

# Financing of Power Expansion for Developing Countries

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*The need for a paper of this kind,  
which was first identified in  
the Operations Evaluation Report on Power of 1972,  
became more pressing  
when the increases in oil prices  
precipitated the development by the LDCs  
of more capital intensive sources of power  
as alternative to oil-fired thermal plants.  
The occasion for its preparation was the participation  
of Mr. Friedmann  
in (i) a Seminar on nuclear power development in LDCs  
for utility managers organized by IAEA  
and the Jamaican Government last June and  
(ii) a Scientific Afternoon  
on the same subject at the Nineteenth Regular Session  
of the General Conference of IAEA.  
The paper reviews the likely growth of  
Power/Nuclear installation in LDCs,  
the associated capital requirements in foreign  
and domestic currencies,  
the past and projected sources of these funds –  
official and private –,  
and points out the growing proportion of foreign borrowing  
and investments that would be required by the sector.  
The urgency of mobilizing sufficient resources  
is brought up.  
Intentionally, no implications have been drawn in this article  
regarding Bank policy – either for lending  
in the sectors or for  
assistance in mobilizing resources.  
These will be dealt with separately  
in cooperation with those concerned.*

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\* Mr. Friedmann is a member of the Public Utilities Department of the International Bank for Reconstruction and Development and the International Development Association. The article is an excerpt of the paper prepared by him for the Scientific Afternoon during the General Conference; the complete report, titled "External Financing of Power Expansion for Developing Countries" carries the number P.U. Department PUN 19, issued 8 October 1975.

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## INTRODUCTION

**In this article we review the problems associated with the financing of power expansion in the LDCs during the next 5–10 years.**

The main points we want to make are:

- (i) As a result of a number of factors – amongst which the most important in magnitude and duration is the big change in oil prices of late '73 – the world economy is passing through a very difficult adjustment process, which is likely to last through the end of the 70's or early 80's.
- (ii) During this period oil importing LDCs<sup>1</sup> will need substantially larger external capital flows in the form of loans and direct foreign investment, if they are to sustain acceptable rates of economic growth. These flows would represent about 2.5% to 3% of GNP compared with past levels of 1.5% to 2%. Many imaginative proposals are currently being discussed to make these larger flows possible.
- (iii) In the recent past flows from official bilateral and multilateral sources have been about equal to those from private lenders and investors. Though it would be very desirable to increase the proportion of official flows because they are provided at better terms than private ones, current projections indicate much of the needed additional funds will have to be obtained from private sources, particularly the rapidly growing international (Eurocurrency) markets. Very few LDCs have been able to borrow in the past from these private markets under favorable conditions (e.g. in the form of Eurobonds); many more will need to do so in the future.
- (iv) More specifically, adjustment to higher prices of imported oil will mean a major reallocation of investments, in industrial as well as developing (LDCs) nations, towards the development of indigenous fuels and construction of non-oil-burning power plants. By 1985 these investments will be taking about twice the percentage of GNP and savings allocated to them in the early 70's.
- (v) This major shift in the allocation of investments to power will not initially appear as a higher proportion of external borrowing for this purpose, but only because of the large increase in total borrowing which will take place during this period of adjustment. However, as total external capital flows return to normal levels (1.5%–2% of GNP) the shift of foreign borrowing towards the power sector should become evident, and increase from 13% to about 25% of total flows by the mid-80's.
- (vi) About 60% of past borrowings for power have come from official sources at slightly lower interest rates (-1% to -2%) and much longer repayment periods (+ 10 years) than loans from private sources. Given current trends in Official Development Assistance, the percentages are expected to reverse for the next decade and about 60% of borrowings to come from private sources. LDCs will need support to make this shift – from the Bank and others.

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<sup>1</sup> In this report LDCs refer to 85 such countries which are members of the World Bank. In particular this list excludes OPEC members, Spain and Israel.

(vii) Specific lending for LDCs for nuclear plants appears to be available in sufficient amounts from bilateral sources, though the World Bank and other multilateral development Banks may play useful roles in these projects due to their long experience and association with P.U. in LDCs.

(viii) In the short and medium-term, the so-called "energy" crisis is not one of resources or technology (as it could be in a longer – after year 2000 – term) but mainly a "financial" crisis to be overcome with additional financial resources and careful short- and medium-term financial planning. In this context, perhaps the most serious financial problems will be at the domestic level and in terms of local currency funds. These can only be obtained from increases and reallocation in LDCs' domestic savings – while foreign exchange needs can be drawn from a world pool of savings fed by rich and cash-surplus countries (OECD and OPEC).

