

ESM174

Socialist Republic of Viet Nam

Ministry of Energy

Electricity of Viet Nam

Power Sector Reform and Restructuring in

Viet Nam

Final Report to the Steering Committee

Report No. 174/95

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Cosponsored and Jointly Organized with:

The World Bank and the

Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP)



ESMAP

Energy Sector Management Assistance Programme

**JOINT UNDP/WORLD BANK
ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)**

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A Vietnamese-language version of this report is also available.

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Preface

This final report updates an April 1995 interim report presented at a workshop on power sector reform that took place in Hanoi, May 11–12, 1995. The workshop was sponsored by the government of Viet Nam, the Ministry of Energy, and Electricity of Viet Nam (EVN). Participating in this joint effort were the World Bank, Viet Nam, and the Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP).

The process of reform began in Viet Nam in the late 1980s with the open-door policy, which was instrumental in stabilizing the economy. At the Sixth Congress of the Vietnamese Communist Party in 1986, a reform process was articulated with the principal aim of making a gradual transition from a “command” to a market economy. Viet Nam has continued in these efforts, which culminated this year in the promulgation of a new State Enterprise Law, the creation of EVN, and an Action Plan for power sector reform proposed at the Power Sector Reform Workshop.

For this technical assistance project in particular, which was initiated in October 1994, the scope of work identified was always *process* driven. The first task was the creation of a high-level inter-agency steering committee to supervise and coordinate the entire effort. The steering committee was also instrumental in involving other agencies that have a substantial say in the Vietnamese reform process. The Steering Committee included delegates from the Office of Government, the State Planning Committee, the Ministry of Finance, EVN, and the Ministry of Justice.

The next step in this effort was to establish a Working Group that would work jointly with ESMAP and an international team of consultants. The Working Group was organized to ensure broad representation by the various interested parties in the power sector in Viet Nam and included staff from the Ministry of Energy, EVN, the power companies (including those in Danang and Ho Chi Minh City), the transmission companies, the Institute of Energy, and the Power Investigation and Design Companies. The Working Group concentrated initially on identifying the issues that, in their view, would be important to tackle in the reform effort in Viet Nam. Since EVN was created in the middle of this effort, most of the time was spent in understanding the charter of EVN, in identifying some apparent contradictions within the charter and the objectives set out for EVN, and in making recommendations on the institutional arrangements within EVN.

An Interim Report was prepared jointly by the Working Group and the ESMAP team while it conducted a three-week mission in Viet Nam during March 1995. This Interim Report concentrated on the main areas identified by the Working Group: (a) institutional arrangements, including the notion of separating ownership, regulation, and policy functions; (b) structure and commercial arrangements; and (c) power sector financing in Viet Nam.

A group of Vietnamese experts selected from the working group and steering committee undertook two study tours. One tour went to the United Kingdom and Malaysia and another to France and China. These tours were very effective in assisting the Vietnamese delegates to gain a fresh perspective on the options, status, and complexities of reform in these countries. The two-week study tours took place in late March and early April 1994, and included 11 participants each. All members in the Steering Committee and Working Group could participate in a tour.

This Final Report has been prepared on the basis of the Interim Report and the recommendations of the Workshop for an Action Plan for reform. Since the subject matter included in the Interim Report has not received a wide circulation, it has been included here almost unchanged. The main issues discussed and an Action Plan for reform that were presented at the Power Sector Reform Workshop that took place May 11–12, 1995, are included in the Executive Summary to this final report.

The next important step in the reform process is to define and establish the legal and regulatory framework within the power sector so that it can fulfill the objectives set out in its charter and move toward commercialization of the entities in the sector. EVN must evolve and concentrate on its core business—which is the production, transmission, and distribution of electricity.

Acknowledgments

This Final Report is the result of a collaborative effort by the government of Viet Nam, the World Bank and the Energy Sector Management Assistance Programme (ESMAP). The work has been carried out under the direction of a Steering Committee comprising officials from the Ministry of Energy (MOE), Electricity of Viet Nam (EVN), the State Planning Committee, Ministry of Finance, and the Office of Government. Special thanks are due to Mr. Dang Tran Thuc, Director of Special Projects, EVN, Chairman of the Working Group, and to Mr. Nguyen Van Dau, Director of the Department of Organization and Labor, Ministry of Energy, Chairman of the Steering Committee. Coordination and leadership during this technical assistance project were provided by Messrs. Nguyen Si Phong, Director, and Vu Van Thai, Expert, International Cooperation Department, MOE.

The report includes the recommendations of a Workshop on Power Sector Reform held in Hanoi, May 11–12, 1995, and updates an Interim Report of April 1995 that was presented at the Workshop. Thanks are due to the Workshop participants, which included representatives from the Office of Government and State Planning Committee; Ministries of Energy and Finance; Electricity of Viet Nam; State Bank of Viet Nam; Institute of Energy; Power Companies 1, 2, and 3; Power Companies of Hanoi and Ho Chi Minh, Power Investigation and Design Company 1; Transmission Company 1; the donor community working in Viet Nam; Asian Development Bank; the United Nations Development Programme (UNDP); the Organization of Economic Development (OED); the National Economic Research Associates (NERA); National Power; the National Grid Company; and the Asian Institute of Technology.

Consultants for ESMAP to this technical assistance included Mr. John Rhys, NERA, United Kingdom; Messrs. Philip Spencer, John Gower, and Iain McMorrine, National Power, United Kingdom and Singapore Office; and Les Clarke and John Grundy, the National Grid Company, United Kingdom.

Mr. Darayes Mehta of the Infrastructure Operations Division of the World Bank's East Asia and Pacific Regional Office was closely associated with all phases of the work; his assistance is greatly appreciated. The advice and assistance of Messrs. Anil Malhotra, Asia Technical Department (ASTDR), and Mangesh Hoskote, Industry and Energy Department (IEN), particularly during the Workshop, are gratefully acknowledged. The work was managed by Mr. Kurt Schenk with the assistance of Peter Cordukes and Ranjit Lamech of IEN. The editing and production of the report were managed by Paul Wolman, with word-processing assistance from Carole-Sue Castronuovo. Their work is gratefully acknowledged.

Funding for this technical assistance has been provided by the Overseas Development Administration (ODA) of the United Kingdom, whose financial support is gratefully acknowledged.

Abbreviations and Acronyms

ASTDR	The World Bank, Asia Technical Department, Office of the Director
BHP	Broken Hill Proprietary
BOM	Board of Management
BOT/BOO	Build-Operate-Transfer/Build-Own-Operate
CEGB	Central Electricity Generating Board, England and Wales
DDG	Deputy Director General
EMS	energy management system
EVN	Electricity of Viet Nam
G&T	generation and transmission
HCMC	Ho Chi Minh City
JV	joint venture
IDA	International Development Agency
IEA	International Energy Agency
IENPD	Power Development Division, Industry and Energy Department, the World Bank
IPP	independent power producer
IPS	integrated power system
MITI	Ministry of International Trade and Investment (Japan)
MOE	Ministry of Energy
NERA	National Economic Research Associates
NGC	National Grid Company
NLDC	National Load Dispatch Center
ODA	Overseas Development Administration
OECD	Overseas Economic Cooperation Fund (Japan)
Plc	public limited company
PPA	power purchase agreement
RLDC	Regional Load Dispatching Centers
RoR	rate of return
SIDA	Swedish International Development Agency
SOE	State-owned enterprise
TNB	Tenaga Nasional Berhad
UNDP	United Nations Development Programme

Units of Measure

kV	kilovolt
kWh	kilowatt hour
MVA	megavolt ampere

Currency Equivalents

The Vietnamese currency is the dong (D). A currency reform in 1985 replaced ten old dong with one new dong.

<i>Calendar 1994</i>	<i>December 1994</i>
US\$1.00 = D10,975	US\$1.00 = D11,200
D 1,000 = US\$0.09	D 1,000 = US\$0.09

Executive Summary

Introduction

1 In January 1995, the government of Viet Nam issued Decree No.14/CP to establish Electricity of Viet Nam (EVN)—a state holding corporation for the different power sector entities engaged in generation, transmission, distribution, and associated service functions. The formation of EVN represents a pilot experiment in state enterprise reform based on the Enterprise Group concept.¹

2 EVN comprises 34 separate business units, each with its own charter and each reporting to EVN's Director General. These business units are grouped under two accounting systems: (a) *independent accounting*, which focuses on costs and revenues; and (b) *dependent accounting*, which focuses on costs. The business units fall into three categories:

- Those engaged in generation and transmission are subject to dependent accounting, and consolidation of accounts takes place only at the level of EVN as a whole (General EVN). There are 17 business units involved in these activities—12 for generation and 5 for transmission. They all report to EVN's Director General, through the Deputy-Director General for production.
- Those responsible for distribution and supply are independent accounting enterprises (profit- or cash-generating centers), which are accountable directly to EVN's Director General. There are five distribution units: Hanoi, HCMC, PC1, PC2, and PC3.
- Those involved in providing services (including finance, design, construction, and planning) have either independent or dependent accounting status.

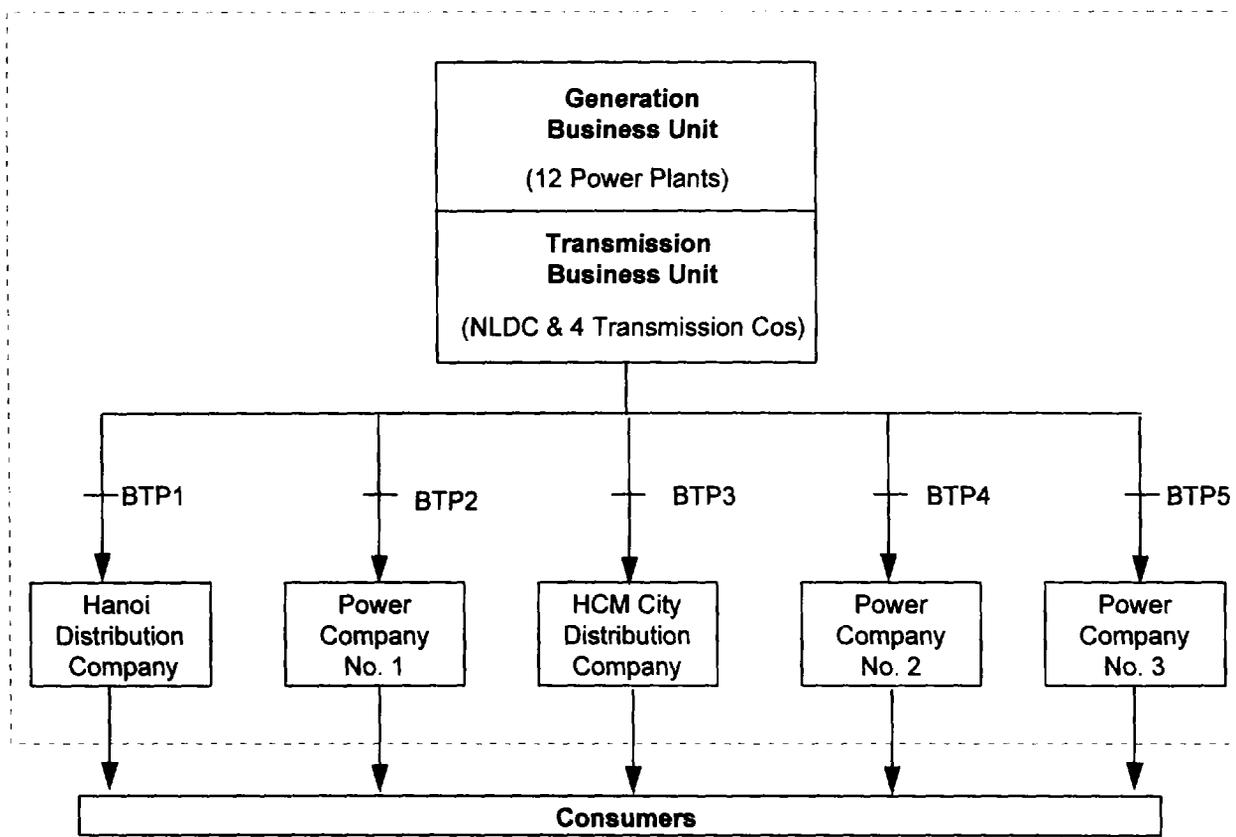
3 EVN has the legal status of a *state corporation* under the State Enterprise Law. Independent accounting entities will have the status of *state enterprises* that are members of the state corporation (i.e., EVN). EVN's Board of Management (BOM) has been vested with responsibility to exercise the State's ownership function based on the principles established under the new State Enterprise Law. It also oversees the operation and management of EVN.

4 From a sector structure perspective, the core functions of generation and transmission are integrated. The generation-transmission core sells electricity in bulk to the five *independent* distribution companies (Figure 1). Retail prices to final consumers

1. Government decision No.91/Ttg of March 1994 outlines the government's intent to form large sectorally and/or regionally based corporations as enterprise groups as part of the broader initiative in state enterprise reform.

are established by the government and are currently uniform across the country. The mechanism for setting the BTP allows the distribution companies to make a target profit—the profit level is determined by EVN. Given uniform retail pricing and differing distribution system costs for each distribution company, the bulk transfer price is different for each distribution company.

Figure 1 Electricity of Viet Nam (EVN)



BTP: Bulk Transfer Price

NLDC: National Load Dispatch Center

5 The Ministry of Energy (MOE) has been significantly rationalized in parallel with the establishment of EVN. Consistent with the government’s policy for all line ministries, MOE is responsible for policy and oversight functions, while all operational responsibility is being vested with operating companies.

6 The current installed capacity of 4,200 MW is insufficient to meet the annual energy demand in Viet Nam. Viet Nam’s power development plan calls for the addition of 2,400 MW by the turn of the century and about 6,000 MW by the year 2005. To meet this ambitious expansion program, the government of Viet Nam will

increasingly utilize private finance, which is essential to meet the power sector expansion targets. Decree No.87/CP on BOT (i.e., Build-Operate-Transfer) contracts facilitates private investment in infrastructure including power projects.

Objectives

7 The government's power sector reform strategy aims to achieve the following objectives:

- a. Provide electricity access to the entire population of Viet Nam.
- b. Separate *state management* functions from *business management* functions.
- c. Redefine and clarify ownership responsibilities to allow for asset preservation, asset development, and commercial management.
- d. Enable Viet Nam to raise financing in the order of US\$1 billion annually for power sector expansion to meet economic growth targets.
- e. Increase the operating/technical efficiency of the electricity sector to optimize the use of scarce investment resources.
- f. Resolve the mismatch between market-based production costs and State-administered prices.

Organization of the Report

8 With the establishment of EVN, the decisions to be made concerning electricity restructuring in Viet Nam can be viewed on two levels. The first level concerns institutional arrangements and relationships at the highest level of state management. These decisions concern the relationships between EVN and the different government agencies/ministries. The key issues here are the appropriate definition of the roles of government ownership, government regulation, and commercial management. These issues and recommendations are discussed in chapter 1.

9 The second level relates to the arrangements between the management of EVN and the member units. The key issues here are the structure of the sector—organization of the core power sector functions of generation, transmission, and distribution; the relationship among member enterprises based on internal transfer prices; and the degree of operating and investment autonomy given to the member enterprises. These issues and recommendations are discussed in chapter 2.

10 The means and ability to raise finance for power sector development is a central reform objective. The ability to raise finance for an infrastructure sector such as power is closely related to key government policy and structural decisions both within and outside the power sector. We discuss the principal issues that are key to developing a sustainable financing strategy in chapter 3.

Proposed Reform Implementation Plan

11 The aim of the workshop was principally to identify the main issues facing power sector reform in Viet Nam and to propose an implementation plan for the short and medium term. The implementation plan prioritizes sector reform actions.

12 On the institutional front, the government of Viet Nam and EVN face a number of challenges. The institutional and structural arrangements in the power sector under EVN must be further consolidated, and the roles and responsibilities for ownership, management, and regulation clarified. The management and operational relationships between the core generation and transmission business of EVN and the more autonomous distribution companies need to be streamlined. It is desirable that a legal and regulatory framework be put in place. This regulatory framework should be sufficiently flexible so that it can be adapted to the changing situation in Viet Nam yet adequately robust so that it can lock in the reform gains so far attained.

13 Basic issues need to be clarified in relation to economic regulation: the need for economic regulation; the criteria for effective regulation; the legal form of regulation; regulatory powers and duties; and the form of the regulatory body. It is not imperative that the government establish a separate regulatory agency immediately, but it is essential to establish a credible regulatory system that is separate from government in its role as owner and operator of the power sector.

14 The basis for effective power sector regulation is rational pricing of electricity. Two elements of pricing should be addressed by government in organizing the sector along efficient commercial lines. The first is the setting of final consumer prices; the second is the setting of the internal bulk transfer prices between the generation and transmission on the one hand and the distribution enterprises on the other.

15 On the demand side, the growth in the demand for electricity is expected to be about 14 percent annually for the next few years. In the fastest growing regions of the economy in the South, the demand growth is expected to be in the range of 15 to 20 percent annually. On the supply side, the power sector will be facing shortfalls in electric supply, particularly in the South of Viet Nam in late 1996, if the expected demand growth takes place. A program for improving the efficiency of supply and end-use must also be part of the strategy for the power sector.

16 Although Viet Nam has devoted substantial resources to rural electrification (RE), the per capita consumption of electricity in rural areas remains at 15 kWh/year, and only about 5,000 of the about 9,000 communes in the entire country are supplied with electricity. Plans to promote rural development and electrification in particular have remained substantially less developed than those for regional industrialization. A policy for rural electrification is needed so that government can fulfill its social objectives for providing electricity to the rural population but not burden EVN with noncommercial objectives.

17 To move forward with commercialization and the process of reform, EVN must clarify the roles and responsibilities of senior management, concentrate on its core activities, and create a single transmission company so that the resources of EVN can be used more effectively for the operation and maintenance of the integrated power system. The proposed implementation plan is shown in Table 1.

Table 1 Proposed Reform Implementation Plan

<i>Priority tasks</i>	<i>Time frame</i>
Institutional Arrangements	
1. Separate and clarify functions of ownership, regulation, and management <ul style="list-style-type: none"> • Board of Management (restrict to ownership function) • Ministry of Energy (policy and regulatory responsibilities) • EVN Management (enterprise management and operation) 	Short-term
2. Rationalize <i>Financial Company</i> within the EVN Finance Department Finance	Short-term
3. Transform the <i>Control Section</i> or <i>Inspection Committee</i> into an internal audit unit.	medium-term
4. Formalize <i>ownership</i> responsibilities of government <ul style="list-style-type: none"> • Set performance targets for BOM and EVN • Set commercial taxation terms for EVN • Adopt commercial on-lending terms • Encourage financial discipline through hard budget constraints, international accounting standards and auditing requirements • Devise appropriate mechanism to deal efficiently with subsidies—make subsidies transparent 	Short-term
5. Legal and Regulatory Framework <ul style="list-style-type: none"> • Determine the institutional form and functions of a power sector regulatory agency • Establish principles for setting consumer prices and internal bulk transfer prices • Establish the basis for private sector entry • Establish a Regulatory Agency • Identify and appoint regulators and staff: Training and capacity building • Draft and promulgate an Electricity Law 	medium-term

continues on next page

Table 1 (continued)

<i>Priority tasks</i>	<i>Time frame</i>
Structure and Commercial Arrangements	
1. Organizational and Management Strengthening of EVN generation-transmission operations & independent distribution companies	short-term
<ul style="list-style-type: none"> • Financial management and accounting systems • Human resources: Staffing needs, skills mix, and training • Business management processes and administrative procedures • Review charters and develop licenses for member enterprises 	
2. Streamline relationship of distribution companies and EVN management	short-term
<ul style="list-style-type: none"> • Rationalize mechanism to establish bulk transfer prices • Make bulk transfer price setting a regulatory function • Establish performance contracts between EVN and distribution companies 	
3. Consolidate transmission function	
<ul style="list-style-type: none"> • Establish transmission group consisting of the NLDC and the four transmission companies as separate accounting entities 	short-term
<ul style="list-style-type: none"> • Develop a grid code to formalize operating arrangements 	medium-term
<ul style="list-style-type: none"> • Establish National Transmission Company 	long-term
Power Sector Financing	
<ul style="list-style-type: none"> • Define commercial borrowing targets, types of government guarantees, and criteria for utilization 	short-term
<ul style="list-style-type: none"> • Establish framework and process to obtain sector investment through BOT/JV type arrangements 	short-term
<ul style="list-style-type: none"> • Examine the potential to raise domestic capital through EVN-securities such as bonds and fixed-deposits 	medium-term
Other Sector Priorities	
1. Preparation of a rural electrification Master Plan	short-term
2. Establish electricity conservation policies and strategies	medium-term

1

Institutional Arrangements

Factors Affecting Reform

1.1 The establishment of Electricity of Viet Nam (EVN) as a “state holding corporation” represents an experiment by the government of Viet Nam. The state holding company model can be a suitable transition arrangement for state enterprise reform in countries that are gradually moving to a more market-oriented economy. It is important, however, to recognize that electricity requires institutional arrangements different from those applying to more commercial sectors such as cement or sugar. The reasons are as follows:

- *Monopoly elements in the electricity sector.* The transmission and distribution of electricity are clearly natural monopolies where the introduction of direct competition is often undesirable and inefficient. In commercial sectors such as cement or sugar, competition is much easier to introduce because the final products are subject to competitive market pricing. The electricity sector, on the other hand, requires separate economic regulation. This is a key distinction between electricity and other economic sectors.
- *Government control of electricity prices.* Electricity is a commodity subject to conflicting social and economic objectives. The social objectives of the government are to expand electricity supply to rural areas and to keep prices affordable. If the cost of supplying electricity exceeds the price the government thinks is affordable or acceptable, subsidies may be required. The economic objective of the government, on the other hand, is to expand supply to meet projected economic growth. The social and economic objectives of the government can thus be a source of conflict, as the former require prices to be kept low and the latter require prices to cover costs and future investment needs. The electricity sector therefore needs separate regulation to balance these objectives.
- *Three distinct sector functions.* The electricity sector has three distinct functions that need to be clearly defined and separated:

- The ownership function. Although under the state holding companies structure the state remains as the “owner” of all power sector assets, the ownership function should be performed by an institution that is answerable to the government. This institution must ensure that power sector assets are appropriately utilized and earn an appropriate return to finance future expansion.
- The management function. Managers are responsible for the day-to-day operation of power sector enterprises and are answerable to the persons or institution responsible for the ownership function.
- The regulatory function. The electricity sector requires a separate institution to review and adopt prices and supervise the monopoly elements in the sector. This function must be distinct and separate from the ownership function.

