requirements, thereby substantially improving the returns to the banks. A number of western European countries accord this favourable regulatory treatment to transactions co-financed with the Bank.

In public sector operations, parallel co-financing, or contracts or joint financing, under Bank procurement rules provide opportunities for lead lenders to participate in public sector projects that have been prepared with Bank assistance, have provision for necessary management and operational improvements, and where the Bank will remain as the principal lender. The Bank also offers optional cross-defaults and cooperation agreements to co-lenders. In some circumstances, the Bank accepts a share of lead contract financing.

# Processing

## How can banks participate in the European Bank's loans?

The simplest form of co-financing is the participation by other banks in the European Bank's loans. Through this technique, commercial banks can share the benefit of the Bank's status as an international institution. The Bank as lender of record will extend a loan to a borrower on terms pre-arranged with and to be funded by other lenders. The Bank will sell participations without recourse to itself in such loans to other financial institutions.

## What is the Bank's role in syndication?

The Bank seeks to mobilise capital for central and eastern Europe in addition to providing its own capital and syndication is an important component of its financing arrangements. The Bank seeks out participants for syndicates on the basis of their activities in the local markets, the borrowers' desire to establish or maintain relationships with international banks, and the Bank's experience with and knowledge of the banking community.

Currently the most widely used technique is for the Bank to remain the lender of record, thus providing participating institutions the benefit of its preferred creditor status. The Bank will administer these loans but may – depending upon its clients' wishes or market circumstances – invite one or more banks to co-arrange the syndicate.

As a more mature market develops for loans in each of the countries of central and eastern Europe, the Bank will encourage other forms of lending which will rely less on its preferred creditor status.

## How can tied lenders share in financing Bank public sector projects?

The Bank announces contracts for which external financing is sought through its publication *Procurement Opportunities* and seeks bid offers accompanied with offers of finance for selected contracts. Banks and export credit agencies can subscribe to this publication.

## Does the Bank work with project advisers?

Assessment of projects is accelerated where they are well prepared and where they take account of the Bank's criteria. Therefore the Bank strongly encourages project sponsors to retain financial, legal, accounting, and technical advisers for project preparation.

The Bank recognises advisory costs as a legitimate part of project costs and such costs may therefore be repaid out of the proceeds of its loans.

Special weight is given by the Bank to the work of advisers which is backed up by their willingness to lend to projects or to take some or all of the remuneration in loans to or equity in the project.

Proposals are reviewed by staff and considered in the light of the Bank's approved country status. Specific proposals are subject to financial, economic, technical and environmental review to assess their viability before submission to the Bank's Board of Directors.

## How does Merchant Banking process funding proposals from commercial enterprises?

Requests for financing should be submitted directly to the Bank by the commercial enterprises seeking finance or by intermediaries authorised to act for them.

In processing requests for financing, Merchant Banking relies on its professional valuation and credit structuring skills and its specialised knowledge of the countries of central and eastern Europe.

Its approach is commercial based on a full assessment of each project's merits and a timely decision process. Under normal circumstances it should take three months from the receipt of full project information to a firm commitment.

Merchant Banking works closely with sponsors and their advisers in reviewing the commercial merits of proposals and their environmental implications. The Bank is able to provide advice on project structuring and financial design for investments in the region. The Bank enforces strict confidentiality.

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**How does Development Banking process proposals from central and local authorities, utilities, financial institutions and other public sector agencies?**

Requests for financing should normally be submitted directly to the Bank by the government or public authority sponsoring the project, rather than by individual contractors competing for such projects.

Development Banking offers assistance to governments and their agencies in the following areas:

- project identification, preparation and funding in the physical and financial infrastructure sectors
- mobilisation of additional finance from public and private sources on a co-financing basis
- support of project implementation, including procurement

**What are the Bank's environmental procedures?**

The Bank integrates its environmental policy priorities into all stages of proposal appraisal through its systematic environmental review process. This involves screening investigations such as Environmental Assessments and Audits, environmental review, environmental covenants and conditions incorporated into documentation, and supervision and evaluation.

Project sponsors are asked to provide information on environmental issues associated with their proposals. The Bank screens proposals to decide what form of environmental investigation is required, and whether improvements could be included within the projects. It is the responsibility of the project sponsors or promoters to submit relevant environmental studies, technical information and records of public consultation. This information is reviewed by the Bank's Environmental Appraisal Group.

**What are the Bank's procurement procedures?**

The Bank's policy on procurement is to have open and fair competition for the procurement of goods, works and services procured under Bank-financed operations.

Bank-financed operations may draw on suppliers, contractors, goods and services from any country.

For projects undertaken by private sector enterprises, the Bank must be satisfied that procurement procedures ensure that the capital investments it funds are cost-effective. In appropriate cases it will encourage procurement through competitive tendering. However, this will not be mandatory, and normal commercial practices that ensure a sound selection of equipment at competitive prices would be more common.

For projects undertaken by public sector clients, the Bank will normally require open international tendering procedures consistent with the Bank's *Procurement Policies and Rules* for procurement of the goods, works and services it finances. Under special circumstances the Bank would agree to other appropriate procedures such as selective tendering, single tenders and shopping, in line with the Bank's *Procurement Policies and Rules*.

The Bank also publishes, in its monthly newsletter *Procurement Opportunities*, information on all projects approved by its Board of Directors, approved technical cooperation projects, the project pipeline in the public sector, procurement notices and contract award information. It is available by annual subscription from the Bank's Procurement Unit.

## Technical cooperation and consultants

### Does the Bank offer technical cooperation?

The Bank can offer financial advice, technical cooperation and training, through funds specifically provided for this purpose by certain of its member governments and international institutions. It does not seek advisory mandates in order to earn fees in competition with providers of advisory services. Rather it assists selected governmental and private sector entities in defining requirements for selecting, monitoring and financing consultants and other advisers.

### How does the Bank deal with consultants and financial advisers?

The Bank wishes to work with the wide range of consultants and financial advisers who are active in central and eastern Europe, including the former Soviet Union, and who may bring to its attention viable enterprises and projects in the commercial sector.

From time to time it calls on the services of consultants and financial advisers to work on projects or to provide technical cooperation expertise. Consultants seeking to do business with the Bank should contact the Consulting Services Administrator, who maintains a database of consultants.

## Approaching the Bank

### How should organisations approach the Bank?

The Bank wishes to hear from businesses and organisations, and their mandated advisers, from central and eastern Europe or elsewhere, that have specific funding proposals that meet the following criteria:

- business plans or feasibility studies completed and endorsed by sponsors and their advisers, partners identified (where appropriate), letters of intent signed
- a sponsor with a solid track record and proven expertise
- matching the Bank's priorities as set out above
- (and in the case of commercial enterprises) availability of an appropriate level of equity financing in the enterprise or for the project

The pages that follow show what information the Bank needs to assess proposals. For details of how to contact the Bank, see page 18.

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# Guide to presenting proposals

For private sector transactions, the following information, provided in summary form, will be helpful to the Bank in determining whether to proceed with a proposed transaction.

## **Business plan of the company**

A description of the company and its activity

- the full name and legal form of the borrower or share issuer and location
- if currently under privatisation, the exact status of the process
- products and services
- markets, competition and regulatory considerations, if any
- management, including role of any of key shareholders
- capital structure (ownership), including background of key shareholders and their stake in the company
- full financials for current or past years, including profit and loss and cash flow statements and balance sheets

## **The transaction to be financed**

A description of the plan for which the company is seeking financing, including:

- description of what is proposed to be done
- business rationale and benefits
- environmental considerations
- reasons for expecting the plan to succeed
- implementation, how and who will manage it
- timetable

## **Financing plan**

The proposed financing plan and preliminary termsheet for financing the transaction:

- capital structure
- debt structure, including sources of supplier credit, local and foreign currency loans

## **Financial projections**

The financial projections should be consistent with the business plan. It must state the assumptions used (e.g. sales growth, prices, gross margins) and the basis for them, and demonstrate that the company can service and repay its debts and/or offer an attractive return on equity. The financial analysis should include detailed:

- profit and loss statements
- investment plan, including working capital needs
- cash flow statement (sources and uses of funds)
- balance sheets

The above information in summary form will allow the Bank to perform a first appraisal of the proposal. If the Bank decides to proceed, the Bank's subsequent due diligence will consider all submitted material and additional relevant topics, if necessary, including environmental studies and technical analyses.

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## Contacting the Bank

### European Bank for Reconstruction and Development

One Exchange Square  
London EC2A 2EH  
United Kingdom  
Tel +44 71 338 6000

### Proposals for private enterprises or related to privatisation

Ronald Freeman  
First Vice President Merchant Banking  
Fax +44 71 338 6102

### Proposals for physical and financial infrastructure projects

Mario Sacconi  
Vice President Development Banking  
Fax +44 71 338 6105

### Telephone enquiries

Laura Nicholson  
Suzanne Franklin  
Project Enquiries Unit  
Tel +44 71 338 6282/6252  
Fax +44 71 338 6102

### Consultants should contact

Consulting Services Administrator  
Tel +44 71 338 6682  
Fax +44 71 338 6106

### General enquiries about the Bank

Public Affairs Office  
Tel +44 71 338 7233  
Fax +44 71 338 6139

## Membership in the Bank

March 1993

<b>Albania</b>	Liechtenstein
<b>Armenia</b>	<b>Lithuania</b>
Australia	Luxembourg
Austria	Malta
<b>Azerbaijan</b>	Mexico
<b>Belarus</b>	<b>Moldova</b>
Belgium	Morocco
<b>Bulgaria</b>	Netherlands
Canada	New Zealand
Cyprus	Norway
Denmark	<b>Poland</b>
Egypt	Portugal
<b>Estonia</b>	<b>Romania</b>
Finland	<b>Russian Federation</b>
France	<b>Slovenia</b>
<b>Georgia</b>	Spain
Germany	Sweden
Greece	Switzerland
<b>Hungary</b>	<b>Tajikistan</b>
Iceland	Turkey
Ireland	<b>Turkmenistan</b>
Israel	<b>Ukraine</b>
Italy	United Kingdom
Japan	United States of America
<b>Kazakhstan</b>	<b>Uzbekistan</b>
Korea Republic of	European Economic Community
<b>Kyrgyzstan</b>	European Investment Bank
Latvia	

Countries in which the Bank operates are in bold type

Membership procedure for Croatia, Czech Republic, Former Yugoslav Republic of Macedonia and the Slovak Republic are currently being finalised



**European Bank**  
for Reconstruction and Development

**RUSSIA · A MODIFIED INDEPENDENT POWER PRODUCER MODEL**

**Roland I Crabbe**  
**Power & Energy Utilities Group, Northern Region**  
**Tel (071) 338-6000; Fax (071) 338-6674**

**January 1994**



**European Bank**  
for Reconstruction and Development

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January 1994  
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**RUSSIA: A MODIFIED INDEPENDENT POWER PRODUCER MODEL**

**1. INTRODUCTION**

1 The aim of this paper is to briefly outline, based on experience gained elsewhere, the most important components of a possible security package for a power station financing in Russia. This paper outlines how Russian power generation projects could be presented to the European Bank ("EBRD") and potential co-financing commercial banks ("banks"), under the protection of our preferred creditor status with the Russian Government ("government"), as represented by our "A/B" Loan structure.

2. It needs to be stressed that all credit proposals would be subject to, on a case-by-case basis, the final approval of senior management and Board of Directors of EBRD.

3. Wherever possible, the aim is to ensure that such projects possess commercial and political risk profiles similar to Independent Power Producer ("IPP") projects that banks are familiar with elsewhere in the world. The IPP Model is currently in use in the United States, Canada, United Kingdom, Australia and the Philippines; and is at an advanced stage of implementation in various forms in Mexico, Malaysia and China.

4. In the absence of the need or desire for an unconditional government or sovereign loan guarantee from the government for a project's offshore debt portion, the IPP Model is viewed as representing the financing model most likely to be acceptable to co-financing banks.

5. It is anticipated that use of the IPP Model will in the long-term enable the government to finance a much larger number of projects, than if sovereign guarantees were given for each individual project. Use of sovereign guarantees as a method of financing projects will increase the government's contingent liabilities, which in turn may hamper future government attempts to secure additional borrowings on international capital markets.



6 It is intended that the IPP Model would distribute commercial and political risks in a fashion more acceptable to banks, than more traditional financing structures such as Build, Operate & Transfer ("BOT") or Build, Operate & Own ("BOO") In most cases, Russian power projects structured with BOT or BOO models, would almost certainly require sovereign guarantees, even with the support of multilateral development banks, to secure bank co-financing

7 Application of the IPP Model in Russia would theoretically include sufficient commercialisation of the fuel suppliers, fuel supply transporters and power offtaker, and their respective contracts, to secure bank financing

8. Application of a typical IPP Model in Russia, even with use of our "A/B" Loan structure, may not in the view of potential co-financing banks, adequately mitigate a power project's commercial and political risks Application of the IPP Model would represent a significant departure from the more common BOT and BOO financing structures used elsewhere in the world. It is therefore proposed that a modified IPP Model could incorporate in the security package a series of performance guarantees from the government, for specific events relating to the various obligations of recently-privatised or still state-owned entities (such as those entities listed in paragraph 7).

## 2 ALLOCATION OF PROJECT RISKS

9 The proposed modified IPP Model removes the direct performance and financial risks from the government, and places these risks on the shareholders of the Independent Power Producer Company (IPPC) (a special purpose project company) and the power offtaker (if this party is not an IPPC shareholder)

10 Through their continuing indirect ownership (because entities are still directly state-owned or their share capital is still majority-owned by the state) of a majority of the share capital of the fuel suppliers and the regional (or local) utility company, the government controls and therefore should retain the risks on the supply and transport of fuel, and the offtake of power.



11 In implementing the proposed modified IPP Model, force majeure risk would almost certainly have to be accepted by the government. In addition, at this early stage of development of the power sector in Russia, it is not known what proportion of (i) natural and political force majeure risk could be insured, and (ii) residual force majeure risks that co-financing banks could accept. Residual force majeure risks would also almost certainly have to be borne by the government.

12 Therefore, the allocation of project risks becomes-

- power offtaker (regional/local utility) accepts fuel price, power offtake and foreign exchange risks,
- IPPC accepts project completion and post-commissioning performance risks,
- government indirectly accepts fuel supply and power offtake risks,
- government accepts natural and political force majeure risk;
- government accepts transfer risk

### 3 MODIFIED IPP MODEL SECURITY PACKAGE

#### IPPC Ownership Structure

13. In an IPP Model, the IPPC would be incorporated as a special purpose company between the regional (or local) utility company and one or more western utility or development companies. Ownership of the IPPC should allow a western investor to exercise a significant amount of control, if not majority control, over the IPPC's management and daily operations. Western ownership of the IPPC's share capital should be in the vicinity of 50%. It is suggested that the Russian investor(s) share capital contributions should comprise "in-kind" assets (usually the existing plant and site) and cash.

14 It is also suggested that paid-in share capital should comprise between 15%-20% of the project's cash costs. Furthermore, it is suggested that a significant equity participation from the power offtake party should be made, if this party is not an IPPC shareholder. It is believed that such ownership would provide incentives to the power offtaker to meet their Power Purchase Agreement ("PPA") obligations.



### Agent Bank and Escrow Account

15. It is accepted practice that co-financing banks would require the appointment of an offshore bank to act as a project's agent bank. This bank would control a project's cashflow using an offshore escrow account, which would be maintained with the agent bank.

### Project Contracts

16. In the proposed modified IPP Model, the main contracts would comprise-

- Turnkey Construction Contract (or equivalent), providing for a fixed lump-sum price and including standard contractors' liabilities and liquidated damages clauses,
- Power Purchase Agreement, providing for fixed costs, debt and equity service, and including standard penalty and bonus clauses;
- Fuel Supply Agreement, providing for 100% of the fuel supply requirements, and including standard liquidated damages clauses,
- Operation & Maintenance Agreement, with an experienced western utility company, and providing for operation and maintenance supervision,
- Implementation Agreement, between EBRD and the government, providing a framework of operation for the government's obligations

### Contractual Relationships

17. The most important required contractual relationships would be-

- indexation of the electricity price to selected economic indicators;
- electricity price to include fuel cost increases;
- standard liquidated damages, bonus and termination clauses to apply.

18. Indexation of the electricity price to selected economic indicators, including the Rouble exchange rate and inflation, would ensure that the power off-taker assumes foreign exchange risk, and that the project on a "stand-alone" basis, earns a sufficiently high inflation-adjusted financial internal rate of return to attract investors.



### Post-Commissioning Performance Guarantee Structure

19 In the event that potential co-financing banks require additional security in addition to the security offered by the proposed modified IPP Model, which is very likely, then it is possible that EBRD may consider guaranteeing the nominal financial value of specific performance obligations of state-owned entities. Under this scenario, EBRD could request a counter-guarantee (or refund, reimbursement indemnity etc, as appropriate) from the government, for its potential obligations under its guarantee (etc) to the co-financing banks.

20 The proposed sequence of events for recourse under the proposed performance guarantee and counter-guarantee structure, is-

- EBRD, as lender of record, initiates recourse to - for example - the fuel suppliers and the power offtaker, for non-performance under their contracts;
- if this recourse fails, then after a suitable cure period, the co-financing banks could have recourse to EBRD, under EBRD's guarantee (etc) to them, for the nominal financial value of specific events relating to those parties' non-performance,
- if EBRD's guarantee (etc) to co-financing banks is called, then it could call its counter-guarantee from the government, for its obligations to the co-financing banks.

21 Any guarantees would be restricted to specific events, which would be covenanted in a project's creditor agreement term sheet, such as, and for example only, the failure to provide fuel or offtake power. These guarantees would not be for an entity's physical obligations, but for the nominal financial value of particular events (of failure to perform).

22 In the first instance, following the non-performance of state-owned entities under their contracts and after a suitable cure period, EBRD's guarantee to co-financing banks could be called to enable any shortfall in, for example, the IPPC's cashflow, to be immediately rectified.

23. In the second instance, EBRD could call its counter-guarantee (etc) from the government (for EBRD's obligations to the co-financing banks).



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## Mailing List

To The Documentalist, One Exchange Square, London EC2A 2EH United Kingdom

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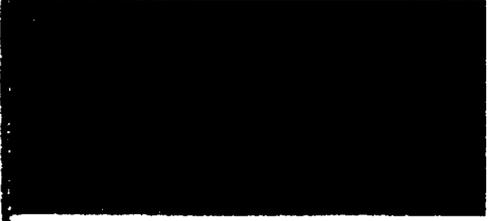
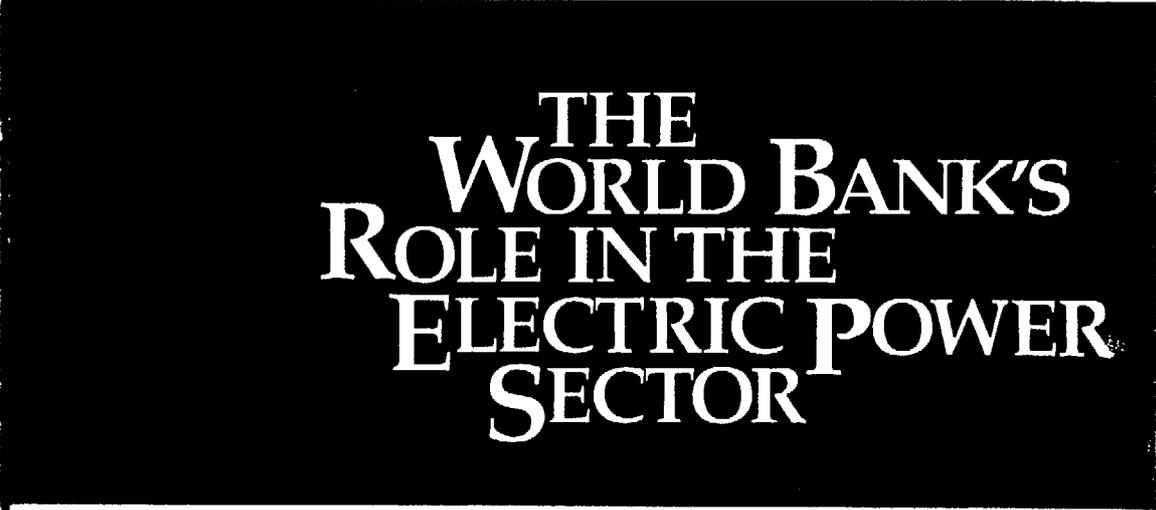
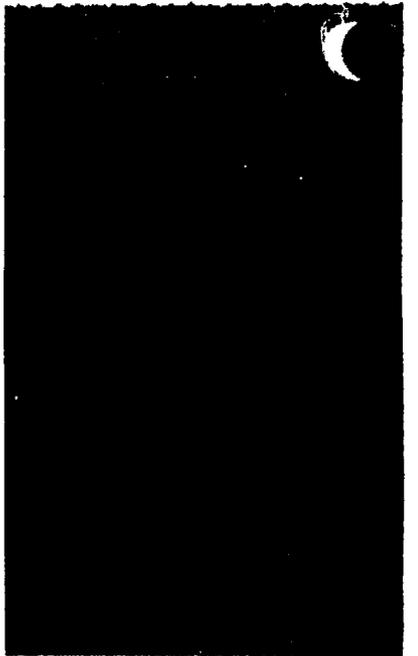
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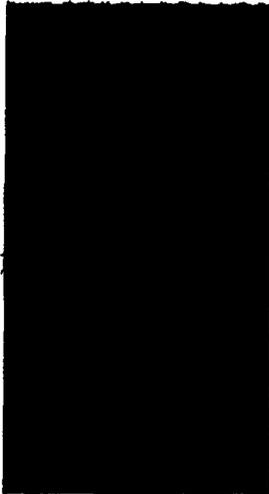
English/Russian/French/German

## EBRD - ENERGY PROJECTS April 1991 - December 1993

PROJECT NAME	TOTAL FINANCING	EBRD FINANCING	BOARD DATE
Poland Heat Supply	79 07	43 93	May 30, 1991
Rom Petro Pilot Mod	33 82	24 16	June 29, 1992
Martza Power	114 00	40 00	March 3, 1992
Estonia Energy Emergency	45 55	41 27	Nov 30, 1992
Latvia Energy Emergency	37 06	32 30	Nov 17, 1992
Samotlor Services JV (Russia)*	67 92	8 49	Nov 17, 1992
Lithuania Energy Emergency	39 50	35 70	Dec 14, 1992
Chernogorskoye (Russia)*	221 59	33 96	Dec 15, 1992
Vasyugan JV (Russia)* Emergency Loan	31 41	10 19	Dec 16, 1992
(Russia) *	50 94	50 94	Jan. 11, 1993
Polar Lights JV (Russia)*	271 68	76 41	Feb 8, 1993
Armonia Hraadan Unit S Power Plant	78 54	50 42	March 22, 1993
Slovania Drava River Hydro Power	130 08	73 47	April 20, 1993
West Siberia O&G	662 20	153 13	May 24, 1993
Komi Arctic Oil (Russia)*	271 68	67 92	July 26, 1993
Power Plant Modern Belarus	56 20	40 47	Dec 16, 1993
Power Subsector Project Macedonia	34 50	24 02	Dec 22, 1993



THE  
WORLD BANK'S  
ROLE IN THE  
ELECTRIC POWER  
SECTOR



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*The World Bank's Role in the Electric Power Sector*  
*Policies for Effective Institutional, Regulatory, and Financial Reform*

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*A  
World  
Bank  
Policy  
Paper*

*The World Bank  
Washington D C*

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and Development / THE WORLD BANK  
1818 H Street, N W  
Washington, D C 20433 U S A

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Manufactured in the United States of America  
First printing January 1993

*Cover design by Walton Rosenquist and Beni Chubber-Rao*

Library of Congress Cataloging-in-Publication Data

The World Bank's role in the electric power sector: policies for  
effective institutional, regulatory and financial reform

paper — (A World Bank policy paper, ISSN 1014-8124)

Includes bibliographical references

ISBN 0-8213-2318-0

1 Electric utilities—Developing countries 2 Electric  
utilities—Developing countries—Finance 3 World bank  
I International Bank for Reconstruction and Development  
II Series

HD9685 D452W67 1993

333 79 323'091724—dc20

92-46609

CIP

ISBN 0-8213-2318-0

ISSN 1014-8124

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## Foreword

This policy paper is based on the World Bank Industry and Energy Department's ongoing policy and research work, which (i) examines experiences of industrial countries and the Bank's borrowers in developing their power sectors, (ii) analyzes issues facing these sectors, and (iii) describes options for dealing with these issues in developing countries. The paper is supported by a large body of research, including the Bank's recent work on governance and public-sector management, the Latin America and Caribbean department's regional review of the power sector, the Operation Evaluation Department's review of power lending in Colombia, the Asia region's study of private investment in power and coal, the Africa region's analysis of Sub-Saharan power sector successes and failures, and the World Bank companion policy paper, *Energy Efficiency and Conservation in the Developing World: The World Bank's Role*. This paper has also benefited from extensive outside consultations with developing- and developed-country government officials, utility managers, academics, researchers, and nongovernmental organizations.

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*Acknowledgments*

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The principal author of this paper is Robert J. Saunders. John Besant-Jones, Anthony Churchill, and Peter Cordukes contributed to the development of the policy and analytical framework and to the paper's overall structure. Rangaswami Vedavalli, Enrique Crousillat, Sunita Gandhi, and Dennis Anderson contributed background material and critical review. The paper also benefited enormously from extensive consultations with Bank operations and policy staff and many others outside the Bank too numerous to list.

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*Glossary*

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BOO/BOOT schemes

Build-Own-Operate (BOO) and Build-Own-Operate-Transfer (BOOT) schemes are methods by which private sector participation in the power sector is encouraged. Under these approaches, a project company under private ownership, or a joint venture with a minority public participation, is set up to plan, finance under limited recourse, design, construct, and operate power generation facilities. In a BOOT arrangement, ownership of the facility is ultimately transferred to another entity after a specified period of operation.

Country commitment

Commitment must be judged on a country-by-country basis within the framework of a country-assistance strategy around the themes of significant progress toward needed reform and no more "business as usual."

Demand-side management

Identifying and implementing initiatives that improve the use of energy-supply capacity by altering the characteristics of the demand for energy. DSM involves a mix of pricing, other load management, and conservation strategies designed to increase the incentives for a more efficient use of energy.

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**Energy-efficiency improvements** Any measure that results in the delivery of any energy service with a reduction in energy consumption. Thus, carrier substitution or fuel-switching measures that lead to reductions in energy demand also become examples of energy-efficiency improvements.

**Energy end use** Energy applications such as motive power, lighting, process heat, water heating, refrigeration, air cooling, cooking, and so on.

**Integrated energy strategy** An interrelated set of measures that points the energy sector toward the most efficient, equitable, and environmentally-benign resource use. The strategy requires decisions on both the energy supply and demand side about sector structure, institutions, ownership, financing, fuel availability (coal, oil, gas), technology availability (import restrictions), structures of end-use markets, pricing policy, standards, service levels, and so on.

**Integrated energy resource planning (IERP)** Primarily a U.S.-type planning process whereby utilities (and in the U.S., their regulatory commissions) evaluate available demand- and supply side-options to provide energy services (including purchased power) and determine an optimal energy service strategy, given economic and environmental factors. The essential concept of IERP is the equal treatment, or integration, of energy-based and conservation-based energy services. Planners attempt to rank by cost all the different energy supply and end-use technologies, processes, and programs that might be used to provide energy services and implement them beginning with the lowest-cost opportunities.

**Load factor** A key measurement that compares a utility's average kilowatt-hour load to its peak, or maximum hour's usage, in a given year. A high load factor means greater plant utilization, since a company must build capacity to meet its peak demand, not its average demand.

**Load management**

Any effort to control loads by economic incentives, direct interventions, or new technology. Shifting load from peaks to valleys, or simply shaving the peak, defers capacity additions and transfers load from high cost, inefficient peaking generation to more economically efficient base-load units.

**Marginal cost**

The increase in the total costs of an enterprise caused by increasing its output by one extra unit. Marginal cost pricing is the setting of the price of an item equal to the cost of producing one extra unit of the item. Marginal cost represents the opportunity cost, or the total sacrifice to society, for producing an item. Long-run marginal cost is the cost of meeting an increase in consumption, sustained indefinitely into the future, when needed capacity adjustments are possible. In the long run, an increase in demand will result in a corresponding increase in the operating costs as well as in the capacity costs.

**Peak pricing**

The setting of higher prices than average when supplying services during a period of peak demand. Enough electricity capacity must be installed to satisfy demand at peak times, because, in general, electricity cannot be stored. At off-peak times the cost of electricity is lower at the margin than at the peak, at which less-efficient power stations have to be switched in to meet the demand.

**Regulation**

The supervision and control of the economic activities of private and arms-length public enterprises by government in the interest of economic efficiency, fairness, health, and safety. Regulation may be imposed simply by enacting laws and leaving their supervision to the normal processes of the law, by setting up special regulatory agencies, or by encouraging self-regulation by recognizing, and in some cases delegating powers to, voluntary bodies.

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*Summary and Conclusions*

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The power sector in most developing countries consists of a single national electric utility operating as a public monopoly. This structure is partly based on the view that electricity is a strategic and publicly-provided good and that people have a right to power at low prices. Over the past thirty years this public monopoly approach has facilitated expansion of power supplies, captured technical economies of scale, and made effective use of scarce managerial and technical skills in the early years.

World Bank lending has largely supported the state-owned monopoly power utilities with the principal objective of helping provide the basic infrastructure required by the directly productive sectors (see World Bank Operational Manual Statement 3.72, published in 1978). The main components of the Bank's power lending strategy have been to (a) develop sector institutions, (b) mobilize local resources for expansion through appropriate power pricing and utility financial management, (c) improve sector planning by emphasizing least-cost investment, and (d) help governments organize foreign exchange cofinancing, albeit with repayments publicly guaranteed. During the 1980s the Bank's lending strategy aimed to improve economic efficiency and financial sustainability in the sector by encouraging least-cost planning, marginal-cost pricing, international accounting standards and practices, rates of return on revalued assets sufficient to provide a reasonable level of self-financing, and international competitive bidding. The Bank also tightened its policies on environmental and resettlement standards and implementation arrangements. These changes were reflected in the power sector support strategy paper in 1983 and the power sector Operations Directive of 1987.

The World Bank's lending for the power sector in developing countries through FY91 was about \$40 billion (about \$75 billion in 1990).

prices)<sup>1</sup> or about 15 percent of total Bank lending. In spite of the impressive expansion of power systems in developing countries and despite the Bank's persistent dialogue with borrowers, the overall technical, institutional, and financial performance of power utilities in most developing countries has deteriorated. There are several examples of efficient power sectors and many successful individual projects, but a review of World Bank lending for electric power confirms a declining trend in the sector's pricing, financial, technical, and institutional performance, mainly due to governmental failure to address the sector's fundamental structural problems.

Over the period 1979–88, average real power tariffs in developing countries declined from 5.2 cents to 3.8 cents/kWh, quality of service deteriorated, technical and nontechnical losses and fuel consumption continued to be high, and poor maintenance of plants persisted. Inadequate metering, billing, and collection were the result of insufficiently commercial operations and lack of enforcement. While institution building (training of power utility staff, modernization) has continued to progress, conflicts between government's role as owner and its role as operator of utilities have affected sector performance. Opaque command and control management of the sector, poorly defined objectives, government interference in daily affairs, and a lack of financial autonomy have affected productive efficiency and institutional performance.

Financial performance, as measured by indicators such as the rate of return on revalued assets, self-financing ratios, and the level of overdue accounts, has also declined. On average, rates of return have fallen from levels averaging about 9 percent before the mid-1970s to less than 5 percent in 1991. Self-financing ratios on average were only 12 percent of investment requirements in 1991, against targets of between 20 to 60 percent, and the actual number of days receivable increased from seventy-seven days during 1966–73 to 108 days in the 1970s to 112 days in the 1980s. The overall average of accounts receivable by 1991 was ninety-six days compared with the general Bank target of sixty days. Developing countries' deteriorating macroeconomic situation and the debt overhang of the 1980s exacerbated these financial problems and worsened debt service coverage.

In the 1990s the continuing macroeconomic difficulties of many developing countries will severely reduce the availability of public resources to fund planned power sector investment programs. Furthermore, the changing global environment of the 1990s and the competition for access to financial resources underscore the need for the efficient utilization of power sector resources.

Under these circumstances, neither the developing countries nor the Bank can continue with a 'business as usual' approach to managing the

power sector. In the absence of new approaches to restructure and evaluate sector management on the basis of commercial principles, with enterprises distanced from excessive government day-to-day management, and with clear strategies for generating confidence for new entrants, it is unlikely that the required power sector investment can be mobilized in the 1990s.

A number of developing countries are already changing the way they do business in the power sector. Examples include Korea, Malaysia, and Philippines in Asia, Argentina, Chile, and Mexico in Latin America, Turkey and Eastern European countries and Côte d'Ivoire, Guinea, Ghana, and Malawi in Africa. Given the large capital requirements and ingrained sector inefficiencies, there is an urgent need for the Bank to encourage and support these evolving business methods and commercial structures.

Many governments have also attempted to use the power sector and other publicly-provided infrastructure services to address issues of social equity. Experience has shown that such policies are costly and ineffective ways of dealing with these issues. Subsidized power has further softened budget constraints on power utilities, and the resulting large deficits have usually been financed from regressive general taxes. The power shortages that inevitably result from the inability to finance expansion to meet increased demand mean that some form of rationing is required and, just as inevitably, power supply to the poor is usually the first to be rationed. Clearly, there are much more effective means for addressing social equity issues overall than through power sector subsidies.