#### INVESTMENT REQUIREMENTS FOR POWER EXPANSION IN LDCs 1976–1985

Though Energy/GNP elasticity has generally been close to one, the rate of growth of power has been about 1.5 times the rate of growth of both energy and GNP; for instance, during the decade of the 60's power expansion averaged 9%–10% in LDCs, while economic growth stayed at 5% to 6%. Financial requirements for power tend, therefore, to increase as a proportion of GNP. This tendency was largely compensated in the past by significant technological developments and specially by the economies of scale made possible by the growth of the systems, the use of larger generating and transforming equipment, higher transmission voltages, and lower overhead costs per unit. The net result has been that over the last decade power expansion requirements have stayed on average at about 7%–8% of gross fixed capital formations (GCF)<sup>2</sup>.

During the next 10 years the ratio of power and GNP rates of growth are likely to remain about the same – though both are expected to decline somewhat from their past values – but a significant new factor will tend to increase the associated ratios of financial requirements for power and total GNP and GCF. This is the need to substitute previously planned oil-burning plants for much higher capital cost nuclear, lignite and hydro alternatives.

A Bank Staff study for two different groups of countries pointed to major shifts in the power generation mix characterized by a sharp decrease in the percentage of oil-burning plants and a significant increase of nuclear plants (see tables below).

	Hydro	Oil	Coal	Nuclear
<b>Group I</b> <sup>3</sup>				
1974 (%)	21	63	15	1
1990 (%)	12	18	10	60

<sup>2</sup> Typically GCF is about 14% of GNP in low income developing countries, 17% in middle/high and 23% in the industrial nations, though inside each group there are important variations.

<sup>3</sup> Study carried out by Regional Power Staff Asia including: Korea, Malaysia, Pakistan, Philippines, Singapore, Taiwan, Thailand.

	Hydro	Oil/Gas	Coal	Nuclear
<b>Group II<sup>4</sup></b>				
1971 (%)	36	29	35	—
1986 (%)	28	16	34	22

The IAEA 1973 market study projected similar trends for a group of 14 countries<sup>5</sup> shown below.

IAEA Group	Hydro	Fossil <sup>6</sup>	Nuclear
1979 (%)	36	60	4
1989 (%)	28	37	35

As a result of these various factors: continued faster than GNP growth of power demand; less scope for economies of scale; faster-than-average price increases in equipment and heavy construction and particularly rapid shift to higher capital cost plant (nuclear, lignite, hydro), the proportion of national investment taken by power expansion in LDCs is projected to increase by about one-half, from about 7%–8% in the past decade to about 10%–12% in the next. In terms of public rather than total investment this means an increase from about 17% to about 25%, indicating that a difficult re-allocation of public investment funds will be required. We are not sure that this fact is fully grasped by decision makers in countries and developing institutions.

During the next 10 years — or for the period 1976–1985 — the installed power capacity of developing countries (LDCs) may grow by about 150 GW from an estimated 1975 value of about 130 GW. This forecast assumes that growth rates for electric power will decline from recent values of 9% to 10% per year to about 7% as a result of predominantly negative factors such as slower economic growth and higher electricity prices only partially compensated by an increasing electrification of the energy economy.

The corresponding financial requirements through 1985 will be about \$90 billion<sup>7</sup>. This estimate is based on an analysis of a representative sample of national expansion programmes showing an average cost of \$600 per kw, of which generating plant accounts for \$360, and other plants — transmission and distribution — for \$240. The same sample shows that the foreign exchange component is about 50% of total costs (or about \$300 per kw), being higher for generation expansions, about 60%, and lower for transmission and distribution, about 35%.<sup>8</sup>

For the aggregate of 85 countries we have mentioned earlier, it is expected that of the additional 150 GW, almost one-third or about 40 GW may be in nuclear plants which are estimated to have a capital cost of about twice that of the oil/gas-burning plants (\$480 vs. \$240 per kw). At the same time, more hydro and coal plants will be built than previously planned.