Implications for EVN's Corporate Governance

1.2 For the state holding company concept to be successfully applied to the electricity sector, the government must clearly distinguish among the three distinct functions of ownership, regulation, and management. In the short term, the government must establish a legal and regulatory framework to institutionalize the separation of these roles and responsibilities of the different government agencies and companies operating in the electricity sector. This experience would also be of broader interest to the government in similar enterprise reform initiatives.

1.3 The charter of EVN (Government Decree 14/CP, January 22, 1995) creates three new mechanisms for overseeing and managing the power sector:

- a. The Board of Management (BOM)
- b. The Control Section
- c. The Financial Company.

Our assessment focuses on the separation of the three functions and identifies potential conflicts and contradictions within the restructuring program.

A. The Board of Management

1.4 The “Board of Management” model adopted in the charter of EVN is based on the draft State Enterprise Law (January 16, 1995) and promulgated in April 1995. Article 35 specifies that state corporations shall be organized with the Board of Management Model. Electricity of Viet Nam is a *State Corporation*, based on the definition in draft Article 4,(4):

State Corporations means large-scale State Enterprises consisting of many members with legal status or without legal status, having close internal

relationship in respect of the management, organization, supervision and accounting in order to serve the general interests of members.

1.5 In Article 43 of the State Enterprise Law, *The Board of Management* is described as follows:

The Board of Management is the highest decisionmaking body in such enterprises; responsible before the Government, authorized by the Government to assist the Prime Minister or the Head of State Management Bodies to implement some rights and obligations of the representatives of State enterprise ownership in the management of State enterprises.

1.6 In close conformity with the State Enterprise Law, Article 7 of EVN's charter specifies:

The Board of Management is the organ vested with the highest power to make decisions within EVN. The Management Board is authorized by the State to carry out the functions of State ownership representation with regard to the entire EVN in accordance with the laws and this charter.

1.7 The use of the Board of Management model may be more appropriate for competitive businesses and nonpublic service sectors. Experience suggests that it is less suitable for state corporations involved in the delivery of public services and products whose prices are determined by the state. A major conflict of interest can result from this model when the same Board of Management becomes both regulator of a sector and "owner" of enterprises in the sector.

1.8 The major impediment to efficient operation and ability to raise capital for the power sectors of many countries is the absence of clear separation of regulation and ownership in the power sector. Although the government can perform both functions, the government must regulate in a clear, credible, and transparent manner that is separate from its objectives and responsibilities as "owner" of the power sector. This separation becomes even more important in countries where the government has inadequate resources to finance power sector development. This calls for careful comparison of the Board of Management structure in Viet Nam with institutional models in developed countries such as Japan and France, where (a) demand growth has not been as dramatic as forecast in Viet Nam, (b) government budgets can support more financing of the power sector, and (c) the governments were willing to allow cost-recovery tariffs on average.

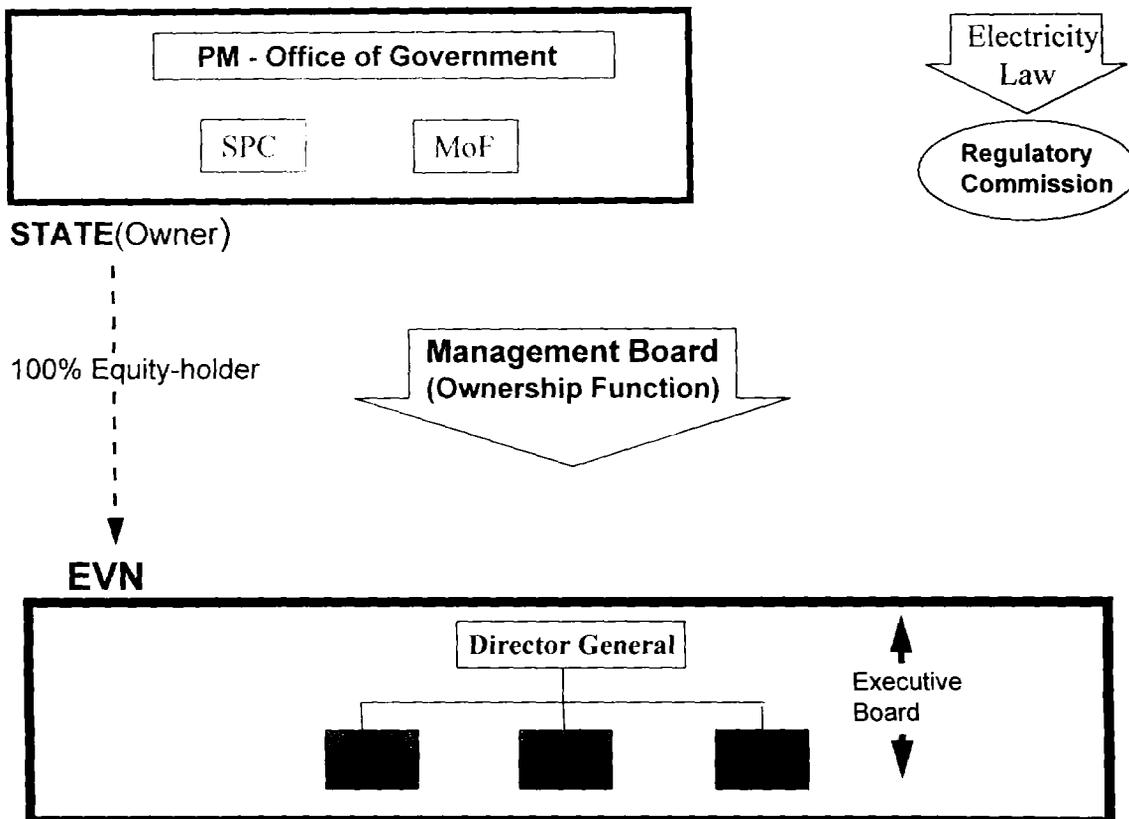
1.9 The current organization of the Board of Management and its assigned roles and responsibilities seem to involve a combination of ownership, management, and regulatory functions:

- Ownership functions:
 - Board of Management is to receive, preserve, and develop state assets.

- BOM is responsible for adopting and publishing the balance sheet of the entire company (EVN).
- Regulatory functions:
 - BOM adopts electricity prices.
 - BOM reviews strategy and five-year plans of EVN.
- Management functions:
 - The Office of the Board of Management consists of experts from within EVN. (Office is distinct from Board members.)
 - BOM consists of full-time members.

Issues that merit attention regarding the defined structure of the Board of Management are described below. Figure 1.1 shows how the three functions can be rationalized and separated.

Figure 1.1 Proposed Separation of “Owner,” Ownership Function, Regulation, and Management



1.10 **Regulatory Functions versus Ownership and Management**

Functions. The present structure of the BOM allows it to perform both a regulatory and an ownership role. Ideally, a separate regulatory agency should be in charge of approving electricity prices. This agency would review (not define) long-term strategy and plans as a basis for prices. The agency could be within the Ministry of Energy, a government commission, or some other appropriate government body. It is important, however, that the agency responsible for approving five-year plans, strategy, and prices should be distinct from the management and ownership of EVN.

1.11 Potential conflicts or disadvantages of combining these functions are as follows:

- Electricity prices will give a reasonable return on capital investment and provide funds for reinvestment—although not sufficient internal funds for all new capacity required in a rapidly growing sector. In a private sector monopoly, “owners” may seek to raise prices above optimal levels; hence, regulatory systems are normally introduced to contain prices while ensuring a reasonable return on capital. In the case of public ownership, the government “owner” may have a number of objectives that affect electricity prices, either upward or (more likely) downward. It therefore remains important, even under government ownership, to set prices at levels that give the correct economic signals for resource allocation and investment decisions. To do this, it is necessary to establish a regulatory function that is separate from the other functions of government.
- The managers/owners of the electricity sector should be responsible for providing appropriate financial reports and recommendations on prices to a separate regulatory agency. A separate regulatory agency will decide on price levels by appropriately balancing the need to keep prices affordable with the need to keep prices at a level that will allow the company to cover costs and make future investments. This balance is essential to meeting the long-term financing needs of the electricity sector in Viet Nam and cannot be achieved if regulation, ownership, and management are represented on the same board of management.

1.12 **“Ownership” and the “Ownership Function”—Relationship to EVN**

Balance Sheet. The state (government of Viet Nam) is the “owner” of all power sector assets. The “ownership function” will be performed by the BOM on behalf of the government. EVN must develop a balance sheet that reflects commercial accounting practices if it is to raise capital from domestic or international sources.

1.13 The present charter could be interpreted to mean that the assets and liabilities of the electricity sector will be vested in a balance sheet at the level of the BOM. Although the “ownership function” of EVN could be assigned to the BOM, the usual practice is to vest the assets and liabilities in a balance sheet at the level of an operating company. In that sense, the focus should be clearly defining the BOM as performing the “ownership function” with the consolidated assets and liabilities vested in

the balance sheet of a operating company whose management is responsible to the Board. The state will continue as “owner” by being the owner of all the equity (defined in accounting terms) on the balance sheet, thereby retaining full control. The balance sheet will, however, be “managed” by a group of professionals headed by the Director General of EVN. If the Director General and management team do not perform as desired, they can be removed; provisions for such disciplinary action are already contained in EVN’s charter.

1.14 **The Ownership Function versus the Management Function.** The Board of Management does not have to be full-time. The Director General could be a member of the Board, but has, as Chief Executive Officer, the major responsibility of running the day-to-day operations of the company. This distinction between ownership and management would give the managers of the company adequate freedom and autonomy to take the necessary actions to meet the financial targets set by the state. Under the present arrangement, members of the Management Board could interfere in the daily running of the company. Figure 1.1 shows how these functions can be separated.

B. The Control Section

1.15 The establishment and responsibilities of the Control Section are described in Article 13 of the EVN charter. The main features of the Control Section are as follows:

- a. The Board of Management will establish the Control Section.
- b. The Control Section will examine and supervise the production and business operations of EVN.
- c. The annual program of the Control Section is approved by the BOM
- d. The Control Section will submit an annual report to the BOM containing results of examining and supervising operations during the year and proposed recommendations for strengthening management and operation of EVN.
- e. The Control Section is to be invited to attend meetings on the work of the Director General (this would imply that the Director General is not part of the Control Section).
- f. Expenditures of the Control Section are to be ensured by the BOM and will be a part of the operational expenditures of the BOM.

1.16 The Control section is, in some respects, similar to an internal audit function. Some aspects of its responsibilities resemble a performance-monitoring function for state enterprises. The Control Section can be very easily redefined to be the internal audit unit. The key requirement will be to prepare a manual of internal audit procedures so that the unit can perform these functions based on clear rules and procedures, thereby reducing any managerial conflicts.

1.17 Issues that need to be addressed while clarifying the roles and responsibilities of managers are as follows.

1.18 **The Relationship between the Control Section and Director General.** The relationship between the director-general and the Control Section can be a source of conflict. According to the charter, the Control Section is to examine and supervise the production and business operations of EVN. The Control Section will thus be examining the director general's day-to-day management decisions. This practice could result in conflict between individuals in the Control Section and management staff of EVN, and it could reduce the autonomy of the director-general and staff. When management autonomy is reduced a corresponding loss may occur in the accountability/responsibility of the director general. For example, if a problem emerges because of an operating or investment decision, it will be difficult to determine whether the responsibility for the decision should be placed with the director general or the Control Section. The senior management of EVN may thus prefer to obtain clearance on major financial and production decisions from the Control Section. The need for a Control Section, its role, and its relationship with the management of EVN should be assessed to ensure good business management.

1.19 **The Control Section: Annual Program and Annual Report to Board of Management.** The Board of Management must approve the annual program of the Control Section. The Control Section will also provide the Board of Management with an annual report on its findings and recommendations that focus on the operations and management of the EVN. The above functions should be the responsibility of the management team, consisting of the director general and the deputy-director generals. The management team should be responsible for reporting on the production and financial operations of EVN to any higher authority. The major problem with the arrangement as defined in the charter is the potential loss of management autonomy and accountability.

C. The Financial Company

1.20 Article 20 of the charter describes the Financial Company as

- Being an independent accounting member enterprise of EVN
- Being under command of the director general of EVN.

1.21 The responsibilities of the Financial Company include

- Obtaining commercial credit from domestic and foreign banks
- Issuing bonds, debentures, and commercial paper
- Mobilizing *idle* money from employees of EVN.

1.22 The following issues should be addressed with reference to the role of the Financial Company.

1.23 **The Basis for Mobilizing Capital.** In commercial corporations, raising or mobilizing capital is often referred to as “corporate finance.” Under internationally accepted practices of corporate finance, an enterprise uses its own balance sheet as the basis for mobilizing capital on its own account. Under the arrangement described in the charter, the Financial Company has no balance sheet and cash flow (i.e., revenue) of its own from which it could raise capital. The capital structure and assets on a company’s balance sheet are usually under the supervision and control of the finance director. In the case of EVN, this would imply that the consolidated balance sheet should be a responsibility of the finance director. If the Financial Company has no balance sheet of its own, it will not be possible for the Financial Company to mobilize capital. Under the existing framework it is possible to have a department under the deputy-director general for finance responsible for providing the same services as a financial company. There is a notion that the Financial Company can operate like an internal bank. Box 1.1 discusses why such a model is unsuitable for EVN.

Box 1.1 The “Internal Bank” Model — Why Is It Unsuitable for EVN?

In some countries, such as Japan and Korea, private sector holding companies establish and operate their own “financial company” or “internal bank.” The financial company in a private sector holding company usually operates like a bank to provide an alternate source of finance for the many diversified companies under the parent corporation. Mitsubishi Group, for example, has a financial company to raise capital for its separate businesses in heavy engineering, cars, trucks, shipping, trading, and so on. This internal bank or financial company is, however, *capitalized* and has its own independent balance sheet separate from those of the different companies.

The internal bank model is inappropriate for EVN for the following reasons:

- a. *EVN is not a diversified company.* Consequently, there is limited risk-pooling benefit in creating a financial company.
- b. *The government derives no benefit in capitalizing a new financial company under EVN with assets separate from the core power companies.* The government could better use such resources to recapitalize the domestic commercial banks in Viet Nam. EVN can always borrow money directly from domestic commercial banks for its member enterprises on the strength of its own EVN balance sheet.
- c. *EVN should concentrate on its core business operations of generating, transmitting, and distributing electricity.* If it can run these businesses efficiently, it will be able to raise finance easily.
- d. *EVN is already faced with the major task of restructuring the electricity sector.* It should not be diverted into establishing a financial company.

1.24 **The Responsibility of the Deputy-Director General for Finance.** The deputy-director general for finance (DDGF) should normally be the one responsible for meeting the financial targets of EVN. To discharge this function with adequate responsibility and accountability, the DDGF should be allowed to supervise all capital mobilization for EVN. The DDGF could have a department responsible for capital mobilization. This department could have experts with the special skills required to deal with domestic and foreign banks, issuance of bonds, and so on. If a separate Financial Company is created with independent accounting, a conflict could develop between the responsibilities of the deputy-director general for finance of EVN and the Financial Company.

Recommendations:

Separation of Ownership, Regulatory, and Policy Functions

The Board of Management

1.25 The BOM should be responsible for the “ownership function,” similar to a “nonexecutive board of directors” seen in market economies. The director general of EVN is a member of the BOM and is also the full-time chief executive officer (CEO). Together with a senior management team of deputy-directors, the CEO would constitute an “executive board” responsible for the day-to-day management and operation of EVN.

1.26 The responsibilities of the BOM in would include the following:

- a. Acting as a buffer between individual government ministries responsible for policy and the management of EVN to ensure that managers are not subject to government interference.
- b. Developing strategic plans and investment plans for the sector. The senior management team of EVN would be responsible for making proposals on EVN strategy and investment for consideration by the BOM.
- c. Appointing senior management staff of EVN.
- d. Setting performance targets for the senior managers of EVN, who would be responsible/accountable to the Board. These performance targets would reflect the BOM’s role as owner of power sector assets assigned to the Board by the state.
- e. Monitoring and supervising the implementation of policies initiated by the Ministry of Energy for the sector.

The Regulatory Function

1.27 The need for separate regulation of the power sector, distinct from ownership, is a fundamental requirement for achieving the objectives of power sector reform. The regulatory agency should be responsible for the following:

- a. Issuing operating licenses for generation and distribution companies.
- b. Approving all internal bulk transfer prices and retail prices for electricity. The role of the regulator in approving bulk transfer prices is to ensure that independent distribution companies are allowed to operate independently and profitably.
- c. Acting as an arbiter in disputes between enterprises and consumers.
- d. Setting standards of supply and monitoring performance of operating companies.

The regulatory agency should take account of government policies, but it does not formulate them or implement them except when explicitly assigned or when they are part of a licensing regime (e.g., if distribution companies are required to promote energy efficiency).

1.28 The regulatory agency could be created by an Electricity Law, which would clearly define the agency's functions and establish the procedures and rules by which it should operate. The establishment of the regulatory agency under law, which in Viet Nam would require approval by the National Assembly, would prevent the regulatory agency from acting in an ad hoc and irresponsible manner. The guidelines and criteria for price setting and approval, for example, would be clearly defined in the Electricity Law, which would also limit the powers of the regulatory agency. Such guidelines would also provide a predictable framework for electricity price regulation in Viet Nam.

Establishing a Regulatory Agency

1.29 In establishing a regulatory agency, one basic rule must not be violated: Regulation must be separate from ownership and management. If this rule is followed, the structure, location, staffing, and working procedures of a regulatory agency can be adapted to the specific needs and circumstances of Viet Nam.

1.30 Several options are available for locating a regulatory agency:

- As a separate unit within the Ministry of Energy:
 - *Advantage:* continuity of involvement with sector responsibilities.
 - *Disadvantages:* difficulty maintaining genuine separation from other policy considerations; (probable) absence of necessary regulatory skills.
- As a new government agency—or an Inter-Ministerial Commission:
 - *Advantages:* more independent; can have a broader view of the sector; can be staffed with necessary skills
 - *Disadvantage:* could take longer to implement.

1.31 To protect its independence, the regulatory agency should not be financed directly by the government or by EVN, but preferably by a license fee raised directly

from the regulated companies (EVN and independent accounting companies). Payment of this fee would be a legal condition in the license.