This paper focuses on the interrelated institutional, regulatory, and financial reform issues that are essential in improving power sector performance. The Bank's evolving role in addressing power sector needs in developing countries is a natural extension of the Bank's work on governance, public sector management, and ongoing structural adjustment reforms. This paper does not specifically address issues of technology and fuel choice. These issues and their environmental implications, and policy issues related to the rural fuels chain, will be addressed separately in subsequent papers. Issues related to the end-use efficiency of electric power are addressed more completely in a separate Bank paper, *Energy Efficiency and Conservation in the Developing World: The World Bank's Role* (1993).

Guiding principles for Bank support of power sector restructuring programs are summarized below. Given the range of regional and country situations, however, these principles will need to be translated into specific action programs at the individual country level and be part of the Bank's agreed country assistance strategy.

### Transparent Regulation

*A requirement for all power lending will be an explicit country movement toward the establishment of a legal framework and regulatory processes satisfactory to the Bank. To this end, in conjunction with other economy-wide initiatives, the Bank will require countries to set up transparent regulatory processes that are clearly independent of power suppliers and that avoid government interference in day-to-day power company operations (regardless of whether the company is privately or publicly owned). The regulatory framework should establish a sound basis for open discussion of power sector economic, financial, environmental, and service policies.*

The dual role of the government as operator and owner of utilities has drawn governments into day-to-day interventions in power sector operations. There is therefore a need to set up some form of regulatory body as part of a broader governmental effort to redefine the respective roles of government, utility, and consumers. This implies a shift away from the monolithic type of governmental management and toward more decentralized and market-based systems. Government would retain responsibility for setting objectives and articulating overall policies and for planning and coordinating sector development. It would also establish the legislative and legal framework to protect the interests of the various stakeholders and the public. But regulatory approaches need to be established that appropriately balance protection of the public interest with the need for enterprise autonomy. This may require regulatory bodies independent of both government ministries and enterprises themselves.

With a more independent and transparent regulatory body, consumers, investors, and environmentalists could all be heard in determining policies related to investment programs, pricing, access to service, reliability of service, energy conservation, plant location, and environmental issues. Essential features for a sound regulatory framework include

- transparency and openness,
- clear articulation of reform objectives, including tariff policies,
- a legal structure that clearly defines the rules and procedures for reducing the level of government involvement and increasing the autonomy and accountability of enterprise directors and managers, and
- defined entry and exit conditions for private power producers.

Such a regulatory framework should instill investor confidence and facilitate at least some competition among suppliers. Developing effective regulatory institutions will take time, and concerns about political interference and corruption hampering the effectiveness of the process

may persist, but these concerns should not delay necessary actions in implementing regulatory reform. The benefits of moving away from current inefficient practices far outweigh the costs.

In much of the developing world the present institutional structure has failed to produce responsible actions in response to environmental concerns. Government enterprises, in particular, have found it difficult to add environmental concerns to their already overburdened social agenda. Enforcement actions must be seen as one element in a dialogue between regulators and enterprises, the objective of which is to improve the environmental performance of the plants under scrutiny. Such a dialogue is particularly difficult when both parties are government agencies. The situation in Eastern Europe is an extreme example of the problems that exist in many developing countries. The direction of regulatory and institutional change proposed in this paper should go a long way toward developing institutions that would deal with environmental issues in a more responsible manner. A clearer recognition of the role of the government as policymaker, rather than producer, will avoid the confusion of roles that is behind much of the poor performance in this area. The development of regulatory bodies will provide a natural focus for articulating environmental concerns and provide the forum for a more open process of input into decisionmaking by all interested parties.

Because electric power generation accounts for 30 percent of all fossil fuel consumption and 50 percent of all coal consumption worldwide, the gains from reducing emissions of particulates and gases are substantial. Shifting to natural gas and using clean-coal technologies can reduce emissions of particulates and carbon monoxide by 99.9 percent and emissions of sulfur dioxide and nitrogen oxides by more than 90 percent. Curbing emissions of particulates should be the first point of attack. It is cheap—1 to 2 percent of the total capital costs of electric power supply, on average—and it is important for human health. All new power plants should have equipment for control of particulate matter, and it should be well maintained to ensure continuous functioning. The costs of reducing sulfur dioxide and nitrogen oxides are higher (unless natural gas is available), at 10 to 20 percent of capital costs. The effects on health of reducing these emissions are usually much less than for particulates, and the impacts on forests, agriculture, freshwaters, and buildings vary greatly by area. The specific standards on nonparticulate emissions, therefore, will depend on circumstances.

With regard to CO<sub>2</sub>, there is currently no feasible solution for mitigating CO<sub>2</sub> emissions apart from switching fuels (coal to oil to gas to hydro or biomass) and increasing energy efficiency.

**Importation of services**

*In some of the least developed countries, the Bank will assist in financing importation of power services to improve efficiency*

In some lower income countries with weak public and private sectors, undeveloped capital markets, and a relative lack of market forces, a way to help bring about power sector reform and increase sector management efficiency would be to bring local or international industrial or developing-country services into the sector under utility management contracts or on a twinning basis. The Bank will consider the partial financing of these arrangements. Potential services for contracting out could include plant maintenance, billing, revenue collection, vehicle maintenance, line stringing, and pole and tower fabrication. Other issues that could be addressed with outside involvement include reducing supply-side power losses and increasing generating-plant availability. The financial costs of these initiatives would generally be low relative to the benefits.

**Commercialization and corporatization**

*The Bank will aggressively pursue the commercialization and corporatization of, and private sector participation in, developing-country power sectors*

The Bank will assist in developing power sector strategies to bring about commercialization. For power enterprises to operate on commercial principles, they must be treated like commercial enterprises. They should pay interest and taxes, earn commercially competitive rates of return on equity capital, and have the autonomy to manage their own budgets, borrowing, procurement, salaries, and conditions pertaining to staff.

The Bank may be able to facilitate the commercialization and corporatization of the power sector by linking support for financial sector reform to power sector financing. This could be done by channeling some portion of Bank lending to sector enterprises through financial intermediaries in accordance with existing Bank guidelines. Given the potential importance of the power sector for capital market development and the comparative price and income stability that will come through more transparent regulation and commercialization, the power sector could be in a better position to play a leading role in channelling domestic savings in banks and pension funds to investments in long-term bonds and equity issues of power companies.

Commercialization and corporatization of state-owned power utilities are necessary first steps in the process of restructuring and attracting

private-sector participation. Only a few countries have governmental checks and balances to maintain the impetus for efficiency that comes initially from corporatization. Competition in power supply and greater reliance on the pressures of the capital market for financing power expansion are required to sustain the effort, and these can only come from greater participation by the private sector. This can include the participation of private generating companies, the private contracting of construction, maintenance, and various other services, or restructuring and complete privatization.

**Commitment lending**

*Bank lending for electric power will focus on countries with a clear commitment to improving sector performance in line with the above principles*

Despite financial and pricing issues having been an important part of the policy dialogue in Bank operations in the power sector, and despite the Bank's having stopped lending to power sectors in a number of countries because of continued noncompliance with pricing and financial covenants (Brazil since 1986, Egypt between 1980–89, Mexico between 1972–88), the Bank's leverage is limited. The Bank has leverage for policy change only when it is perceived as an institution that requires performance and compliance in order for resources to be made available. For this reason, the Bank needs to enforce its lending policies and instruments better and focus its delivery of services better to match the changing and varied needs of its borrowers.

It is clear that helping countries pursue fundamental institutional and structural reforms will require an expanded sector work program. Such a program will require the borrower and the Bank to identify and analyze better the political, legal, regulatory, and institutional constraints to improved performance and to spell out clearly the financial goals and strategic options for the sector. More analysis of the robustness and the environmental implications of investment programs will have to be undertaken. Above all, issues of accountability and incentives for improving efficiency will have to be identified clearly and remedial actions defined and agreed upon. Finally, governments will need to realize that the time of "business as usual" is over and that they will not be able to roll forward financial and performance covenants to successive Bank lending operations (thereby expanding time frames for compliance). For countries that do not have the local expertise to address restructuring and regulatory issues, the Bank can provide funding for technical assistance.

### Private investment

To encourage private investment in the power sector the Bank will use some of its financial resources to support programs that will facilitate the involvement of private investors

Many potential private power investors are concerned about security and price of fuel supplies, timely payments for purchase of power by a dominant state-owned power company, and delays in the agreed conversion of local currency into foreign exchange. Using existing instruments, the Bank can play an important role in helping governments develop financial mechanisms for mitigating some of these risks. While the proposed Pakistan guarantee operation (Hub Power Project) is the most publicized effort thus far, there is a wide range of possible interventions of this type, many of which could be relatively small and entail limited risks. The Bank will work with the Multilateral Investment Guarantee Agency (MIGA) and the International Finance Corporation (IFC)—both agencies of the IBRD—in supporting such operations, focusing on sovereign risk issues in accordance with existing Bank guidelines for guarantee operations. Such a focus should help countries develop or strengthen private capital markets and will be a positive force toward meeting the projected large capital shortfalls in the power sector over the next decade. The Bank will give such assistance only when satisfied with the government's institutional and structural reform policies for the power sector

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### Recent Experience

#### Changing Policy Picture

Because the electric power sector is a requisite for growth and modernization in many developing countries, the Bank has contributed to the rapid development of the sector. This assistance has increased availability of power, access to service, and consumption of electricity, and in many countries has resulted in the power sectors being better organized and performing better than most other sectors of the economy.

In spite of these successes, however, overall sector performance has deteriorated since the mid-1970s, due to three sets of factors

- exogenous factors beyond the countries control, such as world oil prices, access to foreign loans, interest rates, and inflation,
- inappropriate national policies on energy pricing, investments, institutional development, and methods of governance (that is, regulatory arrangements and lack of autonomy of utilities), and
- enterprise-related factors, including conflicting objectives and lack of management accountability, resulting in technical, operational, and financial problems

Power utilities have had to face oil price increases and high inflation, and they have been hampered in their efforts to recover the cost of power supply because governments have been slow to respond to changing conditions and to grant adequate tariff increases. Subsidies to some categories of consumers and inadequate tariff levels also have led to prices that give incorrect signals to users.

In parallel with these pricing distortions, institutional weaknesses in many countries have arisen mainly because the single electric utility is treated as a direct extension of the government. While modernization and the training of power-utility staff have continued to progress under

public monopolies, conflicts between government's roles as owner and operator of the utility have affected sector performance. In many cases, institutional weaknesses have arisen from opaque command-and-control management and poorly defined objectives. For example, sociopolitical objectives have emphasized rural electrification and extending supply to new areas rather than maintaining installations and improving quality of service. Other factors contributing to institutional weakness in the power sector have been government interference in

### Box 1 There is Considerable Scope for Improving the Performance of Electric Utilities

One indicator of the overall performance of electric utilities is the number of utility customers per utility employee. Based on 1987 statistics, the developing-country range is a high of 292 customers/employee for Korea, to a low of six customers/employee for Rwanda. Below is a list of the ten highest and ten lowest power-sector productivity performers among the developing countries. Although some of the differences are due to scale effects, most of the better performers are middle-income countries, most poor performers are lower-income countries. Performance is not entirely income-related, however. As a reference point, the U.S. has 240 customers/employee, France has 222, and the U.K. has 153.

#### Utility customers per employee in 1987

High performance		Low performance	
Country	Customers per employee	Country	Customers per employee
Korea	292	Rwanda	6
Colombia	180	Botswana	8
El Salvador	175	Burundi	9
Cyprus	165	Central Africa Rep	14
Mexico	161	Malawi	14
Indonesia	160	Papua New Guinea	18
Barbados	159	Zambia	20
Jamaica	142	Mozambique	22
Paraguay	136	Comoros	25
Venezuela	128	Zaire	25

Source: Escay 1990

day-to-day affairs, the utilities' limited financial autonomy, and lack of incentives for utility managers to pursue technical efficiency and financial discipline.

The combined effects of electricity pricing below cost and institutional weakness have hurt the financial performance of utilities. Declines in financial performance, as measured by such indicators as the rates of return on revalued assets, self-financing ratios, and level of overdue accounts, were already evident shortly after the first oil crisis in 1973–74. The 1979 oil price increases and the debt problems of the 1980s continued to worsen the utilities' financial situation. Power sectors in the 1980s accounted for up to one-third of total public investment in a few developing countries and constituted a significant portion of the public debt. Given the problems of debt overhang and structural imbalances, governments in the 1990s will face great difficulty in financing their planned power sector investments.

The Bank's role in the power sector has been that of a lender to expand electricity supply and facilitate institutional development. The Bank's main lending instruments have included specific project loans, time-slice or program loans, technical assistance loans, and sector or subsector policy loans. In addition, power sector policy components have been included in multisectoral lending instruments (structural adjustment loans—SALs and Public Enterprise Restructuring Loans—PERLs), which have made the power sector lending program more dependent on the quality of the Bank's dialogue with its borrowers. Financial and pricing problems have been sources of poor project performance and consequently the overwhelming concern of policy dialogue. In fact, the Bank has stopped lending to power sectors in a number of countries (Brazil since 1986, Egypt between 1980–89, Mexico between 1972–88) for non-compliance with pricing and financial covenants.

Despite the Bank's efforts, however, the overall quality of its power sector portfolio has declined. The main reason is that leverage has been limited, since a country's perspective must be considered if the Bank is to maintain an ongoing dialogue with a government on the need to implement policy reforms. The Bank's perseverance in its policy dialogues with borrowers has convinced some governments to implement reform measures, particularly because many governments have experienced economic deterioration as a result of distorted macroeconomic policies and the burdens of past debt.

This paper develops a policy framework for power sector restructuring. It focuses on policy options and related mechanisms that govern pricing, institutional and regulatory structures, and financial reform. It concludes by proposing that formation of a more transparent regulatory framework, together with a business-like focus, should be essential.

conditions of Bank involvement in the sector. Given the regional and country diversities, individual countries should be encouraged to review and select the options, mechanisms, and pace of reform most appropriate to their needs and circumstances.

### Rapid Expansion of Power Supplies

During the past thirty years, power sectors in developing countries have grown rapidly. Most major towns and many smaller towns now have electricity from integrated networks that use large power plants developed and operated as a system. Many countries now serve most urban populations, and some have embarked on ambitious rural electrification programs.

A recent Bank study has shown that in most of the largest developing countries, installed capacity and per capita generation grew at more than twice the real rate of GDP over the 1969–1989 period. Power connections grew at 9 percent per year, or about two-and-a-half times the average population growth rate.

The impressive physical expansion of power systems has been an important factor in the economic growth of developing countries over the last decades. Despite this rapid growth, still only a relatively small proportion of populations in developing countries is connected to electricity supply.

### Poor Performance

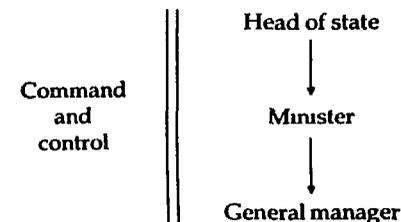
In spite of the success in increasing the supply of electric power, strong evidence exists that since the early 1970s, both the operational and financial performance of power utilities in a majority of developing countries has deteriorated. The result has been high economic costs to the countries, the power utilities, and consumers. It has been estimated that older power plants in many developing countries consume from 18 to 44 percent more fuel per kilowatt hour of electricity produced than do plants in OECD countries. Transmission and distribution losses are two to four times higher than the "normal" level for an efficient utility. In fact, technical and nontechnical transmission and distribution system losses in the delivery of electricity are commonly greater than 20 percent—occasionally approaching 40 percent. Currently, losses during transmission and distribution represent 31 percent of generation in Bangladesh, 28 percent in Pakistan, and 22 percent in Thailand and the Philippines. (In the United States only 8 percent of electricity is lost during transmission, in Japan, 7 percent.) These losses, the equivalent of about 75,000 megawatts of capacity and 300 terawatt hours (300 billion

kilowatt hours) a year, represent a loss to developing countries of approximately \$30 billion a year through increased supply costs. Worse, by the end of the century, based on present trends, aggregate losses would double. While some of the losses represent theft and abnormalities in billing and collection, it is also clear that technical losses in networks are high.

Developing-country power sectors, which tend to be characterized by opaque command-and-control management structures and cost-plus pricing, do not always provide for adequate management accountability nor incentives for sector agencies to minimize production costs consistently and operate reliably. Another problem is that the primary focus on increasing supply does not always give due emphasis to end-use efficiency options. These drawbacks are becoming increasingly serious as power systems become more important to national economies and have greater local, regional, and global environmental impacts.

In many countries, utilities have given insufficient consideration to opportunities for major plant rehabilitation and life extension projects when they have prepared investment programs. In fact, most Bank borrowers still have substantial scope to upgrade processes and technology to increase the productivity of sunk investment in existing power supply facilities. This upgrading would begin with better maintenance

#### Box 2 Command and Control



In a closed command-and-control environment it is politically difficult to

- make unpopular tariff decisions, and
- resist the temptation to meddle in sector investment and management decisions, to use the utility as a vehicle for political patronage, to invest in the *new* rather than maintain or renew the *old*, to divert funds to ignore bothersome environmental issues, etc.

**Box 3 Poor Performance of the Power Sector**

The government utility corporation in a small African country is an example of a small utility performing poorly while functioning as a government department that provides electricity, water, and sewerage services. The power component has roughly \$5 million gross income, 40 MW of generating capacity, 12,000 consumers, and a third of the staff of 1,000. Government dissatisfaction with electric service is apparent in the eight changes of the utility's managing director in twelve years. Various approaches to improving performance have been used: prior to 1981, U.K. expatriate assistance was used; from 1981 to 1988, GTZ (Germany) funded expatriate technical assistance plus spare parts; in late 1987, the utility corporation signed a performance contract with the government, but results have been disappointing. The government is now considering various options: (a) a management contract with a fixed fee, (b) leasing with a rental fee, (c) selling the utility to a private firm regulated by the government, and (d) continuing the present performance-contract arrangement between the utility corporation and the government. Meanwhile, system shutdowns averaging two hours in duration continue to occur about twice a week.

*Source:* World Bank reports

to increase plant availability, reduce technical losses, and reduce fuel consumption of thermal power plants. In general, the thermal efficiency of electricity generation in developing countries tends to be low, especially in the many instances in which such generation is based on old coal- and oil-burning technologies.

For many borrowers, improved maintenance, plant rehabilitation, and life extension initiatives offer significant potential for deferring new investment. Improving maintenance to increase supply capacity by 10 to 20 percent delays the need for investment in an equivalent amount of new capacity. A power efficiency program that succeeds in reducing technical losses by 25 percent (for example, from 20 to 15 percent) may defer total investment requirements for new capacity by 10 to 15 percent. Improved generating plant availability also reduces the need for excessively high plant reserve margins.

**Deteriorating Finances**

The development of power supply has absorbed a relatively large share of the public resources in developing countries. Governments have traditionally used public and publicly-guaranteed resources to finance

**Box 4 High System Losses Continue in Bangladesh Despite Covenants Linked to Disbursements**

System losses have been excessive (World Bank covenants have been ineffective) in Bangladesh throughout IDA's power lending program of six projects in the country over eleven years. Losses were 35 percent before 1979, ranged from 33 to 43 percent a year between 1980 and 1988, peaked at 46 percent in October 1987, and were 43 percent in May 1990. These high loss levels are continuing despite a covenant in the fiscal 1988 Transmission and Distribution Project requiring a loss reduction to 32 percent, and a second tranche release covenant in the fiscal 1989 Energy Sector Adjustment Credit also requiring a loss reduction to 32 percent. Due to high system losses and poor collection, a January 1991 supervision report states that payment for electricity reflects only 57 percent of the energy generated. Because of this lack of progress, IDA suspended lending for new energy projects in 1990 and suspended disbursements for ongoing projects in September 1991. The conclusion is that fundamental sectoral change is needed, and without it power loss reduction patch work will not succeed in Bangladesh.

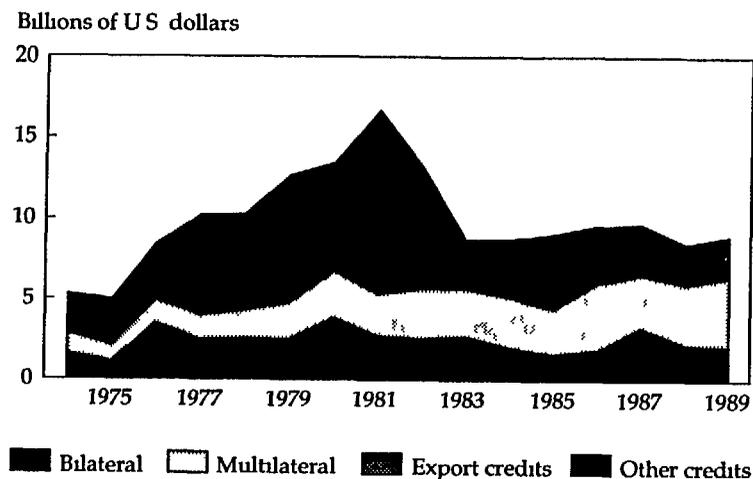
*Source:* World Bank records

the development of power supply, which is one of the most capital-intensive sectors in the economy. Their objective has been to ensure adequate financing at low cost, on the assumption that low-priced electricity is critical to achieving economic and social development. Partly to keep costs down, the sector has also generally benefited from subsidies in the form of exemption from taxes, duties, and dividends.

In many developing countries, tariff levels are a problem because governments are slow to adjust electricity tariffs to reflect higher costs from inflation, fuel, and interest charges. A recent Bank survey of electricity tariffs in 60 developing countries has shown that average tariffs declined over the period 1979–88 from 5.2 cents to 3.8 cents/kWh in constant 1986 US dollars. Thus put the tariffs at about half the OECD level (see figure 2). The survey also found that average tariff levels for nearly 80 percent of the utilities did not cover the long-run average incremental cost of supply.

In addition to encouraging waste in energy end use and making many of the more energy-efficient process and technology initiatives financially unattractive, these tariff policies cause financial strain on the sector—that is, there are low financial returns on very large capital investments and low self-financing levels. In 58 percent of the countries

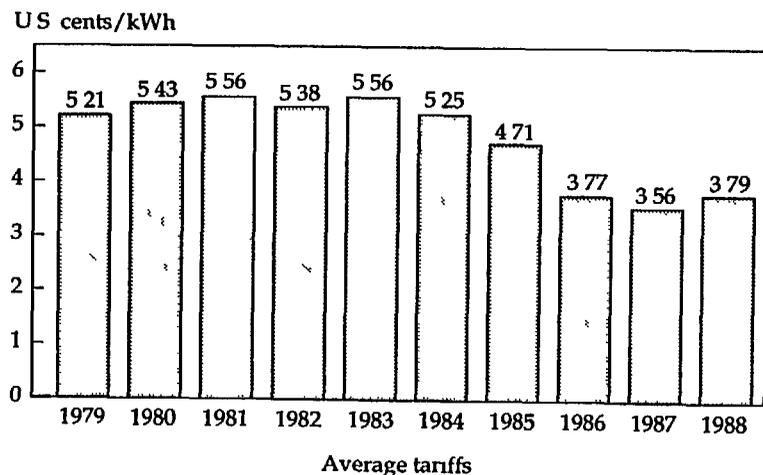
**Figure 1 External Financing for Electric Power, Grouped by Credit Types**



Source: World Bank data

**Figure 2. Trends of Electricity Tariffs in Developing Countries, 1979-88**

(constant 1986 dollars)



Source: Based on sample of 60 World Bank member countries

sampled, net revenues were inadequate to cover debt service by a factor of 1.5 times (the minimum level of coverage normally required by the Bank). Twenty percent of the countries did not even show a 1.0 times coverage, the utilities in these countries are, in effect, insolvent and would be unable to cover their costs without government support or loan guarantees.

A review of sources of finance for power system development in sixty developing countries has shown that the average level of cash generation of the utilities was only 12 percent of their investment requirements. This compares unfavorably with Bank targets of between 20 percent and 60 percent and with 30-40 percent average levels of cash generation achieved by these utilities in the 1960s and early 1970s. Average rates of return have also fallen from about 9 percent (1966-73) to less than 5 percent. As a result, in many countries, power supply, a sector that should play a major role in the mobilization of domestic resources, has become an unnecessarily large and inefficient component of government spending.

In addition to the decline in internal cash generation, the international debt problem has also undermined or reduced the creditworthiness of many power utilities, particularly in middle-income developing countries, to the point where many of them no longer attract commercial or supplier credit funds. To get around this constraint, governments sometimes borrow on behalf of their power utilities or through such intermediaries as the Power Finance Corporation in India or Financiera Eléctrica Nacional in Colombia and onlend the proceeds, sometimes at concessional rates.

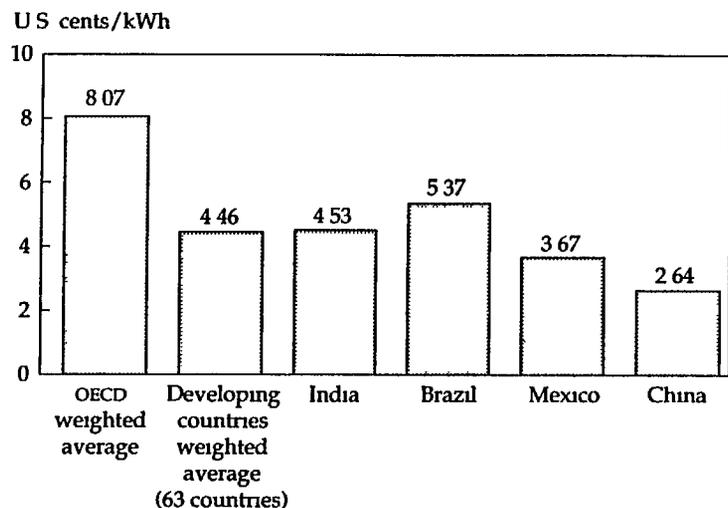
### Macroeconomic Impacts

While the economic impacts of power sector inadequacies are difficult to quantify, it is clear that the lack of adequate internal funding, together with poor operation and maintenance practices, has resulted in a maintenance backlog that has affected power plant availability and system reliability, with expensive consequences for countries. These are not merely sectoral or technical consequences, in the Latin America and Caribbean (LAC) region alone, it has been estimated that power shortages cost the regions economies an estimated \$10-15 billion annually in lost output and excess investment.

Also in the LAC region, because of poor maintenance and low plant availability, it has been estimated that fuel costs for thermal generating plants are more than \$600 million per year higher than they need be. Because of the low overall reliability of electricity supply, utilities have invested some \$26 billion in building up levels of reserve generating

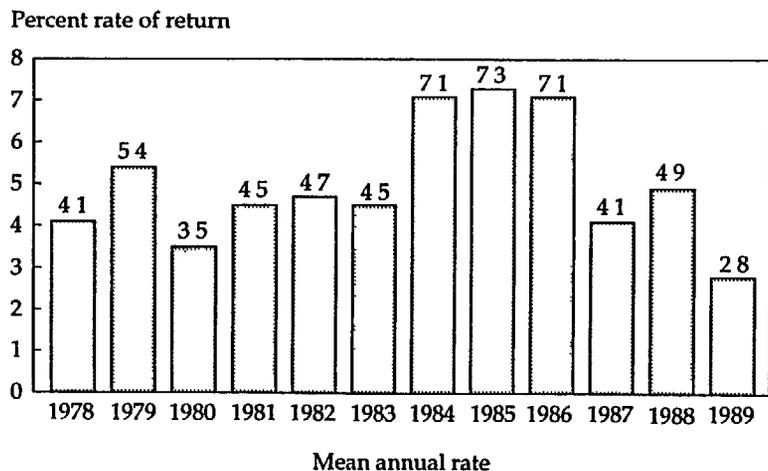
**Figure 3 Comparative Electricity Tariff Levels**

(current 1988 US dollars)



Source: World Bank data

**Figure 4 Mean Annual Rates of Return on Revalued Net-Fixed Assets for Developing Countries**



Source: Based on sample of 360 actual financial rates of return recorded for 57 World Bank member countries

capacity that would not be needed if maintenance standards were more like those in OECD countries

In Nigeria similar estimates show that if power generation and maintenance practices were improved, the country would have a power supply capacity overinvestment of about \$2.4 billion. Because of unreliable service, about 25 percent of the electric power consumed by the largest manufacturers in Nigeria is now self-generated, at a cost ten to forty times higher than for power purchased from the national grid.

Finally, a study in Pakistan (which did not include the value of future investments foregone because of unavailable or unreliable power) found that load shedding to the industrial sector alone has led to a 1.8 percent decrease in GDP and a 4.2 percent decrease in the country's foreign exchange earnings. For India the cost of unreliability in electricity supply to the industrial sector has been estimated to be at least 1.5 percent of GNP.

**An Expanding Investment Program**

Notwithstanding the financial constraints and operational inadequacies confronting the sector, governments and utilities in developing countries have expanded plans for large power investment programs for the 1990s, which, if major energy efficiency gains do not take place, will require up to \$1 trillion to finance in current terms. According to these plans, total power supply capacity by the end of the century would increase by 384 GW, to about 80 percent above the 1989 level. Developing countries must also make large investments to develop the primary energy sources (coal, gas, petroleum) that support the power production and energy consuming sectors. These requirements will force governments to consider policies that encourage the more efficient production and end use of power and to seek new ways of mobilizing financial resources for sector development.

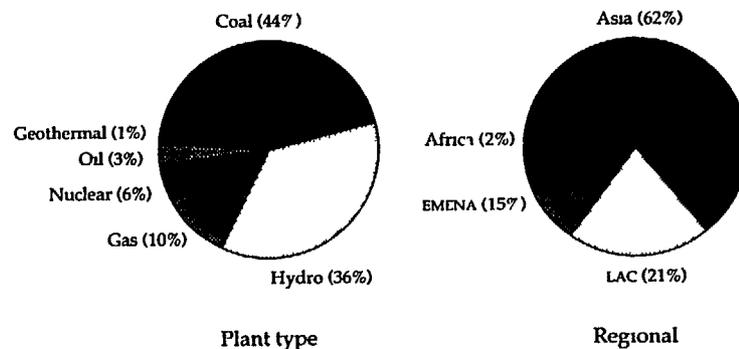
About 40 percent of these projected financing requirements, up to about \$40 billion annually during the 1990s, is in foreign exchange. Developing countries as a group have little prospect under current conditions of mobilizing foreign resources on this scale, however, and official financing agencies are unlikely to increase their commitments for power development—now around \$7 billion annually—because of claims on their limited funds to assist other sectors. Private creditors are also reluctant to re-enter many developing countries that continue to experience difficulties in servicing their foreign debts. These debts include outstanding commitments of some \$60 billion on publicly-guaranteed power loans.

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### Box 5 \$1 Trillion Power Capital Expenditures in the Developing Countries in the 1990s

According to a World Bank study of the electric utility expansion programs in seventy developing countries, including the Eastern European countries of Hungary, Poland, Romania, and Yugoslavia, developing-country power utilities want to spend up to \$745 billion in 1989 dollars (almost \$1 trillion in current terms) for system expansion in the 1990s. While this figure may seem high, such an expenditure would, in fact, imply an average electricity growth rate of only 6.6 percent per year. Such an expenditure would enable developing-country utilities to add a total of 384 GW of capacity, raising total capacity from 471 GW in 1989 to 855 GW in 1999. Regional and plant breakdowns of the \$745 billion capital expenditures and 384 GW capacity addition are shown below.

#### \$745 Billion Capital Expenditures



Source: Moore and Smith, 1990

The financing requirements in local currencies, up to \$60 billion annually, are also large. In fact, even at much lower investment levels, local currency financing would likely be a key constraint. Domestic capital markets in many developing countries are still too undeveloped to make a significant contribution to financing power development.

#### Environmental Concerns

Compounding the difficulties of meeting expanded power requirements, many developing countries are experiencing energy-related deg-

radation of their environments. The main concerns are CO<sub>2</sub> emissions into the global commons, the dislocation of peoples and the disruption of the environment from hydropower development, emissions and effluents near densely populated areas from fossil-fuel generating plants, and the use of large tracts of land to construct power generating and transmission facilities.

It is likely that fossil fuels will continue to be the predominant energy source for the next several decades, and the main task ahead will be to use them in economically and environmentally satisfactory ways. Expansion plans for fossil-fuel power generation in several developing countries, particularly those based on coal, give rise to concern in the host and neighboring countries about acid rain from sulphur and nitrous oxide emissions. Measures to mitigate these effects can produce significant environmental benefits, while increasing capital costs by 10 to 20 percent and operating costs by 5 to 10 percent. If these higher costs were passed on to consumers, they could lead to increased energy conservation. There is currently no feasible solution to mitigating CO<sub>2</sub> emissions.

### Box 6 Investment in Maintenance Usually Gives Higher Returns Than Do New Facilities

Many developing countries suffer from low utilization of power production facilities. Typical generation-capacity factors are only around 40 percent. Some examples for 1987 are India 44 percent, Indonesia 35 percent, Jamaica 36 percent, Jordan 41 percent, Kenya 52 percent, and Liberia 25 percent.

When plant availability is low because of poor maintenance, extra generating capacity is necessary to maintain the power supply. In well-managed systems, a 20 to 30 percent reserve margin of generating capacity is adequate, but some developing countries have reserve margins of 100 percent or more. If capacity costs 1,000/kW and the excess margin is 50 percent, this translates into overinvestment of \$500/kW load, or roughly 1¢/kWh of electricity produced.

On the other hand, if additional maintenance expenditure is undertaken (for example, equivalent to 2 percent annually of the investment cost), the annual cost would be only \$26/kW or 0.5¢/kWh. Therefore, increased maintenance gives a much higher return than added generating capacity. Ironically, the World Bank probably contributed to the excess capacity in the developing countries because for many years Bank lending for recurrent costs, including spare parts, was not allowed.