Higher oil prices do not only result in bigger investments in power; they also mean more investments in exploring and developing other domestic energy sources. In the case of OECD countries annual energy investments as a share of GCF are estimated to increase from about 7.7% in the early 70's to about 10% by 1980 and 14% by 1985.<sup>9</sup> Of these investments which for the period 1974–85 exceed one trillion US \$, about one-half are for

power expansion, particularly nuclear plants. Similar increases will take place in LDCs where investments in the development of indigenous energy resources other than power are likely to require an additional \$40–60 billion through 1985.<sup>10</sup>

It is interesting to note that though in most LDCs only 15% to 25% of **primary energy** goes into the production of electricity, this sector requires 60% to 80% of all energy **investments**. This imbalance is explained by the much *higher capital intensiveness* of the electric sector as shown by the fact that in recent years annual investments in the world (excluding Centrally Planned Economies) were of the order of \$80 billion for power and only \$20 billion for petroleum.

## POWER – EXTERNAL SOURCES OF FINANCE

Let us now turn more specifically to the financing requirements and sources thereof for the power sector. Trends in the recent past are shown in **Table 1** which has been prepared using a sample of 40 developing countries on which relatively good data is available. They represent about 90% of the installed capacity of 85 LDC members of the World Bank and about 85% of their aggregate population and GNP. The table covers the period **January 1, 1968 through December 31, 1973** and the figures refer to loan commitments and not to actual disbursements; they are expressed in US \$ at their denominated values in each case. Part III of the table shows the estimated additions in power capacity covered by commitments made during this period and the corresponding estimated foreign exchange requirements of those installations.<sup>11</sup>

This table is worth-while studying in some detail.<sup>12</sup> A few points to notice are:

- (i) Foreign capital flows provided about 80% of the foreign exchange needed for power expansion in this period. However, low-income countries (L.I.C.) appear to have received considerably less, or about 40% of their requirements, while mid-income countries received 75% and high-income countries almost all their needs.
- (ii) Official lending played the major role in all cases: about 80% of power lending to the low-income countries and 60%–65% to the others. More particularly, multilateral development banks have been responsible for about half of the flows to low-income countries.

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<sup>4</sup> Study carried out by Regional Power Staff EMENA including: Afghanistan, Algeria, Cyprus, Greece, Iceland, Iran, Ireland, Jordan, Malta, Morocco, Oman, Syria, Tunisia, Turkey and Yugoslavia.

<sup>5</sup> Argentina, Bangladesh, Chile, Egypt, Greece, Jamaica, Korea, Mexico, Pakistan, Philippines, Singapore, Thailand, Turkey and Yugoslavia.

<sup>6</sup> Petroleum and Coal.

<sup>7</sup> Unless otherwise stated, constant 1974 US \$ are used throughout this article.

<sup>8</sup> Of course, these figures are only meaningful as averages; for each country the costs per kw installed and the proportion of foreign exchange may vary within a very wide range, e.g. for generating plants we find that the foreign exchange component in Bangladesh is over 80%, in Turkey about 70% and in Argentina 50% or less.

<sup>9</sup> "Energy Prospects to 1985", OECD Vol. 1 p. 175.

<sup>10</sup> e.g. oil production in non-OPEC LDCs is projected to increase rapidly from the current 3.5 mbd (million barrels/day) to about 8 to 9 mbd by 1985.

<sup>11</sup> Estimated at an average of \$220 per kw, in terms of dollars of that time.

<sup>12</sup> The table uses all published information on foreign debt; there are gaps (especially in L.I.C. data); however, we believe the main messages conveyed by the figures as collected are valid.

**TABLE 1: Amounts and Average Terms of Foreign Loans Committed – 40 Developing Countries – Power and Total  
(1 Jan 1968 – 31 Dec 1973) – in Millions of Current US \$**