1.32 **The Legal and Regulatory Framework.** The Electricity Law and complementary regulations could be established once decisions have been made on how to organize and restructure the sector.

1.33 In Viet Nam, consideration should be given to the powers and flexibility for later adjustments provided by the charter and the aspects of regulation that need to be the subject of the Electricity Law and operating licenses for the enterprises. In general, an Electricity Law provides the stability and predictability that helps the sector function commercially. Its provisions are sometimes described as *primary legislation* or *statutory provisions*. Licenses or charters that specify the responsibilities of the enterprises can be amended more easily and can provide the flexibility to amend and develop the framework in the light of experience and to meet new requirements.

1.34 Thus, an Electricity Law might deal with the following:

- a. Determining which activities are subject to licensing by regulators—for example, generation and distribution but not construction
- b. Defining the powers and duties of regulators, including provisions for regulators to issue and amend licenses authorizing individual entities to operate in the sector
- c. Enforcement provisions that allow regulators to carry out their duties and enforce the provisions of the Law or of license conditions
- d. The major duties and powers of the individual enterprises or licensees
- e. Provisions for general matters of public policy, including health and safety, the environment, and national security
- f. Specific legal provisions necessary to effect ownership transfer if the sector is being restructured or the legal status of entities is amended
- g. Treatment of complaints by consumers.

1.35 Licenses may deal with matters that are not appropriate to include in the Law, where a particular issue needs to be dealt with more flexibly, and where the regulator may use some discretion. These may include the following:

- a. Price conditions set by regulators.
- b. Requirements for the production of accounts, reporting performance, and other information.
- c. Detailed provisions affecting the business, for example, in the treatment of special groups of consumers, rural electrification, and so on. Exact procedures for paying a transparent subsidy from government to enterprise could be included in the license.

- d. Standards of performance for the enterprises, in relation to the quality of service that they provide to their customers.
- e. Requirements to implement specific matters of energy policy, such as the promotion of energy efficiency.
- f. Compliance with technical standards.

The Ministry of Energy

1.36 The role of the Ministry of Energy should be completely redefined to exclude any direct “ownership” and “management” responsibilities in the power sector. An official of the Ministry of Energy could be allowed to attend important meetings of the Board of Management, on behalf of the Ministry. However, the Ministry of Energy should not have any permanent representation on the BOM.

1.37 The Ministry would be largely responsible for establishing national energy sector policy, which would in addition to power sector policy also involve the broader policymaking role in the coal, oil, and gas sectors.

1.38 Annexes 1 to 3 provide additional information as follows:

- Annex 1: International experience in power sector regulation
- Annex 2: International experience in structural reform
- Annex 3: Principles of regulation.

2

Structure and Commercial Arrangements

Background and Issues

2.1 EVN comprises 34 separate business units, each with its own charter and each reporting to the director general (see Figure 2.1). They are subject either to *independent accounting*, which focuses on costs and revenues and provides more autonomy, or to *dependent accounting*, which focuses on costs and is less autonomous. The units fall into three categories:

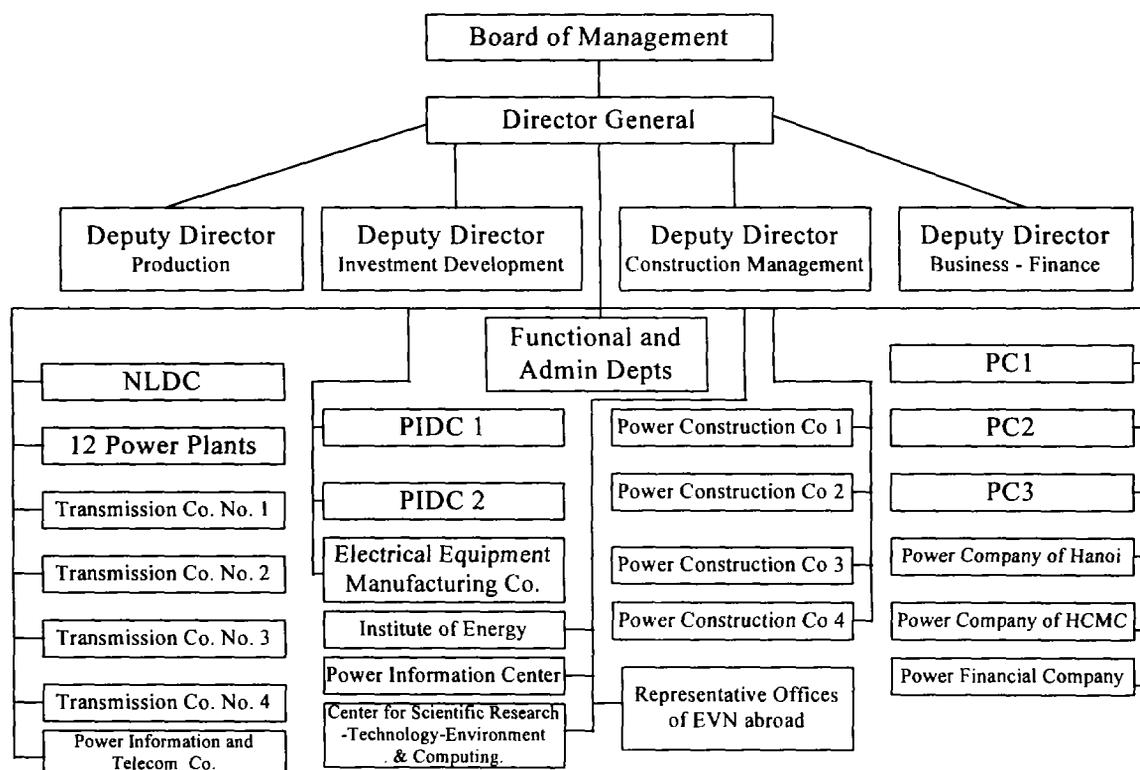
- Those engaged in generation and transmission are subject to dependent accounting, and consolidation of accounts takes place only at the level of EVN as a whole (General EVN). Some 17 business units are involved in these activities—12 for generation and 5 for transmission. They all report to the director general, through the deputy-director general for production.
- Those responsible for distribution and supply are independent accounting enterprises (profit- or cash-generating centers), which are accountable directly to the director general. EVN has five distribution units: Hanoi, HCMC, PC1, PC2, and PC3.
- Those involved in the provision of services (including finance, design and construction, and planning) have either independent or dependent accounting status.

2.2 Identifying the separate units in the charter has been a vital first step in the reform process. Establishing relationships among these member units is an important next stage in advancing the reform process in accordance with the charter. To achieve the stated objectives of power sector reform in Viet Nam, the following aspects of commercialization would be absolutely essential.

Separation of Accounts and Identification of Costs and Revenues

2.3 The principle that decisions are made on the basis of actual costs is fundamental to the process of commercialization—this means that either the costs should be under the direct control of the decisionmaker, and should be properly identified, or they should be properly reflected in internal transfer prices. The government should therefore provide transparent subsidies to cover any mismatch between actual costs and actual revenues. The structure of EVN must therefore facilitate and encourage the identification of costs.

Figure 2.1 Organization Chart: Electricity of Viet Nam (EVN)



Developing Commercial Management Practices

2.4 Commercial management practices are an essential part of any transition to an efficient power sector. This transition will be gradual and probably quite difficult. It is through the introduction of these management practices that the objectives of efficient operation are translated into reality.

2.5 Achievement of the above would also provide the necessary building blocks for progressive development of an increasingly efficient structure in the longer term. A longer-term strategy would include the following elements:

- Gradually introducing competition in electricity generation and supply
- Encouraging private sector participation.

Possible paths for charting a long-term reform strategy are outlined in Annex 2, which sets out aspects of international experience.

A. Electricity Pricing for Efficient Operation

2.6 The government of Viet Nam should address two elements of pricing in organizing the power sector along efficient commercial lines. The first is the setting of final consumer prices—prices at which electricity is sold to residential, commercial, and industrial consumers. The second is the setting of internal bulk transfer prices between the generation and transmission group and the distribution enterprises.

Final Consumer Prices

2.7 The responsibility for establishing consumer prices will remain with the government. We recommend, however, that a separate regulatory agency be given this responsibility. At present, the prices paid by consumers are below costs. The government of Viet Nam is, however, planning to raise consumer prices by about 20 percent per year until they reflect true costs. This strategy of gradually increasing prices in order to avoid large price increases allows for a smooth transition to pure commercial operation.

2.8 Current arrangements provide for a generally uniform consumer price structure for the whole of Viet Nam. Departures from this uniform price structure are seen in Ho Chi Minh City, where an additional surcharge is levied on electricity tariffs to provide funds for network extension in rural areas, and in rural communes that purchase power in bulk from the distribution companies and then add a margin to cover the costs of distribution.

2.9 We recommend that the following principles be adopted to facilitate more efficient power sector operation:

- a. Prices to final consumers should be regulated by an agency separate from the ownership and management of EVN. This agency should follow guidelines established under the Electricity Law.
- b. Prices to final consumers should be allowed to vary among distribution companies to reflect different costs of supply. Even if some initial adjustments are made to equalize prices, they should be allowed to diverge in the longer term to reflect differential movements in costs. Uniform prices will make it harder for the sector to operate commercially. (The existing situation of differential prices in Viet

Nam indicates that consumers are willing to pay different prices—the regulatory function of the government is to ensure that these prices are reasonable.)

- c. Prices should be based on long-run marginal costs, as if in a competitive market. This will ensure that additional consumption by EVN customers generates a sufficient stream of future revenues so that EVN will be able to finance the maintenance and development of the system to meet the added load.
- d. Subsidies should be transparent and should be directed as closely as possible to the particular group of consumers identified as needing support, rather than to the sector or its customers as a whole.
- e. Prices should be predictable and be published in advance rather than adjusted at the end of the year to reflect actual financial positions of the different entities. This will encourage all the entities to operate more efficiently.

2.10 Application of marginal cost principles will require some detailed study to determine the true economic costs of supply. This study might be commissioned by the body responsible for regulation, which will have a continuing interest in monitoring its application.

2.11 This study will also need to be closely coordinated with work on asset valuation, which is a major element in the determination of economic costs. Asset valuation, and therefore the return allowed to EVN, should reflect the current economic value of assets (such as hydro plant) rather than the historic cost (before allowing for inflation).

Internal Bulk Transfer Prices

2.12 Bulk transfer prices are the prices at which electricity is sold from the generation and transmission business of EVN to the five independent accounting distribution companies. Bulk transfer pricing proposals currently under consideration have the following features:

- a. Profits are allocated among the various enterprises based on the distribution companies' share of business capital/salary bill.
- b. Total costs of generation and transmission are shared among the distribution companies based on their estimated ability to pay.
- c. This ability to pay is calculated as $(A - B - C)$
 - A = the estimated revenue (expected sales multiplied by the uniform selling price to final consumers)
 - B = the estimated distribution costs
 - C = other expenses (not including the cost of bulk power purchased) and planned profit.

- d. Ability to pay is reconciled with total costs (and required profit) of generation and transmission, and the bulk price per kilowatt hour is set proportionately to ability to pay.

The result of this method of calculating bulk transfer prices is *a built-in cross-subsidy in the structure of bulk supply prices*.

2.13 This approach is unlikely to be sustainable or desirable under the new reform structure for a number of reasons:

- a. It reduces the degree of autonomy of the distribution companies to an unacceptable degree, and it requires investigation of the detailed costs of the distribution companies by the parent, EVN, which will undermine their status as independent accounting units.
- b. A fundamental principle of internal pricing is that it should be based on cost; the above process will result in some distribution companies paying significantly above cost and others significantly below cost even if prices are, on average, cost reflective. As a result, distribution companies will not receive the right commercial incentives to meet such targets as loss reduction, increased sales to final consumers, or use of their own generation. Similar distortions may arise in the commercial incentives for EVN Generation and Transmission.
- c. The revenue-sharing arrangements that are based on existing business capital and staff numbers may provide incentives to increase business capital or staff costs beyond the best interests of EVN. They will also increase the need for detailed monitoring.
- d. The complexity of the arrangements may make it harder to introduce more sophisticated and more efficient bulk tariffs.

Principles for Bulk Transfer Pricing

2.14 We recommend that the following principles be adopted for establishing bulk transfer prices:

- The bulk price should be based on the costs of generation and transmission
- The bulk price for different distribution companies should differ only to the extent that their electrical loads may be more or less costly to serve (e.g., because of different percentages of wet-season/dry-season load, or different costs of transmitting power).

2.15 To institute a cost-reflective bulk tariff would require a more detailed study, which is being planned under the Asian Development Bank Tariff Study. A short-term, interim approach is described in Box 2.1.

Box 2.1 Short-Term Measures to Rationalize the Bulk Tariff Formula

The Bulk Tariff Formula should be based on actual costs with subsidies being paid transparently by the government. The following approach may be adopted as a short-term measure (see Annex 4 for additional material on principles for bulk transfer pricing):

The bulk supply price could consist of two parts:

- *Part 1.* A fixed Dong/kWh price component based on the actual costs of generation and transmission. This will almost certainly lead to a more complex bulk supply tariff, in which single part D/kWh rate of Part 1 is replaced by a multiple kWh rates and a separate demand or capacity charge based on peak kW demand of the consumer. The simple single kWh rate should be seen as an interim arrangement pending detailed study).
- *Part 2.* A fixed discount component that is different for each distribution company and set at a level that provides the same expected financial result for each company as the proposed formula.

Both components of this bulk supply price must be set in advance. The tariff should be subject to annual adjustment (rather than every three months) and should be subject to regulatory approval. This approach has two advantages:

If the D/kWh rate is set to reflect the actual costs of generation and transmission, it will provide the correct commercial incentives to the distribution company, (e.g., making investment decisions for reducing technical losses).

In terms of expected financial outcomes, it will be consistent with the proposals already circulated to the distribution companies.

Application of the Recommended Interim Approach for Bulk Tariff Setting

Assume the following:

1. Cost of generation and transmission can be recovered at a bulk supply price of 400 Dong/kWh
2. Proposed formula of EVN gives bulk supply price to two distribution companies D1 and D2 as follows:
 D1 = 300 Dong/kWh
 D2 = 350 Dong/kWh

Assume expected sales to D1 and D2 are as follows:

D1 = 7,500 kWh
 D2 = 10,000 kWh

Under the interim approach recommended the new tariff would consist of:

Part 1 = 400 Dong/kWh (based on actual costs of generation and transmission)
 Part 2 = Discount for D1 = 750,000 Dong
 Discount for D2 = 500,000 Dong

The payment by the D1 and D2 would remain the same:

	<i>By EVN formula</i>	<i>By interim approach</i>
D1	2,250,000 Dong	(3,000,000 – 750,000) Dong
D2	3,500,000 Dong	(4,000,000 – 500,000) Dong

The only difference in the EVN formula and the interim approach is that the incentives for D1 and D2 will be more closely aligned with commercial principles. This would also facilitate more accurate internal cost accounting by D1 and D2.

B. Grouping of Business Units

2.16 The individual business units of EVN are in the process of preparing their draft charters. These draft charters will be discussed by the senior management team of EVN, before final approval by the director general and BOM. This process is intended to establish boundaries and relationships among the member enterprises. In establishing these boundaries, it is essential to organize or group business units to provide the greatest incentives for efficient and low-cost operation. The organization of business units recommended is described below.

An Integrated Transmission Company

2.17 The commissioning in 1994 of the 500 kV line, connecting the northern, central, and southern systems, has for the first time given Viet Nam a single integrated power system (IPS). The IPS will provide emergency support and sharing of reserve capacity and take advantage of demand and hydrological diversity. This project has already begun to repay the large financial investment by eliminating the operation of high-cost (diesel/thermal) generating plant and reducing the frequent load shedding in the South. Additional benefits will be realized through the coordinated operation and management of the transmission system as a single business unit.

- Optimizing the overall cost of generation by dispatching all of the country's generation on a merit-order basis (i.e., using the lowest-cost plant available to meet the required load at any one time)
- Coordinating transmission line maintenance work more efficiently by a single outage planning group working closely with the load dispatch center to ensure that maintenance work is carried out at minimum cost.

2.18 **The Integrated Power System.** The IPS comprises all transmission circuits and equipment forming the interconnected transmission network, including all the generating plant feeding into it. More specifically, we recommend that the IPS of Viet Nam should consist of the following elements:

- a. All EVN-controlled generating plant
- b. All 500 kV equipment
- c. All 220 kV equipment
- d. All 220 kV/lower-voltage transformer
- e. 110 kV equipment that has or will have an interconnecting function between parts of the higher-voltage network or that connects EVN-controlled generating plant to the IPS.

2.19 **Management of the Integrated Power System.** Proposals have been made to refurbish and re-equip the existing three Regional Load Dispatching Centers (RLDC), leaving the National Load Dispatch Center (NLDC) as an "upper tier" control

center, which will coordinate the RLDCs and manage the operation of the 500 kV line and equipment.

2.20 With an integrated power system, the proposal to continue with this four-load dispatch center arrangement for management of the integrated system should be reviewed in the light of the business requirements of the operating company.

2.21 The control of an integrated network does not depend on the location of load dispatch centers. An integrated power system can readily be controlled from a single control center where provision has been made for obtaining data from generating plants and substations and for the establishment of appropriate computational facilities. Urgent consideration should thus be given to establishing a single system management authority to exert firm control and utilize the generation and transmission assets of Viet Nam. It is recognized that the NLDC was established and given the responsibility, under Government Resolution No. 90/NIL-KHAKI of February 1994, to manage and dispatch the entire National Power System in Viet Nam. The NLDC is to operate as the energy management system (EMS) in charge of the operation of the generation and transmission system.

2.22 Recognizing, however, that the 500 kV North-to-South link is a single circuit line subject to partial or even complete failure (from many causes), the IPS may be forced to operate for prolonged periods in two separate sections. Consequently, a two-center system of control can be considered in which both centers can exert primary control of the IPS. Thus, either control center could control the IPS if the other were disabled. The obvious choices for such an arrangement are the NLDC and the RLDC in the South. The division of duties of each center under normal operating conditions would need to be examined further, but the operating personnel must be familiar with the operation of the IPS.

2.23 Under such an arrangement, the existing RLDCs in the North and Center would have no role in the management of the IPS. These RLDCs may well be utilized as control centers for the new distribution companies—that is, as distribution management systems (DMSs).

2.24 Similarly, Transmission Companies 1 to 4 should be grouped into a single transmission company to optimize resources for the operation and maintenance of the integrated power system. Groups of staff would still need to be based at each of the current four locations but over time all staff could be used more productively.

2.25 Annex 5 provides information on the main elements of a grid code that would establish the operational guidelines among all parties in the power system: generation, transmission, and distribution. The main function of the grid code is to ensure the following:

- That the integrated power system is run efficiently
- That the benefits of the interconnected system are maintained

- That minimum standards of reliability and quality of supply and safety are maintained.

Organization of Service Business Units

2.26 **Power System Design and Construction.** The objectives of the member enterprises involved in power system design and construction are currently defined by voltage, geographical area, or cost of project. Changing these objectives to enable them to carry out a wider range of work over a wider area would promote more efficient use of their resources.

2.27 **Power, Investigation, and Design Companies and the Four Power Construction Companies.** A detailed analysis of the work of the power, investigation, and design companies and the four power construction companies may indicate that the optimum grouping could be a single power design and construction company. This company would be able to carry out work for EVN throughout Viet Nam but would also be able to bid for work in other sectors. This would enable more efficient management of overall design and construction activities. Several other combinations of the currently proposed business enterprises are, of course, possible—for example, separate design and construction companies covering the northern and southern regions that would compete against each other.

2.28 **Manufacturing Business Unit.** The role of the Electrical Equipment Manufacturing Company (EEMC) needs to be reviewed. It may be appropriate to establish it as an independent business outside EVN that could sell its products to any customer worldwide. Other EVN internal units previously required to use equipment manufactured by the EEMC could then procure it elsewhere on a competitive basis.

C. Introducing Commercial Management Practices

2.29 For most nationalized electricity supply industries the major objectives of reform are to restructure the industry to deliver the benefits of both improved efficiency of supply and lower prices. These benefits are often associated with privatization, but the main principles can be effectively applied to commercialization of a state-owned industry. Major efficiency improvements can thus be achieved that can attract private sector capital and new competitive elements. This section discusses the basic concepts of good business management essential to achieving the benefits of “commercialization.”