Source: Escay, 1990

apart from switching fuels (coal to oil to gas to hydro or biomass) and increasing energy efficiency

A relevant question is how best to respond to the threat of greenhouse warming. If it is necessary to restrict the use of fossil fuels, could the world's demands for commercial energy still be met, and if so, at what cost? More efficient use of fossil fuels and a switch from coal to fuels lower in carbon could substantially reduce emissions of carbon dioxide per unit of energy output. Beyond that, the options would be nuclear energy or renewable energy (primarily solar, biomass, hydropower, and wind).

Nuclear power currently provides less than 1 percent of the energy used in developing countries. World Development Report 1992 concludes that that share seems unlikely to rise significantly in the foreseeable future. However, technical developments in renewable energy in the 1970s and 1980s—in solar, wind, and biomass energy, in particular—have led to remarkable cost reductions in these technologies. There is now a growing awareness that renewable energy is an abundant resource that increasingly can be harnessed.

#### Reasons for the Problems

Government policies in the power sector have frequently emphasized that (a) the power sector is an engine for promoting economic development and, therefore, should be sustained through public investment, and (b) electric utilities can also be a tool for addressing social equity and employment issues and improving quality of life. While these policies have facilitated availability of, and access to, power supplies, they have also perpetuated the notion that people have a right to electric power at low prices. This has resulted in increasing demand on scarce public resources to fund power needs, continuous central government subsidies to the sector, and unbalanced investments. Social equity and employment objectives have led to overstaffing, subsidies to consumers, inefficient pricing, and inadequate resource mobilization.

In the 1970s and 1980s, problems at the sector and enterprise levels were exacerbated by exogenous factors such as world oil prices and by economic problems such as rising national debt, high inflation, and large and unpredictable exchange-rate devaluations. As a result, many power sectors have experienced problems in servicing debt, shortages of foreign exchange, poorly performing state enterprises, a poorly trained workforce, and a weak legal system unable to enforce contracts. The foreign exchange shortage, together with protectionist trade policies that limit joint ventures and imports, has restricted access by many countries to the foreign capital and energy-efficient technologies to develop their

power supply and utilize it efficiently. These constraints have caused an estimated yearly foreign exchange gap for developing electricity supply of about ten times the recent level of Bank lending in this sector.

The Bank's experience has shown that when power sector programs and projects appear technically sound but fail to deliver results, in many instances the reasons are conflicting social objectives, overall weak country institutions, lack of adequate legal framework, damaging discretionary interventions by governments, uncertain and variable policy frameworks, and a closed command-and-control decisionmaking process without adequate checks and balances. Sector reforms may become ineffective if laws are not enforced or if there are severe delays in the settlement of claims. Efforts to increase private sector participation may not be politically sustainable, and the supply response to improved pricing policies may not occur unless there are clear and enforceable rules and unless institutions explicitly acknowledge transaction costs (the costs of arranging, monitoring, and enforcing contracts). Reform efforts may also fail if accounting systems are so weak that budgetary policies cannot be implemented or monitored or if closed procurement procedures encourage corruption and distort investment priorities.

Although all of these constraints are significant, it can be argued that the basic sectoral problem relates to undue government interference in those day-to-day organizational and operational matters that should be under utility control. Such interference has undermined the accountability of those responsible for day-to-day management functions. It has influenced procurement decisions, mitigated against least-cost fuel choice, resulted in an inability to raise power tariffs to meet revenue requirements, restricted utilities' access to foreign exchange, mandated low managerial and technical salaries that are tied to low civil service levels, and promoted excessive staffing and political patronage. These problems have, in turn, in many cases, brought about generally inadequate utility management and organization, lack of accountability, flight of experienced and capable staff due to uncompetitive employment conditions, weak planning, inefficient operation and maintenance, high technical and nontechnical losses, and weak financial monitoring, controls, and collection.

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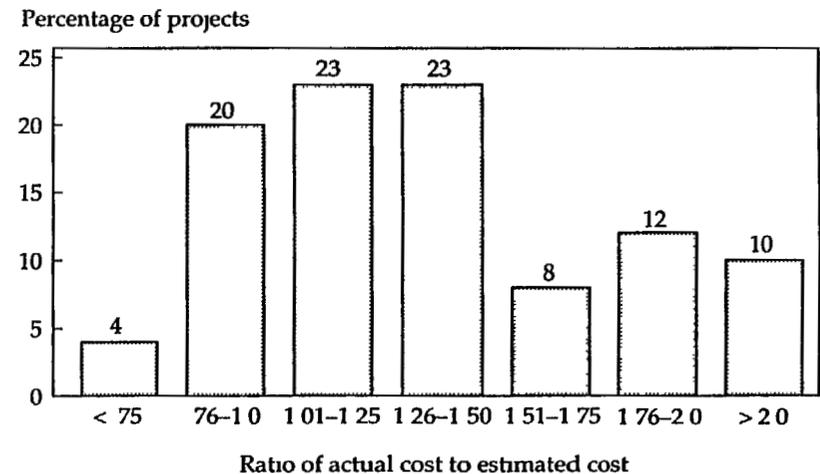
The World Bank's Role in the 1970s and 1980s

The World Bank historically has been a major supporter of the power sectors of developing countries. Power has been one of the primary sectors in the Bank's lending program, accounting for \$40 billion (about \$75 billion in 1990 prices) through fiscal 1991, or about 15 percent of the cumulative total of the Bank's lending. In the 1980s, the Bank financed about 7 percent of total power investments in developing countries and also helped these countries raise additional cofinancing. If, hypothetically, power lending leveled off at about \$3 billion a year and developing countries were to achieve most of their planned power investments, the proportion would decline to about 4 percent of total planned power investments and would remain at slightly less than 7 percent of foreign exchange requirements during the first half of the 1990s.

The Bank's lending in the power sector has operated in the framework of state ownership and public control of a power monopolist. This approach helps capture economies of scale in small power systems and provides financing in the absence of capital markets. Prior to the mid-1970s, this approach was generally satisfactory in most developing countries, in an environment of low inflation and low debt levels, and with governments allowing utilities a significant degree of managerial autonomy.

The Bank has also stressed the importance of overall institution building in the sector. Most power utilities are now much larger and more sophisticated institutions than they were twenty to twenty-five years ago. The Bank's objective in supporting the growth of these utilities has been to encourage economic efficiency, financial sustainability, and professional management by advocating least-cost planning, marginal cost pricing, international accounting standards and practices, acceptable rates of return, and international competitive bidding.

Figure 5 Hydroelectric Project Costs Actual to Appraisal Estimate



Source: World Bank data

However, with the exception of a few relatively well-managed commercialized utilities, such as those in Korea, Thailand, and Malaysia, power sector finances, efficiency, and institutional development over the past two decades. The fundamental problem has been that the closed command-and-control management approach is often subject to political compromise and that in numerous developing countries the political will to implement and adhere to financial and operating covenants and sound pricing policies has been disappointingly weak. The World Bank's Operations Evaluation Department (OED), in a recent review of power sector lending to Colombia for the years 1970-87, concluded that the Bank should continue to support the sector only if government is willing to tackle much broader and more fundamental institutional and organizational issues than in the past.

A recent review of the widespread use of performance contracts in Sub-Saharan Africa has shown that in the absence of political will, such contracts are merely formal documents that produce few tangible results. An exception is the case of Electricidade e Aguas de Guineá-Bissau (EAGB) in Guinea-Bissau, where the government was so committed to the goals of the performance contract that it complied with its obligations prior to signature. In the majority of cases, however, it was found that governments did not fulfill their obligations, which essentially rendered

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the performance contracts meaningless. Traditional government practices with regard to tariffs, timely payment of electricity bills, and employment usually remained in force regardless of the provisions of the performance contracts. The review also found that governments limited the utility management's authority and consequently impeded transparency and accountability.

In response to the changing needs of developing countries, the priorities for Bank lending in the power sector have over the years expanded from the traditional primacy of loans for electricity supply to addressing the interrelated issues of pricing, institutional strengthening, and investment planning. New lending instruments have been designed to address the policy issues that constrain sector efficiency and impede resource mobilization. Although project loans have continued, sector lending instruments now address a much wider scope of issues:

- policy weaknesses that constrain sector development at least as much as capital shortages,
- policy reforms that yield benefits at both sector and macroeconomic levels,
- sector lending that acts as an umbrella to expedite project lending,
- interrelated subsectoral issues that are not easily dealt with in project lending,
- policy issues that need to be resolved at the sectoral level, and
- policy loans to cover small items in several subsectors that would be cumbersome in a project loan.

While there have been many sector improvements, there have also been problems, mainly because of (a) the failure of governments to respond quickly to required policy changes, and (b) the Bank's limited leverage, especially in large countries where the volume of Bank lending in relation to the countries investment needs is low. The effectiveness of the Bank's lending objective to bring about least-cost investments has also been limited. Bank reviews have shown that many projects that were part of assumed least-cost investment programs based on a priori forecasts of power demand, capital costs, fuel prices, and exchange rates did not ultimately result in least-cost development. This was because sufficient attention was not given to reliability criteria—that is, loss of load probability and reserve plant margins. In retrospect, this result is partly because of a preference for large generation projects and partly because of difficulties in forecasting the myriad variables involved. An analysis of forty-nine hydroelectric projects that were partly funded by the Bank between 1964 and 1986 has shown that in 67 percent of the projects, final costs varied much more than thought possible (usually increased) from appraisal estimates.

One of the Bank's longer-term aims has been that its power-sector borrowers achieve financial and technical viability, which would enable them eventually to attract capital from commercial sources. One measure of the Bank's success in the sector is the ability of the utility to raise resources in the domestic capital market. In practice, this has occurred in relatively few instances. In the period 1979–88, the cofinancing obtained by Bank borrowers from commercial sources averaged \$1,975 million a year because few power-sector borrowers could qualify for commercial loans without a sovereign guarantee. This situation was compounded by the deteriorated international debt situation during that period.

The Bank has tried to establish financial targets as surrogates for capital market pressure through its revenue covenants (rate of return and cash generation) and its capital structure covenants (debt/equity or debt service coverage). The revenue covenants try to ensure that borrowers cover operating costs, including depreciation and debt service, and provide a reasonable contribution to expansion needs. The capital struc-

#### **Box 7 \$50 Billion Investment Savings by Reducing Generating Capacity Margins Through Maintenance Improvements**

Power systems require a margin of generating capacity above the system load to maintain supply when some units are out for scheduled maintenance or forced out due to failure. In well-planned and operated power systems, the required reserve is typically 20–30 percent above the system load.

In a recent 1989 sample of seventy developing countries, generating-capacity reserve margins averaged 43 percent, with twenty-six countries having margins of 60 percent or more. Given the 1989 total system load of 331 GW and an assumed target reserve margin of 30 percent, this means the excess capacity is 43 GW. This represents an investment of about \$50 billion, using \$1,150/kW as the weighted average mix of capital costs for hydro, thermal, nuclear, and geothermal. Since the 43 GW capacity savings would meet two years of load growth at 6–7 percent a year, improved maintenance to increase unit availability and reduce the capacity reserve to 30 percent could save \$50 billion initially and roughly \$25 billion each year (starting in the third year) in terms of future generation investment in the developing countries.

Source: Moore and Smith, 1990.

ture covenants constrain borrowing to prudent levels, subject to consultation with the Bank. Most power loans now incorporate these covenants.

Despite the Bank's financial covenants, it is well documented that the performance and viability of many borrowers has deteriorated steadily since the mid-1970s (see chapter 2). In spite of frequent confrontations with borrowers over such issues as tariffs, earnings requirements, and asset revaluation, these financial covenants are not always effective because of changing economic and political conditions. Also, because of concerns about country, sector, and entity relations, the Bank does not always invoke meaningful remedies when covenants are not met.

The overall deterioration in sector finances and institutional and financial performance has generally made the power sectors a burden on national budgets. Many governments are beginning to realize that they have no choice but to acknowledge the deficiencies of their policies, relinquish their traditional role as the dominant provider of resources to their power sectors, and realize that tinkering with policy tools such as performance targets and cost-plus financial covenants will not improve sector efficiency or facilitate resource mobilization. Since it will be difficult to reverse operating and financial deterioration in the power sector in the absence of the political will to put in place proper macroeconomic policies and conditions, there is a need to increase the overall arsenal of responses, with new approaches and initiatives to facilitate power sector development. Under these conditions, the Bank's role in the power sector should focus more on the broader objectives of sector efficiency through restructuring. The Bank's considerable sector and macroeconomic expertise should enable it to continue to help developing countries design and put in place effective mechanisms to address the interrelated issues of pricing, institutional regulation, and financing sector investment.

## 4

### *New Approaches to Power Sector Development*

#### **Pressures for Change: A New System of Sector Governance**

Today, the large capital investment requirements, ingrained sector inefficiencies, and desperate financial circumstances of many developing-country power utilities have generated pressures for new approaches. These approaches revolve around a new framework for addressing the sector's financial, regulatory, and institutional issues and around such effective reform mechanisms as greater transparency and public accountability in governing sector institutions. Since relationships among government institutions, power utilities, and customers are heavily influenced by regulatory arrangements, regulatory reforms are necessary to redefine sector governance. Governments must demonstrate political and legislative leadership and a strong and sustained political commitment to regulatory and institutional changes.

These reforms will usually require difficult political choices. Governments will have to intervene less in the power sector and allow the sector greater managerial and financial autonomy while still requiring accountability. This implies a shift away from the states having conflicting responsibilities as both the owner and the operator of electric utilities, toward decentralization and market-based incentives. Government would, of course, retain responsibility for setting objectives, articulating overall policy, and coordinating sector development. It also would establish the legislative and regulatory framework to protect the interests of the various stakeholders and the public.

It is clear that sound management of overall country development is critical for ensuring adequate economic returns and the efficiency of power sector programs and projects. With governance being defined as management of a country's economic and social resources, the Bank's

concern with sound development management extends beyond the capacity of public-sector or power-utility management. Concerns extend to the proper role of the government, whether the power sector is publicly or privately owned, to the rules and institutions that create a predictable and transparent framework for the conduct of public and private business, and to accountability for economic and financial performance. Regardless of whether the ownership of power enterprises is public or private, governments should establish sector policies and be responsible for regulation. The utilities should be responsible for investment planning and financing, construction, and operation and maintenance of facilities.

### Box 8 Electric Utility Regulation in the U S

The traditional form of regulation practiced in the U S electric power industry is a cost-based method known as rate-of-return regulation. Electricity prices are set to reflect the embedded or historical costs of providing supply to each class of consumer. Rate increases are based on a utility's revenue requirements—that is, to provide a reasonable return on equity. More recently, the Federal Energy Regulatory Commission has required utilities to study marginal cost pricing, and several states are now applying rates based on long-run incremental costs and are implementing time-of-day and seasonal rates.

Rate-of-return regulation is generally encouraged by the World Bank in its lending to developing countries. The Bank has, however, modified the U S-type rate-of-return regulation to take account of inflation by seeking regular revaluation of fixed assets. This has increased annual charges for depreciation and in concept has encouraged Bank borrowers to raise rates to meet minimum rate-of-return targets.

Traditional U S cost-based regulation has many strengths

- The industry has sustained a good financial record—bankruptcy is extremely rare
- Customers, investors, suppliers, environmentalists, and the public are able to participate in the regulatory process
- Regulatory bodies have independent and professional staff who are free of political influence and are protected by law from dismissal for political reasons
- Open hearings and transparent information on costs and performance help to ensure the integrity of utilities
- Costs of regulation are borne by electric utilities
- Each state can shape regulation to meet local needs
- Members of regulatory commissions are independently appointed by the state, most for fixed terms

In both developed and developing countries, new regulatory, organizational, and management approaches, which cover a wide spectrum of ideas and concepts, are being developed. Basic precepts, even the view that the electricity supply industry should be a regulated monopoly, are being challenged. Although some of the reform proposals are not yet clearly or persuasively established, implemented, or operationally proven, support for change is increasing with experience. Many of these approaches are drawing support from recent developments in economic theory (particularly on the contestability of markets), which provide new insights into what constitutes a natural monopoly and an efficient

- Commissions have authority to require disclosure of financial information and to direct how accounts will be maintained
- Regulators can promote affordable rates, take account of customers ability to pay, and consider marginal costs when setting rates
- Regulators can examine the reasonableness of investments and exclude them from the rate base when such investments are considered imprudent

On the other hand, traditional regulation has certain weaknesses

- Rate-of-return regulation encourages utilities to seek rate increases to cover increases in costs rather than reduce costs or increase efficiency
- Utilities that over-invest and maintain excess capacity usually are able to pass on these costs to consumers
- Costs of regulation are high, especially for parties participating in studies and hearings
- Electricity prices may not encourage maximum economic efficiency
- Other than regulatory directives, there are no cost- or market-based incentives to adopt least-cost investments, load management, or energy conservation
- Delays can be frequent because of quasi-judicial proceedings for rate increases

Utility regulation is changing in the U S, with regulators encouraging more competition. Where competition is not an option, incentives or performance-based and price-cap regulation are being encouraged. The latter focus on improving efficiency of plants and setting targets for conservation and load management. Many observers see this approach increasing in importance as the industry's reliance on non utility generation capacity grows.

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industry structure and into the roles that market and nonmarket institutions can play in improving sector development and performance

### Some Developed-Country Examples

The United States and the United Kingdom have been among the leaders in challenging the notion that the electricity sector is a natural monopoly. In the US the Public Utilities Regulatory Policies Act of 1978 has encouraged deregulation and competition in the US power sector. Non-utility power producers are currently contributing 38,000 MW to US electricity supply, or about 5 percent of total US power generation. The non-utility producers have another 60,000 MW under construction or in various stages of development, which means that at the margin, most new generating capacity in the US is being produced by the independent power industry.

In the UK the changes have been even more dramatic, with privatization of most of the power industry. First, the assets and liabilities of the former Central Electricity Generating Board (CEGB) were transferred to four new companies: the National Power Company, PowerGen, Nuclear Electric, and the National Grid Holding Company. Second, the area boards that had been responsible for distributing electricity were reestablished under license as regional companies, with shares offered to the public. The National Power Company and PowerGen are now listed on the stock exchange as public companies, while Nuclear Electric (because of its uneconomic asset base) will remain under public ownership. In addition, the transmission system, including connections to France and Scotland, is owned by the National Grid company, a holding company in turn owned by the regional distribution companies. Transmission and distribution are regulated under the Electricity Act by the Director General of Electricity Supply, who is responsible for granting licenses.

Another example is New Zealand, where the government has broken up and corporatized the various parts of the power sector, bringing about major increases in sector efficiency. The government is expected eventually to sell shares to the public. In Australia the government has been studying ways to increase the efficiency of the industry by operating on a more commercial basis, for example, requiring utilities to pay dividends and taxes.

Other countries are not considering a significant restructuring of the power sector. France is one example of here: an open regulatory system is already in place, the management of the national power utility is already highly decentralized with every profit center subject to a performance contract, and the utility in borrowing large sums of money in private capital markets is subject to the discipline of the markets.

### Generic Approaches and the Developing Countries

The objectives of governments in changing the way electric utilities are owned and operated are to

- increase economic and utility operations efficiency,
- reduce the financial and administrative burdens they impose on government,
- reduce the level of public-sector debt imposed by the power sector, and
- reduce the cost of electricity by subjecting producers and distributors to competitive market forces.

Various generic approaches are being discussed and adopted in developing countries to pursue these objectives as indicated below.

#### *Regulatory change*

*To reduce the extent to which governments micro-manage utilities and thereby reduce management accountability by controlling tariffs, borrowing, budgets, investment plans, procurement, staffing levels, and employment conditions.* The dual role of government as both regulator and owner has drawn it into day-to-day management, planning, and staffing decisions that should be the responsibility of autonomous utility managements and boards of directors.

The first step in regulatory reform of the sector is to articulate clearly the objectives of reform and to focus on greater transparency and public accountability in governing energy-sector institutions. Since the relationships among government institutions, power utilities, their business partners, and their customers are heavily influenced by regulatory arrangements, regulatory reforms are viewed as necessary to redefine the fundamental governance of the sector. The second step is to put in place a legal structure that clearly defines the rules and procedures for reducing the level of government involvement and for increasing the autonomy and accountability of boards of directors and managers.

A relaxation of restrictions on entry and exit will be required if competition is to be permitted. Regulated entry can be allowed at the generation end, with the utility or the grid entity acting as an 'ace' to enable efficient dispatch and economies of scale to be maintained.

Essential features for regulatory focus include transparency in decisionmaking, investment policy, service policies, integration of supply- and demand-side prices, exit conditions, and so forth. Of course, the undertakings' responsibilities, as well as the sector's capability to manage, often be a gradual process.

**Box 9 Regulation of Electricité de France**

Electricité de France (EdF) was formed in 1946 as a publicly-owned company that assumed control of a few municipal companies and some nationalized industries that produced power for their own needs. EdF operates as a public corporation, with its board of directors appointed by the government, but with almost the same degree of autonomy as a private industrial or commercial corporation in France. It is organized on an industrial model (that is, like an industrial corporation) under a performance-based regulatory system.

At the end of the 1960s, EdF sought to shift its attention towards competitive markets by adopting a nuclear energy program and establishing electric heating projects to compete within the industrial-heating market. At the same time it adopted a profit-center approach and decentralized financial management. Government regulation was reduced by establishing a contract plan. These changes allowed greater regulation by market forces. After the drop in oil prices in 1987, electric rates fell and excess nuclear capacity led to a suspension of nuclear investments. EdF then sought to sell its surplus capacity by exporting to other European utilities. These sales expanded its scope for competition, and its contract plans sought to increase efficiency and reduce costs.

Contract plans (see Box 10) cover a five-year period. Regulation is applied through a comparison of actual performance against a number of key objectives, including productivity targets, rate commitments, sales and investment strategies, self-financing and debt strategies, and wage and salary scales. The contracts are objectives set by each department's corporate plan. Efficiency is encouraged by comparing the performance of similar units. Recent contract plans have sought to decentralize management and enhance competition with other electric utilities.

Rates are based on the marginal cost of system development. Price increases are limited to a ceiling negotiated with the General Directorate of Consumption and Competition and are determined by the rate of inflation minus a percentage for productivity gain. Tariffs are applied uniformly throughout the country.

Generation and transmission are organized into thirty-five basic units. Each plant is administered by an independent management with its own budget, which is based on standard costs for personnel and maintenance. Fuel costs are reimbursed directly. Distribution of electricity is decentralized, with each distribution center responsible for a single administrative area in France.

Greater openness through a more transparent regulatory process can also have significant long-run environmental benefits. Currently in many countries there is no intervention point within the command-and-control form of regulating monopoly power sectors where nongovern-

regulatory body, consumers, investors, and environmentalists can all be heard in setting policies regarding the investment program, pricing, access to service, reliability of service, energy conservation, plant location, and environmental issues.

Countries in which a more independent regulatory framework has been proposed or implemented include Argentina, Colombia, Indonesia, Malaysia, and Venezuela.

**Organizational changes**

To facilitate within the utility structural change from public monopoly and centralization to decentralization and exposure to competition. Decentralization, with more local decisionmaking, microlevel accountability, and participation of beneficiaries in the design and monitoring of electricity service, should be encouraged. Decentralization partly requires the establishment of independent cost or profit centers inside the utility. Also required is the means to monitor these centers and compare their performance by designing objective indicators to measure management effectiveness, service quality, and technical, operational and financial performance.

Other changes can include separating generation from transmission and distribution, and encouraging cogeneration and independent power production through private investment in plants that sell to the grid. Distribution companies can be separated by municipality, with limited overlap in some fringe franchise areas. Private ownership or

**Box 10 Contract Plans as an Instrument of Change**

Contract plans (CPs) are negotiated performance agreements between governments, acting as owners of a public enterprise, and the managers or directors of the enterprise itself. In a contract plan, the intentions, obligations, and responsibilities of the two parties are freely negotiated and clearly set out. This appears simple, but the fact is that ambiguity of goals and conflicting objectives are major obstacles to the effective and efficient performance of public enterprises. CPs define the enterprise's objectives and state what resources and latitude the government will provide to enterprise management so that it can accomplish the specified goals. Many CPs set out the physical and financial indicators to measure enterprise performance. Many establish the principle that government will compensate the enterprise for costs incurred in fulfilling noncommercial objectives and specify how the compensation will be made. In theory, the agreement binds both parties, in the manner of a formal contract.

ownership by consumer cooperatives can be permitted. In this way, power consumers can also become shareholders who would be concerned not only with service access, reliability, and cost but also with the financial viability of the company.

A number of countries have been considering separation of transmission and distribution from generation. In Argentina, legislation is being drafted to encourage privatization of distribution through the establishment of separate distribution franchises. Indonesia is considering setting up separate business units for distribution in Java to facilitate improved performance. India has established the National Power Transmission Corporation. Other countries considering major internal organizational changes include Bangladesh, Jordan, Turkey, and Venezuela.

### **Commercialization and corporatization**

*Increasing the utility's business orientation to operate more like a private corporation and less like a government department and subsequently to subject the utility to corporate legislation and require it to compete with other private companies on equal terms*

Following the establishment of a more transparent regulatory process, the electric power enterprises can be allowed greater autonomy from government. For power enterprises to operate on commercial principles they must be treated as commercial enterprises. They should pay interest and taxes, earn commercially competitive rates of return on equity capital, and have responsibility for their own budgets, borrowing, procurement, staff pay, and personnel relations. They should also be market oriented in setting prices, and governments should likewise regard pricing not only as a social issue but also as an issue of financial discipline and sustainability. They should also legislate fair conditions for private entry into supplying power and related services.

Commercialization and corporatization are currently being implemented or are under consideration in Jordan, Malaysia, Nigeria, and Portugal, among other countries.

### **Increased private sector participation**

*Occurring in many forms, including the sale of some or all assets, stock exchange listing, franchising, leasing, contracting out, and nonutility power generation*

Initially, after the articulation of clear objectives and the establishment of a satisfactory legal and regulatory framework, governments can begin the process of increased privatization by encouraging utilities to procure services from the private sector. Public or private utilities in developed or more advanced developing countries, as well as consultants, major

manufacturers, and contractors, can provide various services under service, management, performance, or technical assistance contracts or under twinning agreements. Civil works and activities that do not entail large investment costs, such as plant maintenance, billing, revenue collection, vehicle maintenance, line stringing, and pole and tower fabrication, are particularly suited to such contracts. Other areas for private-sector involvement include reducing supply-side power losses and increasing generating plant availability. The financial costs of these initiatives are generally low relative to their benefits. Other possibilities include setting up franchises or concession arrangements for electricity supply.

For some countries, performance-based management contracts with experienced or innovative private firms or utilities for full or partial

#### **Box 11 Success Story in Guinea-Bissau**

The introduction of a five-person management team under an expatriate management contract has been effective in improving the performance of this small country's national electric utility, *Electricidade e Aguas de Guinea-Bissau*. Before the management team was introduced, service interruptions were chronic, and most areas had electricity for only a few hours a day. Turnaround can be seen in the comparative statistics for 1987 and 1990.

	1987	1990
Installed capacity MW	7.2	8.6
Operable capacity MW	2.2	7.5
Capacity factor	32%	51%
Fuel consumption, kg/kWh	0.300	0.254
System losses	30%	26%
Electricity sales, GWh	14	28
Average revenue, \$/kWh	0.12	0.25

Implementation of the expatriate management contract was a joint initiative of the French Ministry of Cooperation, UNDP, the African Development Bank, and the World Bank. It reduces wastage of foreign aid (in the previous ten years, foreign funding for power was more than three times the estimated value of the utility at the end of the period) and provides the reliable service necessary for economic expansion.

Source: World Bank documents.

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**Box 12. Regulation of the Spanish Electricity Industry**

Not unlike the US, the Spanish electricity industry is made up of privately-owned corporations and a mix of private and public enterprises. Private investor-owned utilities provide about two-thirds of the electricity produced in the country. The remainder is controlled by the central government. The transmission and dispatch systems are also controlled by the government, which owns 51 percent of the shares. There are many utilities responsible for distribution, but almost 90 percent are owned by the investor-owned generators.

The industry is regulated by the Ministry of Industry, Commerce and Tourism. A new regulatory incentive system was introduced in 1988, called the Marco Legal Estable. It established, by royal decree, a methodology for automatically setting uniform national tariffs annually, based on estimates of the cost of supply and forecast consumption. An inter-utility compensation system ensures that all utilities earn a fair return on investments regardless of the plant mix or market structure. Incentives for improved performance are provided through comparisons of industry costs. Companies whose costs are below industry standards keep the difference. The government also has established standard valuations for assets, standard depreciation rates, and a uniform approach to calculation of rates of return.

Electricity tariffs in Spain cover costs, and as in the US, they reflect average rather than marginal costs. The tariffs are set by the ministry, which also authorizes new investments for the entire energy sector.

The Spanish regulatory system has a number of advantages:

- It has improved the financial position and efficiency of the utilities since it was introduced and has replaced time-consuming negotiations over tariff increases.
- The system offers incentives to improve performance and minimize costs.

operation of plants can be a first step toward overcoming a shortage of qualified or motivated utility managers.

A recent study of private power investment in Asia has concluded that the first step in promoting private investment in the power sector is the articulation and adoption of clear policies that open the sector to private participation and encourage both local and foreign private investment. The study concludes that Asian governments should consider policies that open their power and coal sectors for private investment and also create demand for their products, and it suggests ways of doing both. The study notes that in the US and the Philippines, legislation or executive orders were enacted that gave certain nonutility generators

- The independent grid company controlled by the government has improved sector coordination and could eventually facilitate competition among generating companies.
- Privatization has been encouraged through issue of shares to the public. Attractive dividends help to maintain future financial support from markets.
- It has facilitated some financial restructuring by issuing shares to the government in exchange for the government's assuming some of the assets and debts of private utilities.

However, as with all regulation, the system has some weaknesses:

- There is no independent regulatory body, the centralized decisionmaking process is sometimes cumbersome, and it provides for only limited competition.
- The electricity sector is used to collecting taxes, including VAT, on electricity consumption, and the sector provides subsidies for various industries (such as the coal industry) and for supplies to rural consumers.
- Since tariffs reflect average rather than marginal costs, they do not provide meaningful price signals to consumers.
- Uniform national tariffs do not reflect the different costs of supply throughout the country.
- Some political uncertainty remains because the government can directly control prices.
- The central ministry has complete discretion in setting standard costs and allowable rates of return.
- There is no opportunity for appealing the investment decisions, since the government approves investments.
- Electricity prices have lagged behind inflation, mainly because fuel prices to electricity generators do not fully reflect international price levels.

the right to sell power to local utilities, that in Guangdong, China, government authorities welcomed private power initiatives on an ad hoc basis in response to emergency power shortages, and that in the UK, privatization of the Central Electricity Generating Board and the regional distribution boards went hand in hand with opening the sector to nonutility generation. Different approaches are appropriate for different countries, but in each of the cases studied, the private sector has come forward and invested in the development of new power supplies.

In all successful cases, dangers from hasty privatization were avoided by first articulating a clear policy for privatization and then implementing that policy through laws and regulations. It is significant that the

### Box 13 The Privatization of the Electricity Industry in Eastern Germany

After conclusion of the economic and monetary union between East and West Germany in July 1990, West German utilities signed partnership contracts with the former state-owned electricity trusts (GDR Kombinate) and founded joint ventures. A far-reaching electricity contract in August 1990 established a follow-up utility, Vereinigte Energiewerke AG (VEAG).

Although VEAG is still owned by Treuhandanstalt, the German Federal Government's holding company charged with administering (and privatizing) the former GDR state-owned enterprises, the three largest West German utilities—RWE Energie AG, PreussenElektra, and Bayernwerk AG—took charge of the management of VEAG. A 75 percent share in this company is planned for later. VEAG consists of the successors of the former Kombinate utilities. It operates the largest part of the electricity supply (on a brown-coal basis) and the entire high voltage transmission grid in the five new federal states.

Besides the three West German utilities cited above, other West German utilities will hold 25 percent of the VEAG shares. A maximum of 15 percent from the remaining 75 percent portion will be offered to other West European utilities (for example, the French EDF) if West German companies are granted a corresponding share in the respective foreign utilities.

Furthermore, once a dispute over property rights is settled by the Federal Constitutional Court, the three utilities plan to take over the majority of capital in eleven of the fifteen new regional electricity supply companies in eastern Germany. These are the successors to the fifteen regional VEB Energiekombinate, which acted as electricity and gas distribution companies. The other four regional VEB Energiekombinate are scheduled to be taken over by other West German utilities. Shares in all these regional entities of up to 49 percent are to be offered to eastern German federal states and municipalities if financing can be obtained.

Some eastern German cities have founded independent Stadtwerke (municipal suppliers for electricity, gas, and heat). Some municipal enterprises are also considering undertaking the co-generation of heat and electricity. Negotiations with the West German electricity corporations are in progress, pending a decision of the Federal Constitutional Court.

promotion of private investment in each country involved not only the adoption of pro-investment policies but also the enactment of laws and regulations to implement the policies and the development of new agreements between the private parties and the host utility. Thus, the promotion of private investment in the power sector involved creating

new policies, implementing laws and regulations, reaching agreements between parties, and setting up the institutional capability to administer the laws and regulations and negotiate and enforce the agreements.

Varying degrees of private sector participation have been proposed or are being implemented in Argentina, Chile, China, Côte d'Ivoire, Guinea, India, Korea, Malaysia, Mexico, Pakistan, Philippines, Portugal, Thailand, and Turkey, among others. Independent power production for sale to the grid is now being encouraged in the Costa Rica, Dominican Republic, Jamaica, Pakistan, Philippines, Portugal, and other countries.