			LOW INCOME			MIDDLE INCOME			HIGH INCOME			Total Amount
			Amount	Interest %	Maturity Years	Amount	Interest %	Maturity Years	Amount	Interest %	Maturity Years	
<b>I. POWER</b>												
1.	Official	\$M	357	—	—	943	—	—	3 227	—	—	4 936
	(1:3)	%	(78)	—	—	(64)	—	—	(57)	—	—	(60)
1.1	Multilateral	\$M	485	3.0	38	516	5.8	26	2 221	7.2	23	3 222
	(1.1:3)	%	(49)	—	—	(35)	—	—	(39)	—	—	(39)
1.2	Bilateral	\$M	282	2.6	35	427	3.7	21	1 006	5.2	19	1 714
	(1.2:3)	%	(29)	—	—	(29)	—	—	(18)	—	—	(21)
2.	Private	\$M	216	—	—	534	—	—	2 482	—	—	3 212
	(2:3)	%	(22)	—	—	(36)	—	—	(43)	—	—	(40)
2.1	Suppliers	\$M	123	3.5	12	331	5.0	12	676	6.0	13	1 130
	(2.1:3)	%	(13)	—	—	(22)	—	—	(12)	—	—	(14)
2.2	Others	\$M	93	5.9	11	203	5.5	13	1 806	8.1	10	2 082
	(2.2:3)	%	(10)	—	—	(14)	—	—	(31)	—	—	(26)
3.	Total Power	\$M	982	3.2	31	1 477	5.0	20	5 689	6.9	17	8 148
	(3:11)	%	(7.0)	—	—	(10.7)	—	—	(17.0)	—	—	(13.3)
<hr/>												
II.	All Purposes	\$M	14 039	2.8	30	13 763	4.5	19	33,472	6.8	14	61 270
<hr/>												
III.	1.	Estimated MW Installed 6.1.69–6.1.75		10 800		8 900			26 000			45 700
	2.	F.Ex.Req.	\$M	2 376		1 958			5 720			10 054
	3.	(1.3:III.2)		(41)		(75)			(98)			(81)

(iii) Official lending is also very significant in terms of better financing conditions, particularly average maturity periods, which are two to three times those of private sources (19 to 38 years vs. 10 to 13 years).

(iv) Lending for the power sector as a whole has taken about 13% of total borrowings by LDCs in those years. If all capital requirements for power had been covered with borrowings this percentage would have been about 15%–16%. In a previous paragraph we have made an estimate of foreign exchange requirements for power expansions over 1976–1985; they represent about 20% of their total foreign exchange requirements, an increase of only 30% on previous levels. This is deceptive. The economy of developing countries is going through a difficult period during which external borrowing has unavoidably increased to almost double its normal levels. However, as these high levels of borrowing return to more normal values (1.5%–2% of GNP rather than 2.5%–3%) the percentage of foreign exchange requirements for power expansion will tend to increase, perhaps to nearly 30% of the total; this increase, resulting from long-lasting structural factors (electrification of the energy sector, higher long-term marginal costs of energy) should be kept in mind by long-term investment and development planning bodies. In particular it should encourage many LDCs to develop a higher domestic capability to manufacture and build their power facilities on a national or regional basis.<sup>13</sup>

#### POWER FINANCING – THE NEXT 5–10 YEARS

As shown above, about \$45 billion of foreign exchange will be required to finance expansions over the period 1976–1985. Loans for these expansions are committed over a period with an average lead time of about 2–3 years. Therefore, by 1977/78 annual commitments will be at a level of about \$4–4.5 billion. This is about twice the amount in real terms of the average level of commitments made over the period 1968–73.<sup>14</sup>

We have also mentioned that in real terms half the additional foreign capital flows are expected to be forthcoming from private sources. It is even possible, unless pre-1974 trends in lending by official development institutions, including the World Bank, USAID and others, are modified, that private sources would not only be needed to provide their past proportion of requirements but also a part of the official funds previously available for power investments. As a typical illustration of ODA lending trends as they stood as recently as one year ago, Table 2 shows past and planned World Bank Group lending classified by purposes. This table shows a decreasing proportion of Bank lending for power: 29% in FY64–68, 18% in FY69–73 and only 13% in FY74–75.

If current trends in ODA lending for power are maintained we can estimate that the ratio of funds coming from official and private sources will be reversed from official 60%, private 40% to official 40%, private 60%, or a trebling in the amount of funds to be borrowed from private sources over a six-year interval (1977/78 compared to 1971/72). Bank staff studies support the feasibility of such increased borrowings at least till the end of 1980, though they appear to be the maximum achievable while maintaining international credit-worthiness, and would require considerable initiative from public utility managers of developing nations and possibly assistance from current official borrowers such as the World Bank in organizing the new “mix” of loan sources.

An estimated breakdown of sources of foreign exchange for the \$45 billion required by 1976–85 power expansions in LDCs is shown on next page:

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<sup>13</sup> India, Brazil, and some regional groups such as the Andean Pact are increasingly going in this direction.

<sup>14</sup> Estimate based on Table 1, extending it to all LDCs and adjusting prices to 1974 US dollars.