Identification and Definition of Profit and Cost Centers

2.30 One useful method of classifying and organizing business units is on the basis of profit and cost centers.

2.31 To apply the profit center concept to any business unit, all costs and income must be identified. Subtraction of costs from income gives the accounting profit of a business unit for the period (this is similar to the concept of independent accounting).

2.32 One of the objectives of a profit center business unit is to achieve or exceed a target profit. Analysis of the details of all costs incurred and the income earned will indicate the reason for any major difference between target and actual profit. Establishing a realistic target profit requires a detailed identification of all costs and income, as part of the budget preparation process. For each individual review period, elements of cost are analyzed in more detail and possible savings identified. Income received can also be analyzed and the reasons for discrepancies investigated. Cost management can then be improved and profit increased.

2.33 Where the company cannot identify an income it can be managed as a cost center (similar to the concept of dependent accounting enterprise). The same principles can be applied to the analysis and management of costs to ensure that all costs are accounted for and minimized where practicable. Efficiency can then be improved through better cost control.

2.34 A unit can be managed as a profit center by establishing internal transfer prices among business units so that the income of one producer unit becomes the cost of the user unit. Such an arrangement can be considered for the bulk transfer price of electricity passing from EVN's generation and transmission units to the distribution companies. Further profit centers can be created by considering the separate business units under generation and transmission (G&T).

2.35 All individual power stations can be designated as profit centers by establishing a process for placing a value on the electricity produced or sold from each station. This system should reflect the income the overall business will receive and can incorporate a mechanism to provide increased income when electricity demand is at its highest. Thus, power stations can focus on maintaining optimum plant performance at times of peak demand, maximizing income and profits.

2.36 Identifying each power station as a profit center can also improve motivation and productivity of the staff.

2.37 For this change to power station management to be made, a buying price must be determined for all the electricity bought by the transmission system. The concept of a single integrated transmission company suggested above would greatly assist the determination of this transfer buying price. This then becomes the major cost for the transmission company to which it must add all other costs for materials, labor, design, construction, and so on, to determine its total costs. The income for the transmission company is derived from the electricity sold to each of the distribution companies, and the profit center concept can then be applied to the transmission company. For the company to make a profit, the bulk transfer price must be based on the total costs determined as above, therefore reflecting the true costs of generation and transmission.

2.38 The same principles can then be applied to each distribution company once their costs and income are separately identified.

2.39 One of the concerns about applying the profit center concept to business units is how to manage the “profit” that is identified. This is of particular concern where profit is an unfamiliar concept as, for example, at a power station. From the above explanation, however, it can be seen that the real value of the process is achieved by focusing management effort on the closer control of costs and income, which in turn leads to improved efficiency and lower costs. The combined profit of all the business units within G&T can be aggregated as one income stream for EVN, with the distribution companies providing a separate income stream. How the resulting profit is managed is then at the discretion of the management board. In general, these profits could be used to finance the expansion of the electricity sector in Viet Nam.

Objectives and Accountability

2.40 Objectives for each business unit need to be set and the boundaries and relationship with other business units established. The business unit managers are then accountable for managing their resources to achieve the agreed objectives—for example, managing all transmission maintenance work within the agreed program or managing the total staff costs within an overall budget.

2.41 This principle of accountability can enable business units to carry out a number of functions previously carried out centrally—for example, procurement of spares up to an agreed value and recruitment of staff. The business unit managers will then be accountable for managing their activities to achieve the agreed objectives.

2.42 It is often considered that major economies of scale can be achieved by centralizing activities. However, international experience indicates that this is often not the case. If each of the functions of procurement, financial accounting, and staff recruitment were analyzed in detail, taking account of a business unit’s agreed objectives, more efficient practices will be identified. An example would be a business unit being able to purchase materials directly without needing authorization from headquarters. The business unit manager would be accountable for obtaining the goods of the right quality and price against an agreed budget limit. This motivates business unit staff to achieve other cost savings and efficiency improvements.

2.43 The requirements for regular formal and informal contacts with internal and external customers and suppliers should also be stated in the objectives. Examples of this are as follows:

- Each power station’s planned outage program must be discussed and approved by the load dispatch center.
- The distribution companies’ planned development/system refurbishment program must be discussed with the transmission company.

Setting Performance Targets

2.44 An essential aspect of giving business units more autonomy is the ability to establish performance targets to identify the major achievements required and with which their performance can be compared. Realistic target levels must be established that take account of the past, current, and predicted performance of the business unit. The business unit manager should be involved in identifying the targets for each of the activity areas.

2.45 An example of a target for a distribution company is that set by the HCMC power company. The company currently assesses its system losses at about 18 percent a year. The company's overall objective is to reduce these losses, with a performance target of reducing losses by 1 percent a year to the 10 to 12 percent level.

2.46 To determine if this practice is reasonable, comparisons can be made with other distribution companies, both within EVN and internationally. This is termed *benchmarking* and can be used to establish progressive efficiency targets.

Business Plans

2.47 For each business unit, a comprehensive business plan should be prepared identifying the staff, materials, and capital required to meet the performance targets. The unit should have a one-year operating plan and a longer-term (perhaps five-year) development plan.

2.48 The basic purpose of any business plan is to indicate how the business expects to achieve its strategic objectives, how robust the plans are, what resources are required to achieve them, and what the EVN can expect to get in return. The starting point of each business plan, therefore, should be a statement of the strategic objectives of the business and how these support the overall group strategic plan and vision statement.

2.49 It should include a detailed breakdown of the following factors:

- a. Forecast income and expenditure
- b. Capital expenditure programs
- c. Human resource requirements
- d. Staff training programs
- e. Performance targets.

Management Information Systems

2.50 High-quality, accurate, relevant information is essential to achieving efficiency improvements. Financial accounting systems that provide business unit managers with reliable, user-friendly information are necessary for the manager to monitor their performance. Many financial accounting software systems are available that can be tailored to meet individual needs, such as identifying and comparing costs of a

section or department within a business unit—for example, a transmission line maintenance team, an instrument maintenance department, or a power station.

2.51 Computer-based systems can also be used to manage other aspects of a business unit's activities. The main objective of these systems should not be just to identify the total resources used or the output achieved but to provide management information in a form that assists the decisionmaking process. An example already in use is the distribution company billing and debt collection arrangements, where the system is established to identify the total revenue received each day or week and to indicate the total outstanding debt and the average time to pay. This information can be used to identify where more resources need to be applied—for example, to reduce outstanding debt. A further example can be a computer-based power station maintenance management system that can be used for planning all maintenance work, providing work instructions to staff, and recording all work completed in a plant history. Information from this system can provide managers with data on which to base future maintenance work to improve availability and output. It may also be used to highlight the true costs of a shortage of spare parts and then justify their procurement.

Managing the Transition

2.52 The benefits of applying the principles of commercial operation to the management of EVN will only be achieved when they are being used effectively by all staff. In order to achieve this a major change in the management program is required, involving the following tasks:

- a. Communicating to all staff the reasons for change
- b. Identifying the training requirements for new skills
- c. Considering revising the salary structure to enable incentives to be given to reward good performance
- d. Identifying the reporting lines for all business unit managers.

2.53 The development of the transition program could be the main focus of the Institutional Development Technical Assistance to be financed under the World Bank's Power Rehabilitation and Expansion Project.

3

Power Sector Financing in Viet Nam: The Issues

3.1 The power sector of Viet Nam is faced with a capital requirement of about US\$1 billion per year over the medium term (5 to 10 years)—a substantial part of which will be in foreign currency. This capital is essential to maintain economic growth at projected levels.

3.2 The issue that must be clearly understood in raising the required amount of capital is that there is no real shortage of money in either domestic or international capital markets. The real issue is about providing acceptable returns and security to those who provide the money. This holds true whether Viet Nam raises capital from domestic or international lenders and investors. We therefore stress that the same steps or measures are required to raise domestic or international capital. For example, if EVN wishes to raise money from Vietnamese people by issuing bonds on its own account, it must be prepared to pay an acceptable return and have the necessary cash flow to meet the obligations—if not, the Vietnamese people will be unwilling to give their funds to the power sector.

3.3 To understand the challenge that lies ahead and define a viable financing strategy we must fully appreciate the following:

- a. The limitations of government budgetary support for the power sector
- b. The opportunities for power sector financing in Viet Nam
- c. Constraints to raising commercial capital for the power sector
- d. Government policy and linkages to power sector financing
- e. Raising capital on EVN's account — requirements and prospects.

A. The Limitations of Government Budgetary Support

3.4 The roots of the ongoing reform in the power sector can be traced to the inability of the government of Viet Nam to finance power sector development from the government budget. In fact, the reason the government has encouraged different local governments and Vietnamese people to contribute funds for power sector development is

that it does not have adequate resources to finance new capacity and rural electrification on its own. After all, the government of Viet Nam has other demands on the limited amount of capital available at its disposal and must allocate it between education, health, roads, and agriculture, in addition to power. Consequently, the government has decided to establish EVN to assist in finding alternate sources of finance for power sector development.

3.5 Keeping the above factors in mind, it is useful to distinguish between the government of Viet Nam and Electricity of Viet Nam. Although EVN is completely state-owned and managed, there is a tendency to blur the boundaries between the role and responsibilities of the state and that of EVN. For Viet Nam to achieve its financing targets for power sector development, the state must clearly define its ownership role and policy toward the sector.

3.6 Almost all the power sector financing being raised currently is based on the guarantees of the government of Viet Nam. This is true whether the financing is raised from the World Bank; bilateral sources (e.g., France, Sweden, Japan); or local people (bonds, employee deposits). Whereas the project scope and financing requirements may be negotiated by EVN or the Ministry of Energy, currently all the lenders/investors provide the money with the implicit or explicit guarantee of the government of Viet Nam. Investors who are discussing BOT/BOO projects in Viet Nam will also expect government guarantees in order to provide the required capital, although they will sign the power purchase agreements with EVN. What this means is the power sector does not have the capacity to raise financing on its own (i.e., on its own account and the strength of its own balance sheet).

3.7 Implicit or explicit government guarantees imply that the government is undertaking “government” financing of the power sector. In effect, this is similar to government budget support for power sector financing. Continued borrowing by the government on behalf of EVN will therefore reduce the ability of the government to raise capital for other essential economic needs: education, transport, health, and so on. If this continues, the objective of the government of Viet Nam to reduce government budget support cannot be realized.

B. Opportunities for Power Sector Financing in Viet Nam

3.8 It is fully recognized and appreciated that Viet Nam is undertaking significant reforms relating to macroeconomic management, financial sector organization, state-enterprise reform, taxation policy, and so on. All these reforms will influence how the power sector is able to raise capital on its own account. It is therefore also recognized that the power sector will not be able to become self-financing overnight. However, many opportunities for power sector financing are closely related to these economic reforms, and the government of Viet Nam must organize the power sector to take advantage of these opportunities. Unless the power sector is organized under a suitable

structure of incentives, both internally (within EVN) and externally (EVN and other government agencies), these opportunities will be missed. The following opportunities have been identified.

The Power Sector and Domestic Capital Market Development

3.9 The power sector can have a tremendous influence on the development of domestic capital markets. The power sector can be a useful vehicle to attract domestic savings for the economic development of Viet Nam. As an infrastructure sector with the potential for a secure and steady income stream, the power sector can very easily raise money through domestic and international bond issues. Besides raising funds for the power sector, these infrastructure bond issues can assist in developing strong capital markets within Viet Nam. It is worth noting that capital markets in the United States and Europe were initially developed based on infrastructure bond issues. Further, the power sector is an excellent place for domestic pension funds, insurance companies, and others to invest domestic savings. However, in order to achieve the full benefits of such mechanisms, the power sector must be organized to stand independently (i.e., with a strong balance sheet and adequate annual cash flows).

The Power Sector and International Investment

3.10 Many international investors wish to invest in the Vietnamese power sector. These investors include BOT/BOO project developers and international commercial banks. Evidence of this interest is seen in the large number of project proposals presented to EVN and the government of Viet Nam (e.g., BP/BHP, SIPAC, and Enron). However, many of these investors require, or will require, high returns in order to undertake the financial risk of dealing with a financially weak EVN. As both EVN and the government of Viet Nam are interested in reducing the cost of this foreign financing, it becomes important that the government of Viet Nam begin to institute mechanisms that will reduce this risk. This will be possible only if EVN is allowed to operate in a commercial manner with transparent government of Viet Nam subsidies for social expenditures such as rural electrification and low-cost power for poor consumers. If these steps are not carefully implemented, the cost of foreign financing will remain high, resulting in a high cost of electricity for the people of Viet Nam.

C. Constraints to Raising Commercial Capital for the Power Sector

3.11 The principal constraints to accessing commercial infrastructure finance are as follows.

External Debt Management

3.12 Viet Nam is burdened with significant external debt from the prereform period. Total external debt stock in *convertible currencies* was estimated to be US\$6.7 billion (43 percent of GDP) as of end-1994 (including IMF and short-term debt). Debt service obligations for convertible currency debt in 1994 were equivalent to 10 percent of

exports of goods and services. The government is pursuing an external debt management strategy that calls for (a) normalization of relations with its foreign creditors (including settlement of commercial bank claims); (b) establishment of prudent borrowing targets that match the availability of concessional finance; (c) strict limits on commercial borrowing, including by State enterprises; and (d) the encouragement of private capital inflows, primarily through foreign direct investment. Further, conditions of an IMF *structural adjustment facility* place strict limits on *all* short- and medium-term convertible currency borrowings up to a maturity of 12 years.

3.13 As part of a consistent macroeconomic stabilization plan, the government has been advised to avoid incurring additional commercial debt at least until the external debt restructuring is completed. It is also recommended that once the debt is restructured, the government focus on making effective use of the large volume of ODA commitments and on improving the environment for foreign direct investment. The government has also been advised to use sovereign guarantees for commercial borrowing by enterprises cautiously, as it would increase the levels of convertible currency debt on the government's own account—compromising external debt management efforts.

Banking Systems and the Financial Sector

3.14 The financial sector in Viet Nam consists essentially of the banking sector. There are neither securities markets nor a stock market in Viet Nam. The government intends to open a stock market within one or two years. The commercial banking sector in Viet Nam is dominated by the State-Owned Commercial Banks (SOCBs). Although SOCBs have greatly increased their credit to the private sector, state-owned enterprises account for the largest share. Nonperforming loans or overdue credits are substantial—about D3.17 trillion. Bank restructuring is a reform priority, and its success depends on the restructuring of the productive enterprises in the economy, as these have a direct bearing on the viability of the banking system. The transition is likely to be slow, owing to the large number of policy loans incurred in the prereform period. The government of Viet Nam is licensing foreign banks to open branches in Viet Nam. Foreign banks are presently focusing largely on trade finance. Long-term debt provided by these institutions tends to be in maturities of about three years, which is inadequate for power sector financing.

3.15 Progress in equitization of state enterprises has been slow, and as yet no decision has been made to prepare power enterprises for listing on the proposed stock exchange. The power sector is defined as a “strategic sector” by the government, which currently precludes it from equitization and listing on the stock exchange. Although there is the option of raising additional equity by selling power sector assets to foreign strategic investors or partners, prioritization of the existing power sector enterprises is presently not under active consideration.

3.16 Based on the above constraints, the implications for power sector financing are as follows:

- Large amounts of long-term debt are required to supplement the equity contributions (including foreign direct investment), which for infrastructure projects are typically about 30 percent. Given external debt management guidelines, lenders to the power sector (including lending to private power projects) would need to provide long-term financing in maturities exceeding 12 years. Presently, no benchmarks or comparable transactions are available to determine the cost of such borrowing (with or without government guarantees). More specifically, there have been no transactions where the commercial loan amounts are comparable to the requirements of a power project.
- Commercial convertible currency debt for power sector projects should be raised in conformance with the government's external debt management strategy. In general, this would require that government guarantees be used only where the cost of debt can be brought to levels comparable with sovereign borrowing. The relevant consideration is the trade-off between the incremental cost of raising nonguaranteed commercial power sector debt and allocating sovereign debt for power sector needs.
- Equitization of power sector assets and sales of equity to domestic investors is not a short-term option owing to the lack of a stock market and the government's prevailing policy toward strategic industries. Sales of power sector assets to foreign strategic investors is not an option under consideration.

D. Government Policy and Power Sector Financing

3.17 As the power sector of Viet Nam is owned, regulated, and managed by the state, the policy of the government toward the sector becomes the central element of any strategy to improve self-financing of the sector. We briefly discuss three important elements of government policy toward the sector: (a) government ownership policy; (b) government taxation policy; (c) government subsidy policy.

Government Ownership Policy

3.18 EVN is likely to remain a state-owned corporation over the short term. In accounting/financial terms this means that the state will hold 100 percent of the equity in EVN. However, in the interest of future financing it is necessary that the state act like a "true owner" in terms of its rights and responsibilities to develop and preserve state assets. Experience in other countries indicate that for the state to act "responsibly," the following features are essential.

3.19 **Target Return on Equity for EVN.** Given that the state owns all the equity in EVN, it must insist that EVN provide an adequate return on state equity. The state may decide to reinvest this return on equity back in EVN. However, this is different from allowing EVN to deliver a zero-return on state equity. The social objectives of the state should be dealt with transparently through state subsidies—for example, the state

can take its return on equity and return it to EVN as a transparent subsidy for rural electrification. Many governments have negatively influenced the development of their power sector by assuming that state equity is somehow “noble” and that getting a zero-return is acceptable. This usually means that the state is not taking its ownership role seriously and is actually *not* developing, *nor* preserving state assets. Such behavior will not provide the correct incentives for EVN to stand on its own feet and become financially strong.

3.20 **Government Lending for the Power Sector on Commercial Terms.**

An ongoing debate in Viet Nam concerns the on-lending terms for multilateral and bilateral loans from the government to EVN. Arguments have been made in favor of the government’s lending the low-cost funds from OECF, the World Bank, and others at the same concessionary terms at which they are provided to the government of Viet Nam. These arguments are wrong and are inconsistent with the objective of separating state management and business management functions within the power sector. They are also inconsistent with any efforts to develop a financially strong EVN. It is important to recognize that multilateral and bilateral loans are provided to government of Viet Nam in order to promote economic development. The government should, in the interests of good budget policy and management, on-lend these funds at rates that reflect the marginal cost of funds to the government. This financial discipline is important for several reasons:

- *Providing EVN with commercial operating incentives.* Low-cost funds do not reflect domestic and international financial realities. EVN should be exposed to these realities from the beginning. The government can use the difference between the low-cost borrowing from World Bank’s IDA loan (approximately 2 percent) and the commercial on-lending rate imposed on EVN (assume 6 percent) to provide transparent subsidies to EVN for rural electrification and other social objectives.
- *EVN will be able to develop accurate estimates of its “true” operating costs when faced with commercial on-lending discipline.* Under these circumstances EVN will be in a better position to evaluate project proposals from BOT/BOO project developers. For example, whereas the cost of EVN power may be 3 to 5 ¢/kWh with subsidized loans, the true economic cost to Viet Nam is considerably higher, given that the government is implicitly/explicitly guaranteeing or subsidizing the loans. Therefore, for the government and EVN to have a cost-reflective and objective basis to evaluate these private power proposals, EVN should be exposed to commercial rates of borrowing.

Taxation Policy

3.21 The government of Viet Nam should expose all state-owned corporations to a uniform domestic taxation regime. Exposing operating companies such as EVN to the same tax rules applicable to other corporations in Viet Nam is a central element of

commercialization and corporatization. Special tax rates for EVN would imply a nontransparent and noncommercial operating framework. Special tax rates would in that sense result in nontransparent subsidies to EVN. The government has every opportunity to provide subsidies transparently, by taking the tax revenue paid by EVN and returning it to EVN as a transparent subsidy. Such a mechanism would allow EVN to estimate its true cost of operation and would provide good commercial discipline.

3.22 A number of countries have had problems raising capital for power sector development, owing to the lack of commercial discipline that stems from special tax preferences to power enterprises. An integral part of commercialization and corporatization reforms has been the elimination of these tax preferences. For example, Malaysia imposed a uniform corporate tax on the power sector at the time of corporatization—these new tax rates were gradually phased in to allow for a smooth transition. Viet Nam could consider some method of gradually phasing in the new Vietnamese corporate tax regime for EVN. China is also imposing a uniform corporate tax regime on all power sector enterprises—once again, these uniform tax rates are being phased in gradually.