### Alternative Financing Options

Nongovernment power-sector financing options in developing countries include direct investment by banks, insurance companies, or pension funds, capital market participation through stock or bond issues, and other lending from local or foreign sources. Other options can include the sale of assets, especially surplus land, buildings, power plants, and transmission or distribution facilities. In some cases these assets could be transferred or leased to the private sector, which would operate and maintain them.

Other financing options include encouraging nonutility generation, as well as the sale of power to the public sector by operators of captive plant, cogeneration, and Build, Own and Operate/Build, Own, Operate and Transfer (BOO/BOOT) projects using limited-recourse financing. Experience indicates that (a) initiatives to encourage greater efficiency through structural change—by reorganization, commercialization, and corporatization—are worth pursuing if governments are willing to reduce their level of involvement and undertake regulatory reform, (b) creating conditions to attract private investor funding, such as fixing clear commercial pricing rules and freeing up markets to facilitate issues of shares and private investor funding of new plants, shows considerable promise for more developed middle income countries, where there are capital markets and stock exchanges, and (c) large BOO/BOOT type projects can be complex and sometimes difficult to arrange.

In a number of developing countries—India, Indonesia, Pakistan, and Turkey, for example—governments have tried without much near-term success to create conditions to attract private power projects. One reason for the failure of some of these schemes has been that governments have tended to focus on projects that are large and risky instead of beginning with smaller projects and concentrating on learning by doing. The other main reason for the failure to attract investment to BOO/BOOT schemes is that governments have not had sufficient commitment or political will

to address fundamental problems of governance, specify a clear legal and contractual framework, put in place an arm's-length transparent regulatory structure, or allow commercially-based tariffs that reflect real costs. Minor difficulties have been related to equitable sharing of risks among the parties and concern that these projects might not provide *additionality*, but would merely divert the funds ordinarily be available for other public-sector projects.

Realizing the benefits of alternative financing options involves a strategy to (a) reform legislative, legal, and regulatory arrangements to promote increased competition among energy suppliers, partly by increasing the private provision of risk capital, (b) strengthen the accountability and the internal organizational structure of energy-supply enterprises, and (c) shift investment resources at the margin from increasing capacity to improving efficiency in both supply and end use.

### End-Use Efficiency

Recent experience has shown that in developed countries many energy-efficiency options relate to end-use efficiency and can be undertaken quickly and at relatively small cost. For example, the US Department of Energy estimates that US electricity use can be cut by about one-third (800 TWh) at a cost of only two cents per kWh. Taking the cost of electricity from a coal power plant as the base case, DOE estimates the net savings from conserved energy for typical conservation initiatives to be three cents per kWh.

There is, however, at least one fundamental difference between approaches to energy efficiency and conservation in developing and developed countries. While in the developed countries much of the potential savings and innovative energy conservation work is on the demand side, in most developing countries there is still also a large potential for energy saving on the supply side. As discussed above, this is partly because the subsidized publicly-owned monopolies in developing countries have few effective built-in incentives or checks and balances for achieving high levels of efficiency.

Nevertheless, efficiency in electricity consumption or end use can be increased in many developing countries, and—if power prices are not highly subsidized and if there are competitive markets for goods and services—it can be justified on both economic and financial grounds. For example, more efficient electric motors, motor-speed controls, refrigerators, water heaters, and air conditioners would increase end-use efficiency at little cost. If the energy requirements of all types of electrical equipment could be lowered, it would slow the growth in overall electricity demand.

### Box 14 Residential Demand Side Management for Thailand

A demand-side management (DSM) assessment was recently completed for the residential sector in Thailand. The investigation encompassed a comprehensive analysis of the major residential end uses of electricity: space cooling, refrigeration, lighting, cooking, water heating, and appliances. The study outlined a large level of electrical savings from efficiency improvements that could be achieved through the use of existing technologies. A total of twenty-three economically-viable DSM measures were identified. If fully implemented, these improvements could reduce annual electricity use by up to 500 GWh and coincident peak electrical demand by 160 MWe during the first year of a residential DSM program.

The highest potential savings could come from increasing the energy efficiency of refrigerators. Improvements to the insulation and compressors of Thai refrigerators were predicted to reduce electrical use from 400 to less than 200 kWh per unit per year. Overall savings from a full program implementation indicated possible countrywide savings of up to 170 GWh per year if more efficient refrigerators were introduced into the marketplace. Negotiations are underway with a large Thai refrigerator manufacturer to produce a high-efficiency prototype unit for testing and evaluation.

Estimates for residential housing savings were based on replacing less efficient equipment in existing housing as it is retired from service and by instituting cost-effective energy-efficiency measures in new construction. With full implementation over ten years as new buildings are constructed and inefficient equipment in existing buildings is replaced, such a strategy could result in cumulative savings of more than 6,000 GWh and peak reductions of more than 2,000 MW by 2005. To put this in perspective, consider that the overall electrical consumption of the residential sector in 1989 totaled 7,025 GWh and that Thai households were responsible for approximately 20 percent of the peak utility load of 7,095 MW.

Source: Florida Solar Energy Center

Many countries have found it difficult to make much progress in end-use efficiency, and developing countries in particular have run into obstacles. These include the lack of competitive industrial structure, imperfections in the market, such as low power prices that do not reflect costs, trade restrictions and import duties on energy-efficient equipment, regulatory and institutional barriers, inadequate information on costs and alternatives, and lack of available technologies. Nevertheless, new and evolving energy end-use efficiency technologies are promising, and along with pricing electricity to reflect the real costs of supply, there

**Box 15 Highlights of Fiscal 1991 Power Lending**

- The absence of major hydro or oil and gas thermal generation projects. In general, resettlement and environmental issues are discouraging hydro development. Also, heavily indebted developing countries are unable to invest in capital-intensive hydro projects.
- A \$200 million loan to the Bombay Suburban Electricity Supply Company in India for a private power utilities project. The loan was made with the guarantee of the government.
- A \$300 million loan to the Turkish Electricity Authority. It supported major price reform and financial reconstruction for this previously troublesome borrower.
- Continued support for small components in rural electrification projects. The Bank supported development of a rural electrification master plan in Burundi and some distribution in rural areas of Indonesia and Uganda. A second rural electrification project for Morocco (\$114 million) was approved.
- Two supplemental loans to Pakistan. One went for the SNGPL corporate restructuring and system expansion project (\$60 million) and the other for the second energy sector program loan (\$28 million).

is a need to reevaluate continuously the financial, economic, technical, and social feasibility of their implementation.

In most developing countries, however, the new end-use energy efficiency options and many fuel-switching options have no institutional focus and are not systematically reviewed as part of routine power-sector supply planning. This is in spite of the fact that in the short and medium term, up to 30 percent of energy savings in industry could be achieved by audit and control efforts and by some process modifications with existing technology.

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*Guiding Principles for Bank Action*

Historically, the power sector has been a major project vehicle for the transfer of World Bank resources to developing countries, more than 15 percent of total Bank loans has been for electric power. The Bank's \$3.18 billion lending for power in fiscal 1992 was 14.5 percent of total Bank lending.

Today, however, the Bank is no longer a significant financier for power sectors in developing countries, except for the lowest-income countries eligible for International Development Association (IDA) credits, which accounted for 8 percent of total Bank power lending for fiscal 1992 and for about 2 percent of the total foreign exchange requirements in developing-country power sectors. Outside of most IDA countries, the Bank is becoming less involved in the direct transfer of significant amounts of resources, and more involved in helping developing countries organize themselves to mobilize the resources they need to meet large investment requirements.

To assist in mobilizing resources, the Bank must help these countries put in place systems that encourage the efficient use of power-sector resources. This efficiency objective also helps developing-country power sectors meet their local and global environmental responsibilities as they become larger components of the world energy market.

The question is, then, what specific approaches will the Bank pursue to help countries develop a self-sustaining power sector? The options discussed above show that there is a rich menu of choices for improving the performance of the sector. The great diversity of circumstances among Bank borrowers (box 16) suggests exercising care in selecting from this menu. Institutional and regulatory arrangements in each country will vary according to cultural traditions and historic relationships. Mature institutional frameworks will take time to develop.

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### Box 16 Wide Variation in Per Capita Electricity Use Among the Developing Countries Requires Different Sector Approaches

The varying levels of economic development and electricity access in developing countries results in a wide range of per capita electricity production. Below are the twenty countries with the highest and lowest electricity use.

#### Electricity produced per capita in 1987

High use		Low use	
Country	kWh	Country	kWh
Poland	3914	Guinea-Bissau	14
Hungary	3806	Burkina Faso	15
Yugoslavia	3469	Ethiopia	18
Romania	3327	Mali	26
Venezuela	2743	Burundi	26
Portugal	2267	Rwanda	28
Cyprus	2224	Nepal	31
Korea	1901	Comoros	33
Argentina	1683	Uganda	35
Barbados	1673	Benin	38

The large difference between the highest and lowest countries suggests that power-sector development policies must vary from basic sector formulation, institution building, twinning, and training in the low electricity-use countries, to legislative, regulatory, and autonomy issues in more advanced countries. There can be no one standard approach to power sector development for all countries.

Source: Escay, 1990

Power-sector work, like public-sector management reform, is technical in nature and complements other reform efforts, such as elimination of monopolies, deregulation or removal of controls, and reduction of rent-seeking opportunities. Indeed, there is much that the Bank has been doing routinely that contributes to good governance in the power sector.

It is recognized, of course, that in poor countries, where the capacity of the public sector to manage an economy and deliver services is weak,

the prospects for rapid power-sector change can be limited. The public sector and the power sector in many developing countries have been characterized by uneven revenue collection, poor expenditure control and management, a bloated and underpaid civil service, large parastatal enterprises that provide poor returns on the scarce public funds invested, and a weak capacity of core agencies to design and implement policies to address these problems. Not only does this state of affairs contribute to large fiscal and power-sector deficits that require adjustment measures, but it also progressively erodes the capacity of the state and its subsectors to provide services. In such instances, fundamental issues of governance and economy-wide regulatory reform must be addressed across the board in parallel with power-sector reform. Power-sector lending will need to be firmly linked with well-integrated overall country strategies. Since in many countries the power sector is an important instrument of resource transfer, this link should strengthen the economy-wide dialogue.

The following guiding principles are derived from World Bank work on issues of governance and public sector management, from consultations with numerous outside parties, and from the power-sector analysis contained in this paper and the background documents (listed in the bibliography). While individual points may not be applicable in all countries, due to differences in existing institutions and stages of development, the guiding principles are consistent with the focus on the interrelated issues of institutional reform, pricing, financing, and the introduction of greater transparency, accountability, and competitive pressures into the power sector. The principles presented here reflect the broad discussions and debate that has taken place within the Bank and represent a general consensus on the directions in which the Bank should move. Box 17 summarizes sector goals, sequential approaches to achieving the goals, and resulting guidelines for the Bank.

The guiding principles do not address specific issues of when investment lending should be linked to the power sector and when, because of poor economy-wide governance and economic distortions, it should not. This is thought to be a country-specific issue. To the extent that parallel reform in the large and capital-intensive power sector can serve as an initial impetus for economy-wide reform, sector lending should be pursued. It is clear that power-sector investment loans, like adjustment loans, are most effective when they are linked to improved policies and institutional conditions in the sector. Evidence exists, however, that the rates of return on infrastructure projects are adversely affected by a poor policy environment, and where money is fungible, financing of the electric power infrastructure might enable a government to do inappro-

**Box 17 Summary of Power Sector Goals, Approaches to Achieve the Goals, and Resulting Actions for the Bank**

Goals	Sequential Approaches to Achieving Goals	
<ul style="list-style-type: none"> <li>• Where justified, expand the provision of electric power in developing countries</li> <li>• Greater efficiency in the generation and end use of power</li> <li>• Reduction in the financial and debt burden of the power sector on public finances</li> <li>• Where cost-effective, identify and incorporate options (including fuel substitution) to mitigate negative environmental impacts of electricity supply and end use</li> </ul>	<ul style="list-style-type: none"> <li>• Put in place mechanisms that allow greater autonomy for and accountability of sector managers</li> <li>• Provide some form of clearly defined and transparent buffer between government, with its legitimate political and policy concerns, and power enterprise managers</li> </ul>	<ul style="list-style-type: none"> <li>• Independent board of directors</li> <li>• A more transparent regulatory framework</li> <li>• Tariffs</li> <li>• Service standards</li> <li>• Service targets</li> <li>• Issues of entry and exit</li> <li>• Supply side integration of end use options</li> <li>• Environmental impacts, siting, emissions, fuels, and disposal issues</li> </ul>
Guiding principles	Principle One Transparent regulation Principle Two Importation of services Principle Four Commitment lending	

priate things elsewhere Hence, where macroeconomic imbalances and economywide distortions are severe (and where funds are clearly fungible), direct policy links to the whole country lending program would be the most appropriate approach

Finally, the principles as stated in this paper do not explicitly address issues of technology transfer These are addressed more explicitly in the Bank paper *Energy Efficiency and Conservation in the Developing World The World Bank's Role* (1993)

Sequential Approaches to Achieving Goals	
<ul style="list-style-type: none"> <li>• Contract plan</li> <li>• Commercialization</li> <li>• Contract out for services</li> <li>• Internal organizational change</li> <li>• Separate generation, transmission, distribution into separate companies or profit centers, decentralize</li> </ul>	<ul style="list-style-type: none"> <li>• Corporatization and/or privatization</li> <li>• Contract out for services</li> <li>• Purchase power, cogeneration, BOO/BOOT</li> <li>• Partial or full divestiture</li> <li>• Encourage nongovernment investment</li> <li>• Sales of shares, bond issues</li> <li>• Use guarantees to reduce sovereign risk (but not commercial risk)</li> </ul>
Principle three commercialization/corporatization	Principle five Investment guarantees

**Transparent Regulatory Process**

*Principle one*

A requirement for all power lending will be explicit country movement toward the establishment of a legal framework and regulatory processes satisfactory to the Bank To this end, in conjunction with other economy-wide initiatives, this requires countries to set up transparent regulatory processes that are clearly

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*independent of power suppliers and that avoid government interference in day-to-day power company operations (whether the company is privately or publicly owned) The regulatory framework should establish a sound basis for open discussion of power-sector economic, financial, environmental, and service policies The Bank must be satisfied that there is meaningful progress towards this objective*

**TRANSPARENCY AND CONSISTENCY OF DECISIONMAKING** Accountability in the power sector can be improved by clearly articulating goals, reforming country legal frameworks, and establishing a regulatory process to make decisions more transparent and to allow a fair hearing for both consumers and the general public To this end, Bank loans need to encourage governments to develop clear rules of the game that invite broader public participation

Transparency of decisionmaking in a regulatory framework is a safeguard against corruption, patronage, waste, and the abuse of executive authority Competition and deregulation, the removal of unnecessary controls, clear rules, and disclosure are important first steps With regard to a legal framework for the power sector, six basic elements must be put in place

- a clear set of rules, known in advance,
- rules actually in force,
- mechanisms to ensure application of the rules,
- conflicts resolved through binding decisions of an independent judicial body or through arbitration,
- known procedures for amending the rules when they no longer serve their purpose, and
- a framework of regulatory incentives (including the possibility of price capping) to support competition and induce efficiency

**ENVIRONMENTAL SAFEGUARDS** In addition to the general principles of transparency and independence from day-to-day government interventions, regulation should address environmental issues It is fortunate that the technology for addressing one of the most serious pollution problems of electric power production—emissions of particulate matter—is relatively simple and inexpensive Increased use of gas-fired power stations will be important in this respect Where coal is the preferred fuel, constructing tall chimneys, siting power stations away from large population centers, and using emissions-control devices all help to increase amenities and reduce hazards to health Given the costs to life and health of particulate matter emissions and the modest costs of reducing these emissions to low levels, the case for working toward

high standards of abatement is unambiguous Well-functioning regulatory processes can also be used to institute programs to increase the efficiency of electricity end use while offering reductions in emissions and financing needs

To develop such regulatory processes, the Bank should commit technical assistance and general financial support to establish or strengthen regulatory institutions The form and functions of the institutional structure, including its initial degree of transparency and independence, will vary from country to country For those countries that desire change but do not have the local expertise to restructure or formulate an appropriate regulatory mechanism for the country, the Bank can provide funding for the necessary technical assistance All regulatory processes should include a mechanism to review the environmental impacts of, and conservation options for, proposed projects and policies (environmental assessment) as well as to give explicit consideration to issues of involuntary resettlement and indigenous peoples Developing effective regulatory institutions to address these issues will take time, but concerns about potential impediments and delays should be no excuse for inaction

**PRICING** The regulatory authority must provide power enterprises with clear pricing guidelines that reflect the sometimes conflicting objectives of (a) a commercially-based allocation of costs among consumers according to the burdens they impose on the system, (b) assurance of a reasonable degree of price stability, (c) provision, where economically feasible, of a minimum level of service to low-income consumers, (d) power prices that generate sufficient revenues to meet the financial requirements of the sector, and (e) a tariff structure simple enough to facilitate metering and billing

Pricing guidelines should support the need to regulate power suppliers as commercial entities Subsidizing the price of electricity has both economic costs and environmental effects Low prices give rise to excessive demands and, by undermining the revenue base, reduce the ability of utilities to provide and maintain supplies, developing countries use about 20 percent more electricity than they would if consumers paid the true marginal cost of supply Underpricing electricity also discourages investment in new, cleaner technologies Nevertheless, the cross-subsidization of consumer groups is a common practice in most developing countries Typically, low-income electricity consumers in both rural and urban areas receive a lifeline tariff designed to permit the consumption of a minimum block of power at a subsidized rate Usually there are large subsidies from urban to rural consumers, and sometimes from industry to residential use, or vice versa

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Although the objectives of social equity are laudable, there have been serious practical problems. In rural areas in India, for example, political pressures for increased subsidies have resulted in almost free electricity and consequently enormous financial difficulties for the state as a whole. In Colombia, the lifeline-tariff concept has been eroded through the political process to the point where 85 percent of all households qualify. The resulting tax on industry is driving industry out of the public system and into captive generation. Conceptually, the use of carefully targeted subsidies can address equity issues. However, in the rare cases where subsidies are carefully targeted, they seldom remain so for long. In most cases there are better tools for addressing the concerns of the poor or other deserving groups than electric power tariffs.

Although long-run marginal cost (LRMC) as a concept aims to provide price signals for an effective tariff structure and for identifying new investments, price setting in the electric power sector rarely fully reflects LRMC principles. In practice, electricity tariff levels are at best often targeted only to reflect an average of the power system's LRMC. Pricing distortions continue to exist due to cross subsidies, and failure to reflect economic fuel costs or the real cost of capital results in prices that do not reflect the costs of supply. Consequently, many power utilities continue to be economically and financially nonviable and a drag on the national budget. Mobilizing additional resources for investment, facilitating a competitive environment, improving efficiency, and developing economically and financially-viable power sectors require that electricity pricing be moved toward commercial practices. Pricing policies should be flexible so that power enterprises can respond to changes in competition, economic activity, and resource costs.

Between the Bank and its borrowers, few issues are as contentious as pricing. Experience shows that the Bank has not always achieved its goals with respect to electric-power pricing. The Bank's suggestion that prices cover LRMC has proved difficult to enforce through covenants that set out financial targets, mainly because of lack of adequate progress in the implementation of tariff structures that reflect the demands of various end users.

Power entities should be encouraged to be more market oriented in setting prices and to offer a variety of pricing and service options that reflect the actual costs of providing service to customers. Aggressive load-management programs should be put in place with peak-load and time-of-use pricing, as well as prices that reflect different voltages, consumer classes, and levels of reliability and availability. Large consumers should be allowed to negotiate prices and service options directly with power suppliers. Cross subsidies that make competition

more difficult, promote inefficiencies, and lessen accountability should be eliminated. Countries with relatively undeveloped power markets should, at a minimum, put in place long-run average incremental cost-based pricing that incorporates simple time-of-use elements to meet the financial objectives of utilities.

A framework of regulatory incentives can include price capping to support competition and induce efficiency. Multipart (declining block) tariffs above short-run marginal costs could be considered for the non-competitive segments if the greater revenue requirements for financial viability would cause unacceptable welfare losses under linear tariffs. Above all, the Bank should encourage governments to regard pricing as a commercial issue and to legislate fair entry conditions for private entities to supply power and related services.

**DEMAND-SIDE MANAGEMENT**<sup>2</sup> As discussed earlier, much potential for end-use electric power efficiency in developing countries remains untapped. Compared to large improvements over the last decade in the industrialized nations, energy conservation in developing countries has not kept pace. Demand-side management (DSM), if suitable infrastructure exists for its implementation, can be a lower-cost way to meet electricity service needs than new supply capacity.

DSM is not currently pursued with much intensity in most developing countries (Singapore and, more recently, Pakistan are exceptions). The reasons vary from country to country but generally revolve around the facts that (a) energy prices are low and subsidized, (b) power supply utilities are weak institutions that have major difficulties even supplying power and collecting bills, (c) end-use markets are not highly competitive, (d) regulatory agencies do not exist, and (e) knowledge about, and high-level support for, DSM initiatives on the part of governments are lacking. These barriers must all be lowered if DSM is to have a significant impact on developing countries' energy consumption.

In pursuing the nonpricing DSM options that require working closely with energy consumers and equipment manufacturers, two general models have evolved. In the U.S., DSM has become part of a bigger effort known as Integrated Energy Resource Planning (IERP). IERP is primarily a U.S. process whereby utilities and their regulatory commissions work jointly to evaluate available demand- and supply-side options (including purchased power) and determine a so-called optimal energy service strategy that takes account of economic and environmental factors. The essential concept of IERP is the equal treatment, or integration, of energy-based and conservation-based energy-service strategies. Planners attempt to rank by cost all the different energy-supply and end-use

technologies and programs that might provide energy services and then implement them, beginning with the lowest-cost opportunities

The concept is appealing. IERP is a tool that has been used in the US to promote energy efficiency investments as an alternative to capacity expansion. In the US this is generally performed by the power utility. IERP as practiced in the US has usually developed in an environment in which most end users purchase their electricity in a noncompetitive market and where a strong regulatory regime that can allocate costs and benefits across consumer groups is in place. For example, if consumers are charged a price of eight cents per kWh but the peak cost to the utility is ten cents, the utility, and presumably the country, can benefit by discouraging demand growth and energy use during the peak period. Regulatory commissions encourage the utility to negotiate with customers on ways to reduce their overall consumption. The benefits and costs from this reduction are distributed in various ways among the utility, the customers, ratepayers in general, and the taxpayer. Usually the risks and costs are mostly borne by the ratepayers because regulators have allowed the utility to write off the costs of these demand-reducing programs against the general rate base. In many of these programs, utilities use their preferred and sometimes subsidized access to capital markets to finance equipment and services to eligible customers. There are a variety of permutations to this approach, but they all require the utility to see if it can identify investments or practices by customers that would reduce the electricity consumption of consumers and thus avoid new additions to capacity.

In contrast, in Europe and in a number of other countries that do not have relatively intrusive US-style regulatory arrangements, a variety of non-utility institutions work with utilities, equipment manufacturers, and end-use consumers on demand-side issues and efficiency options. The few developing countries that have seriously pursued at least some of the available DSM options have largely followed this model and attempted to create some form of semi-autonomous energy-efficiency institution not directly associated with the power utility. In fact, it is not clear that an IERP process as it has developed in the US can be applied effectively in many developing countries. In addition to a lack of strong regulatory agencies to police utilities, low energy prices and poor reliability of service often weaken the incentives for consumers to respond to DSM initiatives.

In principle, a large part of the potential gains from demand-side management comes from the utilities ability to work with some of their larger commercial and industrial customers on complementary actions that benefit both parties. In many instances these actions can be specified in contractual arrangements. The reality in many developing countries

### Box 18 The Bank and Energy Efficiency

The Bank policy paper *Energy Efficiency and Conservation in the Developing World: The World Bank's Role* (1993) outlines ways the Bank can address energy supply and end-use efficiency issues that are highly relevant to the electric power sector in developing countries. The paper concludes that although the Bank clearly should continue its efforts toward increased lending for project components to improve energy efficiency and promote economically-justified fuel switching, the Bank should sharpen its focus with the following four-point program:

- *Country-policy dialogue* To gain greater country commitment, the Bank will better integrate energy efficiency issues into its country policy dialogue so that they can be addressed at an earlier stage. In the Bank's general country-policy dialogue with developing countries, greater emphasis will be on energy pricing and on fundamental institutional and structural factors that affect supply- and demand-side energy efficiency.
- *More selective lending* The Bank will be more selective in lending to energy-supply enterprises. Governments should clearly demonstrate that they are putting in place structural incentives that will lead to more efficient energy supply and consumption. The Bank will not continue to finance energy-supply projects where poorly performing and highly polluting public energy enterprises and their governments are unwilling to carry out fundamental structural reforms that could significantly improve the ways in which they do business.
- *Intermediation functions* Approaches for addressing demand-side management and end-use energy-intermediation issues will be identified, supported, and given high-level in-country visibility. The Bank will increase its efforts to improve intermediation in the energy and industry information markets in developing countries to reduce the relatively high information, management, technology, and financing transactions costs.
- *Technology transfer* The Bank will give greater attention to the transfer of more energy-efficient and pollution-abating technologies in its sector and project work. For all sectors, including basic materials processing industries, the Bank will (i) actively monitor, review, and disseminate the experience of new efficiency-enhancing supply-side and end-use products, technologies, and processes and pollution-abating technologies as they are developed and reach the marketplace; (ii) help finance their application; and (iii) encourage the reduction of barriers to their adoption. Staff working in all sectors will explicitly review technology choice options during project appraisals and in sector work.

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**Box 19 Korea—Focus on Evaluating Management**

The major power producer in Korea is KEPCO, a parastatal company responsible for most generation and all transmission and distribution. At the time of the first World Bank loan in 1979, KEPCO was considered a relatively well-managed company but subject to excessive government regulation and control. It also was experiencing high staff turnover because of inadequate salaries and benefits. Coordination of its many operating units was posing problems, and concern was growing that its original organizational structure, established in 1961, was no longer appropriate for maintaining or increasing efficiency. It was also noted during the Bank's appraisal of the first loan that KEPCO needed to improve its planning and organization, that the pricing structure was inadequate, and that there were no clearly-defined financial goals.

Subsequent to a Bank-financed consultants' study, it was concluded that government control over KEPCO was excessive and that KEPCO should be allowed greater autonomy for managing its affairs. As a result, internal organizational changes were made. In 1984, the government's Invested Enterprise Management Act introduced a new management structure for KEPCO and other public enterprises. The act gave greater powers to a new external regulatory board that separated policymaking from the executive functions. KEPCO's president and management became fully accountable to this external regulatory board.

The act also provided the board with criteria for evaluating KEPCO's management performance (with salary incentives being awarded based on performance), under the scrutiny of the Public Enterprise Management Council, which reviewed all public-enterprise performance. The act allowed substantial incentives for superior performance and stressed evaluating management, not company, performance.

The effects of this new regulatory structure were striking. Between 1983 and 1988, KEPCO's operating costs declined in real terms by some 34 percent. This reduction was achieved in spite of rapidly rising real-wage costs and after taking account of changes in the conversion efficiency of new generating plant as well as reductions in fuel costs during that period. In addition, technical measures on the supply side and demand-management policies—such as mandatory time-of-use tariffs—are estimated to have reduced peak load demands between 1977 and 1987 by about 800 MW, or some 7 percent of actual 1987 peak demand. Another characteristic of the new regulatory policies was that over time, tariffs were regularly adjusted to cover actual costs, including a substantial portion of capital-investment costs.

Source: World Bank records

is that the services of the utility are so poor that many of the larger customers either provide for their own needs or have substantial standby capacity for meeting the frequent system failures. In the absence of improvements in reducing the frequency of outages, few of these customers would be willing to rely on contractual arrangements with the electric power utility.

In addition, few utilities in the developing world have the necessary customer information to begin aggressive nonpricing DSM programs. Most of them have little or no end-use data, and many do not even have data on customer use by class. They are also not strong enough institutionally to undertake such managerially- and administratively-intensive programs. Many utilities are in serious financial difficulty, they have trouble simply collecting their own bills and operating and maintaining their systems. As a first step, these utilities will require substantial institutional reforms, which are now a matter of high priority in many countries and are the focus of World Bank support. Some alternative institutional arrangements are discussed in the companion paper, *Energy Efficiency and Conservation in the Developing World: The World Bank's Role* (1993). At the same time, many utilities will need to concentrate on major plant rehabilitation and transmission and distribution loss-reduction programs as well as build up an end-use customer database.

With respect to implementing end-use efficiency, creative solutions are needed to overcome market and institutional barriers to conservation. World Bank lending in the energy sector should be based on and, where necessary, support as part of country assistance strategies the development of integrated energy strategies that help borrowing countries take advantage of all energy supply options, including cost effective conservation-based supplies and renewable energy sources. As DSM programs are increasingly put into place, lessons will begin to emerge with respect to the potential benefits to developing countries of integrating supply- and demand-side measures.

With regard to power pricing, it is clear that as in the industrial countries, developing-country power suppliers are the ones who must pursue the DSM energy-pricing options. In fact, most developing countries, having few explicit or legally-constrained regulatory policies, can more easily pursue aggressive load-management programs designed to alter the shape of the prevailing system load-duration curve by reducing peak demand and encouraging a more economical demand mix. Such programs would include pricing to reflect differences in time-of-use costs, customer classes, location, and types of loads. Pursuit of better DSM pricing policies could yield large gains in developing countries, even where average revenues do not yet fully cover costs.

**Box 20 Corporatization of Electricidade de Portugal, S A**

Electricidade de Portugal (EDP) is currently undergoing major policy and organizational reform. The head office of EDP is being transformed into a wholly state-owned holding company with a full-time executive board of directors. Within the holding company, six separate companies are being formed: a generation company, a national grid company, and four distribution companies. All new generation capacity will be built, owned, and operated by the private sector, with energy sold directly to the generation company. The generation company will then sell power to the grid company, which will sell to the four distribution companies. All six companies will operate as separate profit centers. These companies will operate under a license issued by the Director General of Energy, who is responsible for regulation.

Two forces are driving the change: the desire to increase efficiency through competition, and the need to reduce the amount of public debt. With regard to competition, the board of the holding company will closely monitor the performance of all six companies, explicitly comparing performance of the distribution companies and of the existing generation company plants. It will also compare the performance of existing generating plants with that of the new private-sector plants.

Legislation has been enacted to permit private generators to sell to the grid company.

**Importation of Services****Principle two**

*In some of the least developed countries, where there are weak public and private sectors, a relative lack of market forces, and undeveloped capital markets, an early step in bringing about power-sector reform and increasing sector-management efficiency will be to bring local, developed-country, or more advanced developing-country electric power services into the sector.*

Among the underlying causes of poor power-sector development and management is a country's level of economic, human, and institutional development. Lack of educated and trained manpower and weak institutions reduce the capacity of countries to provide sound development management. Poverty, illiteracy, and weak institutions are all causes of poor power sector performance and make the task of sector management much more complicated and problematic.

In such institutionally-weak situations, a priority is to find imaginative ways to draw on international hands-on experience as a means of

developing local manpower, skills, and institutional capabilities. Early steps in bringing about sector improvements should involve twinning arrangements or the contracting out of selected sector services to foreign entities (other developed- or more advanced developing-country power enterprises, contractors, manufacturers, consulting firms, operating companies) that can provide in-country management services at reasonable cost and create local capacity in the sector. Doing it alone is simply too expensive for poor countries in terms of foregone economic output. An efficient productive power sector can set an example that will be more valuable than merely training a few selected engineers in an environment filled with disincentives. Learning-by-doing is a time-tested process, but providing leadership in the learning process is essential.

As discussed in chapter 4, the power sector worldwide is a mature industry with an ability to provide a wide range of services on a contract or twinning basis. Potential areas for contracting include management of civil works and activities that do not entail large investment costs, such as plant maintenance, diesel operation, billing, revenue collection, vehicle maintenance, line stringing, and pole and tower fabrication. Other areas for outside involvement could include reducing supply-side power losses and increasing generating plant availability. The financial costs of these initiatives are generally low relative to the benefits gained.

**Commercialization and Corporatization****Principle three**

*The Bank will aggressively pursue the commercialization and corporatization of, and private sector participation in, developing-country power sectors.*

Power enterprises must operate as commercial businesses. They should pay interest and taxes, earn commercially-competitive rates of return on equity capital, and have responsibility for their own budgets, borrowing, procurement, pay, and staff conditions. This means that the government's relationship with these enterprises must be more transparent and must emphasize financial discipline together with setting the overall policy framework and goals.

In view of the capital intensity of the sector, any private supply response would take time to materialize, and meanwhile, the power gap could worsen. Some direct investment by the Bank would still be needed during this transition period. Nevertheless, direct loans to energy enterprises should be linked to progress toward corporatization and commercialization.

The Bank could, in fact, support electric power lending to both the public and private sectors. To encourage broader participation of parties

**Box 21 Privatization of the Electric Power Sector in Chile**

The most important public power system in Chile is the Central Inter-connected System. This system comprises three public utility companies—Endesa, Chilectra, and Colbun—with installed generating capacity of about 3200 MW (1988).

Since 1980, the government has encouraged a process of divestiture and privatization of publicly-owned electric utilities. The privatization of the power sector was implemented through legal and institutional changes to make the power utilities operate under the same regulations as private enterprises. Private participation was encouraged by establishing new investor-financed enterprises to purchase existing facilities or to construct new facilities (for example, large generation projects). General electricity rates were based on marginal costs and reflected the opportunity cost of producing electricity. Prices for most larger users were set largely through market forces by negotiations between investor-funded generation companies and these consumers. This approach served to create competition among producers.