**Sources of Power Loans**  
(in 1974 US \$ billions)

<b>Official sources</b>		14
Multilateral <sup>15</sup>	9	
Bilateral	5	
<b>Private sources</b>		24
Suppliers	8	
Others <sup>16</sup>	16	
<b>Gap<sup>17</sup></b>		5
<b>Total</b>		43

**TABLE 2: IBRD/IDA LENDING BY SECTOR, ACTUAL FY64-75**

	Volume of Lending		
	FY64-68 <sup>a</sup>	FY69-73 <sup>a</sup>	FY74-75
	%	%	%
Agriculture	13	20	25
Education	3	6	4
Population/Nutr.	—	1	1
Urbanization	—	—	2
Water Supply	2	4	3
<b>Total</b>	18	31	35
Communications	3	5	3
Power	29	18	13
Transportation	29	26	19
<b>Total</b>	61	49	35
DFCs & Industry	12	14	20
Tourism	—	1	1
<b>Total</b>	12	15	21
Non-Project <sup>b</sup>	9	5	9
<b>TOTAL</b>	100	100	100

<sup>a</sup> Excludes lending to past borrowers.

<sup>b</sup> Includes technical assistance projects not shown elsewhere.

<sup>15</sup> The World Bank has financed about 2/3 of past multilateral power lending; it is planning to lend about \$3 billion over the 5-year period FY74-78 or about \$6 billion over ten years.

<sup>16</sup> Mostly international (Eurocurrency) markets.

<sup>17</sup> To be covered by export earnings.

## SPECIFIC FINANCING OF NUCLEAR PLANTS

About \$12 billion of the total of \$45 billion required for power expansion in the next ten years are estimated to be needed for nuclear plants. Up till now no such plants have been financed by multilateral agencies, mainly because industrial nations have been all-too-willing to provide this assistance, many times under exceptionally generous terms, probably to assist its manufacturers in establishing a position in the nuclear power export market. This situation appears to have changed and financing, even if still readily available, is being offered under more conventional terms. The US Eximbank has played a major role in financing nuclear plant exports to industrial and developing countries, mainly because most (80%) of these plants have been supplied by US manufacturers. Canada, Fed. Rep. of Germany, France, UK and Sweden have also been in this market but on a much smaller scale. In the recent Copenhagen Conference on Nuclear Power Financing, the President of US Eximbank indicated that about 20% of this Bank lending would be allocated to nuclear plants (about \$8 billions of current dollars over a ten-year period). In addition, Eximbank would provide guarantees for an equal amount of private US bank loans. US sources alone, are therefore larger than total requirements for nuclear facilities in oil importing LDCs. Given the fact that most industrial countries are building nuclear plants domestically and that most OPEC members are unlikely to require loans for these purposes, it would seem reasonable to assume that a major proportion of Eximbank loans for nuclear plants will be available to LDCs. If we add the loans which will be available from other industrial nations, we have to conclude that no specific scarcity of funds for these purposes can be expected; and that there appears to be very little financial need for other than bilateral lending sources.

## THE WORLD BANK'S VIEWS

Regarding the Bank's views on the role of nuclear power in LDCs, we feel that, providing appropriate attention is paid to safety and safeguards requirements to eliminate or minimize the dangers of diversion of nuclear facilities or material to non-peaceful uses:

- (i) The advent of nuclear power in the developing world does not raise any new technical or economic issues for the Bank. Nuclear plants are simply another option to be considered when searching for the least cost solution to the problem of supplying the growing demands for electric power.
- (ii) A review of the technical and economic evolution which has taken place in the nuclear field in recent years suggests that a significant number of developing countries will wish to acquire nuclear plants, and may seek the Bank's assistance in this connection: nuclear plants are attractive economically; the technology has demonstrated reliability in commercial operation and satisfied generally-accepted criteria regarding safety and the protection of the environment and, nuclear plants can be procured through international competitive bidding, in a market which is broadening.
- (iii) Nuclear plants require much higher initial investments than equivalent conventional plants, particularly in foreign exchange. This financing has generally been readily available from bilateral sources, partly because supplier countries wanted to gain an early start in the export markets, and partly because such sales have been modest.