Subsidies for Rural Electrification and Low-Income Consumers

3.23 The need for and provision of commercial operating incentives is not inconsistent with the social objective of the state to provide subsidies for rural electrification and low-income consumers. Every country has at some stage of development subsidized electricity and rural electrification through some form of government support. The social objectives of the government of Viet Nam to provide such subsidies are therefore perfectly acceptable. However, it is important that the operating companies in the sector are not burdened with the need to provide these subsidies from their own operating cash flow or financial surplus. To allow these operating companies to have incentives to operate efficiently and provide managers and workers with enough motivation, the state must provide these subsidies transparently from its own budget. The operating companies pay taxes to the government, and the government can use these taxes and other public resources to provide the required subsidy. The final amount of subsidy provided will be the same as far as the government is concerned. The added and most important benefits of providing a transparent subsidy are as follows:

- a. The operating company (EVN and its member units) have the incentive necessary to generate and distribute electricity efficiently.
- b. The Director General of EVN and the management team can be held fully accountable to deliver good operating and financial performance.
- c. EVN will be able to raise capital from “commercial” sources with a balance sheet that will meet the demands of domestic and international investors. Transparent subsidies can be clearly reported in accounting statements, “hidden” subsidies

cannot be concealed. With “hidden” subsidies, *EVN will only be able to mobilize capital if the State Bank of Viet Nam provides a government guarantee to commercial banks and investors*. EVN will not be able to raise capital on the strength of its own balance sheet.

- d. A separate government regulatory function will be able to ensure that the government provide subsidies transparently in order to achieve the key objective of mobilizing capital for power sector development.

E. Raising Capital on EVN’s Account—The Requirements

3.24 In the earlier sections of this report, we have constantly stressed the need for a financially strong EVN in order to achieve the financing objective of power sector reform. The term “strong balance sheet” has been used a number of times. The term is used generally to denote what is required in terms of government regulation, internal financial management, investment planning, and asset management to allow a corporation to raise finance on its own account. In the following discussion we explain the factors and aspects of financial management that are behind a financially strong corporation.

Whose Point of View?

3.25 If EVN wishes to raise funds on its own account, it should work toward developing a strong financial base that is attractive to those from whom it seeks to raise capital. The intention of EVN is to raise capital from

- a. Domestic commercial banks
- b. Domestic institutional investors (pension funds, insurance companies, etc.)
- c. Domestic investors through bond issues
- d. International commercial banks
- e. International bond issues.

3.26 If EVN is to approach the above investors for funds, it should be prepared to provide high-quality accounting statements to them. This, we stress, is true whether EVN wishes to raise capital domestically or internationally. To satisfy the demands of these investors for clear and transparent information, EVN should aim to meet the following criteria:

- Accounting statements should be prepared in accordance with internationally accepted financial standards.
- Accounting statements should be audited, verified, and certified by a credible, arm’s-length accounting firm. It is not adequate for EVN to have its accounts audited and certified by a government auditor. This is not because the government auditor is less qualified but because investors are unlikely to have

faith in the accounting statements certified by the government—especially when the government is also the owner, regulator, and manager of the sector.

- Credit rating of the company should be done by a credit rating agency, such as Moody's or Standard & Poor's.

Future Financial Prospects

3.27 Investors and lenders are interested in the potential return on investment and a company's ability to service its debt and other financial obligations in the future. They wish to be assured that the company will remain adequately profitable over the lifetime of their investment. In the case of the power sector, as prices are controlled by the government, the future outlook for power prices become extremely important to the lender and investor. This is often referred to as regulatory risk, and minimizing this risk is a key challenge in raising capital for the sector.

3.28 With regard to regulatory risk, a bank is interested in ensuring that future cash flows are adequate to cover all interest and principal repayments. These providers of capital are essentially concerned about arbitrary decisions made by government concerning tariff, tax, and other policies that could negatively influence the ability of the company to meet its financial obligations. Ad hoc policy or legislative changes could also result in a direct financial impact to the investor or lender. From a financing perspective it is therefore important that the government establish a clear electricity law and regulations that provide guidelines on the process of tariff setting and adjustment in order to provide security to investors and lenders.

F. Developing a Financing Strategy

3.29 Actions that will ease sector financing constraints and provide a wider set of financing options for the power sector include the following:

- a. Examine options to reduce the cost of commercial debt for the power sector. The government will need to define a least-cost borrowing strategy for infrastructure sectors that is consistent with external debt management strategy. The use of government guarantees to reduce the cost of financing for the power sector should be evaluated.
- b. Establish a process and framework by which EVN can procure additional generation capacity on a BOT/JV basis.
- c. Continue the corporate restructuring and institutional strengthening of EVN with the objective of transforming EVN into an entity that is able to raise commercial debt on its account without the need for government guarantees.
- d. As an integral part of government efforts to establish a securities market, examine the scope of raising domestic finance through public bond issues by EVN for power sector financing.

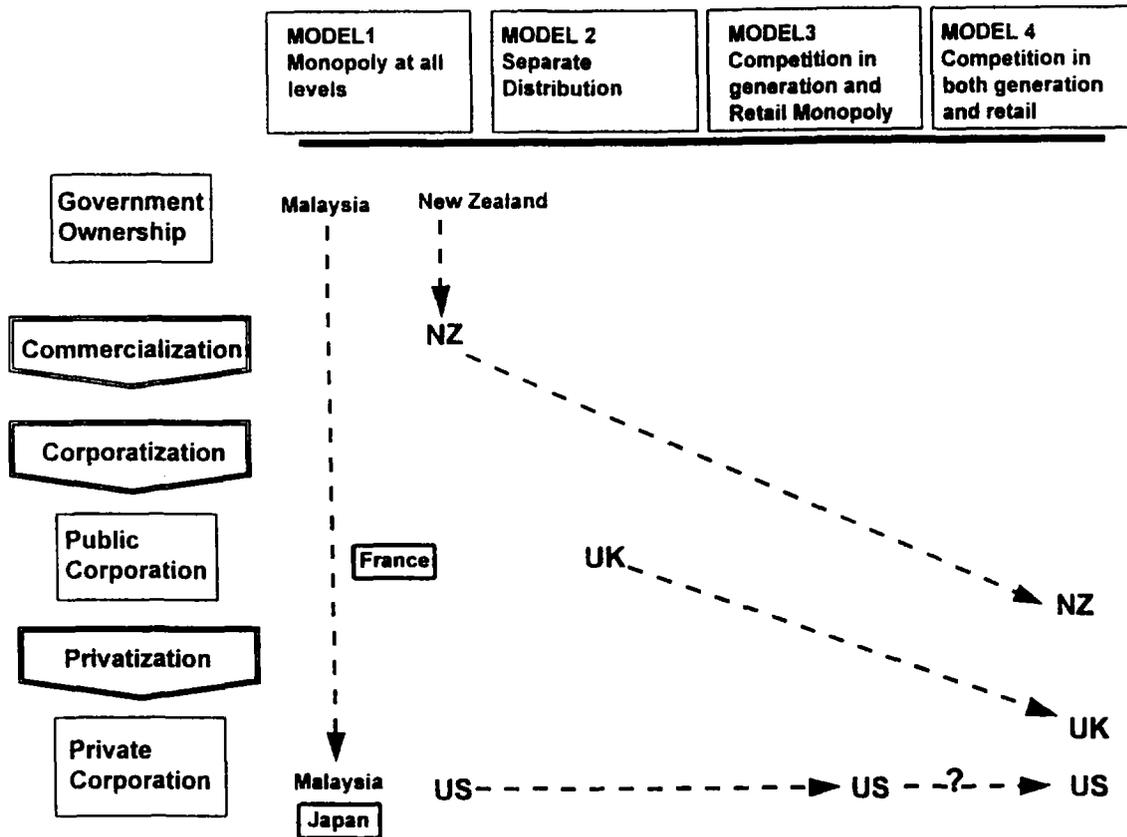
Annex 1: International Experience in Power Sector Regulation

	<i>Austria</i>	<i>England and Wales</i>	<i>France</i>
Structure			
Vertical integration	Generation, transmission, and distribution separate, with long-term contracts and voluntary cooperation. Supply and distribution combined.	Generation, transmission, distribution, and supply all separate. Competitive power pool.	One vertically integrated monopoly, Electricité de France (EdF).
Ownership	Primarily public, trend toward more private ownership.	Nearly all private; main exception is the publicly owned nuclear generator.	State-owned.
Competition in generation	Limited.	Yes.	No.
Competition in supply	No.	Yes, for consumers with peak demand over 100 kW, not for smaller users. Limit will fall to zero in 1998.	No.
Regulation			
Government	Federal authorities and Länder both play a role. The Federal Ministry of Trade, Commerce and Industry approves tariffs and new investment.	Ministry of Trade and Industry has a very limited role, formally responsible for issuing of new licenses and granting consents for new generating plants, but advised by OFFER.	Ministry of the Economy has a major role in regulation, approves tariffs and has important say in investment. Five-year planning contracts are agreed between EdF and the government, which covers tariffs, new investment and company strategy.
Enterprise	VbG (which owns the grid) forecasts demand and coordinates new investment; fairly limited autonomy.	Apart from tariff regulation for transmission and distribution, companies are autonomous and fairly free of regulatory interference.	Has to meet targets in planning contract, very limited autonomy.
Third parties	Prices Commission (which consists of representatives of Ministries, utilities, and "social partners," such as consumers' and employers' associations) advises the Ministry on tariff changes.	Regulatory agency (OFFER) independent of day-to-day government control, sets price cap to regulate tariffs for transmission and distribution (and supply for small customers, where there is no competition).	

	<i>Germany</i>	<i>Japan</i>	<i>Netherlands</i>
Structure			
Vertical integration	Regional vertically integrated monopolies, with little trade.	No central transmission. Regional vertically integrated monopolies, very little trade.	Transmission separate. Generation and distribution nominally separate, but linked through ownership.
Ownership	Mixed, but mainly public.	Mainly private.	Public sector.
Competition in generation	No.	Limited.	Uncommon because of de facto vertical links.
Competition in supply	No (regional utilities agree not to compete in each other's territory).	No.	Yes for industrial consumers (over 5 MW), not for households.
Regulation			
Government	Both the Federal Government and the Länd authorities have a role in regulation. Tariffs are regulated, and Länd authorities have the power to veto investment plans.	Ministry for International Trade and Industry (MITI) has a large role in the industry. It approves tariffs (on RoR based) and investment.	Ministry for Economic Affairs has a considerable role, approves tariffs and regulates investment.
Enterprise	Apart from tariffs, private companies have considerable autonomy.	Apart from tariffs and investment, private companies have considerable autonomy.	Companies have limited autonomy.
Third parties		Central Electric Power Council (CEPC) helps coordinate relations between main companies; formulates 10 year development plan, which is updated annually (this forecasts supply and demand, and planned capital investment); and plays a role in R&D coordination.	

	<i>Chile</i>	<i>Norway</i>
Structure		
Vertical integration	Generation, transmission, distribution, and supply separate, with pooling arrangements.	Generation, transmission, distribution and supply separate, with competitive power pool.
Ownership	Mainly private, government has some generation ownership.	Primarily public.
Competition in generation	Yes.	Yes.
Competition in supply	Yes, for large customers.	Yes, completely competitive.
Regulation		
Government	Ministry sets level and structure of distribution and transmission tariffs. The regulator CNE regulates investment.	The main regulator, NVE, regulates transmission and distribution tariffs, issues concessions (including for new plant), and arbitrates industry disputes.
Enterprise	Considerable degree of autonomy to companies.	Grid (publicly owned) responsible for coordinating the operation of the system, other enterprises fairly autonomous and largely free of regulation, apart from tariff regulation for distribution and transmission.
Third parties	Inter-Company Planning Committee coordinates investment for privately owned generators.	

Annex 2: International Experience—Structural Reform



Annex 3: Principles of Regulation

A. The Framework for Regulation

A3.1 This introductory section deals with a number of basic issues in relation to economic regulation: the need for regulation; the criteria for effective regulation; the legal form of regulation; regulatory powers and duties; and the form of the regulatory body.

The Need for Economic Regulation

A3.2 Market economies generally rely on the forces of competition to protect the interests of consumers and ensure that goods and services are available at reasonable prices and qualities. Monopoly law is widely used to overcome problems where competition is weak or absent. But in circumstances of natural monopoly, and in particular with network industries, more specialized economic regulation is desirable. Economic regulation of this type is an almost universal feature in market economies.

A3.3 It is clear that the need to protect consumers against natural monopolies plays an important role in economic regulation. However, if enterprises are not to be starved of resources, and if their investors are to be confident about committing funds, the interests of the enterprises also need to be safeguarded. Therefore, the regulatory framework should achieve a balance of interests among consumers, enterprises, and government. The responsibilities placed on the regulatory body should reflect the need to ensure such a balance of interests.

Criteria for Effective Regulation

A3.4 The main criteria required for the regulatory framework are

- a. *Stability and predictability.* These are desirable if the regulatory regime is to command confidence. Where private sector participation is an important consideration they are especially important in enabling enterprises to plan and invest with confidence. The system will need to have some provision for flexibility to allow it to respond to changing circumstances.
- b. *Simplicity.* Regulation is likely to be more effective and to command greater confidence if it is as simple as possible. This will allow it to be easily understood by all parties and may allow excessive administration costs to be avoided.
- c. *Transparency.* The process by which regulation takes place should, as far as possible, be open to scrutiny. This will allow all parties to have more confidence in the process—it can be seen to be fair.
- d. *Continuity.* New regulatory arrangements will be more acceptable if there is obvious continuity with existing practices, insofar as they are acceptable. This

will not only encourage confidence in the system but will also facilitate implementation.

- e. *Reflection of best practice.* Any regulatory regime must, of course, reflect domestic requirements and practices. However, systems seen to be operating satisfactorily elsewhere will be more acceptable than a new and untried system.
- f. *Efficiency.* Regulation can have very significant effects, both positive and negative, on the incentives for enterprises to operate efficiently. Given the normal background to regulation—that is, monopoly and absence of market pressures—it is particularly important for the regulatory system to encourage efficient operation as far as possible.
- g. *Managerial independence.* There is no doubt that enterprise managers are in a better position to run enterprises than a regulator. As far as possible, therefore, the managers should be given the maximum degree of independence to run the enterprises within the regulatory regime.
- h. *Incentives rather than instructions.* The essence of a regulatory regime is to ensure that the enterprises behave in ways which they would not if left to their own discretion. Though this might be achieved by means of instructions, success is more likely if incentives can be provided to encourage compliance.

The Legal Form of Regulation

A3.5 Our view is that separate specialized legal provision should be made for energy regulation in order to provide the right degree of stability, transparency, and enforceability. Consideration then needs to be given to the design of the necessary legal instruments, including licenses, and to the questions of enforcement and appeal procedures.

A3.6 **Legal instruments.** Overall regulatory control can be conferred by means of a fundamental or primary law that clearly sets out the basic framework of regulatory powers and duties. This framework law should then be supplemented by

- secondary legislation where necessary to give legal force to any more detailed provisions;
- licenses or authorizations, which are obligatory for all enterprises in the regulated sector. These licenses would contain specific regulatory rules under which they are to operate.

A3.7 It is important to avoid conflicts or duplication in the use of secondary legal instruments. The primary law should define clearly under what circumstances secondary legislation may be used and who is responsible for preparing and enacting secondary laws and licenses.

A3.8 The primary law will be the most difficult of these instruments to amend, and the licenses the easiest. The provisions of the primary law therefore provide stability, while secondary legislation and licenses allow legal conditions to adapt to changing economic and political conditions. The balance among the framework law, the secondary legislation, and licenses will therefore determine the degree of flexibility in the overall regulatory framework. The precise distribution of measures among these three layers of instrument may be a matter for further consideration.

A3.9 **Enforcement and Appeal Procedures.** Careful consideration will need to be given to enforcement. Enforcement measures must be sufficient to ensure compliance, while recognizing the limitations imposed by the need to ensure continuous operation of key energy sectors. These provisions therefore need powers to deal with bankruptcy and other circumstances where the regulator may need to take control from an enterprise to ensure continuity of service.

A3.10 However good the regulation, it is inevitably carried out on the basis of incomplete information, and errors or misjudgments may occur in regulatory decisions. To deal with this, it is often considered important that the regulatory law should make at least some provision for appeal against decisions. Such appeal might be either to a suitable court or to a specialist body, and consideration needs to be given to the definition of the grounds on which appeals might be allowed.

A3.11 **Regulatory Powers and Duties.** The underlying approach to regulation is based on balancing between powers and duties or between rights and responsibilities for both enterprises and regulator.

A3.12 For sectors characterized by natural monopoly, enterprises are given valuable commercial rights when allowed to operate in the sectors. In return, they may be required to accept certain obligations or duties—for example, controls on prices, efficiency obligations, obligations to supply, and quality standards. This trade-off of rights and duties is termed the *regulatory bargain*.

A3.13 In much the same way, the regulatory body is granted significant powers over both consumers and the enterprises, but is in turn constrained by the imposition of duties. These might include promoting the development of the industries, allowing the enterprises to be financially viable, and protecting consumers.

A3.14 In designing the regulatory framework, decisions about the *duties* to be placed upon the regulator are of particular significance. Certain general duties, such as the protection of consumers and allowing the financial viability of the enterprises, are clear and necessary. But the treatment of two other duties needs more careful consideration and raises important questions of regulatory policy (in particular, it may be important to consider whether the following should be included as duties of the regulator).

- *Promotion of competition:* the extent to which this will be an appropriate regulatory duty will depend on wider policy decisions about the role of competition in each of the sectors.
- *Implementation of government energy policy:* The government may want to implement objectives of energy policy (such as fuel policy) through the regulator. Giving discretion to the regulator in matters of policy would confuse the role of ownership and policymaking for the sector with the role of regulation. Nevertheless, the regulator may be required to take account of government policy or to implement particular arrangements decided by the government.

The Form of the Regulatory Body

A3.15 There are two significant decisions to be made in considering the form of the regulatory body:

- The extent of *independence* of the regulatory body, and in particular its independence from government.
- The scope for *delegation of regulatory functions* down to lower levels, such as municipalities.

Regulatory Independence

A3.16 A number of options exist with regard to the degree of regulatory independence; these involve differing degrees of independence (the survey of regulation in Western European countries, Annex 1, gives further details of where these occur). For present purposes, three principal options can be identified:

- *Regulation by the government energy ministry.* This option offers little independence where the energy enterprises are government-owned. Where the enterprises are privately owned, the value of this option will depend on private sector perceptions of government. In some countries where private sector confidence in government is high, this form of regulation works successfully, but in other countries it may produce little confidence in potential private investors. The advantage of this option is that it allows tight government control of the industry to be maintained and enables close integration of economic regulation and other energy policy measures.
- *Regulation by inter-ministerial commission.* This option would involve a commission, established by legislation and with wide representation across ministries. It would be given formal responsibility for all aspects of regulation of the relevant sector or sectors. The existence and powers of the commission would be quite separate from the ministry or committee dealing with energy policy and ownership of energy enterprises. This option has the advantage that it offers some degree of independence from the ministry directly responsible for the energy industry, and so allows a wider range of opinions to be taken into account in

reaching decisions. However, government views may still tend to dominate decisions, and so this option may still result in low investor confidence. The extent of independence will in fact depend on the range of interests represented in the membership (in particular whether there are nonministerial members) and how appointments are made.

- *Regulation by an independent body.* Though differing forms of independent regulation are now well established in both the United Kingdom and the United States, there are few examples elsewhere in market economies, as surveys of Western European regulation shows. It is capable of commanding wide confidence if the body is suitably led and staffed. From the government perspective, it can result in a significant loss of control over the affairs of the energy industry. In some circumstances, where traditions of professional and impartial public service are not well established, this option could raise significant questions of whether a genuinely independent body could be established.

Scope for Delegation of Regulatory Duties

A3.17 We have assumed that regulation will normally operate at the national level, but sometimes regulation at regional or local level may be more appropriate. It is possible to argue for local regulation of distribution activities, since local regulation may be more responsive to local needs. Delegation of this sort may, however, be difficult or impractical. For example, it places considerable demands on the expertise of local officials in many different areas.

B. The Coverage of Economic Regulation

Regulatory Issues

A3.18 Issues that need to be covered in regulatory terms include the following:

A3.19 **Terms and Conditions of Licensing.** These conditions would be required in all cases involving licenses, and would deal with

- *The period of time for which the license is granted.* The longer the duration, the greater the stability with which enterprises can operate and plan, but the more remote the threat of loss of the license. If the license is for a *fixed* period, it will pose problems as expiration approaches, and an “evergreen” license with a fixed period of notice may be preferable.
- *Circumstances under which licenses can be terminated and procedure in the event of termination.* Termination should be reserved as the ultimate sanction in the event that all other enforcement has failed, or for circumstances such as bankruptcy where termination is unavoidable. To ensure continuing public service, reserve powers for the regulator to take over the running of the business will probably be necessary.