Privatization in Chile's power sector was financed through three mechanisms: public auction, stock exchange listing, and so-called popular capitalism. Privatization of the sector took place over several years, with the separation of distribution from generation/transmission and the creation of several independent distribution and generation companies. The government sold some distribution subsidiaries in 1980 by public auction. By 1983, Endesa was listed on the stock exchange, with capital advances received from new consumers converted into shares in the company. Between 1985 and 1987, it sold three small hydrostations, again by public auction. Other distribution subsidiaries were also sold, with employees of the companies purchasing shares from their pension entitlements (popular capitalism). Pension funds and banks also participated by investing in shares in listed power companies.

In about 1985, government acted to further resurrect the financial structure of Endesa by capitalizing about CH\$500 million of its debt and converting it to equity held by the state. By mid-1989, virtually 100 percent of distribution was in private hands, and most of Endesa was privately owned. Chilectra became 100 percent private in January 1988, when two U.S. banks bought at public auction the 40 percent of the stock that was publicly owned. Only Colbun, which operates a hydroplant, is operating as a government-owned utility.

other than the government in all aspects of the power sector, Bank loans could be made to both private and public enterprises. Industrial firms, for example, should be able to borrow for power generation on terms

equal to those offered to public enterprises, where supply by independent power producers is shown to meet sector objectives.

In some countries the Bank should channel some portion of its lending through financial intermediaries such as commercial banks. The commercial banks or other intermediaries could receive bonds from the power companies as security and could sell the bonds in the country's capital market with a commercial bank guarantee. There are many ways in which such deals could be structured. The essential points are that (a) if power sector enterprises must compete with each other and with other non-energy enterprises for at least some portion of their financing, a direct link must be established between sector performance and the ability to raise resources for new investments, and (b) the power sector could directly assist with the development of a country's capital market by being a source of higher quality, longer-maturity paper.

Such financial-intermediary lending would have to comply with existing Bank guidelines for such lending and fit well within countries' overall financial policy frameworks. There should be an agreed financial-institution development plan that demonstrates that the institution has an effective role to play in the country's financial sector development. The plan should provide explicit target benchmarks for monitoring progress in weak areas.

As such, the Bank's lending for power would support and be a part of overall reform of the financial sector. As noted earlier, if the capital requirements of the power sector are to be met, substantial resources will have to come from private domestic savings. This will only take place through a close working relationship between the power enterprises and those institutions responsible for mobilizing savings. In addition, the financial enterprises would benefit from being able to add this important industry to their asset base. It is clear that given the potential importance of the power sector for capital-market development, and the comparative price and income stability that will come through proper regulation, the power sector has the potential to tap a large pool of savings that otherwise may have few domestic investment alternatives. Of course, as discussed under principle two, in some lower-income countries, where the power sector is relatively large in comparison to the formal financial sector, the Bank will have to continue direct loans to power enterprises or credits to these enterprises through governments.

Understanding the potential pitfalls and operational implications of launching parallel reforms in both the power and financial sectors is essential for designing a power-sector reform program. The success of such a program requires that reforms in these sectors be linked and well-integrated with the overall economywide reform process. At pres-

ent, many developing countries have launched adjustment programs that go beyond the correction of initial imbalances to the reform of economic policies and institutions. In many countries the timing is right, therefore, for initiating intersectoral reform programs.

### **Commitment Lending**

#### *Principle four*

*The Bank will focus lending for electric power on those countries with a clear commitment to improving sector performance in line with the above principles.*

In a few countries where major reforms have taken place in the power sector, reform occurred after several years of sustained dialogue with the Bank and other donors. The Bank's presence can be a catalyst to encourage country commitment. Above all, the Bank will not continue to finance power projects where poorly-performing and highly-polluting utilities and their governments are unwilling to carry out fundamental structural reforms that significantly improve the way they are doing business.

Since helping countries move in the direction of fundamental sector reform is emerging as one of the Bank's primary objectives in a number of power sectors, the Bank must allocate resources for the institutional analysis and technical assistance necessary to help guide fundamental sector reform. The Bank must focus lending mostly on those countries that show a clear commitment to improving sector performance. Commitment must be judged on a country-by-country basis around the themes of significant progress toward needed reform and no more business as usual.

This will involve choosing countries for specific work according to the sector-development issues outlined above and according to the range of activities the Bank can take on and support at any given time. Some of the Bank's borrowers may neither want the Bank to be so involved nor require such assistance. Where there is need but no commitment, such work would waste resources. Similarly, the dimensions of power sector development the Bank chooses to assist should reflect both the chances of success and the Bank's own ability to provide effective assistance in terms of skills and resources.

In countries in which the Bank is active in improving power sector development, the Bank needs to assist in the design of highly differentiated responses, taking account of the countries' institutional needs, political economy, social structure, and history. The objective in each case must be to help strengthen the environment for sustainable power sector development.

It is clear that the Bank will need to expand its sector work from current low levels to help countries pursue some of the fundamental institutional and structural reforms suggested in this paper. An expanded program will require both the borrower and the Bank to identify better and analyze the political, legal, regulatory, and institutional constraints to improved performance. The financial goals and strategic options for the sector, as well as the more traditional least-cost investment program, also will have to be more clearly spelled out, and more analysis of the robustness and environmental impacts of investment programs will have to be undertaken. Above all, the issues of accountability and incentives for efficiency among government, producers, and consumers will have to be clearly identified and remedial actions defined and agreed upon.

When a country, with the Bank's analytical support, decides that the best way to develop its power sector is to step up Bank support of privatization in the sector, the first step should be to put together a comprehensive sector work program. This program would form the basis for a set of actions that would begin with putting in place acceptable legal and regulatory frameworks.

These actions would be tailored to suit the situation in each country, given its level of economic development and the extent of private-sector and capital-market development. Private-sector participation could be considered any activity that would increase involvement of the private sector in financing, developing, or operating facilities for the electric power sector. There are numerous options available for private sector participation—from collection, billing, construction, and maintenance services to options for generation, transmission, and local distribution—in a commercialization, corporatization, or privatization format. The available options were discussed briefly in chapter 4.

Essentially, the Bank will assist in bringing in international experience to help shape a plan that encourages those reforms that best suit a country's readiness for privatization. In countries that already have well-developed capital markets and stock exchanges (Argentina, Brazil, Chile, India, Korea, Malaysia, Mexico, Pakistan, Philippines, Thailand, and Venezuela, for example), the feasibility of listing on the stock exchange or using other mechanisms for tapping capital markets should be examined. Some of these countries are already progressing in this direction. Pakistan and India are issuing local bonds, and Malaysia has listed the public power utility on the stock exchange. In other countries, the Bank could require the commercialization and subsequent corporatization of utilities as regulated profit-oriented business enterprises so that eventually they would be able to access capital in local or international markets. In less developed or severely debt-ridden coun-

tries, the Bank could seek private-sector assistance in developing financial reconstruction plans through management contracts, contracting out, the use of consultants, and other approaches

The key objective, whatever the means, should be for governments to reduce their role in funding and operating electric power facilities and to transfer these functions, to the extent possible, to other entities, including the private sector. World Bank assistance is likely to be required in reviewing and advising on governance issues, the legal and regulatory arrangements, and the legislative framework. Governments would have to act more like policymakers than managers, and the power sector would have to become accountable to its shareholders and the public.

Finally, commitment lending also means that the Bank, on its side, must change the perceptions of some of its borrowers. When the Bank is perceived as an institution that is driven by supply-side lending targets and is tolerant of noncompliance, its leverage is low. In contrast, if it is perceived as an institution requiring performance and compliance if resources are to be forthcoming, particularly when it can effectively coordinate cofinancing efforts with other bilateral and multilateral sources, then its leverage for policy change can become very effective.

## Private Investment

### *Principle five*

*To encourage private investment in the power sector, the Bank will use some of its financial resources to support programs that facilitate the involvement of private investors*

The previous guiding principles are partly aimed at helping countries establish a framework of policies and institutions that will result in a competitive and more efficient commercial power sector. Such a sector should be able to attract private capital. But getting energy prices right and putting in place an accountable institutional framework may not be sufficient. Private investors still could be understandably reluctant to make significant financial commitments because of a lack of experience with the operation, stability, and reliability of the new policy framework. Governments, on the other hand, are concerned that investors will try to compensate for the perceived risks by seeking high rates of return that could require unpopular increases in electricity prices. Both parties thus have an interest in lowering the perceived risks.

Experience with BOO/BOOT projects indicates that many private investors are initially reluctant to undertake projects that are large relative to their capital base. Consequently, attempts to put together private

financing schemes for very large and complex power projects have sometimes proved difficult or impossible (for example, in Turkey and Pakistan). Nevertheless, there is considerable evidence that investors are interested in smaller, less complex power projects in which the risks are considered more manageable. Once investors gain experience and confidence, they will be willing to finance larger projects (box 22).

It is in the early stages of policy reform process that investors perceive the greatest risks. On the one hand, most investors are prepared to bear

### **Box 22. Example of a Successful Private Power Project in the Philippines**

A 200-MW gas-turbine power plant was commissioned in the spring of 1990 at a site near Manila in the Philippines. The \$41 million project was built in twelve months with limited-recourse financing—without government guarantees to the project financiers—under BOOT arrangements. The plant is owned and operated by a private company, Hopewell Energy (Philippines) Corporation (HEPC), under a twelve-year contract to supply power to the state-owned National Power Corporation (NPC). NPC is providing the site, supplying fuel to the plant at no cost to HEPC, and is paying HEPC for all the energy that it takes. HEPC will pass full ownership and control of the plant over to the NPC at the end of the contract.

This project is a good illustration of how to minimize the risk exposure to debt obligations for private investors by controlling risks associated with the costs of inputs and the price of the output. This approach can attract investors to countries such as the Philippines that are short of capital, foreign exchange, and power-supply capacity. HEPC effectively transforms fuel oil into electricity for a low-risk processing fee that provides a reliable cash flow. Government and NEPC have been relieved of the task of raising capital, and they benefit from private-sector technical expertise in operating the plant. The success of this project has encouraged HEPC and NPC to negotiate another BOOT power project on a larger scale, which will provide 700 MW of coal-fired generating capacity at a cost of \$850 million. It is due for commissioning in 1995.

As in the first Hopewell Project, World Bank Group participation is being sought through the IFC, which faces the task of mobilizing large additional private-sector resources. Based on the successful experience of the first BOOT project in the Philippines and a number of other loans to private-sector power companies in South Asia, IFC is now also exploring the financing of electric power projects in a number of other countries in Southeast Asia.

the commercial risks associated with building power plants. They are also prepared to accept some country risks. In particular, they are willing to take on debt obligations under satisfactory conditions for being paid for their services. In most countries where investors have some experience, only a few investors have expressed deep concern about governments ultimately living up to their commitments, provided there are suitable arrangements for arbitration.

On the other hand, in many instances investors do perceive a financial risk in conjunction with the reform process. They are concerned that unavoidable bureaucratic difficulties of implementing new ways of doing business could result in an uneven and unpredictable cash flow in the early years of their investment. In most cases, some of the most prominent concerns are about price and availability of fuels, timely payments for power purchased by the dominant state-owned public-sector power company, and delays in obtaining the agreed conversion of local currency into foreign exchange. An additional source of uncertainty is government bureaucratic inexperience in dealing with the disputes that will inevitably arise between power companies and private suppliers under complex power-purchase arrangements.

To compensate for risks such as these, commercial lenders either will require a larger equity investment from the project sponsors or will pursue a larger package of public guarantees for their loans. Both requirements raise the cost of projects, although this increase could be more than offset by quick construction and subsequent operational efficiencies of the privately-owned plants. Equity investors will require a higher rate of return than the interest rates on loans, to compensate for their higher exposure to risk, while public guarantees would divert the limited resources of the public sector from alternative uses.

Since some of the risks for private investors are linked to a government's timely implementation of its contractual obligations, a third party could help underwrite these risks. In many private financial transactions, one way in which these third-party guarantees can be obtained is by posting performance bonds, establishing escrow accounts, buying insurance policies, or using similar risk-coverage mechanisms. Governments, of course, could take the initiative in mitigating these risks and thus reducing the prices demanded by private producers, by arranging risk coverage for their own performance.

Although there are many ways the Bank can help countries develop their power sectors, the most common approaches do not always deal adequately with the concerns of private investors. One promising approach is for the Bank to lend through national financial intermediaries, such as a private-sector energy development fund (as in Pakistan) or a national power-sector financial corporation (as in India and Colombia). This approach has the advantage of moving power financing decisions

### Box 23 IFC's Power Investment Program

The International Finance Corporation (IFC) has experienced a recent surge of investor interest in private power projects in developing countries. IFC's current portfolio includes investment of just under \$300 million in nine private power projects in India, Philippines, Chile, and Turkey.

More important, the corporation currently has some thirty-five proposals in varying stages of progress. These include large projects such as a 1,400-MW coal plant in Mexico, a 400-kV transmission line in Poland, the Endesa hydroelectric project in Chile, a 1,200-MW gas turbine plant in Malaysia, and a 700-MW follow-on investment by Hopewell in the Philippines (see Box 22). There are also smaller, several-million dollar ventures, such as wind-powered generators in Costa Rica, a 45-MW floating diesel plant in Jamaica, and a 24-MW hydro project in Belize. In addition, some, such as the 510-MW Berke hydroelectric project in Turkey, are being undertaken in conjunction with the World Bank. In such countries as India and the Philippines, IFC has become, or is rapidly becoming, a permanent partner in the development of the sector through incremental private sector investment.

Source: IFC

closer to the standards of capital markets, but it does not deal with potential political or bureaucratic problems that increase the risks for private investors. The credit support programs developed by the Bank, IFC, and MIGA to promote private financing of infrastructure have focused on covering some risks through partial guarantees to private investors.

The Bank will continue to innovate and experiment with the wide range of private-sector financing tools and techniques currently at its disposal. The Bank group will be flexible and innovative in attempting to mobilize private capital for the power sector and, to the extent possible, address sovereign noncommercial private-investor risks. Such efforts will assist countries in developing or strengthening private capital markets and will be a positive force toward meeting the projected large capital shortfalls in the power sector during the next decade.

### Endnotes

1 All dollar figures are U.S. dollars unless otherwise indicated.

2 This section draws heavily on *Energy Efficiency and Conservation in the Developing World: The World Bank's Role* (1993). This section may be skipped if the reader is familiar with that paper.

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## **The World Bank**

The World Bank is divided into two main branches, the Operations branch and the Policy branch In addition, there is a much smaller Operations Evaluation Department

The Policy branch reviews and develops policy for the bank It is organized in five sector departments, including an Industry and Energy Department (IEN) and an Environment Department It also contains some research functions and a training center for developing country officials The IEN includes a technical assistance unit known as the Energy Sector Management Assistance Program (ESMAP), which is discussed in detail later in this chapter

The Operations branch is in charge of all lending operations, from project identification to project completion It is organized geographically by region, then by country groups, and then by sector For example, there are four regional offices - the Asia Regional Office, the Africa Regional Office, the Latin America and Caribbean Regional Office, and the Europe, Middle East, and North Africa Regional Office Each of these offices contain several country departments For example, the Asia Regional Office includes the India Country Department and the Bangladesh, Bhutan, Nepal, and Sri Lanka Country Department Each of these departments in turn has divisions responsible for energy, agriculture, and so forth

The Operations branch has 19 country departments in all, each with its separate division responsible for energy There is no central energy department in the Operations branch While the Policy branch of the bank does have a central energy department - the Industry and Energy Department - it has no formal role in the bank's energy lending operations

Each of the bank's four regional offices has, in addition to its country departments, technical departments, which provide extra project review and assistance for the country operating staffs in the region The technical departments also sometimes administer their own projects Each technical department has its own energy division and transport division, and its own environment division responsible for, among other things, reviewing the environmental impacts of bank energy projects

The bank's Operations Evaluation Department (OED) is responsible for evaluating projects after they are completed It has two divisions, each with responsibility for different sectors Infrastructure and energy projects are overseen by one division, and industry projects by the other

Altogether, in the Operations, Policy, and Evaluation branches, the energy sector is addressed by 32 divisions of the World Bank In addition, a similar number of divisions have jurisdiction over

the energy-consuming sectors such as transport, industry, and urban development. Many of these divisions share responsibility for energy and industry, some share responsibility for energy and transport thus, the number of divisions that either overtly address energy or have a significant impact on energy consumption is large. For example, 68 World Bank divisions have responsibility for energy, industry, transport, urban development, or a combination thereof.

Coordination among the many divisions is, understandably, difficult. An unsuccessful approach toward energy lending in one division can be easily repeated in another. There is the central Industry and Energy Department, but it is in the Policy branch of the bank. The Policy branch has little influence on the Operations branch, according to many of the bank's staff. Although it was intended to be a central unit integrating policy and research with planning and budgeting, it has not achieved this purpose.<sup>1</sup> There is little communication between the Policy branch and the individual country departments. Moreover, the Policy branch is often perceived as an "ivory tower" by those in the Operations branch.

## **Lending Operations of the Multilateral Development Banks**

### **Lending Targets**

Each year, the World Bank conducts analyses to determine the total amount of debt each borrowing country can bear. These analyses are used, along with other factors, such as past assistance levels, to determine the total loan amount a country will receive in a given year from all sources. The World Bank coordinates its lending with other lenders, including the regional multilateral development banks, to determine how much of the total each will provide. This group of multilateral and bilateral lenders for each country is called a "consultative group."

The consultative groups hold regular meetings, organized and chaired by the World Bank. Usually the details of how much each lender will provide are worked out prior to the meetings, and the meetings are used to finalize the lending plans and fill in financing and cofinancing gaps. The developing countries are represented at the consultative group meeting, usually by their finance ministers, who reconfirm existing financing arrangements, discuss future loan needs, and seek comments on their countries' economic performance to date.

As a result of this process, each lender has a "lending target," stating how much it will lend to each country for the coming years. Lending totals for each country are set three to five years in advance, and individual loans are then identified to gradually fill up each year's allotment. Thus, the energy loans approved in the current fiscal year were first identified in rough form several years ago, and the technical, institutional, and financial details have been gradually filled in over the intervening years.

In identifying loans to meet lending targets, MDB staff have an incentive to focus on large loans because it takes about the same amount of staff time to prepare a small loan as a large loan. This bias tends to favor projects requiring large capital investments, such as oil and gas development,

power plant construction, expansion and upgrading of transmission and distribution systems, and road construction. Energy-conservation projects, such as lighting retrofits, conservation equipment production, and industrial boiler replacements, tend to require much smaller capital investment and thus smaller loans, especially if the recipient country has not yet established the institutional capacity to absorb a large energy-conservation loan.

### Loan Types

The MDBs offer three basic kinds of loans: investment loans, adjustment loans, and technical assistance loans. Investment loans are designed to fund specific projects or sets of projects. Adjustment loans are designed to promote major macroeconomic and sectoral reforms. Technical assistance loans are used to provide guidance or training, or to help a country prepare for an upcoming large loan.

Almost all energy activities are funded through investment loans, of which there are three types: project loans, sector loans, and emergency loans. Project loans, the most common, are used to fund specific ventures such as dams, roads, or power plants. Most energy activities have been funded through project loans. Sector loans are provided for broad sets of investments in particular sectors in cases where the recipient country can manage the detailed work of identifying and administering individual projects, leaving the bank to concern themselves with the broader policy directions in the sector. Some industrial energy-conservation activities have been financed by the World Bank through industry sector loans in the form of lines of credit available to individual businesses. The use of sector loans has increased in recent years in all sectors, including energy, but project loans are still dominant. Emergency loans are provided in response to disasters, and have not been used for energy development except for the repair of damaged facilities.

Adjustment loans, also known as "policy-based loans" or "program loans," are large, rapidly disbursed loans that are used exclusively to pay for imports. The World Bank is the dominant adjustment lender, and adjustment loans by regional banks are usually made to cofinance World Bank adjustment loans. There are two types of adjustment loans. Structural adjustment loans (SAL) carry few restrictions on how the funds are used, but require major macroeconomic reforms by the borrower in areas such as exchange rates, money supply, interest rates, and trade barriers. Sectoral Adjustment Loans (SECAL) are similar to SALs but address just one sector. Because adjustment loans are not directed to specific projects, their influence on borrowers is in their strict loan conditions. For example, an energy SECAL can be used by a borrower to purchase imports of almost any goods or services, energy-related or not, that the borrower wishes.<sup>1</sup> However, the conditions of the SECAL may require the borrower to raise energy prices, overhaul its energy regulatory system, and replace top managers at the national electric utility (see "Loan Conditionality" later in this chapter).

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<sup>1</sup> In some cases, the country is required to use an energy SECAL to purchase energy-related imports.

Most technical assistance loans are small, and in many cases, are incorporated in project loans. The regional banks provide both loans and grants for technical assistance, while the World Bank provides only loans in this area.

### Loan Components

In assembling a loan, MDB staff must determine a number of variables, such as interest rate, loan conditions, and procurement rules, before the loan is approved for disbursement. Staff have some flexibility in these areas, but there are conventional approaches for determining each of the variables. There are, for example, established methods for setting the interest rate for energy loans as distinguished from other loans. Likewise, energy loans tend to include certain common loan conditions.

**Concessional interest rates** The interest rates MDBs normally charge are based on the interest rates the MDBs themselves are charged on international capital markets, plus half a percentage point or more to cover their own costs. Loans with this type of interest rate dominate the lending portfolios of all MDBs. At the World Bank, such loans are known as IBRD loans, at the Inter-American Development Bank and the Asian Development Bank, they are called OCF (Ordinary Capital Fund) loans, at the African Development Bank, they are called AfDB loans.

In addition to these ordinary capital loans, all the MDBs have special lending windows that provide their poorest borrowers with loans at subsidized or "concessional" interest rates and longer loan terms. The World Bank's concessional financing arm is the International Development Association (IDA), the Asian Development Bank's is the Asian Development Fund (ADF), the Inter-American Development Bank's is the Fund for Special Operations (FSO), and the African Development Bank's is the African Development Fund (AfDF). The terms commonly include subsidized interest rates (perhaps 1 or 2 percent instead of 9 percent), coverage of a higher percentage of project costs (perhaps 60 percent instead of 30 percent), longer "moratoria" (grace periods) before repayments begin (perhaps 10 years instead of 5 years), and longer loan terms (perhaps 40 years instead of 20 years).

Only the world's poorest countries, based on per capita GNP, qualify for concessional financing. The very poorest receive only concessional loans, while others, known as "blend countries," receive combinations of concessional and ordinary capital loans. The concessional loans are intended for projects that do not have high financial rates of return, such as social and health care projects. At the World Bank, the agriculture sector is the largest beneficiary of concessional lending, accounting for 34 percent of total IDA assistance between 1985 and 1988.<sup>2</sup> The energy sector accounted for 13 percent of IDA assistance from 1981 to 1984, then dropped to 7 percent from 1985 to 1988.<sup>3</sup>

In general, a greater proportion of energy supply, or "supply-side," loans have been made at concessional rates than have "demand-side" (energy-efficiency) loans. In some cases, demand-side loans in a given country have been provided at ordinary capital rates while supply side loans are

provided at concessional rates. For example, Pakistan has received supply-side loans from the World Bank at both concessional and ordinary capital rates, but all of its demand side loans from the Bank - in 1982, 1985, 1987, and 1989 - for such activities as demand management and energy conservation, have been at ordinary capital rates. Furthermore, in 1982, India received a non-concessional loan of \$27 million from the World Bank for energy efficiency, while receiving a concessional \$400 million World Bank loan for power production <sup>4</sup>

**Loan conditionality** The MDBs place requirements on borrowers in exchange for providing them with loans. These requirements are known as conditions or covenants, or collectively as "conditionality."

The World Bank commonly requires its borrowers to liberalize trade, establish market based pricing and exchange rates, and impose general fiscal discipline. When the bank lends for a mining project, for example, it may demand changes in the legal and taxation code concerning mining investment. Almost every loan in every sector includes similar provisions <sup>5</sup>. Adjustment loans contain particularly strict conditions.

Typical IDB power sector loan conditionalities include requirements for least-cost electric power system expansion, raising tariffs to reflect long-run marginal costs, improved institutional efficiency, and reduction of transmission and distribution losses.

World Bank electric power loans commonly include requirements addressing financial issues at the electric utility, including financial ratio targets (operating costs divided by operating revenues), revaluation of assets (for calculating depreciation), financial auditing, debt limitation, electricity tariff increases, and reforms in tariff structures. Conditions related to management and planning may include requirements regarding senior management appointments by borrowers <sup>6</sup>. Most of the World Bank's 1990 power projects include some conditionality related to energy price reform, from agreements to study tariffs to agreements to keep energy prices at certain levels <sup>7</sup>.

Other examples of conditionality in World Bank energy loans include the establishment by Pakistan of an institutional framework to facilitate private sector participation in energy development, the establishment by Turkey of a regulatory body in the Ministry of Energy and Natural Resources, and a commitment by Morocco to furnish the World Bank with proposed procedures and policies for government oversight of utilities' financial operations <sup>8</sup>.

The ADB loans regularly require improvements in the efficiency of electricity supply. For example, in a recent loan agreement with Bangladesh for transmission and distribution facilities, the ADB states that it may "withhold approval of award of first contract under the project" until, among other things, the "Bangladesh Power Development Board (BPDB) [has] reduced its system losses to an average not exceeding thirty-two percent of gross electrical energy generated for a period of at least three months" <sup>9</sup>. It also requires Bangladesh and its national utility to "formulate a long-term, time bound action plan, acceptable to the Bank, to reduce BPDB's system losses" <sup>10</sup>. Finally, it requires that BPDB install time-of-day meters at the facilities of certain classes of

customers <sup>11</sup>

As of July 1991 the ADB was considering a new policy to include energy-conservation conditions in future sectoral adjustment loans in the fossil fuel sector. These conditions would include energy audits of all kilns and furnaces in a country, energy-conservation statutes and regulations requiring major energy users to carry out energy audits and reduce energy consumption within specified periods, mandatory vehicle fleet maintenance by trucking and bus companies, surcharges on passenger cars and increased taxes on heavy or luxury cars, subsidies or other support for the distribution and/or sale of energy-efficient stoves, lighting products, and electric motors, and support for improving the capabilities of domestic consulting firms with regard to energy-conservation technologies <sup>12</sup>

Noncompliance with loan conditions can result in temporary suspension of disbursements or even cancellation of a loan. Both actions are rare. Suspensions and cancellations must be approved by the highest management of the MDBs. The MDB staff try to avoid suspensions and cancellations by negotiating settlements, because the burden of proof is on the staff to show the unavailability of suspension or cancellation. Furthermore, a suspension or cancellation can be viewed as a failure in project design, reflecting badly on the staff.

Because of pressure on MDB staff to meet lending targets and avoid suspensions and cancellations, violations of loan conditions often occur without penalty. A World Bank analysis found a rate of condition fulfillment on its adjustment loans of only 60.3 percent,<sup>13</sup> <sup>2</sup> for energy loans, the rate was only 56 percent <sup>14</sup>

Still, loan suspensions do occur from time to time. For example, the World Bank has had disputes with both South Yemen and Egypt over energy prices. A 1985 power loan to South Yemen was canceled because the country did not raise electric rates as promised. In Egypt, all energy loans were suspended owing to a dispute over energy pricing <sup>15</sup>

### **Guiding Principles of Lending**

Several guiding principles, reflecting the banks' philosophy of economic development, shape the MDBs' loans in all sectors, including the energy sector. These principles - emphasis on foreign exchange earning investments, rationalization of prices, and increased private sector participation in development - determine the approach the banks take in project identification and design, and the conditions they place on loans.

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<sup>2</sup> In some cases, the MDBs deliberately waive a conditionality where circumstances arise that are out of control of the developing country government.

## Foreign Exchange-Earning Investments

The MDBs look favorably on projects that increase the foreign exchange earnings of a country, because foreign exchange, or "hard currency," can pay for imports that contribute to repay loans from MDBs and other foreign lenders

There are three main ways a country can increase its foreign exchange earnings: exporting domestic products, increasing tourism by foreigners, and attracting investment by foreign firms. The MDBs actively support all three activities in developing countries, especially exports. They provide grants and loans, for example, to support development of energy resources like coal and oil for export, and the development of ports and the highways and railroads that serve them.

Investments in end-use energy-efficiency can help increase a country's foreign exchange reserves by reducing expenditures for imported oil and future debt service for new electric generation facilities. Although MDB staff are aware of this fact, the MDBs have not pursued end-use energy-efficiency as part of their strategy to increase developing countries' foreign exchange earnings.

## Rationalized Earnings

The MDBs often recommend that developing countries "rationalize" prices, allowing the prices of goods and services to reflect the cost of supplying them. The MDBs discourage price subsidies or regulations that distort market prices or keep them artificially low.

In the energy sector, rationalization has meant allowing energy prices to rise to the point at which consumer energy payments will cover the cost of supplying the energy. In the transport sector, it has meant raising fuel taxes, tolls, and fares to cover the costs of building and maintaining roads and mass transit systems.

The MDBs often require borrowers to rationalize prices in given sectors. For example, electric power loans commonly require raising utility rates, thereby reducing the need for the government subsidies. Developing countries frequently resist such requirements, because higher prices can lead to social unrest and threats to government stability.

Energy price increases are also commonly viewed as a means of encouraging more efficient use of energy. Yet energy-efficiency investments, conversely, can make energy price increases more bearable. That is, energy-efficiency improvements can help cushion the impact of higher energy prices by reducing users' energy bills. In addition, investments in energy-efficiency can permit electric utilities to defer investments in new generation facilities, with the resulting savings passed on to consumers. Likewise, an energy-efficient urban bus system will have lower fares than an inefficient bus system. To date, the MDBs have not viewed end-use energy-efficiency in such a light.

### **Private Sector Participation**

The MDBs consistently encourage governments of developing countries to remove themselves from activities that can be performed by the private sector. They support both privatization efforts and increased participation by private businesses in traditional government activities. In the energy sector, this policy has meant encouraging privatization of government-owned electric utilities and supporting private power producers who sell electricity to government utilities. In the transport sector, it has meant encouraging private ownership of urban bus systems.

Investments in end-use energy-efficiency can help strengthen the competitiveness of businesses in developing countries by lowering operating costs. This has especially been true for companies competing internationally with energy-efficient foreign companies. The MDBs regularly urge developing countries to lower import barriers to allow greater private sector competition, but they have not generally focused on improved energy-efficiency as a way to improve the competitive positions of domestic firms.

- 1 The World Bank, "Reorganizing the Bank An Opportunity for Renewal," Report to the President from the Steering Committee on the Reorganization of the World Bank, (Washington, D C , April 1987), pp 14-17
- 2 World Bank, "The Evolving Role of IDA" (Washington, D C 1989), p 8
- 3 Ibid
- 4 World Bank, "Annual Report" (Washington, D C , 1982), pp 107, 109 Personal communication with World Bank staff
- 5 Cheryl Paper, The World Bank A Critical Analysis (New York Monthly Review Press, 1982), p 20
- 6 World Bank, "A Review of World Bank Lending for Electric Power" (Washington, D C March 1988), p 71
- 7 World Bank, "FY90 Sector Review," unpublished manuscript, pp 11, 15
- 8 World Bank, "A Review of the Regulations of the Power Sectors in the Developing Countries," Energy Series paper No 22 (Washington, D C , February 1990), p 39
- 9 Loan Agreement between People's Republic of Bangladesh and Asian Development Bank for Eight Power Project, 1989, p 16
- 10 Ibid , p 25
- 11 Ibid , p 29
- 12 Personal communication, Urooj Malik, Asian Development Bank, June 1991
- 13 "Report of the Policy Task Force on What To Do About the World Bank", Woodrow Wilson School Public and International Affairs, Princeton, New Jersey, 1990, p 37
- 14 World Bank, "Conditionality in Adjustment Lending FY80-90," Industries Series Paper No 28 (Washington, D C , May 1990), p 14
- 15 Personal communication, Ian Hume, World Bank, February 1989

## **Russian Oil and Gas Framework Agreement Summary of Operating Procedures**

### **Background**

The Oil and Gas Framework Agreement was signed on July 6, 1993 by the Russian Ministry of Fuel and Energy, the Russian Ministry of Finance, the Russian Central Bank and the Export-Import Bank of the United States. The Framework Agreement is designed to provide Ex-Im Bank with the security it will need to provide \$2 billion or more of financing in support of U.S. exports for the revitalization of the Russian energy sector. The Framework Agreement will play a critical role in reinvigorating the Russian economy by facilitating financing for the supply of equipment, services and technology needed by Russian oil and gas production facilities that are now closed or producing below capacity.

Each transaction under the Framework Agreement will be approved on a case-by-case basis, taking into account the technical feasibility of the project, credit factors and general economic conditions in Russia. Only those projects which are projected to yield incremental production of oil or gas with a sales value substantially in excess of the financing will be eligible for Ex-Im Bank support. In general, borrowers under Ex-Im Bank-supported financing will be oil and gas production associations or entities involved in processing, transporting or refining gas or oil.

In order to assure the proper use of the goods and services being financed and fulfillment of the assigned oil and gas sales agreement, the borrower may be required to engage the services of independent consultants who are expert in the production and export of oil and gas. More specific information on the role of such consultants is available from Ex-Im Bank. Fees due to these consultants may be financed under the Framework Agreement to the extent that their services are of U.S. origin.

The Framework Agreement also contains assurances from the Ministry of Fuel and Energy, the Ministry of Finance and the Central Bank regarding the performance by the Russian parties of their obligations under the transactions.

Transactions under the Framework Agreement will be documented using standardized agreements for the credit and security arrangements described in the Framework Agreement.