(iv) From the institutional viewpoint, we are concerned by the fact that the acquisition of nuclear plants will require a major transfer of technology which should be carefully handled. National agencies and utilities in developing countries will need to carry out very complex preparatory work if they are to make a successful entrance into the nuclear age. Some of these preparations require quite long lead times and substantial expenditures, particularly for feasibility and safety studies, as well as for training. Electric utilities in developing countries will need help in marshalling the resources needed to carry out these essential steps. Drawing upon their experience with other projects with complex technical and institutional implications, the World Bank and some regional development banks could help developing countries cope with this new technology by administering technical assistance programmes financed by the UNDP; by bringing adequate specialized assistance from the IAEA and the national atomic energy commissions of industrial countries to bear on the problems of creating a regulatory system; by helping in the selection of private engineering companies needed to carry out feasibility and safety studies; and by including the financing of such studies in prior loans for other power facilities. Finally, by limited participation in the financing of nuclear projects the Bank could help in attracting other foreign sources of official and specially private loans, ensure that projects are carried out under the careful supervision of competent architect-engineers, that equipment is supplied by qualified manufacturers, and that provisions are made for adequate training of local staff to ensure successful operation.

For some years already the Bank has encouraged and assisted power companies of LDCs in obtaining increasing proportions of their funds from other than World Bank sources of finance, official as well as private. A financial package is tentatively put together under the chairmanship and co-ordination of the Bank and with the participation of representatives of many likely supplier countries. International competitive bidding takes place among participants under agreed terms of joint or parallel financing. More arrangements of this type are foreseen, particularly for the financing of large projects, including, of course, nuclear plants.

## LOCAL CURRENCY REQUIREMENTS

We have noted earlier that the local and foreign exchange components of power expansion investments are about equal in the aggregate of LDCs. Foreign exchange needs can be drawn from world savings, including the large surpluses which will be accumulated by oil exporters over the next 5—10 years; but local funds (and eventual repayment of foreign loans) will have to come from domestic savings. We have seen that the increased requirements of energy and power will be forcing OECD and LDCs' economies to make significant and permanent shifts in the allocation of investments and savings. During the current transition period many public utilities including those of industrial countries are facing difficult financial situations and borrowing in domestic and foreign capital markets in a major and unprecedented manner. Even in much easier times, the Bank's experience with public utilities in developing nations has shown that their financing problems have been due more to inadequate domestic funding rather than any lack of foreign loans. One of the major weaknesses has been poor pricing policies, low and badly structured tariffs, and regulatory delays in granting appropriate adjustments for inflation and other causes. It will be beyond the scope of this article to deal with these matters in any detail, but we cannot avoid to point them out because they are at least as important as the subject of

foreign currency financing, while they fall entirely under the control of local public utilities management and the political authorities of developing nations.<sup>18</sup>

There are four major options for dealing with problems of this type: tariff increases, new government contributions, additional foreign and local borrowing – and, finally, delays and cuts in the investment programme. Neither of these is very attractive, for political and/or economic reasons. The optimal mix needs careful analysis regarding its short- and longer-term impact. In the absence of tariff increases or other Government assistance, most utilities have no other alternative than curtailing expansion. Industry reports from the US alone indicate that because of this type of financial difficulty power companies have delayed construction schedules for about 60 GW of plant or the equivalent of two years' growth. Similar or more serious problems may arise in LDCs.

*An analysis of the changing economic situation, entitled "A New Look at Nuclear Power Costs" will be prepared for the IAEA Bulletin Volume 18, Number 2, to be issued in April 1976.*

We know that there is no short- or medium-term shortage of energy in the world; what we face in this time horizon is only a major change in its current and foreseen price. To the extent that these price changes have increased world awareness regarding the longer-term problem of exhaustion of traditional sources of energy – particularly petroleum – they may not be viewed as totally negative. There are already technological options which offer a solution to the longer-term energy problem (e.g., breeder reactors); others may be developed with increased research allocations (e.g., solar power, fusion). As for the short and medium term, it would be more appropriate to speak not of an "energy crisis" but rather of a "financial crisis", as it is mainly through imaginative financing measures rather than technology that these problems can, and I hope will, be overcome.

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<sup>18</sup> At the present time public utilities in LDCs cover their domestic financial needs almost exclusively from internal cash generation (thereby the importance of appropriate tariffs) and various forms of government contributions (equity, grants, loans, etc.), as very few countries have private domestic capital markets to support medium- and long-term borrowing. This is a general weakness of developing nations which the Bank is helping to overcome through its affiliate the IFC.