- *Ways in which conditions may be amended.* It will be undesirable for license conditions to be capable of amendment solely at the discretion of the regulator, as this provides little stability for enterprises. Conditions could be amended if there is agreement between regulator and enterprise (and any other party likely to be adversely affected); but where there is no agreement proposals should be subject to approval by an appropriate third party.

A3.20 **Accounting and Information Requirements.** This would be required in all cases, though the information required will vary from case to case. It is necessary to ensure that the regulator can have access to all the information required to carry out regulatory duties, and this may include:

- The right for the regulator to specify the form in which the information is provided
- A requirement that the information be broken down among different parts of the enterprise (see below concerning separation of businesses).

A3.21 **Separation of Businesses.** Where a regulated enterprise is engaged in more than one distinct activity, transparency and more efficient regulation will be enhanced if some degree of separation is required. This may mean that an enterprise divides its operations into separate “businesses,” both in accounting and operational terms. This may be desirable to allow more effective regulation of prices and efficiency, or in cases where parts of the business face competition while others do not.

A3.22 **Price Regulation.** This would be required in all cases where some price control was necessary because of lack of competition or other specific circumstances. It might establish

- An obligation to publish tariffs for all smaller consumers, or principles on which prices will be calculated in the case of larger customers
- The form of any price control, for example rate of return control on profits or an RPI-X type of price formula. Depending on circumstances this may need to deal with specific controls on costs and with capital investment constraints.

A3.23 **Prohibition of Cross-Subsidy and Price Discrimination.** Though related, these restrictions would be applicable in different circumstances:

- A prohibition on cross-subsidy might apply between different “businesses” in the same enterprise, in circumstances where one business (e.g., generation) faced competition, and the other (e.g., transmission) did not. The purpose of the prohibition would be to limit the ability of the noncompetitive business to fund anti-competitive activities in the other.
- A prohibition on price discrimination might apply between different types of consumers, where the alternatives available to them differ significantly. For example, small electricity consumers are effectively captive, and so could be

charged high prices, while larger industrial consumers using power for process purposes could have other options for energy sources. In such circumstances, a prohibition on price discrimination may be necessary to ensure that both types of consumers pay prices linked to the costs of the delivered supply, rather than any other factors.

A3.24 **Quality Standards.** Where price regulation is applied, it will be important also to regulate quality standards. This is generally considered necessary in order to avoid the lowering of quality to compensate for the price restrictions. In appropriate circumstances, quality standards may need to deal with the quality of the energy itself as well as quality of service matters.

A3.25 **Obligation to Supply.** In some of the energy sectors there are both natural monopoly and services that are essential to meet consumers' basic needs. It is thus important for there to be a regulated obligation to supply and to ensure that all consumers' reasonable needs are met. Without this, consumers may be unable to obtain supplies where the monopoly supplier considers it inconvenient or too costly. This will be particularly important for smaller consumers where there is no other source of supply, and it may be appropriate to have an upper limit for the obligation to prevent it from being too onerous for the enterprise.

A3.26 **Supply Security.** Supply security is a special case of standard of service, but, in view of its particular importance, it should be dealt with separately. In cases where there is a natural monopoly element, the regulatory framework would need to lay down security standards to which the enterprises are obliged to work. At its simplest this would involve, for example, minimum standards for frequency of interruption in the case of electricity. In addition, powers may be required to ensure that sufficient capacity is provided to allow these targets to be met, and in this case criteria for planning and investing for the future will be a part of these obligations. It may also be desirable to make provision for intervening in the running of the systems in the event of security difficulties, such as fuel shortages.

A3.27 **Social Obligations.** The extent of such obligations is essentially a political decision. Where the decision has been made to impose such obligations, the regulatory framework will need to cover matters such as special terms to vulnerable categories of consumers, procedures for disconnections, and possibly matters such as rural electrification.

Energy Policy and National Interest Issues

A3.28 The matters outlined above may be required on grounds of natural monopoly and are an accepted part of economic regulation. Other matters may also be covered by the regulation framework, though on grounds of wider energy policy. The more important of these are outlined here.

A3.29 **Supply Emergencies and Fuel Stocks.** In *all* the energy sectors, the government may consider it necessary in the public interest to provide legal powers to cope with fuel emergencies. This might take a variety of forms, but in general such arrangements would consist of powers to plan for emergencies, for example, by means of maintenance of fuel stocks, or through direct intervention in the running of the energy enterprises. These powers might be in the hands of either government or regulator.

A3.30 **Imports and Exports of Energy.** In regulatory terms alone, it is not appropriate for restrictions to be placed on the levels of imports and exports, providing they do not conflict with other regulatory issues such as prices, supply security, and quality.

A3.31 However, there may be energy policy considerations that mean that control of either imports or exports of specific energy sources would be desirable; these might be thought necessary on, for example, grounds of self-sufficiency or protection of domestic employment. Though not regulatory issues, in practice these might be implemented more effectively through the regulatory framework.

A3.32 **Fuel Choice.** The issue of fuel choice raises similar issues to imports and exports. In certain circumstances, regulation may need to not be concerned with fuel choice—for example, if unrestricted choices would prejudice issues such as prices or quality.

A3.33 However, wider issues of energy policy may also mean that government will wish to place limitations on the fueling of energy facilities—for example, on environmental or employment grounds. Where required, this could be done through the regulatory framework—for example, by direct restrictions on fuel use, or through controls on capital investment decisions.

A3.34 **Energy Efficiency.** Increased energy efficiency is an important policy objective for which a range of instruments are available, many of them not directly concerned with the energy enterprises themselves. Though the regulatory framework clearly needs to take account of any such instruments adopted, further consideration should be given to how far the framework itself should be responsible for the implementation of energy policy.

A3.35 **Environmental Matters.** In general, it is expected that environmental standards would be set outside the economic regulation framework and would apply to a whole range of activities in addition to the energy sector. Though it will be desirable for the regulatory framework to clarify enterprise obligations and the position on recovery of costs imposed by environmental requirements, it would not generally be necessary for the regulatory framework to have to specify or implement the standards. The regulatory framework may, however, need to deal with any special provisions not covered by the more general measures, such as obligations in respect of “renewable” energy sources.

Annex 4: Principles for Application to Bulk Supply Tariffs

A. The Political and Economic Case for Price Reform

A4.1 The subject of prices is fundamental to reform but may also be one of the most politically contentious. The reform process thus needs to demonstrate at the outset that price reform can be made acceptable to stakeholders. It is therefore necessary to demonstrate that price reform is not a “zero-sum game”; rather, real efficiency gains in the production, distribution, and use of electricity mean that all the main stakeholders gain from reform. Substantial budget gains will also provide the will also provide the resources to compensate weaker or disadvantaged groups.

A4.2 Given their importance in a market economy, it is not surprising that prices should be a central feature of a power sector reform strategy. Prices can have a direct effect on consumption and on productive efficiency. Generally price reform will imply higher prices to both industrial and household consumers. This will result in lower rates of growth in consumption (compared with what would occur with subsidized prices) as consumers respond to higher prices by using power more efficiently or confining their use to the most highly valued applications. Although it may be difficult to estimate precisely what the reduction in demand may be, international experience demonstrates conclusively that prices are a major influence on levels of energy demand.

A4.3 Although the first effect of price reform on consumers may be adverse, wasteful consumption will be reduced and higher efficiency achieved. This will in turn reduce the adverse effect of the price rises and bring the aggregate demand more in line with supply.

A4.4 At the same time, prices that reflect the cost of production also encourage efficiency in generation and distribution (i.e., production efficiency). This is because the enterprise and its managers can see directly the revenue implications of improved performance. Reductions in losses, for example, increase revenues by an amount that reflects the true costs of supply. The incentives to reduce losses, if necessary through investment or other measures that themselves cost money, are therefore much greater.

A4.5 The managers of the enterprise will see that efficiency gains result in financial consequences for the enterprise that correctly reflect the economic value of electricity. Compared with the present situation, where prices do not adequately reflect costs, this means much greater incentives to increase output. Expenditure in order to improve thermal efficiency, for example, is easier to justify if EVN is rewarded by a higher price for the additional output. Similarly, a distribution enterprise has a greater incentive to reduce losses (e.g., through additional investment or other expenditure) if it

is paying the correct price for power to its suppliers and receiving the correct price from its customers.

A4.6 Price reform is therefore also a necessary adjunct to enterprise reform and to the creation of a framework of financial discipline within which enterprises are encouraged to operate efficiently. It is also a necessary condition for the introduction of private capital and for structural reforms that can generate financial viability and improve the performance of the sector as a whole.

A4.7 Since price reform helps to reduce demand and to increase supply, it is bound to bring demand and supply closer together, thereby improving the immediate quality of supply and reducing future investment needs. At the same time it facilitates the financing of needed investment by making it feasible to consider additional sources of capital.

A4.8 Finally, price reform will improve the finances of the government through the prospect of earning a reasonable return on its investment in the power sector as well as reducing the prospective burden of meeting new investment needs by increasing the ability of the sector to finance itself.

A4.9 Price reform may have major social and economic effects. Strategies for making these more acceptable include the following:

- identification of some of the benefits
- special measures to protect the most vulnerable consumers
- careful phasing of price increases and possibly a different pace of reform for household and industrial consumers.

A4.10 The benefits of price reform to the stakeholders can be summarized as follows:

- a. To the government. Improvements to the State budget through reductions in the need to provide investment finance and a return on existing investment.
- b. To industry management. Improved incentives for efficiency, an improvement in the supply/demand balance, and improved ability to finance essential investment.
- c. To consumers. More reliable supply, ability to finance extensions to the network, protection of disadvantaged groups, and the possibility of some offsetting reductions in other taxes as government finances improve.
- d. To potential investors. Improved prospects that the sector can earn normal commercial returns, and that it is therefore a serious investment option.

B. Principles for the Development of Bulk Supply Tariffs

A4.11 The basic principle for setting prices is that prices should reflect costs. This involves consideration of the appropriate basis for measuring and calculating costs

and the adoption of an approach such as long-run marginal cost consistent with the financial viability of the sector. These general pricing principles are not discussed in detail in this paper.

A4.12 It is also important that the structure of bulk power prices should reflect the structure of costs. This usually implies a two-part or multi-part tariff structure rather than a single per kilowatt hour price, and the general adoption of multi-part tariffs can be illustrated from international experience.

A4.13 There are two relevant bulk supply tariffs: the price EVN will pay for electricity from an independent power producer and the price charged to distribution businesses or large customers.

Bulk Power Price Paid to an Independent Power Producer

A4.14 A single price per kilowatt hour is not normally an optimal tariff for rewarding a generator. The simplest example to demonstrate this point is that of an IPP that has to offer a single kilowatt hour price to reward its capital investment adequately and cover its fuel and other running costs. This implies a single kilowatt hour rate substantially exceeding the fuel-only costs of other generating plant belonging to the utility, and hence result in the IPP not being run as baseload, even though this means that total costs will be higher, and the potential economic benefit of the IPP is wasted.

A4.15 The price paid to the IPP can, however, be constructed to reflect costs and to give the right signals to the utility over which plant to run as baseload. The simplest way of doing this is to have a *two*-part tariff. This would consist of a capacity element (kW), typically related to availability performance, and an energy element (kWh).

A4.16 The kilowatt hour charge should typically be set so as to cover fuel costs and the kilowatt element to reflect the charges necessary to recover capital costs over time.

A4.17 International examples demonstrate the problems that can result from failure to adopt this principle. In India, individual state electricity boards have in the past purchased power from the plant of national (all India) publicly owned generating utilities on a single per kilowatt tariff. The consequence has been that the latter are sometimes not scheduled to generate, even though this should be the cheapest option, and that less efficient plant with higher running costs generates power instead. The most efficient option is not chosen because the single-part tariff structure provides the state electricity board with an incentive to reduce its payments under the tariff by refusing power from the most efficient source and instead using its own less efficient plant. This is easily overcome by a properly designed two-part tariff.

A4.18 Similar problems can also arise with IPPs if the developer insists on simple output-related incentives or minimum-take agreements, which can be associated with a single kilowatt hour price and the nondispatchability of the plant.

A4.19 A two-part tariff for bulk power purchases is therefore important to ensure that generation costs are minimized in the short and long term.

Bulk Power Price Charged to Distribution Businesses

A4.20 Similar issues arise in setting the bulk supply price at which distribution businesses buy from EVN's Generation and Transmission business. A well-designed bulk supply price would give the distribution companies an incentive to encourage their customers to increase their load factors and spread their demand evenly over the day. This implies *two-part* or *multi-part* tariffs.

A4.21 Again, these typically have a capacity (kW) payment and an energy (kWh) element. The kilowatt hour payment reflects the marginal costs of extra generation and transmission. This would cover the costs of purchasing fuel, operating generation plant, and transmission losses. The kilowatt payment is set in relation to the marginal costs of capacity and so allows the utility to recover capital costs. The kilowatt payments levied on each distribution company typically reflect measures of the capacity requirement imposed by the distribution company (e.g. the level of peak demand).

A4.22 A well-designed two-part or multi-part tariff gives the correct signals to distribution companies to reflect a similar structure in their own tariffs for larger consumers and to try to increase their load factors, thus reducing total costs.

C. International Examples of Bulk Supply Prices

A4.23 Two-part tariff structures are common in Western countries. They are used not only in the bulk supply prices of electricity sold to distribution companies but also in the prices charged to consumers, and particularly large users. Some examples of two-part tariffs are described below.

England and Wales Bulk Supply Price

A4.24 A two-part bulk supply price was used in England and Wales before the industry was restructured. This was the tariff at which the generation and transmission business (the Central Electricity Generating Board or CEGB) sold electricity to the 12 regional distribution companies. (Under the new industry structure a bulk supply tariff no longer exists, but its main features are captured in the contractual arrangements now operating between generation and distribution companies.)

A4.25 In fact, the bulk supply price in England and Wales was not just two-part, but multi-part. It was made up of

- a. A fixed charge
- b. A peak capacity (kW) charge, relating to the very highest demands in each year
- c. A basic capacity (kW) charge, relating to the more persistent high winter demands
- d. Various kWh charges.

A4.26 The CEGB regarded as unavoidable the fixed charge related to costs. These included the cost of providing and maintaining the bulk supply points.

A4.27 The peak capacity charge (per kW) was applied to the distribution companies' demand at times of system peak demand. The capacity on which each distribution company was charged was taken as the average of the three highest peaks separated by at least 10 days. The aim of this charge was to capture the cost of retaining old or peaking plant on the system, which was only used for short periods of operation at the extreme peak.

A4.28 The basic capacity charge (per kW) was charged on average capacity demanded over the 250 half-hours for which system demand was highest. The aim of this charge was to capture the longer-term consequences of meeting high demand, and it includes a contribution toward the eventual cost of building new large power stations.

A4.29 There were numerous kWh charges that were divided up in a number of ways. There were different charges for summer and winter as well as different rates for weekdays and weekends. Finally, there were up to nine time-of-day rates within each day.

Large-User Tariff in France

A4.30 Large users in France are offered what is known as the Green Tariff. Within the Green Tariff are various options from which the consumer can choose.

A4.31 Consumers with a demand over 10 MW can choose among three options within the Green Tariff, all of which have a two-part structure. These three options are: Base, Effacement Jours de Pointe (EJP), and Modulable.

A4.32 All of these three options have different unit rates and fixed charges depending on different levels of usage expressed in hours. Definitions of use are flexible; all tend to depend on final agreements between EdF and the consumer, but in general they can be summarized as

- a. Very long use: more than 6,000 hours of power use per year
- b. Long use: 4,000 to 6,000 hours of power use per year
- c. Medium use: 2,000 to 4,000 hours per year
- d. Short use: less than 2,000 hours per year.

A4.33 Each of the three options is described below. In addition to the charges described below, each tariff option has a reactive energy charge.

- *Base option.* The base option has a demand charge dependent (kW) on subscribed demand and eight time-of-day/seasonal rates for kilowatt hours.
- *EJP option.* The EJP option again has a demand charge dependent on subscribed demand and different seasonal rates. This option, however, offers a much cheaper

kilowatt hour rates for most of the year than the base option. However, for 18 hours a day on 22 days in winter the prices per kilowatt hour are considerably higher. These 22 days are known as *Pointe Mobile* (mobile peaks). The unit rates can be 25 times higher in these 22 days than at the cheapest summer period. The aim is to give the consumer a big incentive to cut demand as much as possible at times of system peak. The 22 days are not determined in advance but are picked by EdF at short notice depending on expected demand. The large user gets 24-hour advance warning that the following day will be one of the 22 peak days.

- *Modulable option.* As with the other two options, this option has a demand charge dependent on subscribed demand and different kilowatt hour rates. Under this option the tariff year is divided into four parts and different unit rates are applied for these four parts. The four parts are
 - *Pointe Mobile* days, which can occur in either the *Mobile Winter* or *Mobile Half Season*
 - the most expensive nine weeks in winter, known as the *Mobile Winter*
 - the 19 moderately priced weeks form the *Mobile Half Season*
 - the remainder of the year, 24 weeks, is the least expensive 24 weeks.

The 22 *Pointe Mobile*, the *Mobile Winter*, and the *Mobile Half Season* are not determined in advance, but are determined by EdF depending on conditions.

Tariff Structures in Other Countries

A4.34 In Denmark, most large commercial and industrial users are supplied under a three-part tariff, with a standing charge, maximum demand charge (for kilowatts), and various unit rate charges for kilowatt hours.

A4.35 In Greece, large industrial customers receive two-part tariffs. These have a demand charge and three unit rates, which vary seasonally.

A4.36 In Italy, two-part tariffs are also used for large users. Demand charges vary by season, and the unit rate varies both seasonally and by time of day.

A4.37 In Portugal, large commercial and industrial consumers are offered two-part tariffs. The demand charge is a weighted average of the subscribed demand and the monthly maximum demand over a quarter-hour. The unit rate varies by time of day.

A4.38 In Spain, large commercial and industrial consumers are supplied under two-part tariffs, with the demand charge a function of monthly maximum quarter-hourly demands and subscribed demands. The unit rate varies by peak, medium, or off-peak period, and there is also a seasonal variation.

A4.39 The European Union issued a Council Recommendation on tariff structures to the Member States in 1981. The first two recommendations were that tariff

structures should be drawn up to reflect costs and that two-part tariff structures should generally be used.

Bulk Supply Strategy for Viet Nam—Reform Priorities

A4.40 The main body of this report identifies some of the short-term and longer-term issues for the development of bulk supply and retail tariffs in Viet Nam, including the use of bulk supply pricing to effect subsidies between distribution companies to equalize tariffs across the country.

A4.41 It is suggested in the report that this should be achieved by means of a fixed charge or discount within the bulk supply price, rather than by adjustments to the tariff component or components that are related to the volume of consumption (kWh). The same arguments should apply whether the bulk supply tariff is constructed as a single part (kWh), two part (kW and kWh), or multi-part structure.

A4.42 Limits on the pace at which tariffs to final consumers can be adjusted may mean that be a more general consideration is needed of how best to adapt the bulk supply pricing mechanisms in an interim period before fully cost-reflective pricing is achieved throughout the sector. We should begin with priorities for adjustment of pricing policy toward final consumers. Pending fuller analysis of costs and tariffs in a Vietnamese context, the following observations on the general issue of phasing price increases may be helpful:

- There is a strong case for immediate, or at least early and rapid, upward adjustment of prices to industrial consumers, and particularly to large, energy-intensive consumers who may be considering new plant and location decisions. Failure to do this provides the wrong economic signals for new industrial investment. This kind of industrial consumption is likely to be more responsive to price than other categories of consumption.
- If prices to final consumers are being adjusted upward in stages, then a sensible sequence is first to make sure that prices are sufficient at least to cover marginal generating costs (mainly fuel for thermal plant); the second and third stages may then be to raise prices so that they cover running costs and capacity costs of generation, and finally to levels that cover full long-run marginal costs, including both generation costs and the costs of maintaining the distribution networks, and that they are sufficient to make the sector fully viable financially.
- Subsidizing consumption directly is likely a bad policy as it will encourage wasteful and inefficient consumption and may prove very difficult to remove. If subsidies are required, they should be spent on infrastructure investment for the local distribution networks, rather than on subsidizing consumption.