### **Financing**

Ex-Im Bank financing will consist of five-year loans (or longer as appropriate) guaranteed by Ex-Im Bank under and subject to the terms and conditions of its regular guarantee program. Transactions will involve financing of at least \$25 million for the purchase of U.S. goods and services to be used for the rehabilitation or revitalization of oil or gas production, transport, refining, processing or other facilities. Smaller transactions could be aggregated so as to reach the \$25 million floor.

The Ex-Im Bank-guaranteed loan will be for up to 100% of the U S content (contract price less foreign cost), but not more than 85% of the total contract price

The Russian buyer will be required to arrange for the minimum 15% cash payment Ex-Im Bank will guarantee 100% of the principal and interest on the loan which may be made at a fixed or floating rate of interest Disbursement under the credit will be through letters of credit or, less likely, as a direct reimbursement to the Russian buyer

Ex-Im Bank expects that the guaranteed lender will act as the security assignee in the transaction In general, the security assignee is responsible for making the calculations necessary to operate the collateral account and protecting the security for the loan

Shipments of goods must be on vessels of U S registry unless the buyer obtains a waiver from the U S Maritime Administration ("MARAD") MARAD may be contacted at (202) 366-5517 or (202) 366-5522 (fax)

### Security

Instead of receiving a sovereign guarantee, Ex-Im Bank will be secured from hard currency sales of existing Russian oil or gas production to foreign purchasers that will be approximately 50% in excess of the amounts of financing that Ex-Im Bank is supporting The contracts for these sales will be assigned as security for the financing, the actual proceeds being deposited by the oil and gas purchasers directly into offshore escrow accounts (located with a commercial bank in New York) Security interests will also be taken in the items being financed Lenders of the 15% cash payment (the portion of the purchase price of goods and services which is not eligible for Ex-Im Bank support) may share in these security arrangements

The offshore accounts will be established at a bank in New York by a collateral account agent (as agent for Ex-Im Bank, the guaranteed lender and the cash payment lender) and pledged as security At this time, Moscow Narodny Bank (London) and Eurobank (Paris) have been approved as collateral account agents The collateral account agent will also be responsible for transmitting instructions from the lenders and reporting on account activity The offshore accounts will contain sub-accounts for debt service, debt service reserve and operating expenses and will be used to make all payments of principal, interest and fees due in connection with financing

### Eligible Goods and Services

To be eligible, the U S goods and services must be at least 50% U S content on a cost basis, shipped from the U S and can only be used for the rehabilitation or revitalization of the Russian oil and gas sector This includes the construction, development, upgrading or maintenance of existing production, transport, refining, processing or other facilities

The types of items to be financed may include (but are not limited to) the following categories of goods and services of U S origin or manufacture

### Goods

Downhole pumps, surface pumps, sucker rods, casing, production tubing, hangers, surface pipe, pipe coating, packers and isolators, screens, cement, completion fluids, valves, diverters, surface production equipment, gauges, meters, distributed control systems, process control systems and computers, separators and traps, manifolds, tanks, drill bits, drill pipe, blowout preventers, topdrives, modular production equipment, desulphurizing units, process units, flare stacks, process furnaces and vessels, initial catalyst charges, cabletray, pipe fittings, fabricated metal equipment, compressors and expanders, power units, environmental protection equipment and systems, laboratory testing equipment, safety and fire control equipment

### Services

Directional drilling services, drilling re-drilling and reworking services, well acidizing, casing and cementing services, chemical treatment services, well cleaning, tank cleaning, tank erection, tool fishing services, gas compressor leasing, hot oil treatments, hydraulic fracturing services, well logging, drilling mud services, perforating well casings, pipe testing, setting downhole equipment, swabbing wells, general well and lease operating services, general well surveys, field seismic delineations surveys, geological and reservoir engineering studies, general engineering and construction services, process licensing, environmental assessment services

### Role of U S Supplier

The U S supplier must first reach agreement with the Russian producer on the goods and services to be purchased. The supplier may also offer to assist the Russian producer in the preparation of material to be included in the Ex-Im Bank final commitment application.

An important part of that information from the supplier's point of view is the information about the U S purchases. This includes a list of equipment and services from the U S, prices, estimated disbursement schedule, estimated delivery schedule, and copies of the supply contracts.

The supplier may also assist the Russian producer in finding a commercial financial institution to act as the guaranteed lender and, if applicable, the cash payment lender.

### Pre-Export Financing

Small and medium-sized companies that require pre-export financing to produce goods and services that will be sold under the Framework Agreement may be eligible for Ex-Im Bank's **Working Capital Guarantee Program**. The program encourages commercial lenders to make loans to U S businesses for various export-related activities by covering 100% of the guaranteed loan's principal and interest. U S companies acting as sub-contractors to larger exporters that

have contractual agreements with a Russian producer, or selling directly, may be eligible for the program (Please refer to the Working Capital Guarantee Program Fact Sheet )

### Payment to Supplier

Once Ex-Im Bank approves an application from a Russian producer, the supplier arranges for the shipment of equipment or provision of services in accordance with its agreement with the Russian producer. The supplier will be paid under a letter of credit issued, advised, or confirmed by a bank acceptable to Ex-Im Bank. (In some cases, the Russian producer may pay the supplier directly then be reimbursed by the guaranteed lender.) The supplier must present the required documents (supplier's certificate, bill of lading, and invoices) for payment under the letter of credit. These are the standard disbursement procedures under Ex-Im Bank's programs. In some cases, the minimum 15% cash payment may be paid to the supplier out of a "cash payment account" funded by excess proceeds from assigned oil and gas agreements.

### CONTACTS

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Main Administration for Foreign Economic Relations

7 Kitaisky Proyezd, Moscow, Russia 103074

Phone 7-095-220-4215, Fax 7-095-975-2045

## Project Financing

In recent years countries around the world have stepped up efforts to privatize their economies. Export credit agencies are being challenged to evaluate new private sector entities without the benefit of traditional forms of security.

Eximbank has developed an approach to financing projects in this environment called "limited recourse project financing" or project financing. With this type of financing, Eximbank provides loans or guarantees for new projects (not expansions) and relies for repayment, wholly or in part, on the cash flow from the project. Project financing does not provide Eximbank with full recourse to a third party guarantor such as a government, bank or investor in the project. Eximbank limited recourse transactions should involve over \$50 million of U.S. content. They may be structured as BOT (Build Operate Transfer), BOOT (Build Own Operate Transfer), BOO (Build Own Operate), or derivatives of these. The approach excludes asset-based aircraft financing, and financing for an existing company. Eximbank seeks through project financing to assume or share risks to mobilize scarce capital that otherwise might not be available. Lowering project costs for the investors is not a primary goal, interest rate sensitivity is a lower priority issue.

Eximbank will consider project financing in any country where the Bank is not legislatively prohibited from doing business. General criteria for acceptance of project financing applications are listed in Annex A. Special criteria may apply in certain markets, depending on Eximbank's assessment of country risk. Applications are to be submitted by project sponsors and investors, not intermediaries, financial advisors or proposed guaranteed lenders, unless such entities have the written mandate of the project sponsors or investors. Eximbank's information requirements for project financing applications are listed in Annex B. Applicants must also complete the standard application form for Eximbank loans and guarantees.

An experienced Eximbank team consisting of a financial analyst, economist, attorney and engineer addresses the technical and financial feasibility of the project through procedures and analyses established by the Bank. Eximbank's application criteria are strict and Eximbank should not be expected to play a lead role in putting a project together, a task for the sponsors/investors. Premature applications should be avoided. At the same time, Eximbank should not be consulted too late in the process with an inflexible proposal.

Eximbank's diligent review of the information submitted should result in a project that is well-structured financially and technically and that will contribute to the economic growth of the host country.

### General Features of Project Financing

Applications to Eximbank should give a detailed description of the project and be accompanied by completed independent feasibility studies. The projects must involve commercially proven technology and highly competent, experienced contractors.

- c 85% Eximbank political risk only guarantee Eximbank can make a guarantee available to commercial lenders Eximbank could provide political risk only coverage pre-and post-completion, or no coverage pre-completion with political only coverage post-completion

(Note In b and c above, if a bank requires Exim's comprehensive guarantee during pre-completion Exim would require a counter-guarantee for commercial risks )

Repayment terms and grace periods are in accordance with OECD guidelines Eximbank's standard commitment fees apply Applicants should consult the country loan officer concerning commitment fees for split coverages pre- and post-completion, and exposure fees for project financing applications

Security arrangements, financial covenants, escrow accounts, dividend restrictions, take-or-pay/off-take arrangements and power purchase agreements are determined on a case-by-case basis

For more information on project financing contact

Office of Senior Vice President International Lending  
Export-Import Bank of the United States  
811 Vermont Avenue, N W  
Washington, D C 20571  
Telephone (202) 566-8187  
Facsimile (202) 566-7524

To discuss a specific transaction, contact the appropriate area division for the importing country

May 18 1993

**Project Financing  
Information Requirements**

- 1 A brief history of each project sponsor, including date organized, legal status, ownership, subsidiaries, and principal facilities
- 2 A description of each project sponsor's overall operations, with details of ownership and activities of related companies in the project country and related companies which are to do business with the project company
- 3 Independently audited financial statements and annual reports of each project sponsor for its latest three fiscal years
- 4 A description of each project sponsor's experience in similar projects, including location, capacity, construction period, cost, and profitability
- 5 A summary of the proposed project, including name, location, purpose, legal status, ownership, and elements essential to project development, such as agreements, licenses, local partners, and financing
- 6 A description of the host government's anticipated role in the project and progress achieved toward obtaining essential host government commitments
- 7 Qualifications of project construction contractors and operation managers
- 8 Details of Eximbank's proposed participation, including amount, terms, and security arrangements
- 9 A description of the principal risks and benefits of the project to sponsors, lenders, and host government
- 10 An independently prepared project feasibility study, with background information on experts employed, which analyzes the economic and financial viability, and the political and environmental acceptability of the project
- 11 If not included in the project feasibility study, the following information should be provided
  - A A technical description and a process flow diagram for each project facility
  - B A detailed estimate of operating costs

THIS GENERAL PROJECT INCENTIVE AGREEMENT (the "Agreement"), made and entered into this sixteenth day of December, 1993, by and between the Ministry of Finance of the Russian Federation (the "Ministry of Finance"), and The Central Bank of the Russian Federation (the "Central Bank"), acting jointly, and the Export-Import Bank of the United States ("Eximbank"), an agency of the Government of the United States of America

W I T N E S S E T H

WHEREAS, Eximbank is prepared to offer financial support for creditworthy project risk transactions in all sectors of the Russian economy, where such transactions involve the export of goods and services of U S manufacture or origin to purchasers within the Russian Federation,

WHEREAS, the Government of the Russian Federation (the "Russian Government") will not be asked to provide sovereign guarantees of repayment in connection with such transactions,

WHEREAS, it is the intention of the Ministry of Finance, the Central Bank and Eximbank that all actions will be taken to enable the parties to such project transactions to fulfill all of their obligations in connection with such transactions (including, without limitation, fulfillment of all obligations relating to loans made or guaranteed by Eximbank), and that no actions will be taken that could prevent such parties from fulfilling these obligations,

WHEREAS, the Ministry of Finance, the Central Bank and Eximbank desire to establish procedures to enable Eximbank to provide such financial support as simply and expeditiously as possible, and

WHEREAS, the execution and performance of this Agreement will facilitate exports and imports between the United States and the Russian Federation

NOW, THEREFORE, the parties hereto agree as follows

SECTION 1 DEFINITIONS

"Approvals" shall mean, with respect to each Project, all approvals, registrations, authorizations, consents, licenses, exemptions, waivers, permits, quotas, commitments and other approvals and agreements of any kind of the appropriate authorities within the Russian Federation (including the Russian Government and the republics, regions, territories and localities within the

Russian Federation), as may be necessary or appropriate in connection with the Loan, the construction of the Project, the proper operation of the Project throughout the term of the Loan and the fulfillment by any of the Project Parties of their obligations with respect to the Project or the Loan, including the establishment of Offshore Accounts and the granting and perfecting of security interests in the assets of the Project, if appropriate

"Borrower(s)" shall mean, with respect to each Project, the purchaser or purchasers within the Russian Federation of the U.S goods and services being financed by a Loan.

"Business Day" shall mean any day on which the Federal Reserve Bank of New York and the Central Bank and other appropriate banking authorities of the Russian Federation are not closed.

"Guarantor(s)" shall mean, with respect to each Project, any guarantor or guarantors of the Borrower's obligations under the Loan

"Loan" shall mean, with respect to each Project, the credit extended by the Lender or Eximbank to the Borrower(s) to finance the Borrowers' purchase of U S. goods and services for the Project

"Lender" shall mean, with respect to any Project, the lender or syndicate of lenders making the Loan (other than Eximbank) and receiving an Eximbank guarantee

"Offshore Account" shall mean an account opened by a Borrower in accordance with a license from the Central Bank with a financial institution located outside the Russian Federation into which proceeds may be deposited and accumulated for the purpose of making debt service payment to Eximbank or any Lender.

"Project" shall mean a project in the Russian Federation which is determined by Eximbank to be technically and commercially viable and to have projected cash flows from project operations in an amount sufficient for repayment of the Loan.

"Project Parties" shall mean, with respect to each Project, the Borrower(s), any Guarantor(s), and all other Russian entities having any involvement with or the ability to affect the construction or operation of the Project, or the assets or legal status of the Project or the Borrower(s), including (without limitation) entities responsible for the transportation or sale of products produced by the Borrower(s).

"Taxes" shall mean amounts to be paid by a Borrower (or by a Borrower on behalf of Eximbank or a Lender) under any applicable law of the Russian Federation or any subdivision thereof to any central, regional, territorial or local governmental authorities within the Russian Federation in connection with mandatory sales of hard currency, value added taxes, profits taxes, exports taxes and tariffs, customs duties, excise taxes, stamp taxes, repatriation

taxes and fees, royalties, business enterprise taxes, income taxes, withholding and any other taxes, fees, levies, assessments, imposts, duties or charges of any kind imposed on, arising in connection with, or otherwise relating to any Project or Loan or the transfer by Eximbank of any security interest, right, title, claim, privilege or cause of action which Eximbank may obtain as a lender (or may obtain through subrogation to the rights of a Lender) in connection with a Loan

## SECTION 2 SCOPE OF EXIMBANK COVERAGE

2 01 Available Programs. Eximbank shall make available guarantees and loans on a case-by-case basis to support only those Projects which fit within the overall priorities of the Russian Government, as confirmed by the Ministry of Finance in coordination with other appropriate Russian governmental authorities. Eximbank shall determine in its sole discretion which of its programs shall be available to support a particular Project and the conditions upon which any support shall be made, including an analysis of the general economic conditions in the Russian Federation and in the economic sector in which a Project is located.

2 02 Project Financing Structures (a) Eximbank and any Lender shall determine the appropriate financing structure for each Project on a case-by-case basis considering the amount and tenor of the financing, nature of Eximbank's support, the development and operational plans for the Project, the Borrower's and Guarantor's organization and asset base, the value and availability of security, the market (international and/or domestic) for the product to be produced by the Project and other credit factors.

(b) The structure determined to be appropriate for a Project may include requirements for guarantees by investors or other entities involved in the Project (including completion guarantees), Offshore Accounts, minimum equity amounts, reporting requirements, financial covenants, and a pledge over all the Project assets (the Offshore Accounts, product sales contracts (in hard currency and/or Rubles), capital assets (plant, equipment, etc ), Russian contracts (transportation, marketing and services), Russian bank accounts and other financial assets, Approvals, the owners' interests in the Borrower, insurance, rights with respect to land and all other tangible and intangible assets of the Borrower(s) located both outside and inside the Russian Federation). In connection with a Project, Eximbank will not require a guarantee of repayment from the Government of the Russian Federation, or any ministry or agency thereof, or any commercial financial institution.

(c) Any proposed financing for a Project shall also be subject to Eximbank's standard requirements, as may be in effect from time to time, including, without limitation, requirements as

to repayment terms, interest rates, U S content requirements and the payment of exposure and other fees

2.03 Procedures A general description of the operating procedures for approval of a Project is set forth in Annex A to this Agreement, which is made a part hereof. The provisions of this Agreement shall apply only with respect to Projects, confirmed by the Ministry of Finance in accordance with Section 2 01 above and the procedures set forth in Annex A

### SECTION 3 SCOPE OF CENTRAL BANK COVERAGE

3 01 Central Bank Approvals. The Central Bank commits to issue all Approvals necessary for the establishment and operation of Offshore Accounts for Projects, borrowing and repayment of the Loans, and the operation of the Projects, which Approvals shall be irrevocable and remain in full force and effect until the indebtedness under all Projects entered into hereunder is fully repaid.

3.02 Ruble Amounts With respect to any Ruble amounts acquired by Eximbank in connection with a Project, Eximbank shall be accorded all rights as to use, conversion and transfer as are available under the laws of the Russian Federation.

3 03 Transfer Risk In the event that due to a change in regulations, the Borrower(s) or Guarantor(s) for a Project is/are unable at any time to transfer U S Dollars freely out of the Russian Federation, or to obtain U S Dollars in a free and lawful market in the Russian Federation and to transfer freely the U S. Dollars thereby obtained out of the Russian Federation in order to fulfill its/their obligations to the Lender or Eximbank, to the extent permitted by the laws of the Russian Federation, the Central Bank agrees to designate a banking institution to accept deposits in U S. Dollars or Rubles in amounts corresponding to the amounts of such obligations and, together with the Ministry of Finance, take such other actions as may be necessary to enable the Borrower(s) or Guarantor(s) to fulfill such obligations

### SECTION 4 MINISTRY OF FINANCE AND CENTRAL BANK ASSURANCES

4 01 Approvals. The Ministry of Finance (in coordination with other appropriate governmental authorities within the Russian Federation) will assure that Projects which have been approved by Eximbank and confirmed by the Ministry of Finance, as described in Section 2.01 and Annex A hereof, will receive all Approvals prior to initial disbursement by Eximbank or any Lender As provided

under, and in accordance with, the laws of the Russian Federation, all such Approvals may be pledged as security for Loans and shall be transferrable to Eximbank and the Lender upon a default by a Borrower

4 02 Taxes and Regulation. Nothing shall prevent a Borrower from making all payments of principal, interest and fees on any Loans, and paying all Taxes. In addition, the Ministry of Finance confirms that under current law of the Russian Federation, neither Eximbank nor any Lender shall be subject to regulation under the laws of the Russian Federation, including those applicable to banking, insurance or financial organizations, as a result of its activities as a lender or guarantor in connection with a Project

4 03 Recognition of Rights As provided under, and in accordance with, the laws of the Russian Federation, the Ministry of Finance shall take all necessary steps to assure the recognition of the transfer to Eximbank of, and Eximbank's right to exercise or transfer, without interference, any security interest, right, title, claim, privilege or cause of action, which Eximbank may obtain as a lender (or may obtain through subrogation to the rights of a Lender) in connection with a Loan or with respect to any currency, credits, property or other assets (including Approvals) which Eximbank may obtain pursuant to the exercise of such right.

#### 4.04 Protection against Non-Commercial Risks

(a) To the extent permitted by the laws of the Russian Federation, neither the Ministry of Finance nor the Central Bank shall take, or allow to be taken, any action which could (or fail to take, or allow not to be taken, an action where such failure could) delay, prevent or otherwise interfere in any way with (i) a Borrower's legal existence, (ii) the construction, operation, assets or legal status of any of the Projects or any of the Project Parties, (iii) the fulfillment by any of the Project Parties of their obligations with respect to a Project or the financing thereof, (iv) the performance of the Central Bank of its obligations set forth herein, or (v) the operation of any financing or security arrangements established for a project.

(b) Such actions (or inactions) would include direct and indirect interference. Direct interference would include (without limitation) expropriation, confiscation of property, or reorganization or termination of a Project party. Indirect interference would include (without limitation) (i) changes in regulations or the imposition or levying of Taxes, or changes in rates of Taxes, or failure to extend a tax holiday, any of which effectively constitutes an expropriation or confiscation, (ii) changing or requiring additional Approvals (other than those which shall have been in effect at the time Eximbank shall have approved support for a Project) which effectively constitute an expropriation or confiscation, (iii) actions taken through or

against any party with authority over, an interest in or business relationship with a Borrower, including such Borrower's partners, directors or shareholders, which effectively constitute an expropriation or confiscation, and (iv) actions taken with respect to any arrangements of a Project party regarding the transport, export or sale of any products produced by a Project, which effectively constitute an expropriation or confiscation. In the event that any such action is taken, or there is a failure to take any such action, which, in either case, adversely affects the conditions under which any of the Project Parties is operating so as effectively to prevent, delay or otherwise interfere with the fulfillment by such Project Party of its obligations with respect to a Project, to the extent permitted by law of the Russian Federation, the Ministry of Finance and the Central Bank shall promptly take all actions necessary or advisable to enable such Project Party to meet its respective obligations. For purposes of this section, "expropriation or confiscation" shall mean the assumption of ownership of property, seizure of property or any other action depriving an owner of the use of its property

4 05 Comparable Treatment. To the extent permitted by the laws of the Russian Federation, the Ministry of Finance and the Central Bank agree that Eximbank and any Lenders shall be accorded treatment no less favorable than that accorded under the laws of the Russian Federation in like circumstances to nationals of any third countries, in their capacity as lenders with respect to project financing

4 06 Confirmations with respect to Borrowers. Upon request with respect to a Transaction, the Ministry of Finance (in coordination with other appropriate governmental authorities within the Russian Federation) shall provide confirmation that the Borrower is a duly organized and legally existing entity within the Russian Federation, with the power and authority to contract and legally bind itself and its assets, and to organize and carry out its respective business

4 07 Compliance with Russian Law. Prior to confirming any Project, the Ministry of Finance shall obtain assurances from the appropriate governmental authorities within the Russian Federation that the activities contemplated by this Agreement with respect to such Project shall be (1) in full compliance with all laws, decrees and regulations of the Russian Federation and any subdivision thereof and agreements to which such governmental authorities are a party, and (11) that all necessary Approvals have been or shall be provided

4 08 Facilitation of Project Financing. The Ministry of Finance (in coordination with other appropriate governmental authorities within the Russian Federation) shall use its best efforts to facilitate project financing in the Russian Federation

## SECTION 5 CONDITIONS PRECEDENT

5.01 Conditions to Effectiveness of this Agreement This Agreement shall become in full force and effect upon receipt by Eximbank, in form and substance satisfactory to it, of the following

(a) evidence of the authority of the person or persons who have signed this Agreement on behalf of the Ministry of Finance and the Central Bank,

(b) evidence that the provisions of this Agreement fall within the normal competence of the Ministry of Finance and the Central Bank or, to the extent necessary, are covered by a specific authorization from the Russian Government, and

(c) an opinion of the Ministry of Justice of the Russian Federation to the effect that (1) the provisions of this Agreement are fully consistent with all laws, ordinances, decrees, regulations and agreements of the Russian Federation and any subdivision thereof, and (11) all actions necessary to approve this Agreement have been taken by the proper authorities of the Russian Federation and are in full force and effect.

## SECTION 6 NON-ASSUMPTION OF COMMERCIAL RISK, NON-GUARANTEE

Nothing in this Agreement shall imply any assumption of commercial risks or a guarantee of repayment by the government of the Russian Federation, or any ministry or agency thereof, in connection with a Project.

## SECTION 7 MISCELLANEOUS

7.01 Dispute Resolution In the event (1) of any dispute between the parties to this Agreement over the implementation of this Agreement with respect to a Project, or (11) any action is taken with respect to a Project by any governmental authority within the Russian Federation which may be inconsistent with any provisions of the Agreement, the parties will negotiate in good faith to resolve such dispute (or the dispute will be resolved through such other mechanism to which the parties may agree), so as to maintain the original (or equivalent) conditions under which Eximbank agreed to provide support for such Project. Without limiting the generality of the foregoing, the Ministry of Finance agrees that in the event any such dispute involves any governmental authority within the Russian Federation other than the Ministry of Finance or the Central Bank, the Ministry of Finance will work with such other governmental authority and, if necessary, bring such dispute to the attention of other appropriate governmental authorities, in order to arrive at an appropriate resolution of such dispute to the extent permitted by applicable law of the

Russian Federation

7 02 Relationship to Other Financing Financing provided under this Agreement may be used in combination with financing provided under other arrangements made by commercial lenders, other export credit agencies and international financial institutions. The proportion of such financing shall be determined on a case-by-case basis for each Project.

7 03 Other Rights and Remedies. The rights and remedies set forth herein shall be in addition to (and not in lieu of) any other rights and remedies to which Eximbank may be entitled under the laws of the Russian Federation or any other jurisdiction.

7 04 Review and consultation The parties to this Agreement shall review the activities under this Agreement on a regular basis and shall consult with each other from time to time on increasing the level of Eximbank support for Projects and on the status of actions taken under Section 4 08 of this Agreement.

7 05 Termination This Agreement may be terminated by the Ministry of Finance and Central Bank, acting jointly, or Eximbank at any time upon written notice thereof being given to the other party or parties hereto as the case may be, provided that the termination of this Agreement shall not affect (a) any rights or obligations of any party arising from this Agreement and relating to any Loan approved by Eximbank prior to such termination date, or (b) the validity of any agreement entered into in connection with a Project prior to such termination date, and the provisions of this Agreement shall remain in force with respect to any Loan entered into in or approved by Eximbank until such Loan is fully repaid.

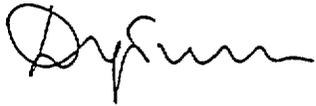
7.06 Language. This Agreement shall be executed in the English and Russian languages. In the event of any disagreement on the text of this Agreement, the English language version shall be controlling.

7 07 Notices. Notices to be issued pursuant to this Agreement shall be sent to the addresses set forth below the parties' signatures of this Agreement and shall be deemed effective upon receipt.

7 08 Amendment Upon agreement by all of the parties hereto, this Agreement may be modified or amended in writing at any time.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the day and year first above written

MINISTRY OF FINANCE  
OF THE RUSSIAN FEDERATION



By

Sergei K. Dubinin

Title First Deputy Minister

Address:  
9 Ilyinka Street  
Moscow 103097  
Russia  
Fax No. (7-095) 925-08-89

EXPORT-IMPORT BANK  
OF THE UNITED STATES



By

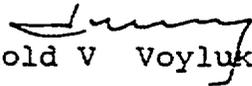
Thomas R. Pickering

Title: Ambassador of the  
United States to the  
Russian Federation

Address:  
811 Vermont Avenue, N W  
Washington, D C. 20571  
United States of America  
Fax No.: (202) 566-7524

THE CENTRAL BANK OF THE  
RUSSIAN FEDERATION

By



Arnold V Voylukov

Title First Deputy Chairman

Address  
12, Neglannaya Street  
Moscow 103016  
Russia  
Fax No . (7-095) 923-81-96

## ANNEX A

### PROCEDURES FOR APPROVING PROJECTS

1 Upon receipt of an application for a preliminary commitment (or, if no preliminary commitment was issued, a final commitment) for an Eximbank guarantee or loan for any project financing transaction in the Russian Federation, Eximbank will send to the Ministry of Finance directly a telex (in the form of Exhibit 1) stating the names of the applicants, the name and location of the Project, and the terms of the requested financing. The Ministry of Finance will then be requested to indicate promptly by fax or telex (in the form of Exhibit 2) whether it confirms (in coordination with other appropriate governmental authorities within the Russian Federation that the transaction is consistent with overall Russian governmental priorities. If the Ministry of Finance responds negatively to the request for its confirmation (or fails to respond within 90 days), Eximbank will notify the applicant and suggest that it may wish to contact the Ministry of Finance directly with respect to the proposed project financing transaction.

2 Eximbank will not consider an application for a preliminary (or final) commitment with respect to a project financing transaction in the Russian Federation until Eximbank receives said notice of confirmation from the Ministry of Finance. Such confirmation from the Ministry of Finance will constitute assurance to Eximbank and evidence that (i) all Approvals are in full force and effect with respect to the Project, (ii) the responsibilities undertaken by the Ministry of Finance and the Central Bank under this Agreement are in full force and effect; and (iii) both the Project and the use of the Offshore Accounts are otherwise in conformity with the laws of the Russian Government and any regional, territorial or local governmental authorities within the Russian Federation. Eximbank will also require, as a condition to initial disbursement under the financing for a Project, reconfirmation in writing from the Ministry of Finance that the facts set forth above in (i) through (iii) are true and correct as of the date of such disbursement.

3 Eximbank will review the application for a preliminary (or final) commitment after it has received the confirmation described in 1 and 2 above. If the application is approved in accordance with Eximbank's standard credit review procedures, then Eximbank will issue a preliminary (or final) commitment letter to the applicant, which will set forth the amount and type of financial support, repayment terms and the conditions under which Eximbank support will be available. The preliminary commitment letter will also set forth the period within which it is expected that an application for a final commitment will be submitted to Eximbank.

EXHIBIT 1 TO ANNEX A

MINISTRY OF FINANCE OF THE RUSSIAN FEDERATION  
ATTN

MOSCOW  
TELEX NO

COPY TO. AMERICAN EMBASSY  
ATTN:

MOSCOW  
TELEX NO.

SUBJECT. [APPLICANT]

EXIMBANK HAS BEEN APPROACHED BY [NAME OF APPLICANT] FOR A [PRELIMINARY/FINAL] COMMITMENT TO SUPPORT THE FINANCING OF [DESCRIPTION OF PROJECT] LOCATED IN [LOCATION].

THE TERMS OF THE REQUESTED FINANCING ARE AS FOLLOWS [DESCRIPTION OF FINANCING]

IN ACCORDANCE WITH THE PROCEDURES AGREED UPON IN THE GENERAL PROJECT INCENTIVE AGREEMENT EXECUTED \_\_\_\_\_, 1993 BETWEEN EXIMBANK, THE MINISTRY OF FINANCE AND THE CENTRAL BANK, PLEASE COORDINATE WITH OTHER APPROPRIATE GOVERNMENTAL AUTHORITIES WITHIN THE RUSSIAN FEDERATION AND CONFIRM BY RETURN FAX OR TELEX THAT THE ABOVE TRANSACTION IS CONSISTENT WITH OVERALL RUSSIAN GOVERNMENTAL PRIORITIES

REGARDS, \_\_\_\_\_, VICE PRESIDENT, EUROPE AND CANADA DIVISION, EXIMBANK

EXHIBIT 2 TO ANNEX A

EXPORT-IMPORT BANK OF THE UNITED STATES  
ATTN \_\_\_\_\_, VICE PRESIDENT, EUROPE AND CANADA  
DIVISION

WASHINGTON,  
[TELEX/FAX] NO

COPY TO: AMERICAN EMBASSY  
ATTN

MOSCOW,  
[TELEX/FAX] NO.

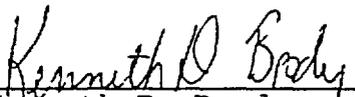
SUBJECT: [APPLICANT]

WE HAVE RECEIVED YOUR NOTICE TO THE MINISTRY OF FINANCE, DATED [DATE OF EXIMBANK TELEX], REGARDING THE APPLICATION OF [NAME OF APPLICANT] FOR A [PRELIMINARY/FINAL] COMMITMENT TO SUPPORT THE FINANCING OF [DESCRIPTION OF PROJECT] LOCATED IN [LOCATION]. IN ACCORDANCE WITH THE PROCEDURES AGREED UPON IN THE GENERAL PROJECT INCENTIVE AGREEMENT EXECUTED \_\_\_\_\_, 1993 BETWEEN EXIMBANK, THE MINISTRY OF FINANCE AND THE CENTRAL BANK, PLEASE BE ADVISED THAT WE HAVE COORDINATED WITH OTHER APPROPRIATE GOVERNMENTAL AUTHORITIES WITHIN THE RUSSIAN FEDERATION AND [HEREBY CONFIRM/ARE UNABLE TO CONFIRM] THAT SAID TRANSACTION IS CONSISTENT WITH OVERALL RUSSIAN GOVERNMENTAL PRIORITIES.

REGARDS, \_\_\_\_\_, \_\_\_\_\_, MINISTRY OF FINANCE  
OF THE RUSSIAN FEDERATION

DELEGATION OF AUTHORITY

I, Kenneth D Brody, President and Chairman of the Export-Import Bank of the United States, hereby delegate to the Honorable Thomas R Pickering, Ambassador of the United States to the Russian Federation, the authority to execute and deliver, by and on behalf of the Export-Import Bank of the United States, the General Project Incentive Agreement by and among the Ministry of Finance of the Russian Federation, the Central Bank of the Russian Federation and the Export-Import Bank of the United States, in the form (or substantially the form) delivered by the Export-Import Bank of the United States to the United States Embassy in Moscow on the date hereof

  
\_\_\_\_\_  
Kenneth D Brody  
President and Chairman  
Export-Import Bank of the  
United States

DATE DECEMBER 14, 1993

### **World Bank waives negative pledge**

In a move that could release funds for project finance deals, the World Bank has decided to grant Russia and Uzbekistan waivers on the its negative pledge clause, a condition of World Bank financing that had restricted funds from other institutions, notably the US Eximbank and EBRD. Bankers are more optimistic that some of the long-awaited oil and gas deals for Russia could materialise now that one more obstacle has been removed. Under the negative pledge clause, the World Bank has first call on state-owned assets in the event of countries facing difficulties in repaying their loans. This is a standard clause, which applies to all member countries of the World Bank.

While the East European countries automatically agreed to this clause when they joined the institution, problems arose when bankers and institutions tried to set up deals with Russia, whereby repayment would come from the future sales of oil and gas. As practically all Russian (and other East European) assets remain state-owned, the negative pledge clause covered virtually all the country's productive assets.

Russia and Uzbekistan are, so far, the only countries to request the waiver and World Bank officials said that similar exemptions would be considered on a case-by-case basis, when and if other East European countries made similar applications.

The negative pledge clause has been a stumbling block for the past year. The EBRD board of directors were concerned that approval of their loans to Russia, particularly in the oil sector where repayment was scheduled to derive from future oil sales, could contravene the World Bank's negative pledge clause. So far, EBRD has only financed joint venture agreements in the oil sector with privately owned joint venture companies, which fall outside the remit of the negative pledge clause. The loan to state-owned Gazprom is probably the only loan to a state-owned enterprise in Russia in this field, according to an EBRD official.

EBRD also has a similar clause in its constitution, based on that of the World Bank, which they have also agreed to waive on a case-by-case basis. They will now permit limited waivers for an initial period of three years. So far, EBRD has only granted such a waiver to Uzbekistan.

EBRD sees this move as a way to encourage project financing for a variety of projects, without having to rely on sovereign guarantees. The waivers will be favoured for projects that are expected to increase the overall resources of the East European countries, according to the bank.

The World Bank's directors granted waivers to Russia and Uzbekistan across the board, but subject to three criteria. Originally the bank demanded that the recipient countries had a macro-economic stabilisation programme in place. This requirement has been partially diluted and the Bank will now be satisfied if the country has "visible signs of progress towards stabilisation".

As World Bank official, Jan Pakulski conceded, the wording of this requirement allows room

for interpretation. But the World Bank directors decided that it would be too narrow to insist on the strict implementation of its rules if loans from other institutions were aimed at improving the economic base of the country.

The second condition of the waiver is that there must be a privatisation programme underway. And thirdly, 75% of the country's productive assets must be in state hands, although clearly a functioning privatisation programme would inevitably reduce this percentage.

The waiver only applies to those sectors where the World Bank considers the export earnings are likely to exceed the terms of the loan, notably in the oil and gas and mining industries. The waiver has been granted for two years and will be reviewed after one year, to see whether it should be extended beyond the second year of operation.

The new policy will also help other institutions, notably the US Eximbank, which in November 1992 was forced to defer a US\$2bn programme of loans and guarantees to the Russian energy sector. That loan has now gone through and will be paid for by sales of oil and gas to foreign purchasers. Under the programme, each transaction will be approved on a case-by-case basis. The US bank has stipulated that only projects expected to yield increased production of oil and gas and with a sales value about 50% higher than the Eximbank financing, will be funded under this programme.



## OVERSEAS PRIVATE INVESTMENT CORPORATION (OPIC) PROGRAMS in the NEW INDEPENDENT STATES

The Overseas Private Investment Corporation (OPIC) is a U.S. Government agency that provides project financing, investment insurance and a variety of investor services in 140 countries around the world. OPIC encourages American private investment in sound business projects overseas, thereby improving U.S. and host-country global competitiveness, creating American and host-country jobs and increasing U.S. exports. This publication describes OPIC programs and services available in the New Independent States (NIS).

OPIC assists eligible American investors investing in joint ventures or wholly-owned subsidiaries through three principal programs: (1) financing of investments through direct loans and loan guarantees, (2) insuring investments against a broad range of political risks; and (3) providing investor services including advisory services, investment missions and outreach. All of these programs are designed to reduce the perceived stumbling blocks and risks associated with overseas investment.

OPIC conducts its operations in line with standard principles of prudent business and risk management. The agency has recorded a positive net income for every year of operations, and has returned its initial start-up appropriation of \$106 million to the U.S. Treasury. All of OPIC's guaranty and insurance obligations are backed by the agency's own substantial reserves, which stood in excess of \$2 billion at the end of fiscal year 1993, and are further backed by the full faith and credit of the United States of America.

### PRIMARY PROGRAMS & SERVICES

#### Investment Finance

American investors planning to share significantly in the equity and management of an overseas venture can often use OPIC's finance programs for medium to long-term financing, available through loan guarantees and/or direct loans. OPIC's all-risk loan guarantees, issued to U.S. lending institutions on behalf of eligible U.S. investors, typically range from \$6 million to \$200 million. OPIC's direct loans, reserved for overseas investment projects involving small and medium-sized American companies, typically range from \$2 to \$10 million. OPIC will participate in up to 50 percent of the total project cost for a new venture, and up to 75 percent of the total cost of an expansion.

### *Eligibility Requirements*

In order to be considered for OPIC financing, the overseas venture must be either wholly-owned by a U S company or be a joint venture between a local partner and an American firm. The project's financing plan should reflect a sound debt-to-equity relationship, generally in a ratio of 60 percent debt to 40 percent equity. The U S investor should contribute at least 25 percent of the required equity investment in order to qualify for OPIC financing.

In addition, all projects must be commercially and financially sound. They must be within the demonstrated competencies of the proposed management, which must have a proven record of success in the same or closely related business field, as well as a significant continuing financial participation in the enterprise. OPIC also evaluates the following factors during review of any project: the contribution of the proposed project to the economic and social development of the host country, the project's effect on the environment, and its balance-of-payments and employment effects on the U S economy.

### *Loan Terms*

The terms of direct or guaranteed loans will typically provide for a final maturity of 5-15 years following a suitable grace period during which only interest is payable. The repayment schedule of such loans will reflect the purpose of the loan and the ability of the borrower to generate sufficient cash flows to meet interest and principal payments in hard currency and to provide for adequate returns to equity investors. Interest rates on OPIC loans will vary with OPIC's assessment of the financial and political risks involved. Interest rates on guaranteed loans are comparable to those of other U S Government securities of similar maturity and are subject to OPIC approval.

OPIC does not offer concessional terms usually associated with government-to-government lending, nor does it offer financing of export sales unrelated to long-term equity investments in overseas businesses by U.S. companies.

At the present time, OPIC has committed \$395 million in project financing to seven projects throughout the region.

### *Investment Insurance*

While private investors may have the capability to assess the commercial aspects of doing business overseas, they may be hesitant to undertake long-term investments abroad if they perceive the political situation to be uncertain, or if they are unfamiliar with conditions in various countries. To overcome this hesitation, OPIC insures U S investments against three political risks: political violence (war, revolution, insurrection and civil strife) affecting assets and/or business income, expropriation, and the inconvertibility of currency. In addition to insuring parent company equity and debt investments, OPIC also provides coverages for institutional loans, leases, covered property and technical assistance or management agreements, as well as for contractors' exposure in connection with bid and performance bonds, custom bonds, equipment, contractual disputes and other risks.

Coverage is available for new investments and for expansions and modernizations of existing operations. In order to be eligible for insurance, the American investor must submit an OPIC Registration Letter before the investment is irrevocably committed.

OPIC has underwritten 29 insurance contracts in the region, totaling approximately \$665 million.

## **INVESTOR SERVICES**

OPIC's Investor Services consists of two principal components: Investment Missions/Reverse Missions and Outreach. Each of these components is designed to assist U.S. businesses in successfully planning and implementing overseas investment projects.

### **Investment Missions/Reverse Missions**

OPIC conducts periodic investment missions to selected countries in which OPIC operates and organizes reverse missions held in the U.S. Investment missions are designed to introduce senior U.S. business executives to key business leaders, potential joint-venture partners and high-ranking government officials in the host country who can play an active role in bringing investment projects to fruition.

### **Outreach**

OPIC periodically sponsors or cosponsors seminars and conferences throughout the U.S. and overseas as a means of informing the U.S. business community of investment opportunities abroad. The objective is to increase the awareness among American companies of real opportunities for business expansion through overseas investment, as well as to inform potential investors of the OPIC services available to assist them.

## **OPIC INITIATIVES FOR THE NEW INDEPENDENT STATES**

As part of the U.S. Government's concerted effort to provide economic and humanitarian assistance to the people of the NIS, OPIC has initiated several programs for the region: the Project Development Program, the NIS Private Sector Initiative and the NIS Health Care Initiative.

### **Project Development Program**

Under this program, OPIC committed more than \$1.5 million toward commercial viability assessments of 15 projects throughout the NIS. Although the funds available for the Project Development Program have been depleted, information about the program follows to illustrate OPIC support of potential investment projects throughout the region.

The Project Development Program (PDP) assisted U S businesses in evaluating investment opportunities in the NIS. PDP provided eligible U S investors with up to \$150,000 or 50 percent (75 percent for small businesses) of the costs required to conduct preinvestment evaluations to determine the commercial viability of proposed investments, which may have included, but were not limited to, market-entry strategy assessments, business plan development, small-scale "pilot" project implementation, and feasibility studies.

Eligibility requirements for funding consideration included that the proposed projects be majority private sector-owned; appear likely not to have significant negative environmental impacts on the host country, be designed to result in developmentally sound investments in the host country; and not divert jobs from the U.S. In addition, it was required that the project sponsors

- Be U.S. citizens or majority U.S.-owned companies,
- Have relevant business and technical backgrounds,
- Intend to make a tangible equity investment in the project, should it prove to be commercially viable, and
- Be financially capable of undertaking both the sponsor's portion of the initial study and of the proposed investment.

#### **NIS Private Sector Initiative**

OPIC's Private Sector Initiative assists U S companies in locating and exploring private sector investment opportunities throughout the NIS by providing advisory services and organizing investment missions, reverse missions, conferences and seminars. Since the inception of the Private Sector Initiative, OPIC has organized and led investment missions to Moscow and St. Petersburg, Russia, Siberia, Russia, and Ukraine. OPIC has also hosted NIS representatives in the U S.

#### **NIS Health Sector Initiative**

As part of the U S Government's NIS Health Care Partnership Program, OPIC is expanding its existing preinvestment assistance programs to encourage American businesses to invest in the NIS health sector industry, particularly in the pharmaceutical and medical equipment and supplies manufacturing industries. The purpose of the initiative is to support the development of domestic health sector industries in NIS nations by stimulating the investment of American capital, new technologies and management expertise. OPIC leads specialized health sector industry investment missions and organizes regional conferences on NIS investment opportunities as part of this initiative, including a December 1992 conference in Washington, D C, regarding investment opportunities in Central Asia and the Caucasus. A health sector-focused mission to Kazakhstan, Kyrgyzstan and Uzbekistan was conducted in September 1993.

NIS government and enterprise representatives should encourage U.S. companies to contact OPIC directly to discuss potential assistance for prospective joint venture investments.

## **ADDITIONAL INFORMATION**

**Additional information regarding OPIC can be obtained by contacting:**

**Deborah Smith, Investor Services Officer  
Office of the New Independent States  
Department of Investment Development  
Overseas Private Investment Corporation  
1100 New York Avenue, NW  
Washington, DC 20527**

**Telephone. (202) 336-8618  
Fax (202) 408-5145**

**Note Since OPIC does not have an office within the NIS, you may also consider asking the  
Commercial Section of the American Embassy in the country to assist you in contacting OPIC**

**03/94**

*BEST AVAILABLE COPY*

**RUSSIAN PROJECT FINANCE BANK**

**РОССИЙСКИЙ БАНК**

**ПРОЕКТНОГО ФИНАНСИРОВАНИЯ**

13 MASHI PORYVAYEVOY STREET, ZONE "E"  
MOSCOW 107078 RUSSIA

TELEPHONE (095) 207-3765 FAX (095) 204 9201  
INTERNATIONAL TELEPHONE +(7 502) 221 1937 FAX +(7 502) 221 1546

## **INTRODUCTION**

The decline of Western banks' appetite for lending to Russia due to the existing debt crisis has shifted the approach of lenders away from traditional sovereign guarantees to cash flow oriented limited recourse and asset-based financing. Such financing will be provided primarily by multilateral organisations and export credit agencies.

Many potentially viable projects never get off the ground in Russia because they fail to meet the investment criteria of Western institutions. The successful creation of a bankable project therefore requires complex groundwork and creative structuring.

The Russian Project Finance Bank (RPFB) was established in 1992 to meet these financing requirements.

## **WESTERN APPROACH TO THE RUSSIAN MARKET**

RPFB's main objective is to formulate and implement investment grade financing schemes tailored to the specifications of Western institutions and Russian regulatory requirements. Backed by multilateral institutions, the Bank will be instrumental in stimulating successful investment in Russia despite the current debt crisis.

RPFB is unique in its commitment to the Russian market. It is the solitary Western-standard bank focusing its resources and expertise exclusively on Russian projects. The Bank's close co-operation with multilateral institutions, Russian government bodies, and Russian industry provide access to market intelligence often unobtainable by Western banks and companies.

The Bank aims to become a leading intermediary through which multilateral lenders and guarantors, including the European Bank for Reconstruction and Development (EBRD), World Bank, and export credit agencies, will channel their funds to projects in Russia.

## PRODUCT BASE

In the initial phase of operations, the Bank provides services in the following areas

*Project Financing*  
*Enterprise Restructuring*  
*Privatisation*  
*Military Conversion*

RPFB services cover the entire cycle of project development, including

- + Preparation of feasibility study and project appraisal in co-operation with technical consultants
- + Analysis of cash flow and sensitivities for the optimization of the financing structure and the design of the project
- + Creation of project financing scheme that fits with the legal and financial system in Russia as well as with the requirements set by international financing institutions and banks including the performance of due diligence
- + Arrangement of appropriate authorisations for off-shore escrow accounts
- + Advice on foreign exchange regulations as well as assistance in obtaining other necessary assurances, authorisations and approvals, including export quotas, from relevant agencies of the Russian Government
- + Negotiations with Russian Government agencies on aspects of legal and fiscal framework of the project
- + Preparation and presentation of information memoranda to investors, banks and financial institutions

## PROJECT SELECTION

The Bank will consider technologically and economically viable projects with the proven ability to generate sufficient cash flows for debt service. Ecological criteria are important for the project appraisal

## INDUSTRIAL SECTOR FOCUS

Although the Bank will review projects in all industrial sectors, certain priority areas have been identified on which to focus the Bank's resources in the formation of an initial pipeline of projects. These areas are

<i>Oil &amp; Gas Production and Pipelines</i>	<i>Forestry Products</i>
<i>Petrochemicals and Fertilisers</i>	<i>Energy</i>
<i>Minerals and Metals</i>	<i>Telecommunications</i>
<i>Shipping and Transportation</i>	<i>Pulp &amp; Paper</i>

## RUSSIAN PROJECT FINANCE BANK

### SHAREHOLDING

The EBRD has funded 51 percent of the Bank's initial capital of which 16 percent has been placed with an independent trustee for the benefit of designated management and employees

Shares amounting to 49 percent are held by major Russian commercial banks and foreign trade companies, including

<i>Rosselkhozbank</i>	<i>Gazexport</i>
<i>TOKObank</i>	<i>Joint-Stock Company Agrochimexport</i>
<i>Bank Vozrozhdenie</i>	<i>Joint-Stock Company Tvetmetexport</i>
<i>Bank Delovaya Rossiya</i>	<i>State Oil Company Nafta-Moscow</i>
<i>Bank Rodina</i>	<i>Joint-Stock Company Exportles</i>
<i>Morbank</i>	<i>International Commercial Administration</i>
<i>Nizhne-Amursky Bank</i>	<i>of Civil Aviation (Aeroflot)</i>

The Bank's initial share capital is US\$5.6 million. Additional capital of US\$100 million will be raised within two years, at which time the Bank will function as lender and equity investor.

### MANAGEMENT STRUCTURE

The Bank's unique management structure permits the quick and effective integration of Western banking techniques with the market know-how and abilities of a critical mass of experienced Russian bankers.

Russian professionals have worked extensively on projects with ECGD, U.S. Eximbank, Hermes, Mediocredito Centrale, Japanese Eximbank, and other export credit agencies.

Ten senior Western bankers and industry specialists serve as executive directors of the Bank and sit on the Executive Management Committee with the President and Russian directors.

The Western managers were chosen from a consortium of European banks and consultancies in an EC Commission tender, and from major American and Canadian institutions through their respective technical assistance programmes. The European management consortium comprises Internationale Nederlanden Bank (ING Bank), The Netherlands, Samuel Montagu, U.K., and Ernst & Young, U.K.

The Chairman of the Board of Directors of RPF is Mr. David Hexter, Head of Financial Institutions Group of the Merchant Banking Vice Presidency of the EBRD. The President and Chief Executive Officer is Mr. Sergey D. Konychev, who has extensive international banking experience at Vnesheconombank and Western banks.

## MANAGEMENT COMMITTEE

The management committee is the executive organ of RPFB and consists of the following persons

- Sergey D Konychev, President
- Cornelis Dinandt, First Executive Vice President
- Fred Strickland, Executive Director
- Ruscombe Westmacott, Executive Director
- Dieter Wurzel, Executive Director

## ADVISORY BOARD

The Advisory Board of Project Sponsors was formed to counsel the Board of Directors on matters of strategy and management, and will serve to maintain continuous dialogue between the Bank's major sponsors. The members are

*Commission of the European Communities*  
*The World Bank*  
*European Bank for Reconstruction and Development*  
*Know-How Fund of the United Kingdom*  
*U S Agency for International Development*  
*Central Bank of Russia*  
*Cabinet of Ministers of the Russian Federation, Section for Interaction with International Financial Organisations*  
*Russian Agency for International Co-operation and Development*

## TECHNICAL ASSISTANCE

The initial concept for RPFB was supported by the UK Know-How Fund, which assisted in the preparation of the feasibility study and business plan

In recognition of the Bank's importance for the development of Russia's financial infrastructure, the EC Commission has committed a major technical assistance budget to support the Bank's implementation

This has been supplemented by technical assistance programmes provided by the U S Agency for International Development and the Canadian Task Force on Central and Eastern Europe

The technical assistance programmes supply expatriate management, technology transfers, equipment and training for Russian personnel

## **BUSINESS PLAN**

The Bank's operations, which began in late 1992, are based on a phased implementation plan as proposed by the Vice Presidency of the EBRD

During the first phase the Bank's activities include identification, analysis and performance of due diligence on projects to be financed by the EBRD and other agencies, and advisory services to Russian enterprises and Western companies

In the second year of operation the Bank will begin direct lending as well as on-lending on behalf of multilateral agencies

The final phase in the third year will include an increased volume of lending, and the preparation and implementation of equity raising leading to RPFB's full capitalisation

Draft

Law of the Russian Federation

ON IMPROVING ENERGY EFFICIENCY

The Draft was Developed by  
the Center for Energy Efficiency  
(CENEf)

Moscow

January, 1993

This draft of the Law "On Energy Efficiency Improvement" of the Russian Federation was prepared by the **Center for Energy Efficiency** on the request of V Bushuyev, Chairman of the Committee for Energy and Resources Conservation and Renewables of the Ministry of Fuels and Energy of the Russian Federation within a month /December 20, 1992 - January 20, 1993/

In the work on this draft the following documents were used

- a draft of the law of the Russian Federation on energy conservation prepared by a group of specialists of the Scientific Research Institute for Complex Fuel and Energy Problems and other organizations on the order of the Committee for Energy and Resources Conservation,
- a draft of the law of the Russian Federation on energy conservation /the 2nd variant/ prepared by the staff of the Energy Institute named after Krzhizhanovsky,
- comments on the "Draft of the Law of the Russian Federation on Energy Conservation" prepared by the CENEf staff /copies were sent to the authors of the draft and to V Bushuyev/,
- laws of foreign countries on energy conservation /the USA, Denmark, etc /

The work on the draft of the Law of the Russian Federation was carried out under the guidance of

**Igor Bashmakov, Dr Sc /Economics/, Executive Director of the CENEf**

The following CENEf workers participated in the work on the draft

**Vladymir Zhuze, Dr Sc /Technics/  
Alexander Perevozchikov, Dr Sc /Physics and Mathematics/  
Svetlana Sorokina  
Alexander Tackush**

Also workers of other organizations took part in the work and discussions J Kogan, Dr Sc /Economics/, V Malafeyev, J Matrosov, S Pokrovsky, V Usiyevich

The paper was typed by **Oxana Ganzyuck.**

CENEf is grateful for their ideas and proposals on the draft development, but has exclusive responsibility for the final editorship of the draft

Hard time limits did not allow to hold a wide discussion of the draft

CENEf will be very grateful to anyone who will present his comments in the oral or written form on the Law draft

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Center for Energy Efficiency (CENEf)

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## Center for Energy Efficiency (CENEI)

This Law sets the legal norms for developing the federal energy efficiency improving policy, as well as the legal norms of developing institutional, economic and informational mechanisms for implementation of this policy and their operation

The priority of improving energy efficiency over increasing energy production must become an important guideline of economic policy of the Russian Federation and the key-point of the energy policy

During the last 20 years, the energy intensity of Russian national income has been increasing, especially over the last two years, while many developed countries have been successful in improving energy efficiency. At present, the energy intensity of national income of the Russian Federation is 2-3 times higher than that of highly developed industrial countries. For one unit of consumer goods and services produced in the Russian Federation, the outlay of energy is 3-4 times higher and the emissions of harmful substances are 6-10 times higher than those in highly developed countries.

Maintaining or especially increasing energy production detracts significant economic resources from achieving the purpose of well-being and improving ecological conditions of the population of the Russian Federation. Energy carrier price hikes combined with maintained energy intensity of the economy will lead to deepening of the economic recession and decline of competitiveness of the Russian products on external markets.

Implementation of a strong federal energy efficiency policy focusing on flexible combination of the state regulation and market mechanisms will

- reduce to a large degree national expenses for ensuring reliable energy supply, since energy efficiency projects are, on average, 5 times less capital intensive than energy production projects,
- set free significant investment resources and export profits which may be directed to improving the well-being of the population,
- reduce production costs and consumer expenses for energy carriers, and thus soften the financial crisis and the inflationary effect of energy carrier price hikes,
- increase the competitiveness of Russian products and services on external markets,
- prolong the period of utilization of non-renewable energy resources of the Russian Federation,
- significantly reduce the negative effect of the energy industry on the environment without additional expenses for supply enterprises, manufacturing and consuming energy with equipment for environmental pollution reduction,
- increase the export potential of the country without increasing fuels extraction,
- increase employment, since every ruble invested in energy efficient equipment creates 8 times more jobs than a ruble invested in energy production

The terms used in the text of the Law are defined as follows

**Energy efficiency** - ratio of useful products and services provided by the equipment or technology to the energy used by this equipment or technology, determined by special methods of measurement,

**Energy intensity** - value inverse to energy efficiency,

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**Energy efficiency measure** - any change in the equipment or technology which aims, first of all, at improving its efficiency,

**Energy** - electric power, heat and organic fuels,

**Energy consumption /utilization/** - the amount of energy directly consumed by the equipment or technology while operating, determined by special procedures,

**Expenses for energy efficiency measures** - expenses for designing and purchasing the necessary products and services for implementing energy efficiency improvements,

**Energy conservation** - a set of measures aimed at reducing energy intensity while manufacturing products and services using equipment or technological processes

**Cost-effective energy conservation potential** - the amount of energy which can be saved as a result of implementing a set of energy efficiency measures where the cost of the energy saved exceeds the expenses for their implementation

**The Federal Agency** - the Federal Energy Efficiency Agency of the Russian Federation

**The Regional Agency** - any energy efficiency Agency in republics, regions, districts, autonomous regions of the Russian Federation, and the cities of Moscow and St Petersburg,

**Energy supply company** - any legal person selling electric power, heat, natural gas to the final consumer

**Final energy consumer** - any legal person purchasing electric power, heat, or natural gas without the purpose of selling them

**Energy facility** - any institution for energy production, refinement, transportation, storage and distribution

**Energy audit** - identifying energy consumption characteristics which determine

- a) the energy efficiency of the inspected enterprises,
- b) measures for improving energy efficiency,
- c) the conformity of the products, services and technologies to the standards regulating energy efficiency,

**Preliminary energy inspection** - identifying efficiency of energy use at the inspected enterprise

**Federal building** - building or construction with a heating system, air conditioning or ventilation, which is an asset of the federal authorities

**A medical service building** - building or construction with a heating system, air conditioning or ventilation used by government medical institutions

**An educational building** - building or construction with a heating system, air conditioning or ventilation used by government educational institutions

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**Energy efficiency standard** - a requirement regulated by the standard of a product or technology which

- a) regulates the minimal level of energy efficiency determined by special procedures or
- b) regulates the maximum possible amount of energy consumption

**Covered product** - equipment or technology for which there are energy efficiency standards

## **Title I State Energy Conservation Management System**

### **Article 1 Federal Energy Efficiency Agency**

1 A complete set of measures on improving energy efficiency has become the top priority in the Russian national energy strategy. At present, however, responsibility for carrying out this strategy is shared by too many state enterprises

In order to establish a state management system for energy efficiency it is necessary to create a Federal Energy Efficiency Agency of the Russian Federation /FEEA/

2 The FEEA of the Russian Federation shall be created on the decision of the Supreme Soviet. The Federal Energy Efficiency Agency of the Russian Federation is one of the central bodies of the state management system of the Russian Federation and is subordinate to the President and the Government of the Russian Federation

3 The Proposal on the Federal Energy Efficiency Agency of the Russian Federation /FEEA/ shall be developed by the Government of the Russian Federation and ratified by the Supreme Soviet

4 The FEEA Director and his first deputy are appointed by the Head of the Government of the Russian Federation. The Director is responsible for the FEEA activities

5 The FEEA should perform the following functions

- develop state energy efficiency policy in all spheres of the economy by improving federal legislation and elaborating federal energy efficiency programs,
- prepare sections on improving energy efficiency in all state energy development programs of the Russian Federation,
- organize, fund and control of implementation federal energy efficiency programs,
- identify the cost-effective energy conservation potential and elaborate recommendations for its maximum utilization,
- develop and improve an institutional mechanism for implementing energy efficiency policy,
- developing and improving an economic mechanism to encourage implementation of energy efficiency programs and projects,
- coordinate efforts of federal, regional and local governments in developing and implementing energy efficiency policy,
- plan, organize and coordinate scientific-research and design activities on improve energy efficiency,

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- develop and improve the system of collecting objective information on the scale and structure of energy consumption, publish this information, develop a system of providing information according to the needs of implementation of the energy efficiency policy,
- promote business competition for meeting the energy demand between energy supply companies and organizations focusing on improving energy efficiency,
- involve independent experts, energy consumers and manufacturers, as well as the public in developing national energy efficiency policy and federal energy efficiency programs,
- involve private enterprises in realization of energy efficiency programs,
- develop in cooperation with the Federal Committee for Standards and Certification and the Federal Committee for Energy Inspection an energy efficiency document base and informational infrastructure for normative and technical documentation and data-bases distribution,
- develop and implement informational and educational programs on opportunities for and advantages of taking energy efficiency measures

### **Article 2 Funding of the Federal Agency Activities**

1 The Federal Agency of the Russian Federation and its funds are the property of the Russian Federation. The Federal Agency funds are not part of the budget or other funds, have a particular purpose and are not subject to seizure.

2 On the territory of the Russian Federation expenses for energy efficiency projects are paid from non-budget funds collected

- in the energy efficiency fund of the Federal Energy Efficiency Agency of the Russian Federation,
- in energy efficiency funds of Regional Energy Efficiency Agencies located in the republics, regions, districts, autonomous regions of the Russian Federation, and the cities of Moscow and St Petersburg

3 The non-budget funds are formed by

- money received through taxation for purchasing fuels and energy,
- voluntary contributions of legal and private persons,
- other contributions not contradicting the legislation

4 Money received through the federal tax for purchasing fuels and energy is directed to the non-budget energy efficiency fund of the Federal Energy Efficiency Agency

5 The non-budget funds of the FEEA are used for

- funding federal energy efficiency improvement programs in the way identified in these programs,
- partial compensation of the expenses of enterprises and organizations for carrying out energy efficiency improvement projects, scientific-research and design projects, creating prototypes and large-scale production, energy efficiency characteristics of which surpass federal standards and norms by more than 20 percent

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6 Partial compensation of the expenses of the enterprises can be made from the fund exclusively in the following ways

- up to 50 percent compensation of the main part of the loan taken by the enterprise from a financial institution for carrying out an energy efficiency project,
- preliminary payment to the financial institution of the loan interest /providing the payment does not exceed the loan itself/ if the loan was taken by the enterprise for the purpose of carrying out an energy efficiency project

7 Partial compensation of an enterprise's expenses is provided only on the condition that

- the expenses for an energy efficiency project are incurred after this Law had come into effect,
- the loan for implementation of an energy efficiency project was taken after this Law had come into effect,
- the enterprise has never before received any financial or tax privileges for this project,
- the financial institution which has provided the loan, agrees to give back the interest paid in advance by the energy efficiency fund for utilization of the loan, or a part of the loan, in case the enterprise does not follow its obligations,
- the enterprise provides a confirmation from the financial institution for using the loan with the particular purpose of carrying out an energy efficiency project,
- the enterprise which implements the project guarantees that the project will function not less than 1 year,
- the enterprise presents documents containing the results of an energy inspection of the enterprise or a standard of the enterprise for equipment or technology which are subject to modification in the course of an energy efficiency project implementation

8 Not less than 30 percent of the funds used for partial compensation of enterprises' expenses for carrying out energy efficiency projects should be directed to small business

9 Under the aegis of the FEEA there is the Consulting Counsel which unites representatives of the Fuel and Energy Department, Finance Department, Ecology and Natural Resources Department, Industry Department, Science, Higher Education and Technical Policy Department, Press and Information Department, as well as representatives of Regional Agencies, enterprises, scientific institutions and non-government organizations

10 The tasks of the Consulting Counsel include holding public seminars on drafts of federal and budgets and their ratification, and also ratification of the annual report of the Federal Agency to the Head of the Government

11 The FEEA annually presents to the Head of the Government of the Russian Federation a report of its activities which must include

- generalized characteristics of energy efficiency improvement achieved with the help of federal programs and projects financed by the non-budget Fund,
- the number and characteristics of programs and project participants which were financed by the non-budget Fund,
- financial report about use of funds throughout the year,
- recommendations on further improvement of the Fund's activities

The annual report of the Fund must be available to the public

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**Article 3 The Federal Energy Commission**

1 Under the aegis of the Supreme Soviet /or the Government/ there will be the Federal Energy Commission /FEC/

2 The FEC Chairman and members are appointed by the Supreme Soviet /or by the Head of the Government/ The Chairman exercises control over the everyday activities of the Commission and is responsible for the results

3 The FEC consists of 6 people and the Chairman The FEC members are nominated for 4 years and can only be relieved by the Supreme Soviet /or the Head of the Government/

A person who is receiving or has received any income from energy supply companies during the last two years cannot be appointed Chairman or a member of the Commission Nor can a person be appointed who has close relatives working for or profiting from energy supply companies For carrying out the everyday activities of the Commission, an administrative body is formed, the structure, personnel and estimate of operational expenses for which is ratified by the Supreme Soviet

4 The FEC activities are funded from the state budget

5 The functions of the FEC are to

- elaborate, improve and control observation of the rules of consumers connected to sources of electricity-, heat- and natural gas supplies,
- provide licenses for energy facilities construction which will presumably change the water balance of more than one region of the Russian Federation,
- provide licenses for construction of transmission grids which cross more than one region of the Russian Federation,
- provide licenses for natural gas and oil pipelines construction which cross more than one region of the Russian Federation,
- identify rates and payments for interregional delivery of electric power, heat and natural gas,
- determine the procedures and rules for providing licenses for energy facilities construction on the territories of regions,
- elaborate rules and recommendations for identifying rates and payments for energy, heat and natural gas consumption for the regional energy commissions including elaboration of the rates and payments system encouraging implementation of energy efficiency programs by energy supply companies,
- elaborate recommendations for the regional energy commissions on procedures of preparation, consideration and ratification of the regional energy supply companies' development plans if the state does not possess the controlling block of shares in these companies,
- elaborate obligatory procedures to include in development plans of regional energy supply companies in which the state possesses the controlling block of shares of both energy efficiency projects and energy facilities construction projects on an equal basis, criteria for projects selection which allow coverage of the additional energy needs with minimal expenses, economic methods for encouraging energy supply companies to invest into energy efficiency projects

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6 The FEC Chairman must organize public seminars and examinations by experts with participation of all interested parties before ratification of any normative documents or licenses developed or put out by the FEC

7 The FEC Chairman has a right to obtain all the necessary information from any authorities, as well as from any energy supply company free of charge Independent energy supply companies may provide free information only for two inquiries made by the FEC Chairman per calendar year

## **Title II Regional State Energy Efficiency Management Bodies**

### **Article 4 Regional Energy Efficiency Agencies**

1 There are Regional Energy Efficiency Agencies /REEA/ in the state management bodies of republics of the Russian Federation, regions, districts, autonomous regions, and the cities of Moscow and St Petersburg

2 The funds of REEA are not part of the budget or other funds, have a particular purpose and are not subject to seizure

3 The functions of Regional Energy Efficiency Agencies are to

- participate in elaboration and practical realization of regional sections of federal energy efficiency improvement programs,
- elaborate regional energy efficiency improvement policy in all spheres of the economy by improving regional legislation and elaborating regional programs,
- implement, fund and control implementation of regional energy efficiency programs,
- identify the cost-effective energy conservation potential in the region and elaborate recommendations for its maximum utilization,
- develop and improve an institutional mechanism for effective implementation of energy efficiency policy,
- develop within its jurisdiction and improve an economic mechanism to encourage programs and projects for improving energy efficiency in the region,
- coordinate efforts of the regional and local authorities in developing and pursuing energy efficiency policy,
- plan, organize and coordinate scientific-research and design activities on energy efficiency improvement,
- develop and improve a system of collecting objective information on energy consumption

### **Article 5 Funding the Regional Agency Activities**

The regional tax for fuels and energy purchasing is directed to the non-budget energy conservation fund of the Regional Agency

### **Article 6 Regional Energy Commissions**

1 In the Regional Energy Commissions /REC/, at least one representative of the Regional Agency must be included

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2 Regional Energy Commissions guided by the FEC recommendations identify the rates and payments for electric energy, heat and natural gas use Regional Energy Commissions have a right to make alterations in the FEC recommendations if the rates include the expenses of energy supply companies for energy efficiency improvement projects implementation, and possible losses caused by sale reduction are compensated