A4.43 The consequences of these general objectives for bulk supply pricing are consistent with the argument that, as far as possible, any subsidies applied through a bulk

supply tariff should be fed through to the distribution companies as fixed payments or discounts to be offset against energy (kWh) and capacity (kW) charges. The distribution companies will have an incentive to develop tariffs for final consumers that at least cover the incremental costs of purchasing power under the bulk supply tariff. Revenue from consumers may therefore at least cover the marginal costs of increments in generation associated with their power requirements.

A4.44 Subsidies to the distribution companies that arise through the mechanism of the bulk supply tariff can be used to support additional infrastructure investment, as well to compensate for differences in revenue requirements to cover distribution costs.

A4.45 In making adjustments to the bulk supply tariff the priority should be to establish an energy-related component (or components) that fully cover the marginal cost of generation, and then to establish fully cost-reflective capacity charges.

Annex 5: Grid Code for Viet Nam

A5.1 In a vertically integrated, government-controlled monopoly, operational rules and procedures are determined and applied centrally. Also subject to central decisionmaking are plant specification, data requirements, and all aspects of planning and design of the entire power system.

A5.2 Such rules and procedures are easy to apply in the monopoly situation because all sections of the industry are accountable to the same overall management control, and rules and procedures do not have “force of law” and can be imposed on all sections without agreement.

A5.3 When elements of an electricity supply industry are separated—either into totally independent private companies or simply with separately administered management bodies still under the nominal ownership of the State—the rules and procedures as outlined above do not have sufficient status. If the benefits of the totally integrated power system—comprising generation, transmission, and distribution—are to be secured and developed, more formal rules must be agreed by the various parties, who will have differing management objectives. These rules ensure that the standard of equipment is maintained, for example, and that each party is obliged to supply sufficient data and information to allow others to carry out their respective roles efficiently.

A5.4 In many countries, electricity supply has been removed from government control in the interest of more efficient management and more competition. In all cases, it has been necessary to draw up rules to ensure the continuation of integrated operation of the whole power system. Such suites of rules are often known collectively as “Grid Codes.”

A5.5 In Viet Nam, the restructuring of the electricity supply sector is well under way. The proposals, although not creating a totally privatized arrangement, will initially separate distribution into five independently managed geographically based companies. At present, the transmission and generation functions are within one company; although this may not always be the case, however.

A5.6 At the same time, the recent commissioning of the 500 kV North to South transmission line has given Viet Nam for the first time an Integrated Power System (IPS).

A5.7 The provision of a Grid Code is seen as an urgent requirement for Viet Nam at this stage in the evolution of its electricity supply sector. It would be appropriate to work toward the provision of a Grid Code without delay in parallel with the restructuring of the sector itself. The Grid Code for Viet Nam should be structured so as to assimilate the separation of transmission and generation.

A5.8 A Grid Code for Viet Nam would be required to specify day-to-day procedures for both planning and operational purposes and should cover both normal and exceptional circumstances.

A5.9 More specifically, it is envisaged that a Viet Nam Grid Code would consist of the following main sections (the individual sections listed are defined in more detail in Appendix "A"):

- a. Glossary and Definitions
- b. Planning Code
- c. Connection Conditions
- d. Operating Code
- e. Schedule and Dispatch Code
- f. Data Registration Code.

A5.10 In addition, it would be appropriate and worthwhile to include a preface or introduction at the beginning of the Grid Code to give general information on the reason for, and purpose of, the Grid Code.

A5.11 These suggestions are made in the knowledge that not all sections are essential in Viet Nam in the short term. Even so, we propose that the Grid Code for Viet Nam be developed on these lines to enable the power sector to evolve toward a more commercially based structure as and when decided by the government.

Appendix A5.1

Glossary and Definitions

This is simply a listing in alphabetical order of the many terms used throughout the code. An example of this from the National Grid Company (United Kingdom) Grid Code is

“Discrimination - The quality where a relay or protective system is enabled to pick out and cause only the faulty apparatus to be disconnected.”

For this example, when used in the main text of the Grid Code, only the word “Discrimination” would be used, but highlighted in bold type to indicate to the reader that the word is defined in the Glossary and Definitions section.

Planning Code

This section defines certain information required by the transmission company for the planning and development of the IPS, and requires other parties (generating companies, distribution companies, consumers, other than distribution companies, directly connected to the IPS) to provide this information.

Connection Conditions

This section specifies a minimum technical design and operational criteria to be complied with both by the transmission company itself and by other parties connected to the IPS.

Operating Code

Demand Forecasts - Provides demand data to the transmission company by other parties in all time scales.

Operational Planning - Ensure the harmonization and co-ordination of generator and transmission maintenance outages.

Operating Reserve - Describes the requirements for the various categories of system reserve.

Testing and Monitoring - Enables the transmission company to carry out monitoring and specific testing of individual generating units to ensure compliance with declared criteria, for example MVA capability, automatic governor response, and so on.

Demand Control - Describes the procedures in place to enable the transmission company to effect a reduction in demand in conjunction with the distribution companies, in the event of either insufficient generation plant to meet total demand, or to relieve overloading of any part of the IPS.

Operational Liaison - Sets out the requirement for the exchange of information in relation to operations or events that might have an operational effect on the IPS or on another party's system.

Safety Coordination - Sets out the procedures required to achieve safety when work on one system requires the provision of safety precautions on another.

Contingency Planning - Specifies procedures to be utilized in certain unplanned situations—for example, recovery procedures following a total or partial shutdown of the IPS.

Event Reporting and Information Supply - Facilitates the provision of detailed information to support post-fault investigations undertaken by relevant parties.

Numbering and Nomenclature of Electrical Apparatus - Sets down a uniform system of numbering and nomenclature of all apparatus owned by the Transmission Company and by other parties on the sites of the Transmission Company. (N.B.: It is understood that the numbering and nomenclature systems are different in different parts of Viet Nam. Now that the IPS is in place it is recommended that this issue be a high priority.

Schedule and Dispatch Code

This section comprises three subsections as follows :

Generation Scheduling - Covers the preparation of generation schedules by the transmission company at various time scales.

Control Scheduling and Dispatch - Sets out the procedures whereby the transmission company issues dispatch instructions to generators.

Frequency and Time Control - Sets out the procedures that allow the transmission company to maintain system frequency and electric time control.

Data Registration Code

This code presents a unified listing of all data requirements by the Transmission Company from other parties and vice versa.

In the above explanations it has been assumed that the “transmission company” will act as the “grid operator,” and hence the former term has been used throughout.

Annex 6

Workshop on Power Sector Reform Viet Nam

Ho Tay Villa, Hanoi

May 11-12, 1995

**Government of Viet Nam
The World Bank**

The Workshop is an important component of a technical assistance project on power sector reform and restructuring undertaken by the Government of Viet Nam and the World Bank's Energy Sector Management Assistance Programme (ESMAP).

Workshop Objectives

- ◆ discuss the results of a joint effort of a Working Group of Vietnamese experts and a team of World Bank staff and consultants;
- ◆ discuss an Action Plan for the short- and medium-term for power sector reform and restructuring in Viet Nam;
- ◆ expand the scope of discussion and debate on key implementation and policy issues for furthering the process of power sector reform in Viet Nam;
- ◆ brief donors on the progress made by the power sector in Viet Nam and future plans for the development of Electricity of Viet Nam (EVN);

PROPOSED WORKSHOP SCHEDULE May 11-12, 1995

Day 1: Thursday, May 11

8:00 - 8:30	Registration
8:30 - 9:15	Inaugural
<i>Welcome Address:</i>	Mr. Nguyen Duc Phan, Vice-Minister of Energy
<i>Brief Speeches:</i>	Mr. Bradley O. Babson, Resident Representative, The World Bank, Hanoi Mr. Philip Rose, Senior Programmes Advisor, South East Asia Development Division, Overseas Development Administration
<i>Participating:</i>	Mr. Le Liem, Director General, Electricity of Vietnam (EVN) Mr. Karl Jechoutek, Chief, Power Development Division, Industry & Energy Department, The World Bank

9:15 - 10:00	Power Sector Reform in Viet Nam - An Introduction
<i>Presenter</i>	Mr. Tran Thuc, Senior Expert, Department of Organization and Labor, Ministry of Energy
<i>Topics</i>	(a) Objectives of reform (b) Background and status of reform

10:00 - 10:15	Coffee/Tea Break
10:15 - 12:15	

PANEL I

Action Plan — A Strategy for Implementing Power Sector Reform

Issues for Discussion

- Implementing Power Sector Reform - Some lessons from Asia
- The World Bank lending policy in the power sector
- Proposed action plan for power sector reform in Viet Nam

<i>Moderator:</i>	- Mr. Karl Jechoutek, Chief, Power Development Division, Industry & Energy Department, The World Bank
<i>Panelists:</i>	- Mr. Nguyen van Dau, Director, Department of Organization and Labor, Ministry of Energy - Mr. Tran van Nghia, Director, Department of Industry, Office of Government, Member of Enterprise Reform Committee - Mr. Anil Malhotra, Energy Advisor, Asia Technical Department, The World Bank - Mr. Robert Kay, Senior Financial Analyst, Power Division West, Energy & Industry Department, Asian Development Bank.

12:15 - 13:30	Lunch served at the Ho Tay Villa
13:30 - 16:30	

PANEL II
(Day 1, Afternoon)

Institutional Issues

Issues for Discussion

Corporate Governance - Relationship of State & Corporation (EVN)

- The Board of Management — Performing the ownership function
- The Executive Board — Business Management by Director General & Deputy Directors
- International Experience - Managing Large State Corporations

Regulation of the Power Sector

- Why is regulation necessary?
- What should be regulated?
- How can regulation be separated from the ownership function?
- International Experience in Power Sector Regulation

*Speaker/
Moderator*

Mr. David Butcher, Director, David Butcher and Associates, (Former NZ Energy Minister)

Panelists:

- Mr. Nguyen Van Huy, Deputy Head, Office of Government, Enterprise Reform Committee
- Mr. Raymond Mallon, Advisor, State Enterprise Reform Program, Government of Viet Nam
- Mr. Ranjit Lamech, Restructuring Specialist, Power Development Division, Industry and Energy Department, The World Bank
- Mr. Peter Cordukes, Principal Financial Analyst, Power Development Division, Industry and Energy Department, World Bank
- Mr. Pham van Vy, Director, Department of Planning, Ministry of Energy

Guidelines

Moderator (10 minutes - introduction)
15 minute presentations by each panelist
 Moderator summarizes - 10 minutes
 About 45 minutes of Open Discussion
 Coffee/Tea Break - 15 minutes (15:00 - 15:15)

8:30 - 12:15

PANEL III
(Day 2, Morning)

Sector Structure & Commercialization

Issues for Discussion

Bulk Transfer Pricing of Electricity

- International experience in bulk power pricing.
- How should it be constructed to provide commercial operating incentives?
- How can actual cost principles be applied in the case of Vietnam?
- How can subsidies be provided transparently?

One Transmission Company

- The efficiency benefits of creating one transmission company
- How can this structure promote cost accounting and commercial signals?
- How can this be accomplished technically and operationally in Viet Nam?
- Development of a Grid Code for Viet Nam.

*Speaker/
Moderator*

- Mr. Bui Thuc Khiet, Deputy Director, Production, EVN

Panelists:

- Mr. Dao van Hung, Deputy Director, Finance, EVN
- Mr. Tran Minh Kham, Director of National Load Dispatch Center, EVN
Consultants to Working Group:
- Mr. Les Clarke, Manager, The National Grid Company, UK
(Advisor to PowerGrid Co, India, on implementation of integrated HV
national grid)
- Mr. John Rhys, Director, National Economic Research Associates
- Mr. Kurt Schenk, Power Specialist, Power Development Division, Industry
and Energy Department, The World Bank

Guidelines

Moderator (10 minutes - introduction)
15 minute presentations by each panelist
Moderator summarizes - 10 minutes
About 45 minutes of Open Discussion
Coffee/Tea Break - 15 minutes (10:00 - 10:15)

12:15 - 13:30

Lunch served at the Ho Tay Villa

1:30 - 16:30

PANEL IV
(Day 2. Afternoon)

Financing Power Sector Development

Issues for Discussion

Government Policy to Promote EVN Self-Financing

- How can government exercise its ownership function?
- How can government manage the transition to minimize budgetary and state guaranteed support for EVN?
- How can transparent subsidies be combined with commercial incentives?

Raising Domestic and International Financing

- What should EVN do to raise capital on its own-account?
- How can long-term debt be raised through bond issues and other sources?
- How can IPPs be obtained at the lowest-cost? (BOT and other project financing structures)
- The need for due diligence in selecting IPPs?
- What does it take to develop and commit to a project without government guarantees?

*Speaker/
Moderator*

- Mr. Robert Kay, Asian Development Bank

Panelists:

- Mr. Tran Viet Ngai, Deputy Director, Investment and Power Construction, EVN
- Mm. Tran Thi Huong, Department of International Financing, Ministry of Finance
- Mr. Bob Chew, Regional Director, National Power International, Singapore
- Mr. Peter Cordukes, Principal Financial Analyst, Power Development Division, Industry and Energy Department, The World Bank
- Mr. Mangesh Hoskote, Private Power Specialist, Power Development Division, Industry and Energy Department, The World Bank

Guidelines

Moderator (10 minutes - introduction)
15 minute presentations by each panelist
 Moderator summarizes - 10 minutes
 About 45 minutes Open Discussion
 Coffee/Tea Break - 15 minutes (15:00 - 15:15)

16:30-17:30

Closing Remarks & Future Directions

- Mr. Tran Dinh Long, Vice-Chairman of Board of Management of EVN
- Mr. Anil Malhotra, Energy Advisor, Asia Technical Department, The World Bank

List of Participants to the Workshop on Power Sector Reform

Ho Tay Villa, Hanoi, Viet Nam

May 11-12, 1995

Viet Nam Participation

Mr. Nguyen Duc Phan	Vice-Minister of Energy
Mr. Nguyen Van Huy	Deputy Director of Steering Committee of State Enterprise Reform, Office of Government
Mr. Tran Van Nghia	Director, Department of Industry, Office of Government
Representative	Department of Industry, Government Office
Mr. Tran Ngoc Trang	International Relations Department, Office of Government
Mr. Vu Quy	Member of State Planning, Committee, Member of Steering Committee on State Enterprise Reform
Mr. Luu Van Mao	Deputy Director, Department of Industry, State Planning Committee, Government Management Department
Mr. Pham Dinh Soan	Director of Personnel, Government Management Department
Representative	Deputy General Director, Ministry of Finance
Mr. To Anh Duong	International Financial Department, Ministry of Finance
Representative	Head Research Department State Bank of Viet Nam
Mr. Hoang Kiem	International Relations Department, State Bank of Viet Nam
Mr. Hoan Anh Tuan	Division Chief, Interior Ministry
Mr. Nguyen Van Dau	Expert, Interior Ministry
Mr. Nguyen Si Phong	Director of Personnel Organization - Labor Department, Ministry of Energy
Mr. Pham Van Vy	Director of International Cooperation Department, MoE
Mr. Nguyen Huu Lang	Director of Economic Planning Department, MoE
Mr. Dang Ngoc Tung	Deputy Director of Personnel Organization - Labor Department, MoE
Mr. Do Huu Thang	Director of Science - Technical Department, MoE
Mr. Ho Sy Loi	Director of Basic Construction Department, MoE
	Director of Electricity Inspection, MoE

Mr. Nguyen Tien Hai	Director of Administration Department, MoE
Mr. Nguyen Mau Chung	Director of Internal Inspection Department, MoE
Mr. Duong Dinh Hoang	Expert, Personnel Organization, Labor Department, MoE
Mr. Tran Dinh Long	Vice-Chairman, EVN
Mr. Le Liem	Director General, EVN
Mr. Truong Bao Ngoc	Deputy Director General, EVN
Mr. Dao Van Hung	Deputy Director General, EVN
Mr. Bui Thuc Khiet	Deputy Director General, EVN
Mr. Tran Viet Ngai	Deputy Director General, EVN
Mrs. Pham Thi Ly	Director, Finance Department, EVN
Mr. Dinh Quang Tri	Deputy Director, Finance Department, EVN
Mr. Vu Trong Cam	Expert, EVN
Mr. Vu Quoc Anh	Expert, EVN
Mr. Dao Duc Duc	Deputy Director, International Cooperation Department, MoE
Mr. Dang Duc Ha	Director, PC1
Mr. Vu Duy Ai	Deputy Director, PC 2
Mr. Vu Phuoc Ny	Head of Organization Department, PC2
Mr. Ta Canh	Director, PC3
Mr. Dinh Kim Hung	Head of Organization Department, PC3
Representative	Power Company of Hanoi
Mr. Hoang Huu Nghia	Director, Power Company of HCM City
Mr. Nguyen Van Tri	Head of Organization Department, Power Company of HCM City
Mr. Tran Quoc Cuong	Director, Institute of Energy
Mr. Vu Duc Gia	Director, Transmission Company 1
Mr. Vu Duc Nhung	Director, PIDC1
Mr. Tran Minh Kham	Director, NLDC
Mr. Dang Tran Thuc	Director of Department, EVN (Chairman of Working Group)
Mr. Vu Van Thai	Expert, International Cooperation Department, MoE
Mr. Hoang Quoc Vuong	Engineer, International Cooperation Department, EVN
Mr. Tran Dinh Nham	Deputy Head, Electric Power Supply for Rural Areas, PC3
Mr. Nguyen Phi Manh	Expert, Organization Department, PIDC1
Mr. Tran Minh Tuan	Engineer, Technical Department, Transmission Company 1
Mr. Pham Khanh Toan	Chief of International Cooperation Department, Institute of Energy
Mrs. Pham Minh Nga	Expert, Export - Import Department, PC1
Mr. Nguyen Van Nam	Deputy Director, EVN
Mr. Le Van Ly	Deputy Director of Organization Department, EVN
Mr. Nguyen Van Hoai	Deputy Director, Marketing Department, EVN
Mr. Pham Quoc Toan	Deputy Director of Finance Department, EVN
Mr. Nguyen Huy Vinh	Chief, Personnel Organization, Labor Department, PIDC1

Donor Participation

Mr. Philip Rose	Senior Programme Advisor, South-East Asia Development Division, ODA, Bangkok
Mr. Christopher R. Leaning	Power Sector Field Manager, ODA, London
Mr. Izumi Arai	Director, 1st Division, Operations Department I, OECD, Japan
Mr. Teruyuki Tanaba	Chief Representative, OECD, Japan
Mr. Philippe Nenedic	Director, Caisse Francaise de Development. Regional Office, Hanoi
Mr. Risto Tarjanne	Representative from Finnida
Ms. Anne-Charlotte Malm	Regional Programme Officer, Development Cooperation, SIDA, Hanoi

Asian Development Bank

Mr. Robert Kay	Senior Financial Analyst, Power Division West, Energy and Industry Department
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UNDP

Representative	Hanoi
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OECD

Mr. Menmet Öpütücü	Administrator, IEA Office of Non-Member Countries, Asia-Pacific and Latin America Region.
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National Grid Company (UK)

Mr. Les Clarke	Skills and Overseas Manager, Manager
Mr. John Grundy	System Support Production Manager, Load Dispatch Center

National Power (UK)

Mr. Philip Spencer	Operations Director
Mr. Bob Chew	Regional Director, Singapore
Mr. Iain McMorrine	Regional Office, Singapore

NERA (UK)

Mr. John Rhys	Director
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David Butcher and Associates (NZ)

Mr. David Butcher	Principal
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World Bank Participation

Mr. Bradley Babson	Resident Representative, WB Mission in Viet Nam
Mr. Karl Jechoutek	Division Chief, Industry and Energy Department, Power Development, Efficiency and Household Fuels Division (IENPD)
Mr. Anil Malhotra	Energy Advisor, Asia Technical Department
Mr. Peter Cordukes	Principal Financial Analyst, IENPD
Mr. Ranjit Lamech	Restructuring Specialist, IENPD
Mr. Kurt Schenk	Power Specialist, IENPD
Mr. Mangesh Hoskote	Private Power Specialist, IENPD
Mr. Raymond Mallon	Resident Advisor, State Enterprise Reform Program

Joint UNDP/World Bank
ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)