3 REC elaborate the necessary documents for presentation by energy supply companies of their development plans and the procedure of consideration and ratification of these plans on the base of methodical recommendations of FEC Within a year after this Law comes into effect any such plan must include a demand management program with a section on increasing energy efficiency by the consumers of an energy supply company Ways to meet energy demand on the territory served by the company by both demand management and energy efficiency improving on the one hand and energy facilities construction on the other, are necessarily followed by expense assessments obtained using methods developed by REC

4 In order to reflect the ecological share of expenses for increasing electricity production heat and natural gas supply, assessments of expenses for projects involving energy resource production, can be increased by 10-30 percent at the decision by REC for projects that increase energy efficiency

5 The main criterion for the final development plan of an energy supply company is minimal expenses for meeting the energy demand by both implementing demand management programs by consumers and energy resource production projects

6 The REC Chairman must hold an examination by experts and public seminars on energy supply company development plans with participation of all interested parties

7 REC does not provide licenses for energy facilities construction if it is not included into the energy supply company's development plan ratified by the REC

8 The REC Chairman has a right to promptly receive all necessary information from any regional authorities and energy supply companies free of charge Non-governmental energy supply companies should provide free information for only two inquiries from the REC Chairman per calendar year

**Title III Federal Energy Efficiency Programs.**

**Article 7 General Principles of Development, Ratification and Implementation of Federal Programs for Energy Efficiency Improvement.**

1 Basic cooperation among the Federal Agency and Regional Agencies is implemented in the process of developing, implementing and monitoring federal energy efficiency programs

2 Federal programs can be initiated by the Supreme Soviet, the Federal Government and regional authorities

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3 The Federal Agency develops methods for elaborating regional sections of programs, conducting energy inspections, financial analysis of programs included in the project, criteria for selection these projects, procedures of consideration and ratification of regional sections of these programs, and conditions for funding

4 Each regional section of the federal program is financed in the proportions agreed upon before from the funds of the Federal Agency and the Regional Agency which has prepared the plan. The share of the Federal Agency should be not less than 50 and not more than 80 percent

5 The Federal Agency provides assistance to the Regional Agency in preparing projects for regional sections of the program, developing normative and legal documentation necessary for the federal program implementation, and annual reports on the status of the federal program

6 The Federal Agency can provide subsidies to the Regional Agency for training and certification of the physical persons making energy inspections in an amount which does not exceed 5 percent of the amount of federal funding of the regional section of the program

7 The FEC Director shall not consider an application for funding the regional section of a program if it lacks

- the necessary information identified in the methodological recommendations for elaborating the regional section of the program,
- assent to follow the methodological recommendations elaborated by the Federal Agency on implementing the program and requirements for bookkeeping,
- an inventory of organizations to be involved in realizing the regional section of the federal program,
- assessment of the expected cost efficiency of the utilization of the funds provided by the Federal Agency

8 The Regional Agency must keep separate registration of the funds received from the Federal Agency for implementing regional sections of federal programs and making the records available to representatives of the Federal Agency

9 The Federal Agency can not directly implement projects on federal programs in the regions which it has financed for implementation of the regional sections of federal programs. It only has such a right in case the regional authorities refuse to participate in the federal program

10 The Regional Agency provides annual reports to the Federal Agency Director on the results of implementation of the regional section of the federal program in a format determined by the Federal Agency

11 The Federal Agency Director provides annual reports to the Supreme Soviet and the Head of the Government on the status of implementation of the federal program in the format determined by them

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**Article 8      The Federal Energy Efficiency Improving Program in Educational and Medical Institutions.**

1 The Supreme Soviet considers that

- educational and medical institutions are large energy consumers,
- expense growth for supplying them with energy is a great burden on federal and regional budgets, limiting possibilities for funding main activities,
- there is significant energy efficiency potential in educational and medical institutions,
- in order to realize this potential it is necessary for the state to provide financial assistance

2 The aim of this section of the Law is to identify the procedures for elaboration, consideration, and implementation of Federal energy efficiency programs in educational and medical institutions through cooperation of the Federal and Regional Energy Efficiency Agencies

3 Within 180 days after its formation, the Federal Agency must develop and present to the Consulting Counsel methods of elaborating regional sections of this Program which must include factors to be considered while identifying project priorities, criteria for selection of medical and educational institutions, description of typical energy efficiency improving measures, criteria for selection of institutions to be involved in implementation of the projects, and methods of energy inspections

The presented methods should be ratified by the Consulting Counsel, after which they should be sent to the regional authorities which are to develop the regional sections of the Program

4 Within 90 days after receiving the methods of elaborating the regional sections of the Program, the Head of the regional authorities should present a draft of the regional section of the Program to the Federal Agency Director which must include

- a) the results of the preliminary energy spot check in accordance with the methods developed by the Federal Agency which identified the energy efficiency potential,
- b) recommendations for energy efficiency improving project types with an assessment of implementation expenses,
- c) a program for providing educational and medical institutions with devices for energy consumption control and regulation,
- d) a list of organizations to be involved in implementation of the projects,
- e) guarantees for selection on an equal basis of projects to be included in the regional section of the Program,
- f) identification of funds for the regional programs to be directed from the Federal Agency funds,
- g) guarantees for the projects' implementation and effective utilization of federal funds

5 The Federal Agency must get each regional section of the Program undergo an examination by independent experts within 60 days after its presentation. If it meets the requirements of Article 4, it is ratified. If not, within 90 days, the Head of the regional authorities should present a new version of the regional section of the Program

6 Applications for funding the regional sections of the Program can be made once a year. They should be followed by an information inventory, identified by the Federal Agency in

## Center for Energy Efficiency (CENEf)

"Methods " To each application the follow-up of an examination by independent experts and public seminars on the regional section of the Program held by regional Agencies should be attached

7 No region can get more than 10 percent of the whole amount of the funds provided by the Federal Agency for financing this program The share of the federal funds in financing the regional section of the Program must not exceed 60 percent of the whole amount of its financing When distributing the Federal Agency funds among the regions, 80 percent is distributed depending on the number of the population and climate, 10 percent depending on the supply of energy carrier in the region and prices for it, and 10 percent depending on the regional budgets

8 Financing of the regional section of the Program through the federal funds is terminated if the Federal Agency finds out that utilization of the funds does not correspond to the purposes and tasks identified in the application for the Program financing If any violation appears, the Federal Agency Director shall inform the Head of the Regional Agency of the possibility for ceasing funds and then holds seminars to single out reasons for violations When it is done, funding is terminated and may only begin again after the violations are eliminated

9 Each recipient of funds of this Program should keep separate expenditure cost accounting, present annual reports on implementation of the Program projects and make the ledgers and financial documents available in accordance with the rules worked out by the Federal Agency

10 The Federal Agency Director shall annually present to the Supreme Soviet and the Government a report which must include

- an assessment of the energy saved due to the Program,
- an assessment of the estimated energy savings in the course of further implementation of the Program,
- an assessment of the Program's cost effectiveness,
- guidelines for Program improvement

### **Article 9 Federal Program "Top Ten Industrial Projects"**

1 The Supreme Soviet has stated that

- energy efficiency in Russian industry is much lower than that in developed industrial countries in the West,
- energy inefficiency along with price hikes for energy deepens the economic crisis and limits competitiveness of Russian goods on the world markets,
- there is a significant energy efficiency potential in Russian industrial sector,
- practical realization of a significant part of this potential is possible with minimal expenses,
- demonstrating possibilities, economic, social, ecological and other advantages of energy efficiency improving requires federal support

2 The objectives of the "Top Ten Industrial Projects" are

- to demonstrate that energy efficiency measures can result in significant economic, social and ecological benefits in a short time period with minimal expenses to consumers,

Law of the Russian Federation "On Improving Energy Efficiency"

- to prove in practice that energy efficiency improving is much cheaper than capacity expansion,
- to attract the attention of regional decision-makers and industry, as well as public attention to the favorable economic, ecological and social consequences of energy efficiency improving, and
- to encourage industrial enterprises to implement energy efficiency projects

3 Within 180 days after this Law comes into effect, the Federal Agency should develop and present for ratification by the Consulting Counsel methodological recommendations on elaborating regional sections of this Program These recommendations shall identify

- the procedure of informing industrial enterprises of the competition for obtaining for the ten most energy efficient projects,
- the procedure of presenting applications for participation in the competition,
- criteria for selecting representatives of the jury of the competition,
- methods of financial analysis of the projects,
- criteria for selecting projects for funding,
- conditions of the projects funding,
- conditions of using information on the outcome of the implemented projects for informational and educational programs

4 Within 30 days after the ratification of the methodological recommendations by the Consulting Counsel, Regional Agencies should organize a competition of industrial projects Within 90 days after the competition begins, the competition jury starts working, considers the presented projects and chooses the top ten projects

5 The Regional Agency presents an application to the Federal Agency for funding the regional section of the program based on results of the competition jury work A report on the decision of the jury shall be enclosed with this application

6 The Federal Agency can refuse an application if the economic effectiveness of the projects for funding is considerably lower than that in most other regions If the application is refused /with a suitable explanation/ the region has a right to hold another competition on its own account

7 The share of the federal funds in financing the selected projects must be 50 percent, the share of the Regional Agency - 20 percent and the share of the enterprise which has initiated the project - 25 percent

8 For funding of a particular project, not more than 20 percent of the funds provided by the Federal Agency for financing federal programs and not more than 20 percent of the yearly budget of the Regional Agency can be granted No region can get more than 10 percent of the funds provided by the Federal Agency for funding this program

9 Funding of any regional section of the program is terminated if the Federal Agency finds out that utilization of the funds does not correspond to the purposes and provisions identified in the Program funding application If any violations are found the Director of the Federal Agency informs the Head of the Regional Agency of the possibility of ceasing funding, holds seminars to find out the reasons for the violations and identifies the means of their elimination After it is done, the funding is cut and can only begin again when all violations have been eliminated

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10 Each recipient of federal funding for a particular program shall keep separate accounting of the expenditures and make the ledgers and financial documents available in accordance with the rules determined by the Federal Agency

11 The Regional Agency annually presents to the Federal Agency a report on the results of the Program's implementation in the form which it determines

12 The Federal Agency Director annually presents to the Supreme Soviet and the Government a report which shall include an assessment of the energy saved in the course of the Program, an assessment of the cost efficiency of the implemented projects, a list of announcements in the central and regional mass media (including those on TV and radio) containing the experience of the projects, a list of educational programs and seminars which used the information obtained in the course of the project, the guidelines of improving the program "Ten Top Industrial Projects"

### **Article 10 The Federal Buildings Energy Efficiency Program**

1 The Supreme Soviet has stated that

- the federal government is one of the biggest energy consumers,
- federal buildings energy supply expenses are quite large and continue to increase,
- there are good opportunities for revealing energy efficiency potential in these buildings at minimal expense,
- energy efficiency improving in these buildings will have a good effect on the federal budget due to federal government maintenance expenses reduction and will allow demonstration of the advantages of energy efficiency in Russia

2 The purpose of this section of the Law is to define the preparation procedures and mechanisms of implementing energy efficiency improving Program in buildings belonging to the Federal Government

3 All the departments of the federal government are required to reduce energy consumption by not less than 15 percent per square metre in these buildings in 1993-2000

4 Within 90 days after this Law comes into effect, the Federal Agency determines the methods for developing energy efficiency improving programs by separate departments for their buildings

5 The head of each department shall, within 6 months after this Law comes into effect, develop and present to the Federal Agency a program for realization of this goal This program shall include

- holding energy inspections in federal buildings,
- identifying a list of basic measures for realizing of this mandate at minimal expenses,
- identifying a list of organizations to be involved in energy efficiency programs in the buildings belonging to the federal government,
- identifying the schedule for supplying federal buildings with energy consumption control and regulation devices and the time for complete transition to payments for heating based on heat meters indications,
- application for funding the program from the Federal Agency funds

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6 For providing consulting assistance in implementing this program, the Federal Agency organizes a working group. The working group provides methodological recommendations for elaborating the departmental sections of the program and for carrying out energy inspections and giving conclusions for the projects presented by the federal departments and for reports on implementation of these programs.

7 Within 30 days after the federal department presents an energy efficiency program for the buildings in its possession, the Federal Agency must give a decision on it. If the decision is positive, funding of this program may begin. If the decision is negative, within 60 days after receiving it, the head of the Federal department must present a refined version of the program to the Federal Agency.

8 The amount of money directed to the federal buildings energy efficiency improving Program cannot exceed 10 percent of the funds directed by the Federal Agency to financing the federal programs. No Federal department can get more than 10 percent of the funds directed by the Federal Agency for a particular program.

9 Savings of the budget funds provided to a federal department in a financial year that are equal to the cost of the energy saved due to realization of this Program remain in possession of this department and is distributed in the following proportions: 60 percent for financing main activities, 10 percent for providing economic bonus to the staff of the department which has participated in realization of the Program, and 30 percent for funding additional energy efficiency projects in the buildings belonging to the department.

10 Federal departments annually present reports in written form to the Federal Agency on the results achieved in the course of the Program. This report should contain an assessment of the energy saved with the help of the energy efficiency Program, an assessment of the degree of achieving the Program target, an assessment of the effectiveness of the funds directed to the Program, and guidelines for Program improvement.

11 The Federal Agency Director annually presents a report on the status of Program implementation to the Supreme Soviet and the Head of the Government. The report should reflect the degree to which the Program target was achieved, a comparison of the expenses for energy efficiency projects implementation in different departments, and analysis of and proposals on guidelines for improving the programs and improving methods of elaborating the programs and ways of implementation.

**Article 11 The Federal Program for Improving Energy Efficiency in Transport.**

Within a year after this Law comes into effect, the Federal Agency, in cooperation with other interested departments, must develop and present to the Government of the Russian Federation a Federal program for improving energy efficiency in transport.

**Article 12 The Federal Program for Recycled Resources and Waste of Energy Intensive Production Utilization Improving**

Within a year after this Law comes into effect, the Ministry of Industry, in cooperation with the Federal Agency, must develop and present to the Government of the Russian Federation a Federal Program on improving recycled resources utilization.

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**Article 13 The Federal Program for Scientific Research and Design Activities on Energy Efficiency**

Within a year after this Law comes into effect, the Federal Agency, in cooperation with other interested departments, shall develop and present to the Government of the Russian Federation the Federal program for scientific, research and design activities on energy efficiency. The Program shall be developed for the three coming years and consist of the task for the nearest year and prognosis for the two years-to-follow.

**Title IV Energy Efficiency Standards and Certification**

**Article 14 Energy Efficiency Standards System**

1 The Supreme Soviet considers that one of the most promising guidelines for energy efficiency is standardization and certification of energy indexes of equipment and technologies to bring them into line with state requirements for energy efficiency.

2 The goal for energy efficiency standardization and certification is to improve the organizational, methodological, normative and technical base, as well as organizational, normative and technical infrastructure for energy efficiency standardization.

3 The energy efficiency standardization system is a part of the Federal Standardization System of the Russian Federation. The Standardization System includes the federal, departmental, republic and regional standards, and construction norms and rules ratified by the Federal Committee for Standards and Certification and the Federal Committee for Construction of the Russian Federation, as well as the standards of enterprises, standards of scientific, technical and engineering entities, which are directly or indirectly connected with energy consumption and energy efficiency.

Energy efficiency standards and normative documents set norms, rules, propositions, requirements, a mandatory certification system while designing, manufacturing, constructing, reconstructing and expanding, and technical retrofitting energy consuming equipment and technologies.

Energy efficiency certification is carried out with the purpose of bringing energy indexes of the equipment into line with regulation requirements identified in the standards and normative documents.

The certification system ratified by the Federal Committee for Standards and Certification and the Federal Committee for Construction of the Russian Federation identifies the rules for the testing procedure necessary to carry out estimation of the conformity of the energy consuming equipment and technologies indexes to the norms. This results in the release of a document /energy certificate, license/ on registering and future compliance.

4 The objects of energy efficiency standardization are indexes of energy consumption by equipment, transport and technologies, heating, cooling, air conditioning and ventilation, appliances, as well as insulation indexes of buildings and constructions and heat pipings, and methods of controlling these norms.

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5 Funding of energy efficiency standardization on application of the Federal Agency is carried out from the funds of the Federal Agency, if there are no other sources pointed out in the application

**Article 15 Standards Development Procedure**

1 The Federal Agency Director must annually present to the Chairman of the Federal Committee for Standards and Certification of the Russian Federation and the Chairman of the Federal Committee for Construction of the Russian Federation an application for inclusion in the federal standardization plan, containing

- an inventory of the equipment for which state energy efficiency standards should be developed,
- an inventory of the equipment for which the present federal standards regulating energy efficiency requirements should be modified,
- an inventory of technologies for which federal standards regulating energy efficiency requirements should be developed,
- an inventory of technologies for which the present federal standards regulating energy efficiency requirements should be modified,
- an inventory of organizational and methodological state standards projects including improvement of energy efficiency terminology, methods of testing and calculating indexes characterizing energy efficiency, ways of including energy efficiency indexes into the expected, operational, and repair documentation, proposals on normative documentation classification, requirements for the composition and contents of the normative documentation

2 These inventories should be followed by grounds for developing state standards including grounds for scheduling and conditions of their implementation, as well as grounds for the expected energy saving and economic effects of their implementation

Each inventory should be followed by a project of corresponding standards, prepared at the initiative of the Federal Agency, as well as protocols of the examination by experts and seminars held by the Federal Agency on these inventories and standards projects

The present normative documents on technologies, insulation of buildings, constructions, equipment, heat pipings are subject to revision within 3 years after this Law comes into effect in the direction of increasing the level of insulation and heating, ventilation and cooling efficiency, first of all, by implementation of an energy concept according to which insulation and energy characteristics of an object as a unique energy system are standardized

3 Within 90 days before presenting the inventories to the Federal Committee for Standards and Certification and the Federal Committee for Construction of the Russian Federation, the Federal Agency Director must provide an opportunity to all interested parties to get acquainted with these inventories and projects of the corresponding state standards, suggested methods of calculating and carrying out tests, ways of reflecting energy efficiency indexes in the expected, operational and repair documentation, means of labelling, and present comments on the standardization projects in written form

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4 45 days before presenting the inventories to the Federal Committee for Standards and Certification and the Federal Committee for Construction of the Russian Federation, the Federal Agency Director must organize public seminars and provide an opportunity for participation in them to all interested parties

5 The Federal Committee for Standards and Certification and the Federal Committee for Construction of the Russian Federation develops and ratifies the normative documentation regulating

- the nomenclatura and levels of energy efficiency indexes,
- norms, rules, propositions and requirements for calculating energy efficiency indexes,
- normative, technical and measure base of the energy indexes control and methods of carrying out tests for stating the conformity of the equipment or technology characteristics to the normative energy requirements,
- requirements for the organization, order, rules, procedures and methods of the informational service and providing normative documentation on the standards regulating energy efficiency ,
- rules of reflecting energy efficiency indexes in the expected, operational and repair documentation,
- rules of reflecting in the requirements regulated in the standards in products labelling

6 Federal standards regulating energy efficiency ratified by the Federal Committee for Standards and Certification and the Federal Committee for Construction of the Russian Federation are obligatory for all kinds of covered products and technologies manufactured or used on the territory of the Russian Federation including those obtained through import

7 Standards and norms adopted in departmental and regional normative and technical documents can be obligatory or voluntary In any case, they must not contradict the federal standards

### **Article 16 Federal Control of Compliance with Standards**

1 Federal control compliance with the energy efficiency normatives identified in state standards is given to the Federal Committee for Standards and Certification, the Federal Committee for Construction, and the Federal Committee for Energy Inspection In order to carry out this function, the Federal Committee for Standards and Certification and the Federal Committee for Construction undertake certification of test centers A test center can receive a certificate for testing products and technologies for conformity to the state energy efficiency standards if

- it has the normative and technical base necessary for carrying out tests,
- it obliges to carry out tests strictly in accordance with organizational and methodological standards,
- it obliges in written form to provide representatives of the Federal Committee for Standards and Certification, Federal Committee for Energy Inspection, Federal Agency and a Regional Agency a possibility to participate in the tests /in the region in which the center is located/ on their first application,
- it obliges in written form to make tests for conformity of the equipment or technologies to the standards identified by the Federal Committee for Standards and Certification, Federal Committee for Energy Inspection, Federal Agency or Regional Agency within 30 days,

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- the Regional Agency has held public seminars on providing the center with a test certificate and the follow-up of the seminars has been presented to the Federal Committee for Standards and Certification

2 A Regional Agency, regional branches of the Federal Committee for Standards and Certification, and the Federal Committee for Energy Inspection have a right to test any product or technology for which there are federal energy efficiency standards for conformity of their indexes to the norms identified by the standards

3 The Federal Committee for Standards and Certification must regularly test for conformity the products for which there are federal standards regulating energy efficiency, including those made at the request of the consumers

4 No body has a right to make tests of one and the same type and size of the manufactured, repaired or sold by one and the same legal person more often than twice in a calendar year

### **Article 17 Energy Efficiency Standards of Enterprises**

1 With the purpose of encouraging energy efficiency improvement, there are requirements regulating energy efficiency in the standards of enterprises

2 The Federal Agency, in cooperation with the Federal Committee for Standards and Certification, must issue methodological recommendations for developing energy efficiency requirements in the standards of enterprises within 180 days after this Law comes into effect. These methods should be sent to all Regional Agencies. These methods must become an obligatory amendment to any set of documents sent to enterprises and organizations to involve them into federal and regional energy efficiency programs

3 An enterprise must use these methods while preparing proposals on a standard of the enterprise regulating energy efficiency. This proposal is coordinated with the Regional Agency and the regional branch of the Federal Committee for Energy Inspection and is registered in the regional branch of the Federal Committee for Standards and Certification

4 The standard of an enterprise regulating energy efficiency is valid for three years, after which it is subject to revision. Energy efficiency requirements identified in the standards of enterprises are a basis for an assessment of the effectiveness of the measures on improving energy efficiency

### **Article 18 Energy Efficiency Indexes Certification**

1 Each product or construction object subject to federal standards and normative documents must have a certificate of conformity proving correspondence of energy consumption indexes to the norms and standards, taking into consideration the regions of operation and other factors effecting energy consumption. The nomenclature of products and construction objects which are subject to obligatory certification is stated in the standards

2 On the federal level, energy consumption certification is regulated by the legislation, controlled by the Federal Agency, and carried out by regional Agencies

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3 The Regional Agency organizes testing of construction models or objects by certification centers, estimates and confirms correspondence to the standards and normative documents, and issues a certificate of conformity or a license for manufacture of a product. If a product or a construction object does not correspond to the standards, no license may be issued.

4 Certification of the equipment or technologies for which there are voluntary standards is carried out on a voluntary basis. These certificates may be used in advertising manufactured products or obtaining obligatory licenses for production of new equipment, implementation of new technologies, manufacturing of new products or economic privileges from management bodies /ministries, local authorities/

### **Title V Economic Mechanisms for Encouraging Energy Efficiency**

#### **Article 19 Federal and Territorial Taxes for Purchasing Fuels and Energy**

1 With the purpose of encouraging energy efficiency, there are federal and territorial taxes for purchasing fuels and energy which are paid by enterprises, organizations and institutions regardless of property type, departmental possession and organizational and legal forms, as well as private persons purchasing fuels and energy. The tax is identified in percentage of the fuels and energy price.

federal tax	-	0 3
territorial tax	-	0 7

2 The exact amount of the taxes is identified by the Government of the Russian Federation and the governments /authorities/ of the republics, regions, districts, autonomous districts of the Russian Federation, and the cities of Moscow and St Petersburg.

3 The tax is included in the retail price of fuels and energy and is separately recorded by energy supply companies.

4 Enterprises and organizations exporting fuels and energy from the Russian Federation must make deductions from the hard currency received for selling fuels and energy to the non-budget fund of the Federal Agency in the amount stated by the Government of the Russian Federation according to the tax rates for selling fuels and energy.

5 Every three months energy supply companies must transfer the money received from taxes for purchasing fuels and energy from the consumers in the region to the non-budget funds of the Federal and Regional Agencies.

6 The money got from taxes for purchasing fuels and energy are only to be used for goals identified in Article 2.

7 The Federal Taxation Committee of the Russian Federation exercises control over payment of the tax for purchasing fuels and energy and the time limits for payment to the energy efficiency fund.

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**Article 20 Depreciation Benefits**

For energy consumption control and regulation devices, the depreciation period is shorter. Therefore, the Government of the Russian Federation submitted by the Energy Efficiency Agency, within 180 days after the Federal Agency is created, ratifies the inventory of devices for energy consumption control and regulation, the norm of depreciation deductions identified with consideration of the lifetime of these devices equal to one year, and also the inventory of energy efficient equipment types and devices with a short depreciation period.

**Article 21 Federal Financial Support for Energy Efficiency Projects**

Federal financial support for energy efficiency measures is provided by the Federal Agency and regional agencies from their non-budget funds in accordance with the provisions of this Law. The funds thus obtained by legal and private persons are not subject to taxation.

**Article 22 Value-added Tax Benefits**

The value-added tax rates are 50 percent lower for products with energy efficiency characteristics exceeding the energy efficiency requirements by 20 percent identified in the federal standards. This benefit is provided by the Government of the Russian Federation upon presentation of a federal standard certificate, providing the certificate was issued or confirmed not earlier than a year before the application.

**Article 23 Customs Benefits**

The Federal Agency shall annually present to the Government of the Russian Federation an inventory of products and services which can significantly improve energy efficiency and, therefore, may enjoy customs benefits, and an inventory of products completely free of customs duties. To these inventories shall be attached assessments of cost efficiency of customs benefits and methods of calculating these assessments.

**Article 24 Encouraging Foreign Investments in Energy Efficiency Projects in the Russian Federation**

1 Foreign investors implementing energy efficiency projects on the territory of the Russian Federation have a right, according to the obtained savings of a certain energy carrier, to

- a) buy an equal amount of the same energy carrier for internal prices,
- b) get a license for exportation of this amount of the same energy carrier without export duties

2 This license can be sold by the legal person which has implemented the project to any other legal person.

3 Within 60 days after its formation, the Federal Agency develops and coordinates the order of realization of this right. Then it presents the draft decree for ratification by the Government of the Russian Federation.

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4 To identify the amount of energy saved, a legal or private person having a Federal Agency certification must carry out an energy inspection before and after the project implementation, or to ratify standards of enterprises for energy efficiency technologies for all elements of the implemented project in the central bodies of the Federal Committee for Standards and Certification of the Russian Federation before and after project implementation

Protocols of energy inspections or ratified copies of the standards of enterprises for energy efficiency of technologies are presented to the Federal Agency which must be considered within 10 days. If the decision is positive, the Federal Agency issues a certificate confirming the energy savings of the project implemented by a foreign investor

### **Title VI Energy Inspections and Energy Consumption Registration**

#### **Article 25 Energy Consumption Registration METERING**

1 Regional energy commissions in cooperation with Regional Agencies within six months after this Law comes into effect, must consider and ratify a plan of providing all legal persons who are energy buyers with energy consumption registration devices and identify a date from which the amount of purchased energy is identified as indicated by registration devices

2 The required minimum for registration devices for different categories and groups of consumers is identified by the central and local branches of the Federal Committee for Energy Inspection

3 The rules of installation of registration devices, certification, the commercial discount and reading the indications are developed by energy supply companies and ratified by the Federal Committee for Energy Inspection and the Federal Committee for Standards and Certification of the Russian Federation

4 Each Regional Agency within a year after its formation, must develop and implement a program for identifying possibilities for and the cost efficiency of registration devices and heating consumption regulation devices, and also methods of payment for heating supply for

- a) individual houses,
- b) multi-story houses

5 It is forbidden to collect payments for heating by indications of registration devices in case the residential consumer is not equipped with a heating energy consumption regulation devices

#### **Article 26 Energy Inspections**

1 Within six months after this Law comes into effect, the Federal Committee for Energy Inspection shall develop the protocol form and methods of control energy efficiency at the inspected object

2 During regular inspections by the Federal Committee for Energy Efficiency its auditors must fill in this protocol. It can contain recommendations on elimination of the found violations of the standards for energy efficiency, and also imposing fines in accordance with the procedures determined in these standards and other normative documents

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3 The director of the enterprise signs the protocol together with the inspector of the Federal Committee for Energy Inspection and has a right, if he does not agree with the recommendations, to write down a special opinion. If the director of the enterprise refuses to sign the protocol, it is signed by the inspector alone and to it a motivated explanation of the refusal is attached.

4 The inspector of the Federal Committee for Energy Inspection must leave one copy of the protocol at the enterprise. Another copy must be given to the Head of the Regional Agency.

5 Inspections must not interrupt the normal technological regime of the enterprise.

6 A year after this Law comes into effect, legal persons interested in revealing and implementing measures on improving energy efficiency can make an order for energy inspection which can only be carried out by legal or private persons which have got certifications from the regional or Federal Agencies.

**Article 27 Federal Examination by Experts of the Energy Efficiency Projects**

1 Preliminary, pre-project and project documents on the objects to be constructed on the territory of the Russian Federation are subject to obligatory federal examination by experts.

2 Under the aegis of regional Agencies there are groups of federal energy efficiency experts. Tasks, functions and powers of separate sections of the examination are identified by the Provision on the federal energy efficiency examination by experts developed by the Federal Agency and ratified by the Russian Government.

3 Reviews of the federal examinations by experts are obligatory for all legal and private persons. A negative conclusion of the federal energy efficiency examination by experts provides grounds for re-developing projects in accordance with the review of the examination by experts.

Implementation of projects on construction and reconstruction of objects without a positive conclusion of the federal energy efficiency examination by experts is forbidden.

**Title VII Education and Personnel Training**

**Article 28 Obligatory Teaching the ABC of Energy Efficiency**

1 To get the minimal knowledge necessary for the formation of energy efficiency skills, in all secondary and high schools, regardless of their specialization, it is necessary to introduce obligatory teaching the ABC of energy efficiency as a part of the course "Basic Ecological Knowledge and Culture".

2 The Federal Agency, Ministry of Education and Ministry of Science, High School and Technical Policy must develop educational programs, text-books and organize personnel training within a year after this Law comes into effect.

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**Article 29 Regional Educational Programs and Programs of Increasing the Level of Professional Knowledge.**

1 For implementation of educational programs and programs of improving professional skills of the leading workers and specialists in the field of providing enterprises and organizations with energy and holding seminars and conferences, each regional Agency, within a year after its formation, forms a department with the following functions

- a) developing and implementing regional educational programs and programs of improving professional skills of the leading workers and specialists in the field of providing enterprises and organizations with energy,
- b) organizing demonstrations of energy efficient technologies and equipment,
- c) organizing work on providing informational services on energy efficiency to energy consumers in the region

Within a year after this Law comes into effect, the regional Agency develops a plan of certifying people responsible for providing energy to enterprises and organizations for knowledge of the ABC of energy efficiency. Such certification is made once in three years.

**Title VIII International Cooperation on Improving Energy Efficiency**

**Article 30 Participation in International Cooperation.**

The Russian Federation takes measures on developing and strengthening mutually profitable complex international cooperation on energy efficiency improving both in relations with separate countries and by taking part in the activities of international organizations. The Government of the Russian Federation creates most favorable conditions for mutually profitable exchange of energy efficient technologies, as well as participation of Russian specialists in international projects of developing such technologies.

**Article 31 Foreign Investments Insurance**

To attract foreign material and financial resources, advanced foreign technics and technologies, and management experience to the objects connected with energy efficiency on the territory of the Russian Federation, along with the current federal guarantees the following order of the above-mentioned foreign investments insurance is set:

Foreign investors, whose material or intellectual investments allowed to improve energy efficiency on the territory of the Russian Federation and who signed an insurance agreement with the Multilateral Agency for foreign investments, have a right to apply to the Federal Energy Efficiency Agency of the Russian Federation for compensation of the insurance contribution value in accordance with the above-mentioned agreement. The foreign investors must present all the necessary documentation to prove the energy efficiency effect they have got.

Within 90 days after the application of the foreign investor, the Federal Agency must either compensate to the investor the value of his insurance contribution, but the amount of the compensation must not exceed the actual economic effect got from energy conservation, or give a motivated explanation why such compensation is impossible. The insurance contribution

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compensation is made in the currency paid by the investor. The insurance contribution compensation is free of charge and does not bring out any changes in property rights on the insured investments.

**Article 32 International Cooperation in the Field of Standardization**

Within a year after this Law comes into effect, the Federal Committee for Standards and Certification must develop a program of harmonization of the federal system of energy efficiency indexes standardization with progressive international, national and regional standardization systems of other countries, and also develop procedures of mutual ratification of the certification results.

**Article 33 Analysis of International Cooperation Efficiency**

The Federal Agency shall annually present to the Government of the Russian Federation an analysis of international cooperation efficiency and proposals on its strengthening.

**Title IX Final Provisions**

**Article 34 Observation of Commercial Secrecy by Officials of the Federal and Regional Agencies and Inspectors of the Federal Committee for Energy Inspection**

Officials of the Federal and Regional Agencies and Inspectors of the Federal Committee for Energy Inspection have no right to use to their own benefit or make known the data which constitute commercial secret of a legal person who takes part in implementing energy efficiency programs or carries out energy audits.

**Article 35 Settling Controversies.**

Controversies connected with energy efficiency improving activities are settled by the court or arbitration in compliance with their jurisdiction.

**Article 36 International Treaties**

If international treaties of the Russian Federation or the former USSR contain other rules than those stated in the Law on Energy Efficiency of the Russian Federation, the rules stated in international treaties have an advantage.