LIST OF REPORTS ON COMPLETED ACTIVITIES

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
SUB-SAHARAN AFRICA (AFR)			
Africa Regional	Anglophone Africa Household Energy Workshop (English)	07/88	085/88
	Regional Power Seminar on Reducing Electric Power System Losses in Africa (English)	08/88	087/88
	Institutional Evaluation of EGL (English)	02/89	098/89
	Biomass Mapping Regional Workshops (English)	05/89--	
	Francophone Household Energy Workshop (French)	08/89	103/89
	Interafrican Electrical Engineering College: Proposals for Short- and Long-Term Development (English)	03/90	112/90
	Biomass Assessment and Mapping (English)	03/90	--
Angola	Energy Assessment (English and Portuguese)	05/89	4708-ANG
	Power Rehabilitation and Technical Assistance (English)	10/91	142/91
Benin	Energy Assessment (English and French)	06/85	5222-BEN
Botswana	Energy Assessment (English)	09/84	4998-BT
	Pump Electrification Prefeasibility Study (English)	01/86	047/86
	Review of Electricity Service Connection Policy (English)	07/87	071/87
	Tuli Block Farms Electrification Study (English)	07/87	072/87
	Household Energy Issues Study (English)	02/88	--
	Urban Household Energy Strategy Study (English)	05/91	132/91
Burkina Faso	Energy Assessment (English and French)	01/86	5730-BUR
	Technical Assistance Program (English)	03/86	052/86
	Urban Household Energy Strategy Study (English and French)	06/91	134/91
Burundi	Energy Assessment (English)	06/82	3778-BU
	Petroleum Supply Management (English)	01/84	012/84
	Status Report (English and French)	02/84	011/84
	Presentation of Energy Projects for the Fourth Five-Year Plan (1983-1987) (English and French)	05/85	036/85
	Improved Charcoal Cookstove Strategy (English and French)	09/85	042/85
	Peat Utilization Project (English)	11/85	046/85
	Energy Assessment (English and French)	01/92	9215-BU
Cape Verde	Energy Assessment (English and Portuguese)	08/84	5073-CV
	Household Energy Strategy Study (English)	02/90	110/90
Central African Republic	Energy Assesment (French)	08/92	9898-CAR
Chad	Elements of Strategy for Urban Household Energy The Case of N'djamena (French)	12/93	160/94
Comoros	Energy Assessment (English and French)	01/88	7104-COM
Congo	Energy Assessment (English)	01/88	6420-COB
	Power Development Plan (English and French)	03/90	106/90
Côte d'Ivoire	Energy Assessment (English and French)	04/85	5250-IVC
	Improved Biomass Utilization (English and French)	04/87	069/87
	Power System Efficiency Study (English)	12/87	--
	Power Sector Efficiency Study (French)	02/92	140/91
Ethiopia	Energy Assessment (English)	07/84	4741-ET

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
Ethiopia	Power System Efficiency Study (English)	10/85	045/85
	Agricultural Residue Briquetting Pilot Project (English)	12/86	062/86
	Bagasse Study (English)	12/86	063/86
	Cooking Efficiency Project (English)	12/87	--
Gabon	Energy Assessment (English)	07/88	6915-GA
The Gambia	Energy Assessment (English)	11/83	4743-GM
	Solar Water Heating Retrofit Project (English)	02/85	030/85
	Solar Photovoltaic Applications (English)	03/85	032/85
	Petroleum Supply Management Assistance (English)	04/85	035/85
Ghana	Energy Assessment (English)	11/86	6234-GH
	Energy Rationalization in the Industrial Sector (English)	06/88	084/88
	Sawmill Residues Utilization Study (English)	11/88	074/87
	Industrial Energy Efficiency (English)	11/92	148/92
Guinea	Energy Assessment (English)	11/86	6137-GUI
	Household Energy Strategy (English and French)	01/94	163/94
Guinea-Bissau	Energy Assessment (English and Portuguese)	08/84	5083-GUB
	Recommended Technical Assistance Projects (English & Portuguese)	04/85	033/85
	Management Options for the Electric Power and Water Supply Subsectors (English)	02/90	100/90
	Power and Water Institutional Restructuring (French)	04/91	118/91
	Energy Assessment (English)	05/82	3800-KE
Kenya	Power System Efficiency Study (English)	03/84	014/84
	Status Report (English)	05/84	016/84
	Coal Conversion Action Plan (English)	02/87	--
	Solar Water Heating Study (English)	02/87	066/87
	Peri-Urban Woodfuel Development (English)	10/87	076/87
	Power Master Plan (English)	11/87	--
	Energy Assessment (English)	01/84	4676-LSO
Liberia	Energy Assessment (English)	12/84	5279-LBR
	Recommended Technical Assistance Projects (English)	06/85	038/85
	Power System Efficiency Study (English)	12/87	081/87
Madagascar	Energy Assessment (English)	01/87	5700-MAG
	Power System Efficiency Study (English and French)	12/87	075/87
Malawi	Energy Assessment (English)	08/82	3903-MAL
	Technical Assistance to Improve the Efficiency of Fuelwood Use in the Tobacco Industry (English)	11/83	009/83
	Status Report (English)	01/84	013/84
Mali	Energy Assessment (English and French)	11/91	8423-MLI
	Household Energy Strategy (English and French)	03/92	147/92
Islamic Republic of Mauritania	Energy Assessment (English and French)	04/85	5224-MAU
	Household Energy Strategy Study (English and French)	07/90	123/90
Mauritius	Energy Assessment (English)	12/81	3510-MAS
	Status Report (English)	10/83	008/83
	Power System Efficiency Audit (English)	05/87	070/87
	Bagasse Power Potential (English)	10/87	077/87
	Energy Sector Review (English)	12/94	3643-MAS
Morocco	Energy Sector Institutional Development Study (English and French)	07/95	173/95
	Energy Assessment (English)	01/87	6128-MOZ
Mozambique	Household Electricity Utilization Study (English)	03/90	113/90
	Energy Assessment (English)	03/93	11320-NAM

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
Niger	Energy Assessment (French)	05/84	4642-NIR
	Status Report (English and French)	02/86	051/86
	Improved Stoves Project (English and French)	12/87	080/87
	Household Energy Conservation and Substitution (English and French)	01/88	082/88
Nigeria	Energy Assessment (English)	08/83	4440-UNI
	Energy Assessment (English)	07/93	11672-UNI
Republic of South Africa	Options for the Structure and Regulation of Natural Gas Industry (English)	05/95	172/95
Rwanda	Energy Assessment (English)	06/82	3779-RW
	Energy Assessment (English and French)	07/91	8017-RW
	Status Report (English and French)	05/84	017/84
	Improved Charcoal Cookstove Strategy (English and French)	08/86	059/86
	Improved Charcoal Production Techniques (English and French)	02/87	065/87
	Commercialization of Improved Charcoal Stoves and Carbonization Techniques Mid-Term Progress Report (English and French)	12/91	141/91
SADC	SADC Regional Power Interconnection Study, Vol. I-IV (English)	12/93	--
SADCC	SADCC Regional Sector: Regional Capacity-Building Program for Energy Surveys and Policy Analysis (English)	11/91	--
Sao Tome and Principe	Energy Assessment (English)	10/85	5803-STP
Senegal	Energy Assessment (English)	07/83	4182-SE
	Status Report (English and French)	10/84	025/84
	Industrial Energy Conservation Study (English)	05/85	037/85
	Preparatory Assistance for Donor Meeting (English and French)	04/86	056/86
	Urban Household Energy Strategy (English)	02/89	096/89
	Industrial Energy Conservation Program	05/94	165/94
	Seychelles	Energy Assessment (English)	01/84
	Electric Power System Efficiency Study (English)	08/84	021/84
Sierra Leone	Energy Assessment (English)	10/87	6597-SL
Somalia	Energy Assessment (English)	12/85	5796-SO
Republic of South Africa	Options for the Structure and Regulation of Natural Gas Industry (English)	05/95	172/95
Sudan	Management Assistance to the Ministry of Energy and Mining	05/83	003/83
	Energy Assessment (English)	07/83	4511-SU
	Power System Efficiency Study (English)	06/84	018/84
	Status Report (English)	11/84	026/84
	Wood Energy/Forestry Feasibility (English)	07/87	073/87
	Energy Assessment (English)	02/87	6262-SW
Swaziland	Energy Assessment (English)	11/84	4969-TA
Tanzania	Peri-Urban Woodfuels Feasibility Study (English)	08/88	086/88
	Tobacco Curing Efficiency Study (English)	05/89	102/89
	Remote Sensing and Mapping of Woodlands (English)	06/90	--
	Industrial Energy Efficiency Technical Assistance (English)	08/90	122/90
	Energy Assessment (English)	06/85	5221-TO
	Wood Recovery in the Nangbeto Lake (English and French)	04/86	055/86
Togo	Power Efficiency Improvement (English and French)	12/87	078/87
	Energy Assessment (English)	07/83	4453-UG
	Status Report (English)	08/84	020/84
Uganda	Institutional Review of the Energy Sector (English)	01/85	029/85
	Energy Assessment (English)	02/86	049/86
	Energy Efficiency in Tobacco Curing Industry (English)		

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
Uganda	Fuelwood/Forestry Feasibility Study (English)	03/86	053/86
	Power System Efficiency Study (English)	12/88	092/88
	Energy Efficiency Improvement in the Brick and Tile Industry (English)	02/89	097/89
	Tobacco Curing Pilot Project (English)	03/89	UNDP Terminal Report
Zaire	Energy Assessment (English)	05/86	5837-ZR
Zambia	Energy Assessment (English)	01/83	4110-ZA
	Status Report (English)	08/85	039/85
Zambia	Energy Sector Institutional Review (English)	11/86	060/86
	Power Subsector Efficiency Study (English)	02/89	093/88
	Energy Strategy Study (English)	02/89	094/88
Zimbabwe	Urban Household Energy Strategy Study (English)	08/90	121/90
	Energy Assessment (English)	06/82	3765-ZIM
	Power System Efficiency Study (English)	06/83	005/83
	Status Report (English)	08/84	019/84
	Power Sector Management Assistance Project (English)	04/85	034/85
	Petroleum Management Assistance (English)	12/89	109/89
	Power Sector Management Institution Building (English)	09/89	--
	Charcoal Utilization Prefeasibility Study (English)	06/90	119/90
	Integrated Energy Strategy Evaluation (English)	01/92	8768-ZIM
	Energy Efficiency Technical Assistance Project: Strategic Framework for a National Energy Efficiency Improvement Program (English)	04/94	--
Capacity Building for the National Energy Efficiency Improvement Programme (NEEIP)	12/94	--	

EAST ASIA AND PACIFIC (EAP)

Asia Regional China	Pacific Household and Rural Energy Seminar (English)	11/90	--
	County-Level Rural Energy Assessments (English)	05/89	101/89
	Fuelwood Forestry Preinvestment Study (English)	12/89	105/89
	Strategic Options for Power Sector Reform in China (English)	07/93	156/93
	Energy Efficiency and Pollution Control in Township and Village Enterprises (TVE) Industry (English)	11/94	168/94
Fiji	Energy Assessment (English)	06/83	4462-FIJ
Indonesia	Energy Assessment (English)	11/81	3543-IND
	Status Report (English)	09/84	022/84
	Power Generation Efficiency Study (English)	02/86	050/86
	Energy Efficiency in the Brick, Tile and Lime Industries (English)	04/87	067/87
	Diesel Generating Plant Efficiency Study (English)	12/88	095/88
	Urban Household Energy Strategy Study (English)	02/90	107/90
	Biomass Gasifier Preinvestment Study Vols. I & II (English)	12/90	124/90
	Prospects for Biomass Power Generation with Emphasis on Palm Oil, Sugar, Rubberwood and Plywood Residues (English)	11/94	167/94
Lao PDR	Urban Electricity Demand Assessment Study (English)	03/93	154/93
Malaysia	Sabah Power System Efficiency Study (English)	03/87	068/87
	Gas Utilization Study (English)	09/91	9645-MA

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
Myanmar	Energy Assessment (English)	06/85	5416-BA
Papua New Guinea	Energy Assessment (English)	06/82	3882-PNG
	Status Report (English)	07/83	006/83
	Energy Strategy Paper (English)	--	--
	Institutional Review in the Energy Sector (English)	10/84	023/84
	Power Tariff Study (English)	10/84	024/84
Philippines	Commercial Potential for Power Production from Agricultural Residues (English)	12/93	157/93
	Energy Conservation Study (English)	08/94	--
Solomon Islands	Energy Assessment (English)	06/83	4404-SOL
	Energy Assessment (English)	01/92	979/SOL
South Pacific	Petroleum Transport in the South Pacific (English)	05/86	--
Thailand	Energy Assessment (English)	09/85	5793-TH
	Rural Energy Issues and Options (English)	09/85	044/85
	Accelerated Dissemination of Improved Stoves and Charcoal Kilns (English)	09/87	079/87
	Northeast Region Village Forestry and Woodfuels Preinvestment Study (English)	02/88	083/88
	Impact of Lower Oil Prices (English)	08/88	--
	Coal Development and Utilization Study (English)	10/89	--
Tonga	Energy Assessment (English)	06/85	5498-TON
Vanuatu	Energy Assessment (English)	06/85	5577-VA
Vietnam	Rural and Household Energy-Issues and Options (English)	01/94	161/94
Western Samoa	Energy Assessment (English)	06/85	5497-WSO

SOUTH ASIA (SAS)

Bangladesh	Energy Assessment (English)	10/82	3873-BD
	Priority Investment Program (English)	05/83	002/83
	Status Report (English)	04/84	015/84
	Power System Efficiency Study (English)	02/85	031/85
	Small Scale Uses of Gas Prefeasibility Study (English)	12/88	
India	Opportunities for Commercialization of Nonconventional Energy Systems (English)	11/88	091/88
	Maharashtra Bagasse Energy Efficiency Project (English)	07/90	120/90
	Mini-Hydro Development on Irrigation Dams and Canal Drops Vols. I, II and III (English)	07/91	139/91
	WindFarm Pre-Investment Study (English)	12/92	150/92
	Power Sector Reform Seminar (English)	04/94	166/94
Nepal	Energy Assessment (English)	08/83	4474-NEP
	Status Report (English)	01/85	028/84
	Energy Efficiency & Fuel Substitution in Industries (English)	06/93	158/93
Pakistan	Household Energy Assessment (English)	05/88	--
	Assessment of Photovoltaic Programs, Applications, and Markets (English)	10/89	103/89

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Pakistan	National Household Energy Survey and Strategy Formulation		
	Study: Project Terminal Report (English)	03/94	--
	Managing the Energy Transition (English)	10/94	--
	Lighting Efficiency Improvement Program		
Sri Lanka	Phase 1: Commercial Buildings Five Year Plan (English)	10/94	--
	Energy Assessment (English)	05/82	3792-CE
	Power System Loss Reduction Study (English)	07/83	007/83
	Status Report (English)	01/84	010/84
	Industrial Energy Conservation Study (English)	03/86	054/86

EUROPE AND CENTRAL ASIA (ECA)

Eastern Europe	The Future of Natural Gas in Eastern Europe (English)	08/92	149/92
Poland	Energy Sector Restructuring Program Vols. I-V (English)	01/93	153/93
Portugal	Energy Assessment (English)	04/84	4824-PO
Turkey	Energy Assessment (English)	03/83	3877-TU

MIDDLE EAST AND NORTH AFRICA (MNA)

Morocco	Energy Assessment (English and French)	03/84	4157-MOR
	Status Report (English and French)	01/86	048/86
	Energy Sector Institutional Development Study (English and French)	05/95	173/95
Syria	Energy Assessment (English)	05/86	5822-SYR
	Electric Power Efficiency Study (English)	09/88	089/88
	Energy Efficiency Improvement in the Cement Sector (English)	04/89	099/89
	Energy Efficiency Improvement in the Fertilizer Sector (English)	06/90	115/90
Tunisia	Fuel Substitution (English and French)	03/90	--
	Power Efficiency Study (English and French)	02/92	136/91
	Energy Management Strategy in the Residential and Tertiary Sectors (English)	04/92	146/92
Yemen	Energy Assessment (English)	12/84	4892-YAR
	Energy Investment Priorities (English)	02/87	6376-YAR
	Household Energy Strategy Study Phase I (English)	03/91	126/91

LATIN AMERICA AND THE CARIBBEAN (LAC)

LAC Regional	Regional Seminar on Electric Power System Loss Reduction in the Caribbean (English)	07/89	--
Bolivia	Energy Assessment (English)	04/83	4213-BO
	National Energy Plan (English)	12/87	--
	National Energy Plan (Spanish)	08/91	131/91
	La Paz Private Power Technical Assistance (English)	11/90	111/90
	Natural Gas Distribution: Economics and Regulation (English)	03/92	125/92
	Prefeasibility Evaluation Rural Electrification and Demand Assessment (English and Spanish)	04/91	129/91
	Private Power Generation and Transmission (English)	01/92	137/91
	Household Rural Energy Strategy (English and Spanish)	01/94	162/94
	Natural Gas Sector Policies and Issues (English and Spanish)	12/93	164/93

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
Brazil	Energy Efficiency & Conservation: Strategic Partnership for Energy Efficiency in Brazil (English)	01/95	170/95
Chile	Energy Sector Review (English)	08/88	7129-CH
Colombia	Energy Strategy Paper (English)	12/86	--
	Power Sector Restructuring (English)	11/94	169/94
Costa Rica	Energy Assessment (English and Spanish)	01/84	4655-CR
	Recommended Technical Assistance Projects (English)	11/84	027/84
	Forest Residues Utilization Study (English and Spanish)	02/90	108/90
Dominican Republic	Energy Assessment (English)	05/91	8234-DO
Ecuador	Energy Assessment (Spanish)	12/85	5865-EC
	Energy Strategy Phase I (Spanish)	07/88	--
	Energy Strategy (English)	04/91	--
	Private Minihydropower Development Study (English)	11/92	--
	Energy Pricing Subsidies and Interfuel Substitution (English)	08/94	11798-EC
	Energy Pricing, Poverty and Social Mitigation (English)	08/94	12831-EC
Guatemala	Issues and Options in the Energy Sector (English)	09/93	12160-GU
Haiti	Energy Assessment (English and French)	06/82	3672-HA
	Status Report (English and French)	08/85	041/85
	Household Energy Strategy (English and French)	12/91	143/91
Honduras	Energy Assessment (English)	08/87	6476-HO
	Petroleum Supply Management (English)	03/91	128/91
Jamaica	Energy Assessment (English)	04/85	5466-JM
	Petroleum Procurement, Refining, and Distribution Study (English)	11/86	061/86
	Energy Efficiency Building Code Phase I (English)	03/88	--
	Energy Efficiency Standards and Labels Phase I (English)	03/88	--
	Management Information System Phase I (English)	03/88	--
	Charcoal Production Project (English)	09/88	090/88
	FIDCO Sawmill Residues Utilization Study (English)	09/88	088/88
	Energy Sector Strategy and Investment Planning Study (English)	07/92	135/92
Mexico	Improved Charcoal Production Within Forest Management for the State of Veracruz (English and Spanish)	08/91	138/91
Panama	Power System Efficiency Study (English)	06/83	004/83
Paraguay	Energy Assessment (English)	10/84	5145-PA
	Recommended Technical Assistance Projects (English)	09/85	--
	Status Report (English and Spanish)	09/85	043/85
Peru	Energy Assessment (English)	01/84	4677-PE
	Status Report (English)	08/85	040/85
	Proposal for a Stove Dissemination Program in the Sierra (English and Spanish)	02/87	064/87
	Energy Strategy (English and Spanish)	12/90	--
	Study of Energy Taxation and Liberalization of the Hydrocarbons Sector (English and Spanish)	120/93	159/93
Saint Lucia	Energy Assessment (English)	09/84	5111-SLU
St. Vincent and the Grenadines	Energy Assessment (English)	09/84	5103-STV
Trinidad and Tobago	Energy Assessment (English)	12/85	5930-TR

GLOBAL

	Energy End Use Efficiency: Research and Strategy (English)	11/89	--
	Guidelines for Utility Customer Management and Metering (English and Spanish)	07/91	--
	Women and Energy--A Resource Guide		
	The International Network: Policies and Experience (English)	04/90	--
	Assessment of Personal Computer Models for Energy Planning in Developing Countries (English)	10/91	--
	Long-Term Gas Contracts Principles and Applications (English)	02/93	152/93
	Comparative Behavior of Firms Under Public and Private Ownership (English)	05/93	155/93
	Development of Regional Electric Power Networks (English)	10/94	--
	Roundtable on Energy Efficiency (English)	02/95	171/95

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